



# **General Brown Central School District**

## **Jr./Sr. High School Renovations and Reconstruction Project Phase 1 A & B**

**17643 Cemetery Road, Dexter, New York 13634**

**BCA Project No. 2023-105**

**SED Control No. 22-04-01-04-0-001-010 Jr./Sr. High School  
22-04-01-04-0-001-011 Jr./Sr. High School  
22-04-01-04-7-016-001 Softball Dugout (1<sup>st</sup>)  
22-04-01-04-7-017-001 Softball Dugout (3<sup>rd</sup>)**

**Bernier, Carr & Associates, Engineers,  
Architects and Land Surveyors, P.C.**

**15 Public Square  
Watertown, New York 13601  
(315) 782-8130**



**Set # \_\_\_\_\_**

**VOLUME II OF III  
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The above signed Architect/Engineer certifies that, to the best of his knowledge, information and belief, the plans and specifications are in accordance with applicable requirements of the New York State Uniform Fire Prevention and Building Code, the State Energy Conservation Code, construction standards of the State Education Department, and Part 56 of Title 12 of the Official Compilation of Codes, Rules and Regulations of the State of New York.

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**SECTION 02 2600  
ASBESTOS, LEAD, AND PCB ASSESSMENT**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Asbestos, Lead, and PCB Investigation Report:
1. An Asbestos, Lead, PCB Investigation Report has been completed for this facility and a copy of the report are included herein for information only and is not a part of the Contract Documents.
    - a. In order to determine asbestos content, samples were analyzed by polarized light microscopy (PLM) and/or transmission electron microscopy (TEM).
    - b. The report is intended for the Architect's Design and estimate purposes only, and is included to provide bidders with the same information available to the Owner and Architect.
    - c. The Bulk Samples are representative of like materials in the Work area. All ACM, Lead Containing Materials, Lead Based Paint Surfaces or Pcb containing materials may not have been sampled.
  2. Additional copies of the report are available from the Owner.
- B. Use of data:
1. Locations of test locations are indicated on the building floor plan, which is included in the Report.
  2. Results of test are included hereafter for examination by the Contractor. This data is offered in good faith for the purpose of advising the Contractor of all information that is available.
  3. This Report is not, however, part of the Contract Documents, and the Owner and Architect do not guarantee the continuity of conditions indicated in the Test Report.
  4. Each Bidder, and the successful Bidder who will be awarded the Contract, will be responsible for any conclusions, and/or interpretations, drawn from those test data.
  5. The Report is available for Bidders' information, but is not a warranty of conditions of the existing building materials or finishes.
  6. Bidders should visit the site and acquaint themselves with existing conditions.
  7. Bidders who wish to conduct their own investigation and employ their own experts to assess the existing conditions are encouraged to do so. To secure permission for entering the project site to conduct such exploration, Bidders shall contact the Architect at (315) 782-8130 at least 5 working days in advance.

**PART 2 PRODUCTS - NOT USED.**

**PART 3 EXECUTION - NOT USED.**

**END OF SECTION**



# ATLANTIC TESTING LABORATORIES

*WBE certified company*

**Watertown**

26581 NYS Route 283  
Watertown, NY 13601  
315-786-7887 (T)  
atlantictesting.com

June 13, 2024

General Brown Central School District  
c/o BCA Architects and Engineers  
15 Public Square  
Watertown, New York 13601

Attn: Mari Cecil

Re: Limited Hazardous Materials Survey  
Phase 1 – Capital Project – Jr/Sr. High School  
Dexter, New York  
ATL Report No. WT6401CE-01-06-24

Enclosed is a copy of the Limited Hazardous Materials Survey report prepared for the referenced site. This project was completed in accordance with the scope of work outlined in our contract (ATL No. WT5998-216-04-24), dated April 2, 2024, and authorized by Christine Wheeler on April 5, 2024.

Please contact our office should you have any questions, or if we may be of further assistance.

Sincerely,  
*ATLANTIC TESTING LABORATORIES, Limited*

R. Daniel Faulkham  
Senior Project Manager

RDF/CJD/cd

Enclosures

**LIMITED HAZARDOUS MATERIALS SURVEY**

**PHASE 1 – CAPITAL PROJECT – JR./SR. HIGH SCHOOL  
17643 CEMETERY ROAD  
DEXTER, NEW YORK**



***WBE certified company***

**PREPARED BY:**

**ATLANTIC TESTING LABORATORIES, LIMITED  
26581 NYS Route 283  
Watertown, New York 13601**

**PREPARED FOR:**

**General Brown Central School District  
c/o BCA Architects and Engineers  
15 Public Square  
Watertown, New York 13601**

**ATL REPORT NO. WT6401CE-01-06-24**

**June 13, 2024**

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## **1.0 INTRODUCTION**

### **1.1 Purpose**

Atlantic Testing Laboratories, Limited (ATL) was retained by General Brown Central School District, to perform a limited hazardous materials survey of designated areas within General Brown Jr./Sr. High School. The limited survey was performed between April 19 and May 15, 2024. The purpose of the limited hazardous materials survey was to identify asbestos-containing materials (ACM), lead-containing paint, lead-containing caulk, and polychlorinated biphenyls (PCB)-containing caulk and mastic that are present on exposed surfaces within the subject areas, and may have a significant impact on planned renovation activities. The limited hazardous materials survey procedures and report format that follow are in general compliance with applicable local, state, and federal rules and regulations.

### **1.2 Project Team and Certifications**

Members of the ATL project team included R. Daniel Faulkham, Senior Project Manager; Brian Babcock, Environmental Specialist; Rick Kuhn, Senior Environmental Technician; and Chase Delisle, Senior Environmental Technician. Certifications of ATL's field survey team members and a copy of applicable company licenses maintained by ATL are included in Appendix A.

## **2.0 SCOPE OF WORK**

### **2.1 Project Description**

The project site is located at 1643 Cemetery Road, Dexter, Jefferson County, New York.

The intent of the limited hazardous materials survey was to identify suspect ACM, Lead-containing material, and PCB-containing caulk and mastic that are located within designated areas of the subject site and may be impacted during a proposed renovation project.

The limited hazardous materials survey was conducted for the subject areas, as directed by Meri Cecil, representing BCA Architects and Engineers on behalf of General Brown Central School District. The subject areas were not occupied at the time of the sampling event.

### **2.2 Inaccessible Areas**

The extent of inaccessible areas is dependent upon the building type, construction materials, history of renovations and repairs, and project scope. Concealed materials may exist in areas that are not readily exposed to view. Although this limited hazardous materials survey was performed to identify ACM, lead-containing materials, and PCB-containing caulk and mastic within the subject areas, potential hazardous materials may have escaped detection that could be encountered during future building demolition and/or renovation activities. Wall, ceiling, floor, roofing, and/or other component systems may contain concealed suspect ACM, lead-containing material, and/or PCB-containing caulk/mastic. If any suspect hazardous materials are encountered during renovation activities, the activities disturbing the suspect hazardous materials must stop and the material must be sampled and laboratory analyzed or otherwise managed in accordance with applicable regulations. Suspect materials within Room No. 610 above a hardpan ceiling were observe from a hatch but were not accessible.



## **2.3 Document Review**

Documents that were provided to ATL for review during the limited asbestos or hazardous materials survey included Capital Improvement Scoping Document and Marked-up drawings of the proposed renovation areas (provided within the written request for proposal dated March 18, 2024, and prepared by BCA Architects and Engineers).

## **2.4 Limitations**

This report has been prepared in accordance with the scope of work outlined in ATL's contract (ATL No. WT5998-216-04-24), dated April 2, 2024, and should not be used as abatement specifications or design documents. The findings, conclusions, and recommendations presented in this report are based on the field observations made by representatives of ATL and the information provided by representatives of General Brown Central School District.

Quantities and locations of sampled materials are approximate, and should be verified by the abatement contractor(s) prior to providing actual cost quotations and/or initiating abatement activities. Variations in reported quantities and locations for sampled materials, in addition to the discovery of suspect materials not identified in this report, is possible due to the presence of inaccessible areas, as described in Section 2.2 of this report.

The findings and opinions are relevant to the dates of our site work and should not be relied on to represent conditions at substantially later dates.

## **3.0 ASBESTOS**

### **3.1 Methodology**

A visual examination of the subject areas was conducted by an Asbestos Building Inspector to identify suspect ACM. Functional spaces were identified to assist while locating suspect ACM. A functional space is defined as a spatially distinct area within a building that contains identifiable populations of building occupants. A functional space may include a room, a group of rooms, or other defined area, and several functional spaces may comprise a single homogeneous sampling area. A homogeneous sampling area is defined as an area that is uniform by color, texture, construction/application, and general appearance. Each identified functional space was visually examined to determine the locations of suspect ACM. These materials were then delineated into homogeneous sampling areas.

Samples of each accessible homogeneous area were collected and placed in clean, labeled containers. The appropriate custody documentation was completed and the suspect ACM samples were submitted to AmeriSci New York (AmeriSci), located in New York, New York. The samples were laboratory analyzed by polarized light microscopy (PLM) and transmission electron microscopy (TEM) methodologies, as applicable. AmeriSci is a New York State Department of Health (NYSDOH) certified laboratory for PLM and TEM analysis under Environmental Laboratory Approval Program (ELAP) No. 11480. AmeriSci is also accredited by the National Institute of Standards and Technology (NIST), under the National Voluntary Laboratory Accreditation Program (NVLAP).

### **3.2 Regulatory Compliance**

In New York State, there are multiple regulatory agencies that have jurisdiction over ACM in buildings. Asbestos survey requirements are primarily regulated or specified by the New York

State Department of Labor (NYSDOL), the New York State Department of Health (NYSDOH), the Occupational Safety and Health Administration (OSHA), and the United States Environmental Protection Agency (EPA).

The NYSDOL established Part 56 of The Official Compilation of Codes, Rules, and Regulations (cited as 12 NYCRR, Part 56) to address the proper identification, handling, removal, and disposal of ACM in buildings. Asbestos survey requirements are specified in Subpart 56-5.1 “Asbestos Survey Requirements for Building/Structure Demolition, Renovation, Remodeling and Repair.” The NYSDOL also works in conjunction with the NYSDOH to establish and maintain asbestos safety training program requirements, and enforce personnel certifications and licensing protocol for asbestos contractors.

The OSHA defines requirements for asbestos surveys and identification of ACM and presumed asbestos-containing materials (PACM) in 29 CFR 1926.1101 (k) “Communication of Hazards.” Under this regulation, OSHA makes reference to conducting inspections according to 1926.1101 (k)(5)(ii)(B) and 1926.1101 (k)(5)(iii) or pursuant to the requirements of the Asbestos Hazard Emergency Response Act (AHERA) 40 CFR Part 763, Subpart E “Asbestos-Containing Materials in Schools.” The AHERA is regulated by the EPA, and applies to primary and secondary schools only; however, the procedures mandated under AHERA are generally considered the industry standards for surveys, as these are typically the most stringent.

### 3.3 Summary of Findings

A total of 135 homogeneous areas of suspect ACM were identified during the visual examination, from which 296 bulk samples were collected and subsequently submitted to a NYSDOH approved laboratory for analysis. Approximate sample locations are depicted on the Sample Location Plans, contained in Appendix B. A copy of laboratory reports and sample custody documentation are contained in Appendix C. Table D-I contained in Appendix D, provides a summary of the identified suspect ACM and associated analytical results.

The EPA, NYSDOL, and other regulatory agencies define ACM as any material containing greater than 1% of asbestos. Materials listed in bold font in Table D-I of Appendix D were determined or assumed to be ACM.

Materials containing trace asbestos (i.e., less than 1%) are not considered ACM; however, the OSHA recognizes materials that contain trace amounts of asbestos, and requires these materials be handled in accordance with their standard interpretation letter titled “Requirements for demolition operations involving material containing <1% asbestos”, dated August 13, 1999. As shown in Table D-I of Appendix D, two materials were determined to contain trace amounts of asbestos.

Other materials that were observed, but are not considered suspect ACM, include the following;

<ul style="list-style-type: none"><li>• Glass</li></ul>	<ul style="list-style-type: none"><li>• Nylon-Coated Wire Jacket</li></ul>
<ul style="list-style-type: none"><li>• Wood</li></ul>	<ul style="list-style-type: none"><li>• Metal</li></ul>
<ul style="list-style-type: none"><li>• Ceramic Tile</li></ul>	<ul style="list-style-type: none"><li>• Doors</li></ul>

## **4.0 LEAD-CONTAINING PAINT**

### **4.1 Methodology**

A visual examination of the subject building was conducted by a Lead Inspector to identify visible and accessible painted surfaces. The painted surfaces were categorized into homogeneous areas from which tests could be conducted. Each homogeneous area was tested using a Viken Detection Pb200i XRF Analyzer. This equipment provides instantaneous measurements for lead concentration in mg/cm<sup>2</sup>, and displays readings that are positive or negative indications for lead-containing material. Calibration checks for the XRF equipment were performed in accordance with the manufacturer's recommendations.

### **4.2 Regulatory Compliance**

Although New York State has established Title X, Part 67 of The Official Compilation of Codes, Rules, and Regulations (cited as NYCRR Title X, Part 67) for "Lead Poisoning Prevention and Control," lead-based paint (LBP) inspections and risk assessments are generally subject to the requirements of federal regulations. The United States Department of Housing and Urban Development (HUD), EPA, and OSHA are the primary federal regulatory agencies responsible for the establishment and enforcement of such regulations. On a state level, the NYSDOH does require laboratories to be certified to perform lead analysis under the ELAP.

The HUD "Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing" include details pertaining to sampling and analysis of suspect LBP, in addition to the identification and control of LBP hazards. The HUD guidelines pertain to federally owned or assisted housing; however, these are commonly referenced and made mandatory by other regulatory agencies. The EPA requirements for LBP activities, specified in 40 CFR Part 745, apply to targeted housing and child-occupied facilities, and are similar to HUD guideline requirements.

The OSHA Construction Standard for Lead (29 CFR 1926.62) applies to employees of an employer who may or will be exposed to occupational levels of lead. OSHA requires employees to maintain, at a minimum, awareness, respiratory protection, and hazard communication training.

### **4.3 Summary of Findings**

A total of 230 locations were tested using the XRF spectrometer. Approximate sample locations are depicted on the Sample Location Plan/Plans, contained in Appendix B. A summary of the XRF results and calibration checks are provided in Appendix E. The XRF results provided in Table E-I of Appendix E represent painted surfaces that were determined to be LBP, per HUD criteria. Table E-II of Appendix E identifies painted surfaces that contain detectable concentrations of lead, but are not considered LBP, as compared to HUD criteria. Painted surfaces that did not contain lead at a concentration above the method detection limits are summarized in Table E-III of Appendix E. Calibration checks for the XRF spectrometer are provided in Table E-IV of Appendix E.

## **5.0 LEAD-CONTAINING CAULK**

## **5.1 Methodology**

A visual examination of the designated areas of the subject building were conducted by the field survey team to identify suspect lead-containing caulk. Functional space identifications that were assigned, as described in Section 3.1 of this report, were utilized to assist the survey team while locating suspect lead-containing caulk. Potential lead-containing caulk materials were classified into homogeneous areas. A homogeneous area is defined as similar paint color schemes, building components, and substrates the caulk is applied to. Samples of each accessible homogeneous area were collected and placed in clean, labeled containers. The appropriate custody documentation was completed and the suspect lead-containing caulk samples were submitted to Alpha Analytical, located in Westborough, Massachusetts. The samples were laboratory analyzed for lead, in accordance with EPA Method 6010.

## **5.2 Regulatory Compliance**

The OSHA Construction Standard for Lead (29 CFR 1926.62) applies to employees of an employer who may or will be exposed to occupational levels of lead. OSHA requires employees to maintain, at a minimum, awareness, respiratory protection, and hazard communication training.

## **5.3 Summary of Findings**

The suspect lead-containing caulk identified during the visual examination included 11 homogeneous materials, from which a total of 11 caulk samples were collected and subsequently submitted to a NYSDOH approved laboratory for analysis. Approximate sample locations are depicted on the Sample Location Plans, contained in Appendix B. A copy of laboratory reports and associated sample custody documentation are contained in Appendix C. Table D-II of Appendix D provides a summary of the identified suspect lead-containing caulks and associated analytical results.

# **6.0 POLYCHLORINATED BIPHENYLS**

## **6.1 Methodology**

A visual examination of the subject areas was conducted by an Environmental Scientist to identify suspect PCB-containing caulk/sealant and mastic. The identified materials were classified into homogeneous sampling areas. A homogeneous sampling area is defined as an area that is uniform by color, texture, construction/application, and general appearance.

Samples of each accessible homogeneous area were collected and placed in clean, labeled containers. The appropriate custody documentation was completed and the suspect PCB-containing caulk samples were submitted to Pace - Alpha Analytical, located in Westborough, Massachusetts, a New York State Department of Health (NYSDOH) approved laboratory (ELAP No. 11148). The samples were laboratory analyzed for PCB, in accordance with EPA Method 8082.

## **6.2 Regulatory Compliance**

PCB are primarily regulated by the EPA. The EPA has issued several documents and enforces federal mandated laws and regulations governing the usage, management, and disposal of PCB-containing materials. State and local regulatory agencies have also enacted laws and regulations concerning PCB materials, many of which are consistent with the regulations set forth by the EPA. In accordance with the regulations and guidelines presented in 40 CFR Parts 750 and 761

“Disposal of Polychlorinated Biphenyls; Final Rule,” PCB wastes are generally regulated for disposal under the Toxic Substances Control Act (TSCA) if the concentrations are 50 ppm or greater. Per New York State Department of Environmental Conservation (NYSDEC) regulations, material containing PCB at 50 ppm or greater is regulated hazardous waste.

### 6.3 Summary of Findings

A total of 19 homogeneous suspect PCB-containing caulk/sealant and mastic materials were identified during the visual examination, from which 19 bulk samples were collected and subsequently submitted to a NYSDOH approved laboratory for analysis. Approximate sample locations are depicted on the Sample Location Plans, contained in Appendix B. A copy of laboratory reports and associated sample custody documentation are contained in Appendix C. Table D-III, of Appendix D, provides a summary of the identified suspect PCB-containing materials and associated analytical results.

PCB-containing caulk/sealant and mastic is regulated under the TSCA as an “unauthorized use,” and is considered a regulated hazardous material at concentrations equal to or greater than 50 ppm. Samples listed in bold font in Table D-III of Appendix D, exceeded 50 ppm total PCB.

## 7.0 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are prepared from ATL’s understanding that the subject building may be subject to renovation projects. Should the management of the building areas change, it is recommended that the findings be revisited to reflect appropriate operations and management practices for hazardous materials containing items.

### 7.1 General

1. Concealed regulated hazardous materials may exist at the site that could be encountered during future building renovation activities. Wall, ceiling, floor, roofing, and/or other component systems may contain concealed suspect hazardous materials. If any suspect hazardous materials or hazardous materials-containing items are encountered during renovation activities, the activities disturbing the suspect material must stop and the material must be sampled and laboratory analyzed or otherwise managed pursuant to in accordance with applicable regulations.

### 7.2 Asbestos-Containing Materials

1. The materials listed in bold in Table D-I of Appendix D were determined or assumed to be ACM. The referenced table also shows materials that contain trace concentrations of asbestos and are regulated under OSHA.
2. **White Pipe TSI Debris was determined to be an incidental disturbance and will need to have an incidental disturbance assessment performed prior to any abatement and/or renovation activities.**
3. Subpart 56-5(h) of 12 NYCRR Part 56 requires that no demolition, renovation, remodeling, or repair work be commenced by any owner or the owner’s agent prior to the completion of asbestos abatement. Asbestos abatement must be performed by an asbestos abatement contractor that maintains a current asbestos handling license, and employs NYSDOL certified

asbestos handlers and supervisors. It is recommended that a 12 NYCRR 56 certified Project Monitor oversee abatement activities.

4. Subpart 56-5(g) of 12 NYCRR Part 56 specifies requirements for transmittal of asbestos survey information by the owner or owner's agent. One copy of the asbestos survey report shall be sent to the local government entity charged with issuing a permit for such demolition, renovation, remodeling, or repair work under applicable State or local laws. If controlled demolition or pre-demolition activities will be performed, one copy of the asbestos survey report shall be submitted to the appropriate Asbestos Control Bureau district office. One copy of the asbestos survey report must be kept on the construction site throughout the duration of the asbestos project and any associated demolition, renovation, remodeling, or repair project.

### **7.3 Lead-Containing Materials**

1. The caulk materials listed in bold in Table D-II of Appendix D were determined to be contain lead and are regulated under OSHA.
2. The materials listed in Table E-I of Appendix E were determined to be LBP per HUD criteria. Table E-II of Appendix E lists materials that are not considered LBP per HUD criteria, but contain detectable concentrations of lead and are regulated under OSHA.
3. Identified caulk or paint with a detectable concentration of lead should be managed in accordance with applicable EPA and OSHA requirements prior to or during demolition, renovation, remodeling, or repair work.
4. Renovation contractors are required to conduct exposure monitoring or use historical objective data to ensure that employee exposures do not exceed the action level of  $30 \mu\text{g}/\text{m}^3$ .

### **7.4 PCB-Containing Materials**

1. The caulk materials listed in bold in Table D-III of Appendix D contained PCB concentrations exceeding 50 ppm, and are therefore considered hazardous materials/hazardous waste.
2. The EPA considers caulk with a PCB concentration greater than or equal to 50 ppm as an "unauthorized use", and requires that these materials be properly removed and disposed of. Materials that contain PCB concentration less than 50 ppm may have specific handling, management, and disposal criteria to limit exposure and environmental impacts.
3. In addition to assessment and sampling of caulk materials for PCB, the New York State Education Department (NYSED) "Protocol for Addressing PCB in Caulking Materials in School Buildings" provides recommendation for testing of surface soil to assess the potential for residual PCB contamination. Such testing is recommended for buildings constructed or renovated between 1950 and 1977, which have undergone further renovation after 1977. Based on the construction vintage(s) of the building areas scheduled for renovation, and/or the results of the PCB analysis for caulk samples collected during this project, an assessment of surface soil in the areas of work should be considered.

**APPENDIX A**  
**LICENSES AND CERTIFICATIONS**

## **Asbestos Certificate Code Classifications**

The following letter codes shown on the enclosed asbestos certificates represent the corresponding asbestos classifications:

- |                                    |                                      |
|------------------------------------|--------------------------------------|
| <b>A</b> - Asbestos Handler        | <b>F</b> - Operations & Maintenance  |
| <b>B</b> - Allied Trades           | <b>G</b> - Asbestos Supervisor       |
| <b>C</b> - Air Sampling Technician | <b>H</b> - Asbestos Project Monitor  |
| <b>D</b> - Building Inspector      | <b>I</b> - Asbestos Project Designer |
| <b>E</b> - Management Planner      |                                      |



NEW YORK STATE DEPARTMENT OF HEALTH  
WADSWORTH CENTER



Expires 12:01 AM April 01, 2025  
Issued April 01, 2024

**CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE**

*Issued in accordance with and pursuant to section 502 Public Health Law of New York State*

**MS. KAROL H. LU**  
**AMERICA SCIENCE TEAM NEW YORK, INC**  
**117 EAST 30TH ST**  
**NEW YORK, NY 10016**

*NY Lab Id No: 11480*

*is hereby APPROVED as an Environmental Laboratory for the category*  
**ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE**  
*All approved subcategories and/or analytes are listed below:*

**Miscellaneous**

Asbestos in Friable Material	Item 198.1 of Manual EPA 600/M4/82/020
Asbestos in Non-Friable Material-PLM	Item 198.6 of Manual (NOB by PLM)
Asbestos in Non-Friable Material-TEM	Item 198.4 of Manual

**Serial No.: 68795**

Property of the New York State Department of Health. Certificates are valid only at the address shown and must be conspicuously posted by the laboratory. Continued accreditation depends on the laboratory's successful ongoing participation in the Program. Consumers may verify a laboratory's accreditation status online at <https://apps.health.ny.gov/pubdoh/applinks/wc/elappublicweb/>, by phone (518) 485-5570 or by email to [elap@health.ny.gov](mailto:elap@health.ny.gov).

NEW YORK STATE DEPARTMENT OF HEALTH  
WADSWORTH CENTER



Expires 12:01 AM April 01, 2025  
Issued April 01, 2024

**CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE**

*Issued in accordance with and pursuant to section 502 Public Health Law of New York State*

MR. MARCO SOARES  
ALPHA ANALYTICAL LLC  
8 WALKUP DR  
WESTBOROUGH, MA 01581-1019

NY Lab Id No: 11148

*is hereby APPROVED as an Environmental Laboratory in conformance with the  
National Environmental Laboratory Accreditation Conference Standards (2016) for the category  
ENVIRONMENTAL ANALYSES NON POTABLE WATER  
All approved analytes are listed below:*

**Phthalate Esters**

Di-n-octyl phthalate EPA 8270E

**Polychlorinated Biphenyls**

Aroclor 1016 (PCB-1016) EPA 8082A  
EPA 608.3

Aroclor 1221 (PCB-1221) EPA 8082A  
EPA 608.3

Aroclor 1232 (PCB-1232) EPA 8082A  
EPA 608.3

Aroclor 1242 (PCB-1242) EPA 8082A  
EPA 608.3

Aroclor 1248 (PCB-1248) EPA 8082A  
EPA 608.3

Aroclor 1254 (PCB-1254) EPA 8082A  
EPA 608.3

Aroclor 1260 (PCB-1260) EPA 8082A  
EPA 608.3

Aroclor 1262 (PCB-1262) EPA 8082A

Aroclor 1268 (PCB-1268) EPA 8082A

**Polynuclear Aromatics**

Acenaphthene EPA 625.1  
EPA 8270E

Acenaphthylene EPA 625.1  
EPA 8270E

Anthracene EPA 625.1  
EPA 8270E

Benzo(a)anthracene EPA 625.1

Serial No.: 68690

Property of the New York State Department of Health. Certificates are valid only at the address shown and must be conspicuously posted by the laboratory. Continued accreditation depends on the laboratory's successful ongoing participation in the Program. Consumers may verify a laboratory's accreditation status online at <https://apps.health.ny.gov/pubdoh/applinks/wc/elappublicweb/>, by phone (518) 485-5570 or by email to [elap@health.ny.gov](mailto:elap@health.ny.gov).



NEW YORK STATE DEPARTMENT OF HEALTH  
WADSWORTH CENTER



Expires 12:01 AM April 01, 2025  
Issued April 01, 2024

**CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE**

*Issued in accordance with and pursuant to section 502 Public Health Law of New York State*

MR. SUDIP PRADHAN  
PACE ANALYTICAL SERVICES, LLC - FAIRFIELD  
1275 BLOOMFIELD AVE - BLDG 6  
FAIRFIELD, NJ 07004

NY Lab Id No: 11634

*is hereby APPROVED as an Environmental Laboratory in conformance with the  
National Environmental Laboratory Accreditation Conference Standards (2016) for the category  
ENVIRONMENTAL ANALYSES POTABLE WATER  
All approved analytes are listed below:*

**Bacteriology**

Coliform, Total / E. coli (Qualitative) SM 20, 21-23 9223B (-04) (Colilert)  
Heterotrophic Plate Count SM 20, 21-23 9215B (-04)

**Disinfection By-products**

Bromochloroacetic acid EPA 552.2  
Dibromoacetic acid EPA 552.2  
Dichloroacetic acid EPA 552.2  
Monobromoacetic acid EPA 552.2  
Monochloroacetic acid EPA 552.2  
Trichloroacetic acid EPA 552.2

**Fuel Additives**

Methyl tert-butyl ether EPA 524.2  
Naphthalene EPA 524.2

**Metals I**

Arsenic, Total EPA 200.8 Rev. 5.4  
Barium, Total EPA 200.8 Rev. 5.4  
Cadmium, Total EPA 200.8 Rev. 5.4  
Chromium, Total EPA 200.8 Rev. 5.4  
Copper, Total EPA 200.8 Rev. 5.4  
Iron, Total EPA 200.7 Rev. 4.4  
Lead, Total EPA 200.8 Rev. 5.4  
Manganese, Total EPA 200.8 Rev. 5.4  
Mercury, Total EPA 245.1 Rev. 3.0  
Selenium, Total EPA 200.8 Rev. 5.4  
Silver, Total EPA 200.8 Rev. 5.4  
Zinc, Total EPA 200.8 Rev. 5.4



Serial No.: 68856

Property of the New York State Department of Health. Certificates are valid only at the address shown and must be conspicuously posted by the laboratory. Continued accreditation depends on the laboratory's successful ongoing participation in the Program. Consumers may verify a laboratory's accreditation status online at <https://apps.health.ny.gov/pubdoh/applinks/wc/elappublicweb/>, by phone (518) 485-5570 or by email to [elap@health.ny.gov](mailto:elap@health.ny.gov).



**WE ARE YOUR DOL**



**Department  
of Labor**

DIVISION OF SAFETY & HEALTH LICENSE AND CERTIFICATE UNIT, STATE OFFICE CAMPUS, BLDG. 12, ALBANY, NY 12226

# ASBESTOS HANDLING LICENSE

Atlantic Testing Laboratories, Limited  
P.O. Box 29, Canton, NY, 13617

License Number: 29276

License Class: RESTRICTED

Date of Issue: 10/02/2023

Expiration Date: 11/30/2024

Duly Authorized Representative: Marijean B Remington

This license has been issued in accordance with applicable provisions of Article 30 of the Labor Law of New York State and of the New York State Codes, Rules and Regulations (12 NYCRR Part 56). It is subject to suspension or revocation for a (1) serious violation of state, federal or local laws with regard to the conduct of an asbestos project, or (2) demonstrated lack of responsibility in the conduct of any job involving asbestos or asbestos material.

This license is valid only for the contractor named above and this license or a photocopy must be prominently displayed at the asbestos project worksite. This license verifies that all persons employed by the licensee on an asbestos project in New York State have been issued an Asbestos Certificate, appropriate for the type of work they perform, by the New York State Department of Labor.

A handwritten signature in black ink, appearing to read "Amy Phillips".

Amy Phillips, Director  
For the Commissioner of Labor

EXCELSIOR

STATE OF NEW YORK - DEPARTMENT OF LABOR  
ASBESTOS CERTIFICATE



**BRIAN BABCOCK**  
CLASS(EXPIRES)  
C ATEC (09/24) D INSP (09/24)  
H PM (09/24)

CERT# 23-61RLS-SHAB  
DMV# 162012578

MUST BE CARRIED ON ASBESTOS PROJECTS

XXXXXXXXXXXXXXXXXXXX



**New York State Department of Health Certificate of Asbestos Safety Training**  
 This form is the official record of successful completion of a New York State accredited asbestos safety training course.

Certificate No. **934248**

**I - To be completed by Trainee**

Name of Trainee (print) <u>Brian Babrook</u>	NYS Dept. of Motor Vehicles ID (DMV ID) <sup>1</sup> <u>162 012 578</u>	
Signature of Trainee <u>[Signature]</u>	Telephone Number	Date of Birth <sup>1</sup> <u>9/22/67</u>
Address <u>21201 Weaver Rd Watertown NY 13601</u>		
(Street or PO Box)	(City)	(State) (Zip Code)

**II - To be completed by Training Sponsor**

Provider's Name <b>EAST Centers of NY</b>	Telephone Number <u>585-435-1881</u>
Address <u>1555 Lyell Ave, Suite 122 Rochester, NY 14606</u>	Course Location: <u>Weberia</u>
Zip Code	

Course Title: Inspector  Initial  Refresher  DOH Equivalency<sup>2</sup> NYS DOH use only

Training Language:  English  Other: \_\_\_\_\_ Exam Grade/Date: 96/8-8-23

Dates of Training: From: 8/8/23 To: 8/8/23 Expires: 8/8/24

I certify that the asbestos safety training course given on the above date complied with both 10 NYCRR Part 73 and TSCA Title II, was consistent with the curriculum and instructors approved by the New York State Department of Health, and the trainee receiving this certificate completed the training course and successfully passed the examination.

Training Director<sup>2</sup>: Kevin Hurton (Print) [Signature] (Signature) **STUDENT**

**New York State Department of Health Certificate of Asbestos Safety Training**  
 This form is the official record of successful completion of a New York State accredited asbestos safety training course.

Certificate No. **935896**

**I - To be completed by Trainee**

Name of Trainee (print) <u>BRIAN BABROOK</u>	NYS Dept. of Motor Vehicles ID (DMV ID) <sup>1</sup> <u>162 012 578</u>	
Signature of Trainee <u>[Signature]</u>	Telephone Number <u>315 767 4315</u>	Date of Birth <sup>1</sup> <u>09/22/67</u>
Address <u>21201 WEAVER RD. WATERTOWN NY 13601</u>		
(Street or PO Box)	(City)	(State) (Zip Code)

**II - To be completed by Training Sponsor**

Provider's Name <u>Atlantic Testing Laboratories, Inc.</u>	Telephone Number <u>315 386 4578</u>
Address <u>8931 41st Hill Center, New York</u>	Course Location: <u>6085 Cedar Street Road, Suite 500 Syracuse, New York 13206</u>
Zip Code <u>13617</u>	

Course Title: Project Monitor  Initial  Refresher  DOH Equivalency<sup>2</sup> NYS DOH use only

Training Language:  English  Other: \_\_\_\_\_ Exam Grade/Date: 96 01/23

Dates of Training: From: 6/15/23 To: 6/15/23 Expires: 6/15/24

I certify that the asbestos safety training course given on the above date complied with both 10 NYCRR Part 73 and TSCA Title II, was consistent with the curriculum and instructors approved by the New York State Department of Health, and the trainee receiving this certificate completed the training course and successfully passed the examination.

Training Director<sup>2</sup>: Joseph D. Grabowski (Print) [Signature] (Signature) **STUDENT**

STATE OF NEW YORK - DEPARTMENT OF LABOR  
ASBESTOS CERTIFICATE



**CHASE R DELISLE**

CLASS(EXPIRES)

D INSP (06/25) C ATEC (06/25)

H PM (06/25)

CERT# 24-6LS0Q-SHAB  
DMV# 727884076

MUST BE CARRIED ON ASBESTOS PROJECTS

XXXXXXXXXX 11 11XXXXXXXXXX 11 11

**New York State Department of Health Certificate of Asbestos Safety Training**  
 This form is the official record of successful completion of a New York State accredited asbestos safety training course.

Certificate No. **951156**

**I - To be completed by Trainee**

Name of Trainee (print) <u>Chase Delisle</u>	NYS Depart. of Motor Vehicles ID (DMV ID) <sup>1</sup> <u>727 884 076</u>	
Signature of Trainee <u>Chase Delisle</u>	Telephone Number <u>(315) 250-1632</u>	Date of Birth <sup>1</sup> <u>06/05/1999</u>
Address <u>2490 County Rt. 38 Brasher Falls NY 13613</u>		
(Street or PO Box)	(City)	(State) (Zip Code)

**II - To be completed by Training Sponsor**

Provider's Name <u>Atlantic Training Laboratories, Limited</u>	Telephone Number <u>315-386-4578</u>
Address <u>6931 U.S. Highway 11 Canton, New York</u>	Course <u>ATG Cancer Office</u>
Zip Code <u>13617</u>	Location: <u>6931 U.S. Highway 11 Canton, New York 13617</u>

Course Title: Inspector       Initial     Refresher     DOH Equivalency<sup>2</sup> NYS DOH use only

Training Language:  English     Other: \_\_\_\_\_ Exam Grade/Date: 92

Dates of Training: From: 02/26/24 To: 02/26/24 Expires: 02/26/25

I certify that the asbestos safety training course given on the above date complied with both 10 NYCRR Part 73 and TSCA Title II, was consistent with the curriculum and instructors approved by the New York State Department of Health, and the trainee receiving this certificate completed the training course and successfully passed the examination.

Training Director<sup>2</sup>: Joseph D. Grabowski      [Signature]  
 (Print) (Signature)



STATE OF NEW YORK - DEPARTMENT OF LABOR  
ASBESTOS CERTIFICATE



**RICHARD KUHN**

CLASS(EXPIRES)

C ATEC (05/25) D INSP (05/25)

H PM (05/25)

CERT# 24-6ZJ9N-SHAB  
DMV# 656948643

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**New York State Department of Health Certificate of Asbestos Safety Training**  
 This form is the official record of successful completion of a New York State accredited asbestos safety training course.

Certificate No. **951154**

**I - To be completed by Trainee**

Name of Trainee (print)		NYS Depart. of Motor Vehicles ID (DMV ID) <sup>1</sup>	
Richard Kuhn		65-6 948 643	
Signature of Trainee	Telephone Number	Date of Birth <sup>1</sup>	
<i>Richard Kuhn</i>	315 608 0800	5/25/1964	

**II - To be completed by Training Sponsor**

Provider's Name	Telephone Number
Atlantic Testing Laboratories, Limited	315-386-4578
Address	Course
6431 U.S. Highway 11 Canton, New York	ATL Canton Office
Zip Code	Location:
13617	6431 U.S. Highway 11 Canton, New York 13617

Course Title: Instructor  Initial  Refresher  DOH Equivalency<sup>2</sup>

Training Language:  English  Other: \_\_\_\_\_ Exam Grade/Date: 92

Dates of Training: From: 02/26/24 To: 02/26/24 Expires: 02/26/25

I certify that the asbestos safety training course given on the above date complied with both 10 NYCRR Part 73 and TSCA Title II, was consistent with the curriculum and instructors approved by the New York State Department of Health, and the trainee receiving this certificate completed the training course and successfully passed the examination.

Training Director<sup>2</sup>: Joseph D. Grabowski *John T. R.*



**APPENDIX B**  
**SAMPLE LOCATION PLANS**

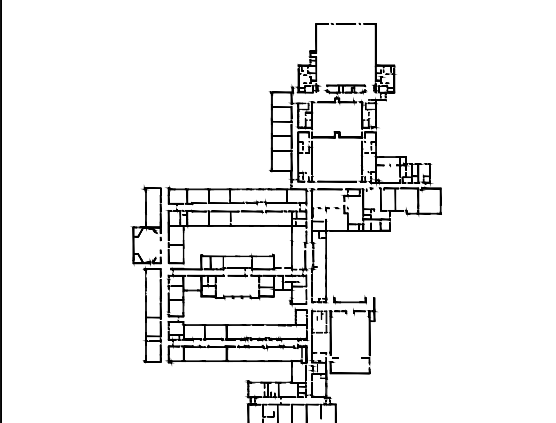
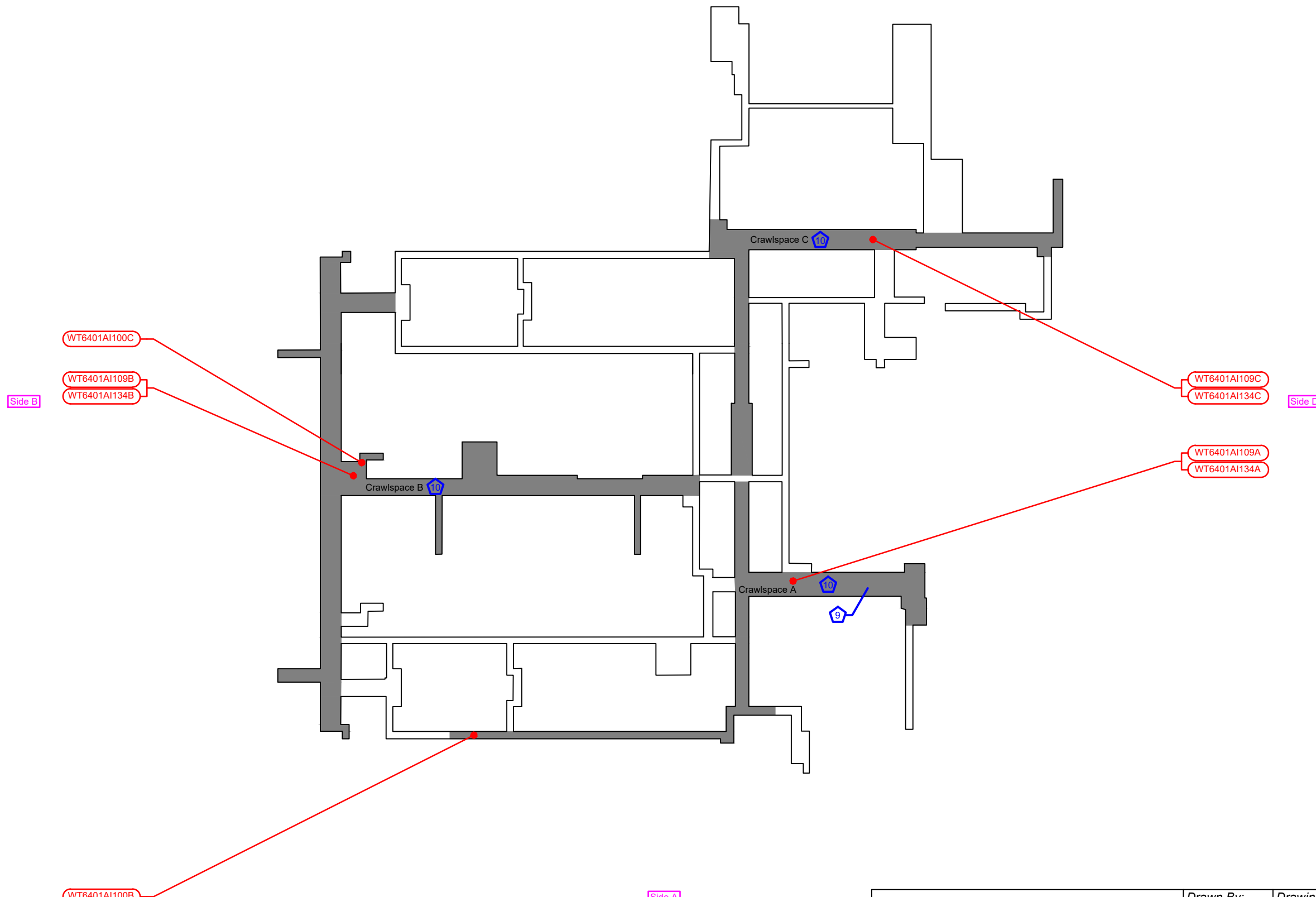
Side C

**LEGEND :**

- WT6401AI01A Suspect Asbestos Sample ID and Approximate Location
- WT6401PI01 Suspect PCB-Containing Caulk Sample ID and Approximate Location
- WT6401LI01 Suspect Lead-Containing Caulk Sample ID and Approximate Location
- WT6401LX01 Suspect Lead-Based XRF Sample ID and Approximate Location
- Side A Side Designation for XRF Sampling

**ASBESTOS KEYNOTES :**

- 9 White Pipe TSI Debris
- 10 Black Tar Associated with White Pipe TSI Jacket



**Key Plan**  
Scale: NTS

**Crawlspace Sample Location Plan**  
Scale: NTS

<b>SAMPLE LOCATION PLAN</b>	Drawn By: JDF	Drawing: 1 of 19	Scale: As Noted	Project No.: WT6401	Date: June 2024
Phase 1 - Capital Project - Jr./Sr. High School General Brown CSD Dexter, New York	<b>ATLANTIC TESTING LABORATORIES, Limited</b> <small>Albany, NY   Binghamton, NY   Buffalo, NY   Canton, NY   Elmira, NY   Plattsburgh, NY Poughkeepsie, NY   Rochester, NY   Syracuse, NY   Utica, NY   Watertown, NY</small>		<b>WBE certified company</b> <small>www.AtlanticTesting.com</small>		

Side C

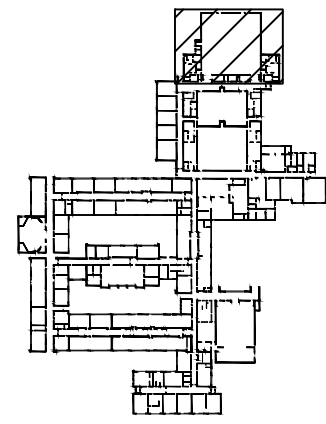
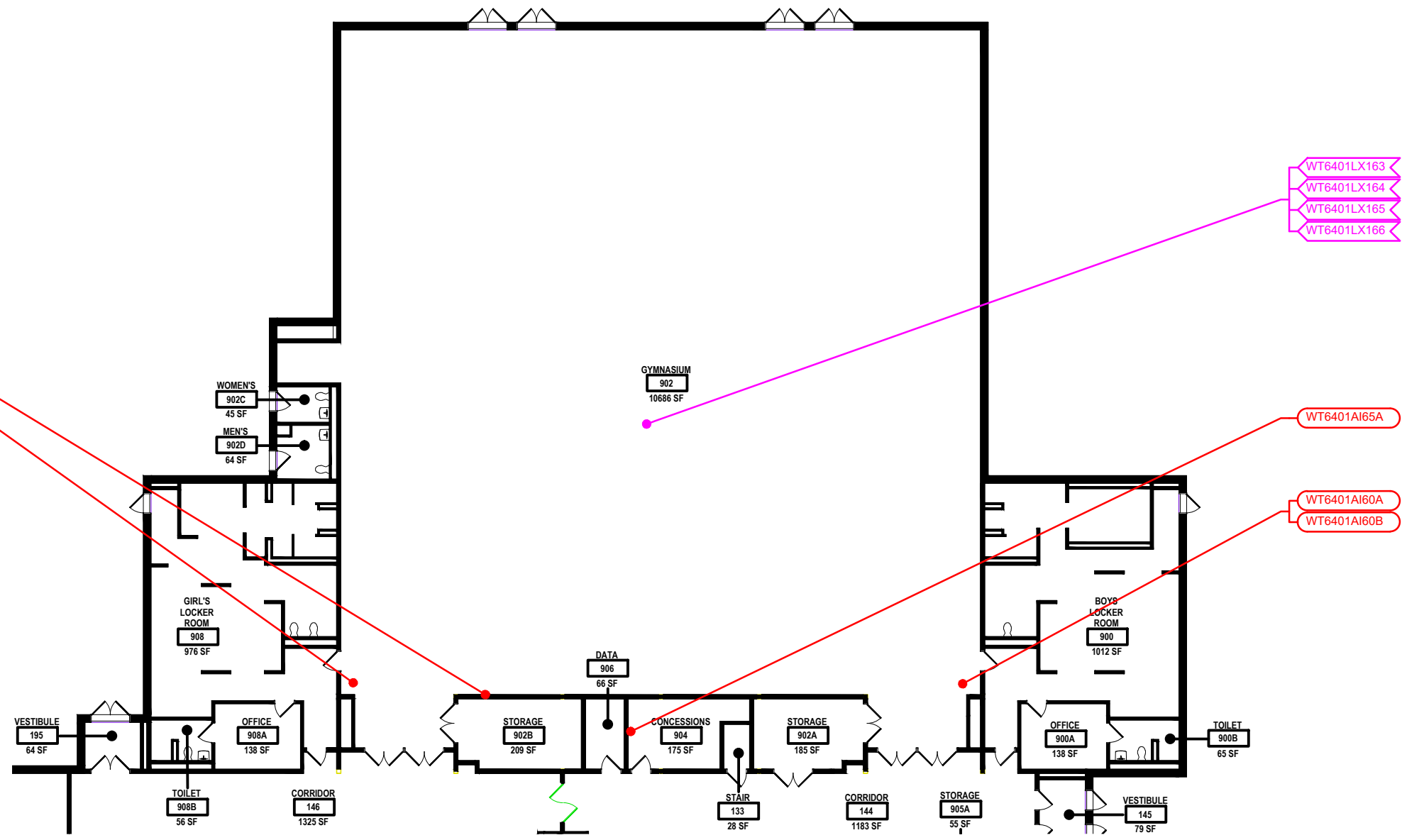
**LEGEND :**

- WT6401AI01A Suspect Asbestos Sample ID and Approximate Location
- WT6401PI01 Suspect PCB-Containing Caulk Sample ID and Approximate Location
- WT6401LI01 Suspect Lead-Containing Caulk Sample ID and Approximate Location
- WT6401LX01 Suspect Lead-Based XRF Sample ID and Approximate Location
- Side A Side Designation for XRF Sampling

**ASBESTOS KEYNOTES :**

Side B

Side D



**Key Plan**  
Scale: NTS

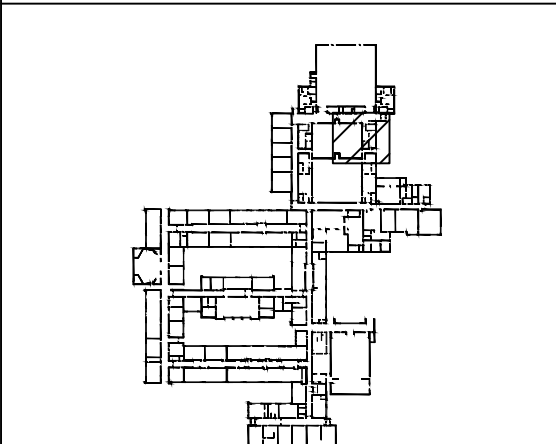
Side A

**Partial First Floor Sample Location Plan**  
Scale: NTS

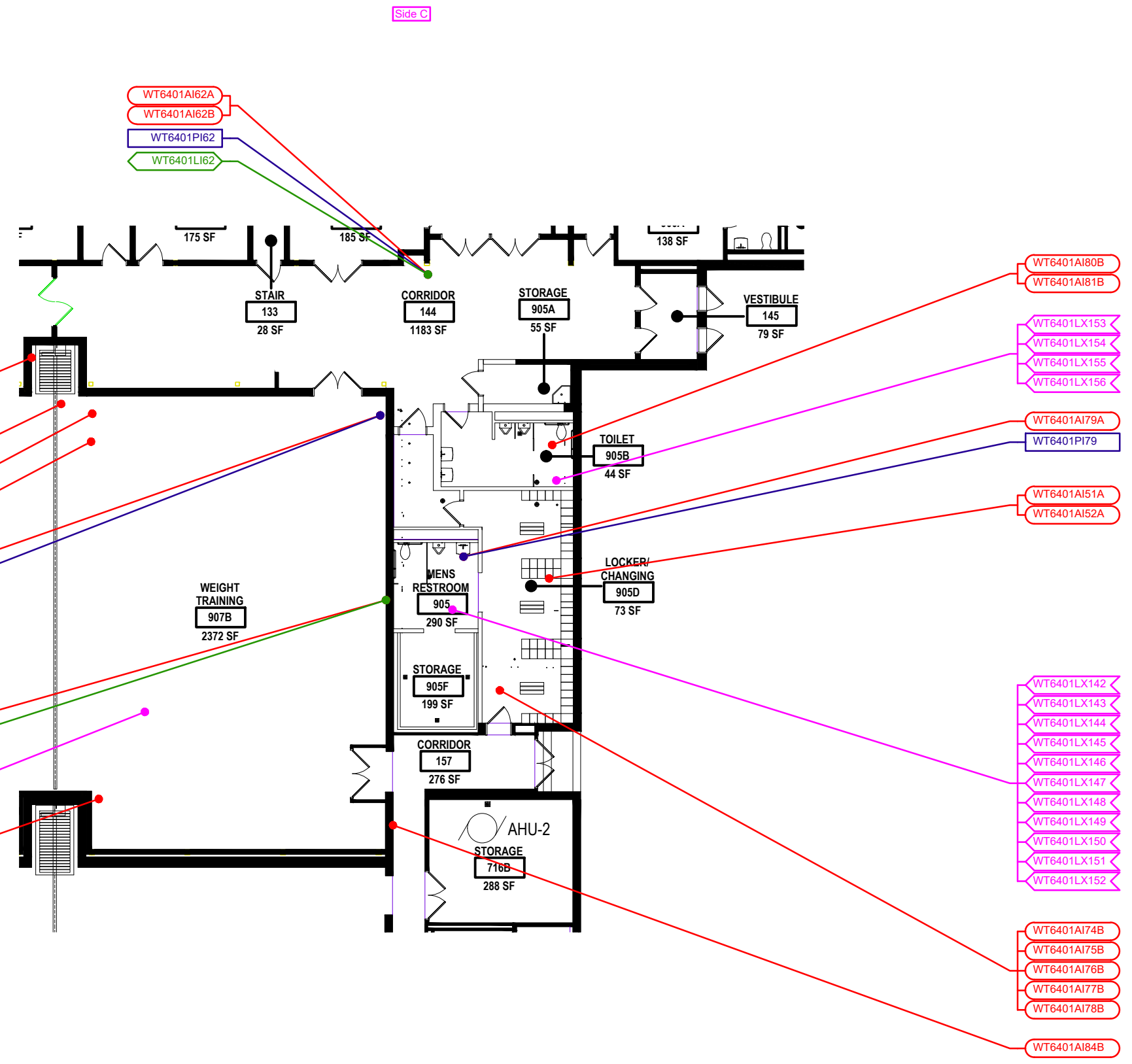
<b>SAMPLE LOCATION PLAN</b>	Drawn By: JDF	Drawing: 2 of 19	Scale: As Noted	Project No.: WT6401	Date: June 2024
Phase 1 - Capital Project - Jr./Sr. High School General Brown CSD Dexter, New York		<b>ATLANTIC TESTING LABORATORIES, Limited</b> <small>Albany, NY   Binghamton, NY   Buffalo, NY   Canton, NY   Elmira, NY   Plattsburgh, NY Poughkeepsie, NY   Rochester, NY   Syracuse, NY   Utica, NY   Watertown, NY</small>		<b>WBE certified company</b> <small>www.AtlanticTesting.com</small>	

- LEGEND :**
- WT6401AI01A Suspect Asbestos Sample ID and Approximate Location
  - WT6401PI01 Suspect PCB-Containing Caulk Sample ID and Approximate Location
  - WT6401LI01 Suspect Lead-Containing Caulk Sample ID and Approximate Location
  - WT6401LX01 Suspect Lead-Based XRF Sample ID and Approximate Location
  - Side A Side Designation for XRF Sampling

**ASBESTOS KEYNOTES :**



**Key Plan**  
Scale: NTS



Side B

Side D

Side C

Side A

**Partial First Floor Sample Location Plan**  
Scale: NTS

<b>SAMPLE LOCATION PLAN</b>	Drawn By: JDF	Drawing: 3 of 19	Scale: As Noted	Project No.: WT6401	Date: June 2024
-----------------------------	------------------	---------------------	--------------------	------------------------	--------------------

Phase 1 - Capital Project - Jr./Sr. High School  
General Brown CSD  
Dexter, New York

**ATLANTIC TESTING LABORATORIES, Limited**  
 Albany, NY    Binghamton, NY    Buffalo, NY    Canton, NY    Elmira, NY    Plattsburgh, NY  
 Poughkeepsie, NY    Rochester, NY    Syracuse, NY    Utica, NY    Watertown, NY

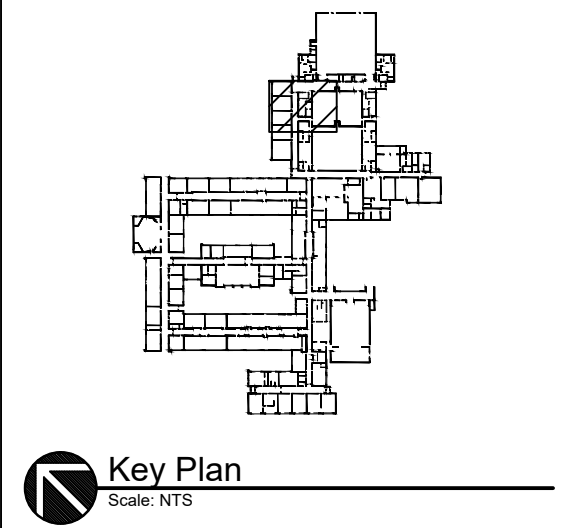
WBE certified company www.AtlanticTesting.com

Side C

LEGEND :

- WT6401AI82A Suspect Asbestos Sample ID and Approximate Location
- WT6401PI01 Suspect PCB-Containing Caulk Sample ID and Approximate Location
- WT6401LI01 Suspect Lead-Containing Caulk Sample ID and Approximate Location
- WT6401LX01 Suspect Lead-Based XRF Sample ID and Approximate Location
- Side A Side Designation for XRF Sampling

ASBESTOS KEYNOTES :



WT6401AI82A  
WT6401AI83A

WT6401LX138  
WT6401LX139  
WT6401LX140  
WT6401LX141

WT6401AI73B

WT6401AI73A

WT6401AI45B  
WT6401AI46B  
WT6401AI47B

WT6401AI45A  
WT6401AI46A  
WT6401AI47A

WT6401LX126  
WT6401LX127  
WT6401LX128  
WT6401LX129  
WT6401LX130  
WT6401LX131  
WT6401LX132  
WT6401LX133  
WT6401LX134  
WT6401LX135  
WT6401LX136  
WT6401LX137

WT6401AI51B  
WT6401AI52B

WT6401AI84A

WT6401AI84C

WT6401AI80A  
WT6401AI81A

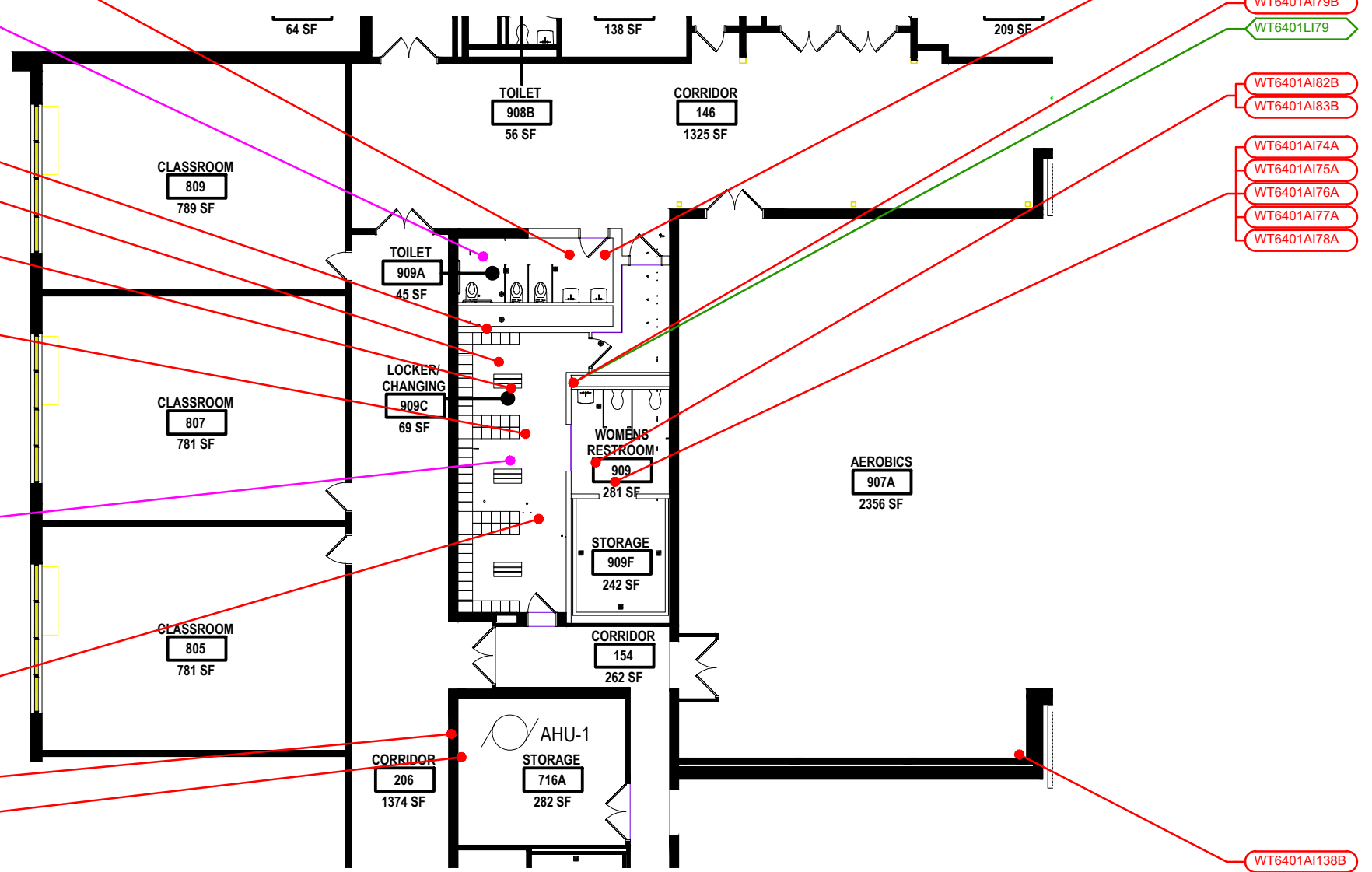
WT6401AI79B

WT6401LI79

WT6401AI82B  
WT6401AI83B

WT6401AI74A  
WT6401AI75A  
WT6401AI76A  
WT6401AI77A  
WT6401AI78A

WT6401AI138B



Side A

**SAMPLE LOCATION PLAN**

Drawn By: JDF	Drawing: 4 of 19	Scale: As Noted	Project No.: WT6401	Date: June 2024
------------------	---------------------	--------------------	------------------------	--------------------

**Partial First Floor Sample Location Plan**  
Scale: NTS

Phase 1 - Capital Project - Jr./Sr. High School  
General Brown CSD  
Dexter, New York



**ATLANTIC TESTING LABORATORIES, Limited**

Albany, NY Binghamton, NY Buffalo, NY Canton, NY Elmira, NY Plattsburgh, NY  
Poughkeepsie, NY Rochester, NY Syracuse, NY Utica, NY Watertown, NY

WBE certified company

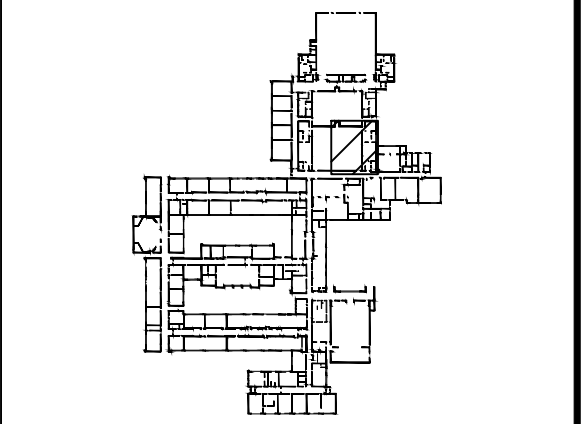
www.AtlanticTesting.com

Side C

**LEGEND :**

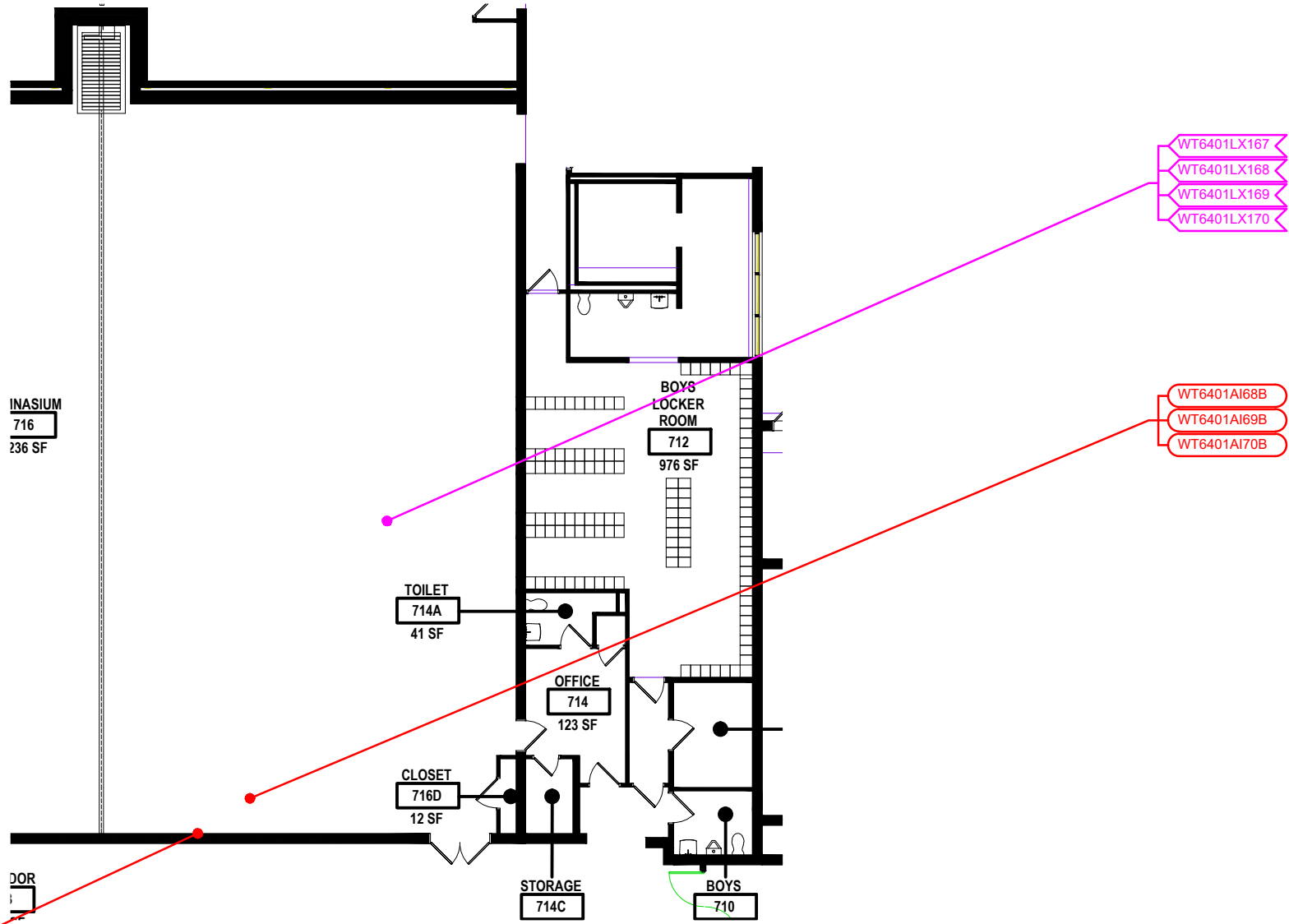
- WT6401AI01A Suspect Asbestos Sample ID and Approximate Location
- WT6401PI01 Suspect PCB-Containing Caulk Sample ID and Approximate Location
- WT6401LI01 Suspect Lead-Containing Caulk Sample ID and Approximate Location
- WT6401LX01 Suspect Lead-Based XRF Sample ID and Approximate Location
- Side A Side Designation for XRF Sampling

**ASBESTOS KEYNOTES :**



**Key Plan**  
Scale: NTS

Side A



Side B

Side D

WT6401AI66B

**Partial First Floor Sample Location Plan**  
Scale: NTS

<b>SAMPLE LOCATION PLAN</b>	Drawn By: JDF	Drawing: 5 of 19	Scale: As Noted	Project No.: WT6401	Date: June 2024
Phase 1 - Capital Project - Jr./Sr. High School General Brown CSD Dexter, New York	<b>ATLANTIC TESTING LABORATORIES, Limited</b> <small>Albany, NY   Binghamton, NY   Buffalo, NY   Canton, NY   Elmira, NY   Plattsburgh, NY Poughkeepsie, NY   Rochester, NY   Syracuse, NY   Utica, NY   Watertown, NY</small>		<b>WBE certified company</b> <small>www.AtlanticTesting.com</small>		

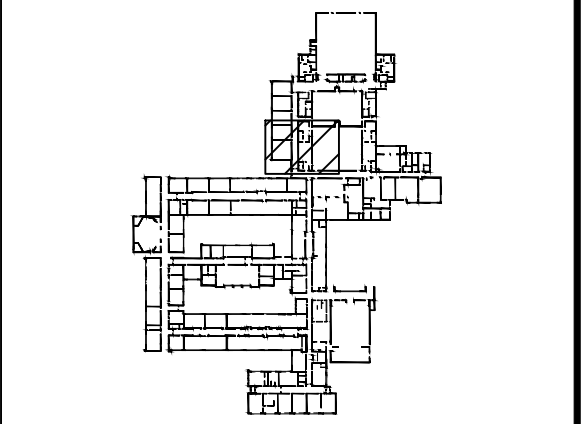


Side C

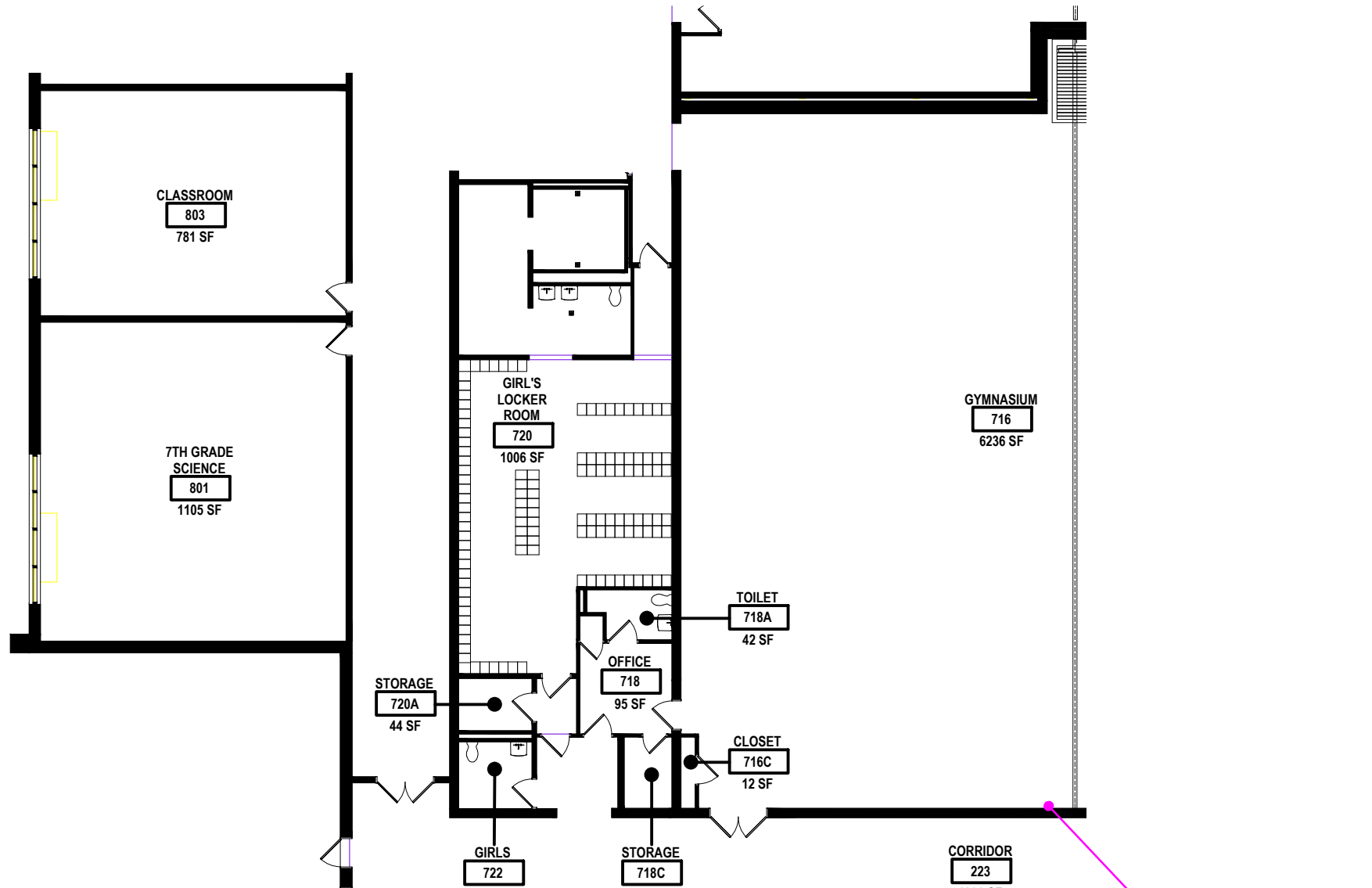
**LEGEND :**

- WT6401AI01A Suspect Asbestos Sample ID and Approximate Location
- WT6401PI01 Suspect PCB-Containing Caulk Sample ID and Approximate Location
- WT6401LI01 Suspect Lead-Containing Caulk Sample ID and Approximate Location
- WT6401LX01 Suspect Lead-Based XRF Sample ID and Approximate Location
- Side A Side Designation for XRF Sampling

**ASBESTOS KEYNOTES :**



**Key Plan**  
Scale: NTS



Side A

Side B

Side D

**Partial First Floor Sample Location Plan**  
Scale: NTS

<b>SAMPLE LOCATION PLAN</b>	Drawn By: JDF	Drawing: 6 of 19	Scale: As Noted	Project No.: WT6401	Date: June 2024
Phase 1 - Capital Project - Jr./Sr. High School General Brown CSD Dexter, New York		<b>ATLANTIC TESTING LABORATORIES, Limited</b>		<small>Albany, NY   Binghamton, NY   Buffalo, NY   Canton, NY   Elmira, NY   Plattsburgh, NY Poughkeepsie, NY   Rochester, NY   Syracuse, NY   Utica, NY   Watertown, NY</small> <b>WBE certified company</b> <span style="float: right;"><small>www.AtlanticTesting.com</small></span>	

Side C

LEGEND :

- WT6401AI01A Suspect Asbestos Sample ID and Approximate Location
- WT6401PI01 Suspect PCB-Containing Caulk Sample ID and Approximate Location
- WT6401LI01 Suspect Lead-Containing Caulk Sample ID and Approximate Location
- WT6401LX01 Suspect Lead-Based XRF Sample ID and Approximate Location
- Side A Side Designation for XRF Sampling

ASBESTOS KEYNOTES :

WT6401AI29A

WT6401AI29B

WT6401LX175

WT6401LX176

WT6401LX177

WT6401LX178

WT6401LX179

WT6401LX180

WT6401LX181

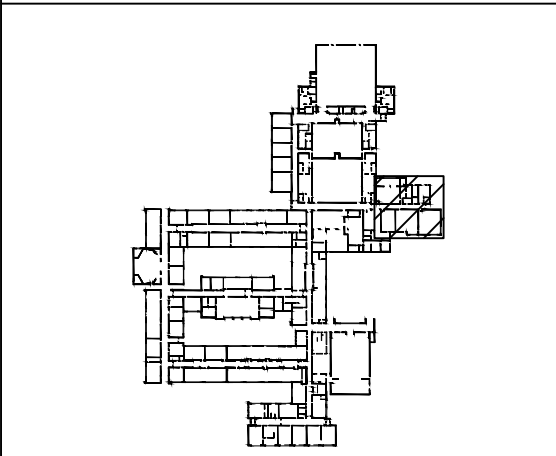
WT6401LX182

WT6401LX183

WT6401LX184

WT6401LX185

WT6401AI29C




Key Plan  
Scale: NTS

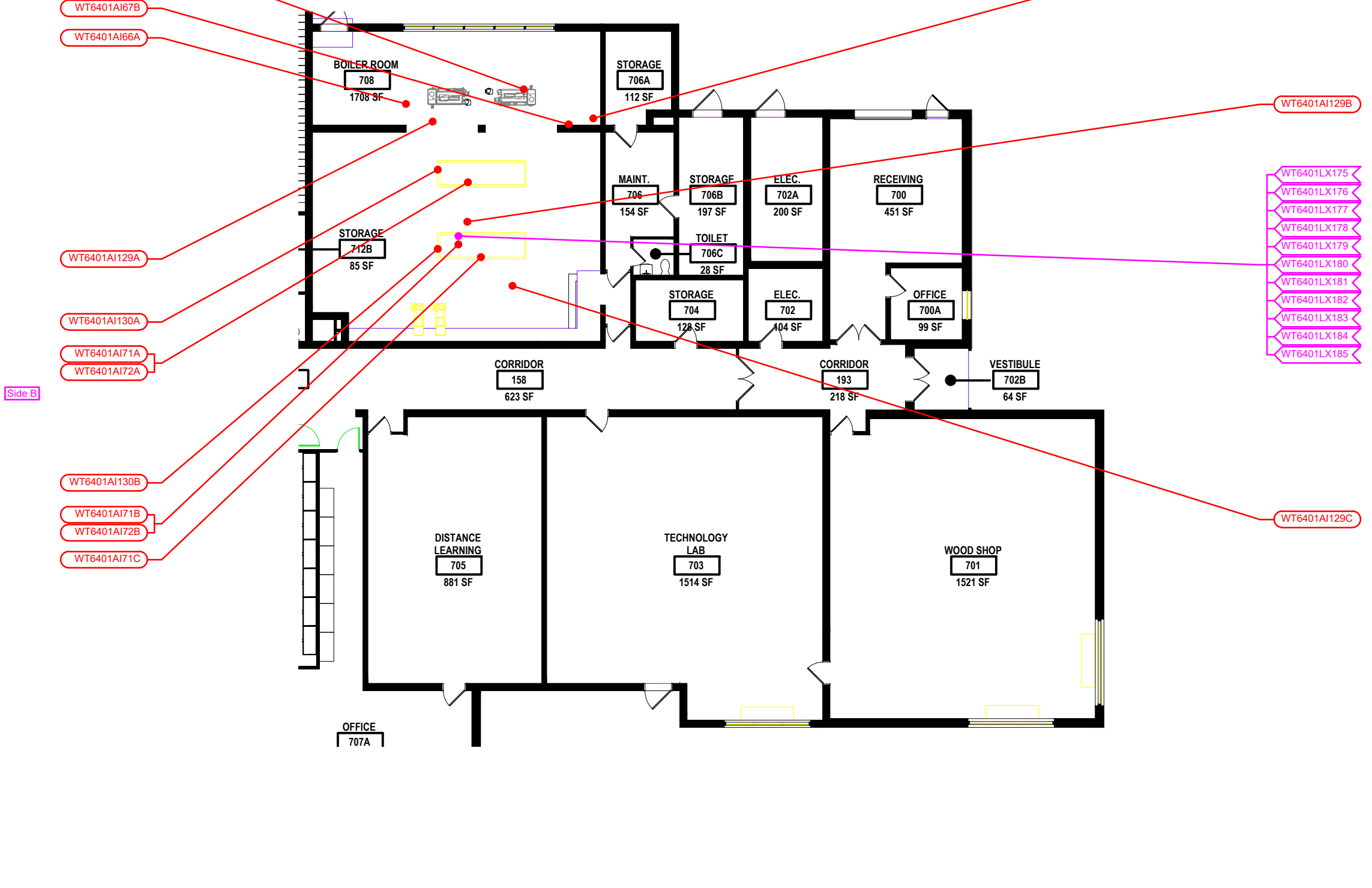
Side A

Side B

Side D

Partial First Floor Sample Location Plan  
Scale: NTS

<b>SAMPLE LOCATION PLAN</b>	Drawn By: JDF	Drawing: 7 of 19	Scale: As Noted	Project No.: WT6401	Date: June 2024
	Phase 1 - Capital Project - Jr./Sr. High School General Brown CSD Dexter, New York		 <b>ATLANTIC TESTING LABORATORIES, Limited</b> <small>Albany, NY   Binghamton, NY   Buffalo, NY   Canton, NY   Elmira, NY   Plattsburgh, NY Poughkeepsie, NY   Rochester, NY   Syracuse, NY   Utica, NY   Watertown, NY</small> <b>WBE certified company</b> <span style="float: right;"><small>www.AtlanticTesting.com</small></span>		

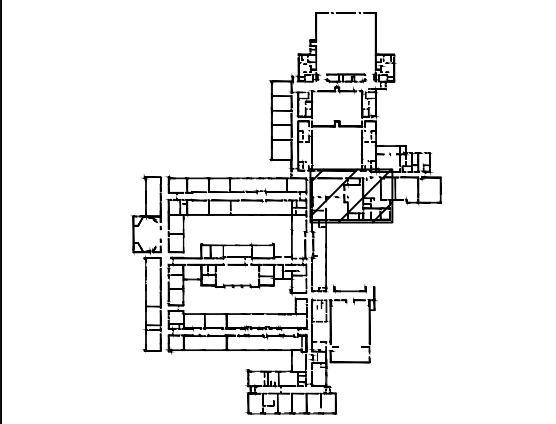
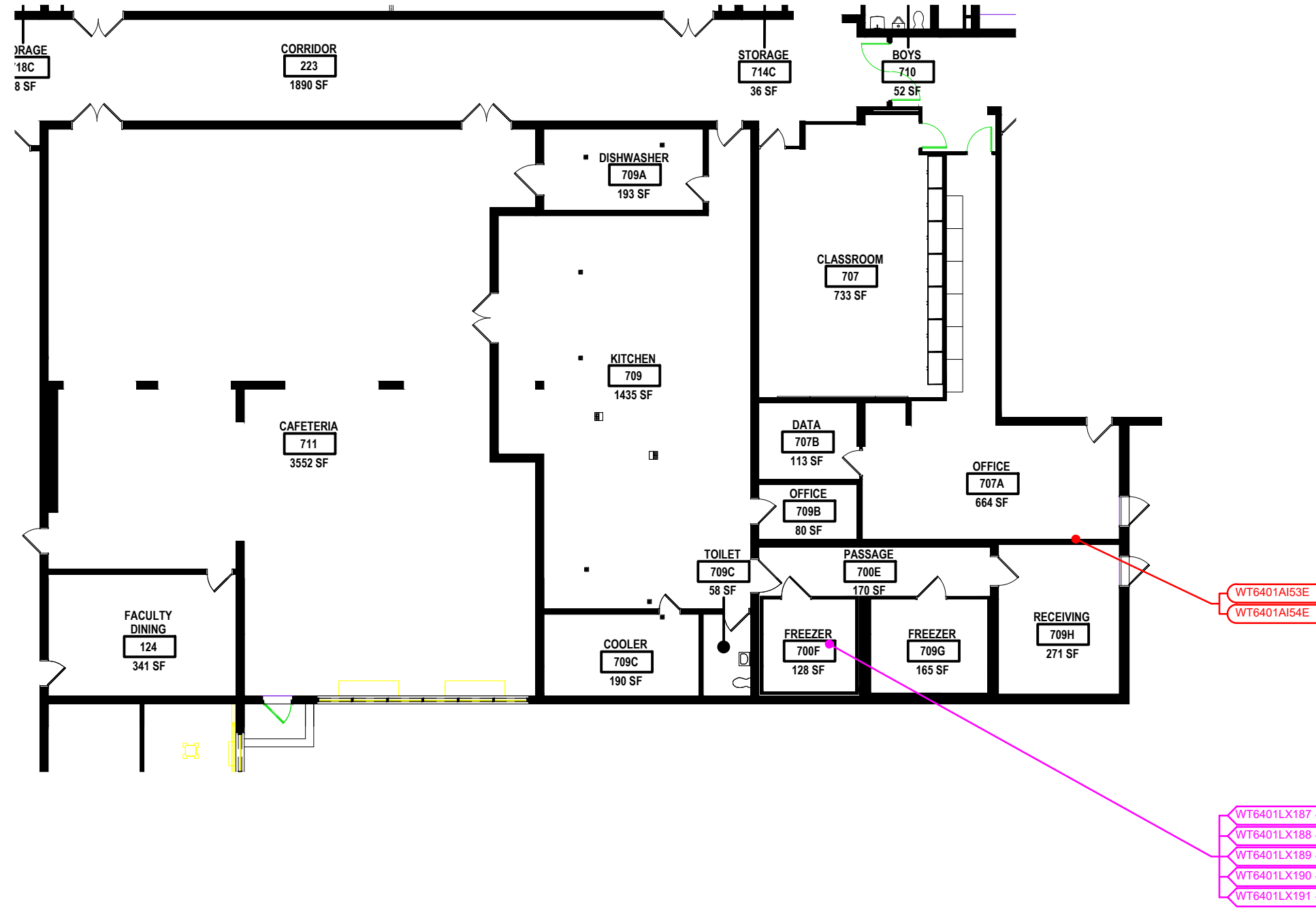


Side C

LEGEND :

- WT6401AI01A Suspect Asbestos Sample ID and Approximate Location
- WT6401PI01 Suspect PCB-Containing Caulk Sample ID and Approximate Location
- WT6401LI01 Suspect Lead-Containing Caulk Sample ID and Approximate Location
- WT6401LX01 Suspect Lead-Based XRF Sample ID and Approximate Location
- Side A Side Designation for XRF Sampling

ASBESTOS KEYNOTES :



Key Plan  
Scale: NTS

Side A

Side B

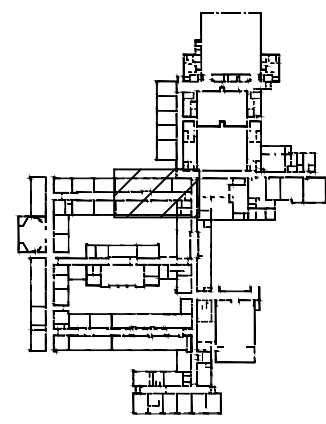
Side D

Partial First Floor Sample Location Plan  
Scale: NTS

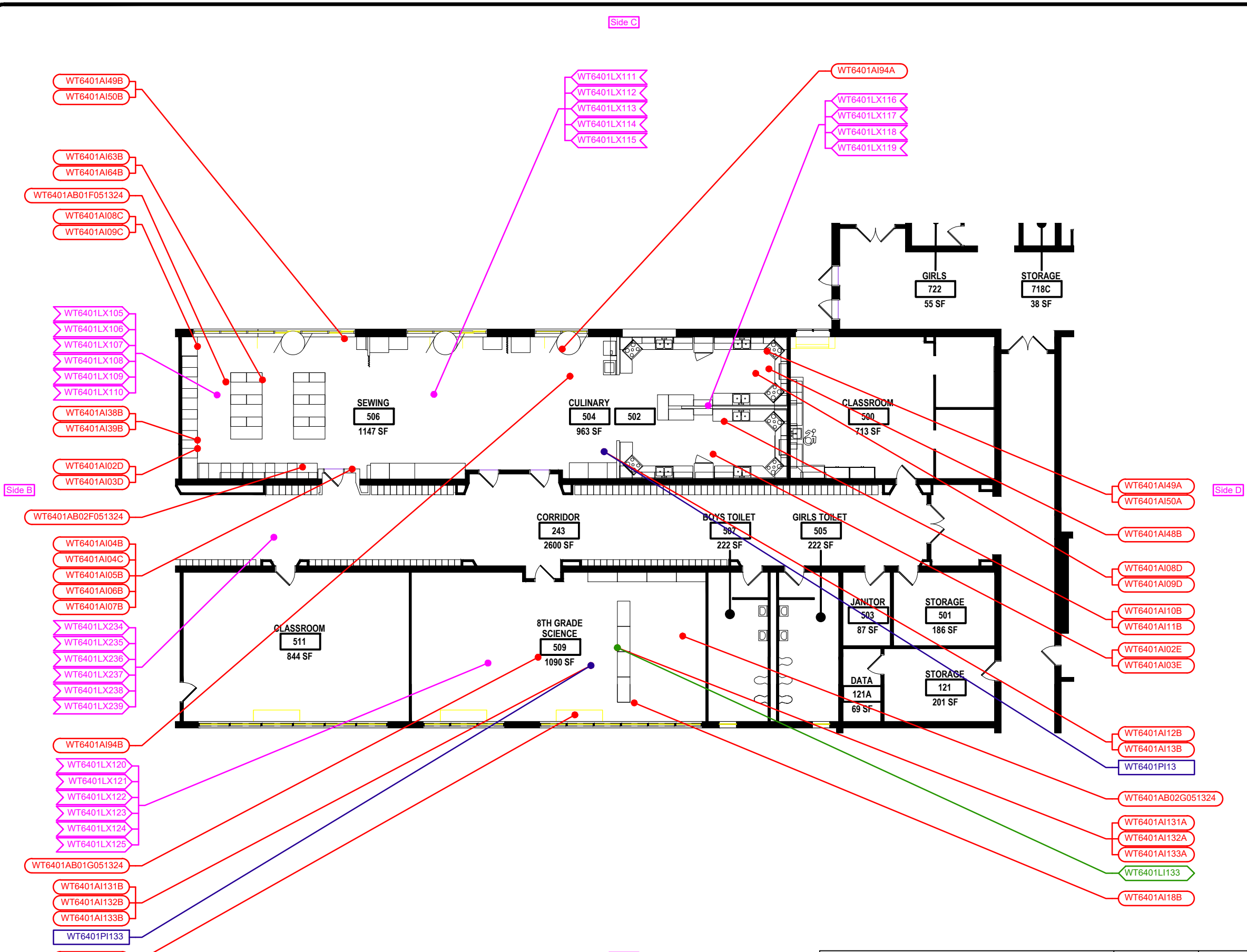
<b>SAMPLE LOCATION PLAN</b>	Drawn By: JDF	Drawing: 8 of 19	Scale: As Noted	Project No.: WT6401	Date: June 2024
Phase 1 - Capital Project - Jr./Sr. High School General Brown CSD Dexter, New York		<b>ATLANTIC TESTING LABORATORIES, Limited</b> <small>Albany, NY   Binghamton, NY   Buffalo, NY   Canton, NY   Elmira, NY   Plattsburgh, NY Poughkeepsie, NY   Rochester, NY   Syracuse, NY   Utica, NY   Watertown, NY</small>		<b>WBE certified company</b> <small>www.AtlanticTesting.com</small>	

- LEGEND :**
- WT6401AI01A Suspect Asbestos Sample ID and Approximate Location
  - WT6401PI01 Suspect PCB-Containing Caulk Sample ID and Approximate Location
  - WT6401LI01 Suspect Lead-Containing Caulk Sample ID and Approximate Location
  - WT6401LX01 Suspect Lead-Based XRF Sample ID and Approximate Location
  - Side A Side Designation for XRF Sampling

**ASBESTOS KEYNOTES :**



**Key Plan**  
Scale: NTS



**Partial First Floor Sample Location Plan**  
Scale: NTS

<b>SAMPLE LOCATION PLAN</b>	Drawn By: JDF	Drawing: 9 of 19	Scale: As Noted	Project No.: WT6401	Date: June 2024
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Phase 1 - Capital Project - Jr./Sr. High School  
General Brown CSD  
Dexter, New York



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WBE certified company

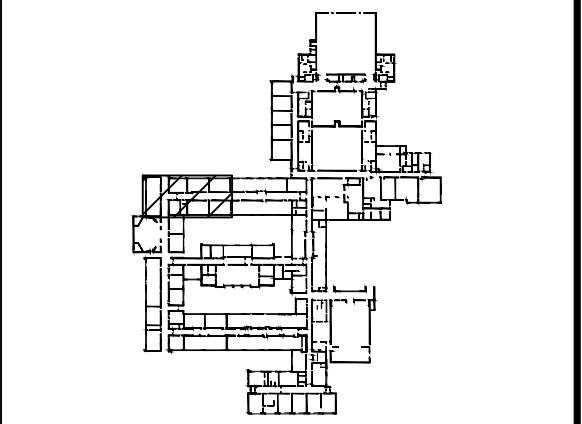
www.AtlanticTesting.com

Side C

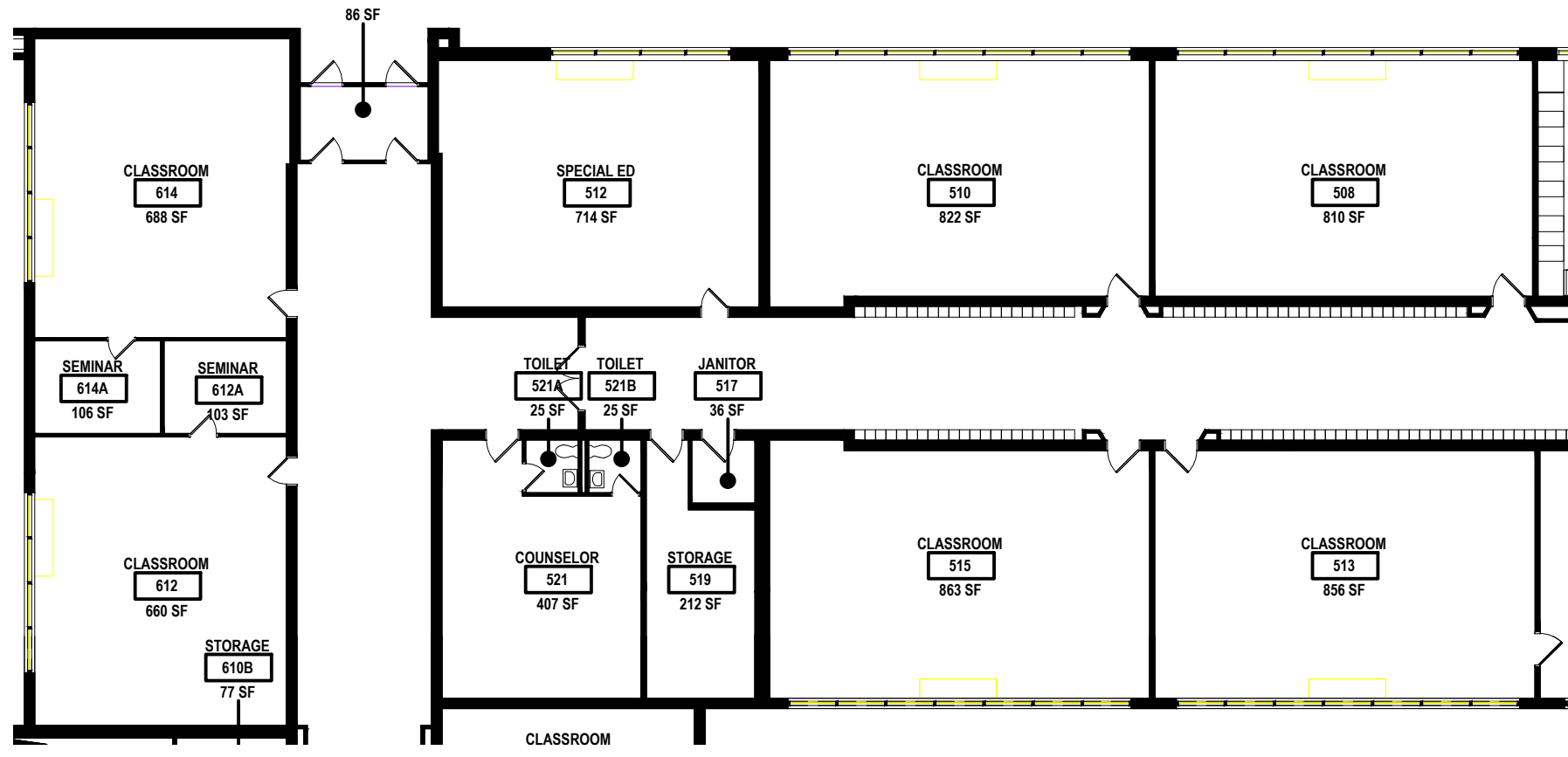
**LEGEND :**

- WT6401AI01A Suspect Asbestos Sample ID and Approximate Location
- WT6401PI01 Suspect PCB-Containing Caulk Sample ID and Approximate Location
- WT6401LI01 Suspect Lead-Containing Caulk Sample ID and Approximate Location
- WT6401LX01 Suspect Lead-Based XRF Sample ID and Approximate Location
- Side A Side Designation for XRF Sampling

**ASBESTOS KEYNOTES :**



**Key Plan**  
Scale: NTS



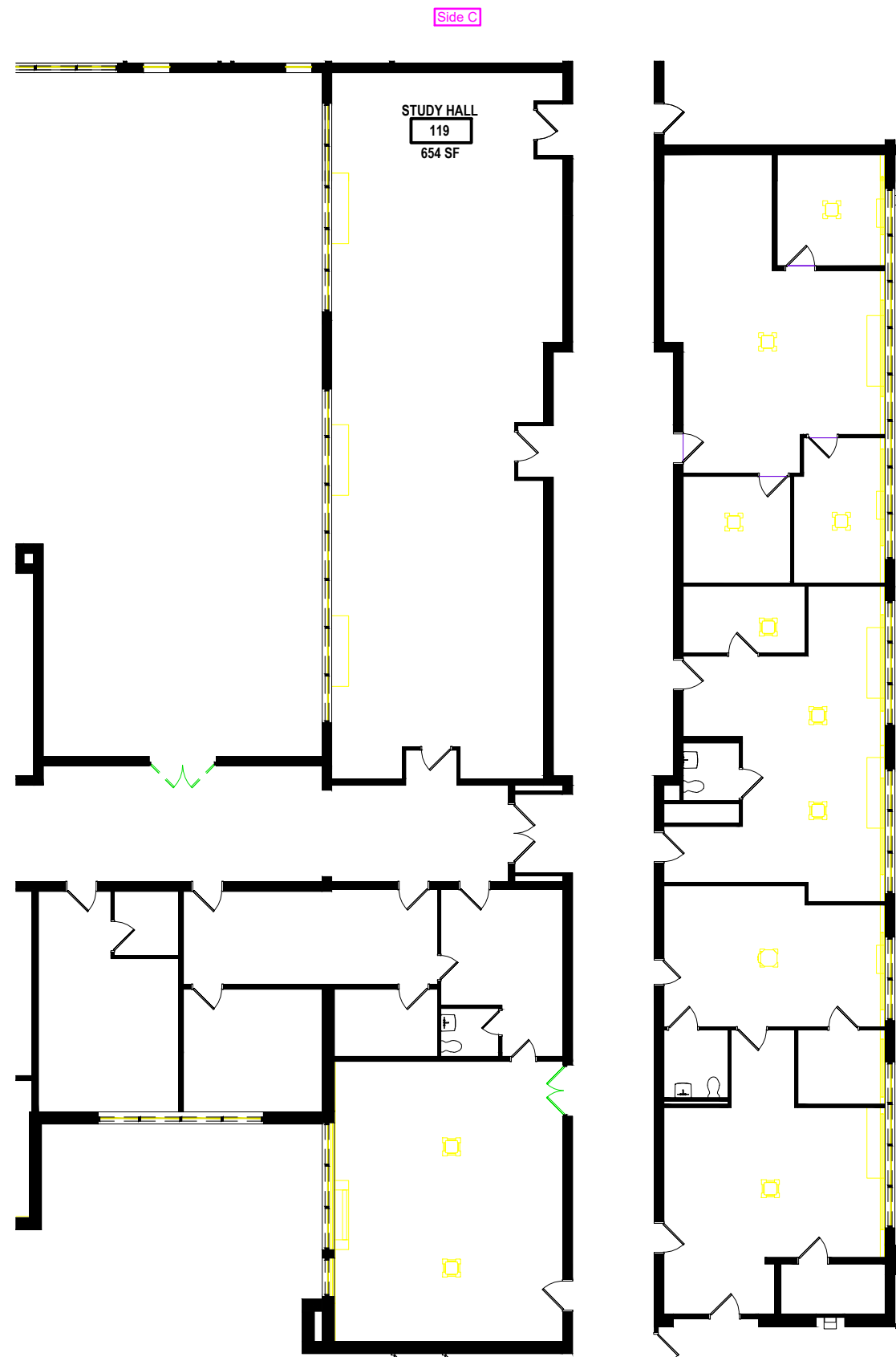
Side A

Side B

Side D

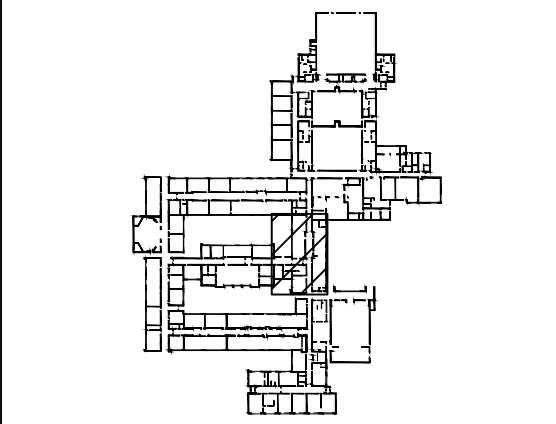
**Partial First Floor Sample Location Plan**  
Scale: NTS

<b>SAMPLE LOCATION PLAN</b>	Drawn By: JDF	Drawing: 10 of 19	Scale: As Noted	Project No.: WT6401	Date: June 2024
Phase 1 - Capital Project - Jr./Sr. High School General Brown CSD Dexter, New York	<b>ATLANTIC TESTING LABORATORIES, Limited</b> <small>Albany, NY   Binghamton, NY   Buffalo, NY   Canton, NY   Elmira, NY   Plattsburgh, NY Poughkeepsie, NY   Rochester, NY   Syracuse, NY   Utica, NY   Watertown, NY</small>		<b>WBE certified company</b> <small>www.AtlanticTesting.com</small>		



- LEGEND :**
- WT6401AI01A Suspect Asbestos Sample ID and Approximate Location
  - WT6401PI01 Suspect PCB-Containing Caulk Sample ID and Approximate Location
  - WT6401LI01 Suspect Lead-Containing Caulk Sample ID and Approximate Location
  - WT6401LX01 Suspect Lead-Based XRF Sample ID and Approximate Location
  - Side A Side Designation for XRF Sampling

**ASBESTOS KEYNOTES :**



**Key Plan**  
Scale: NTS


Side B

Side D

Side C

Side A

**Partial First Floor Sample Location Plan**  
Scale: NTS

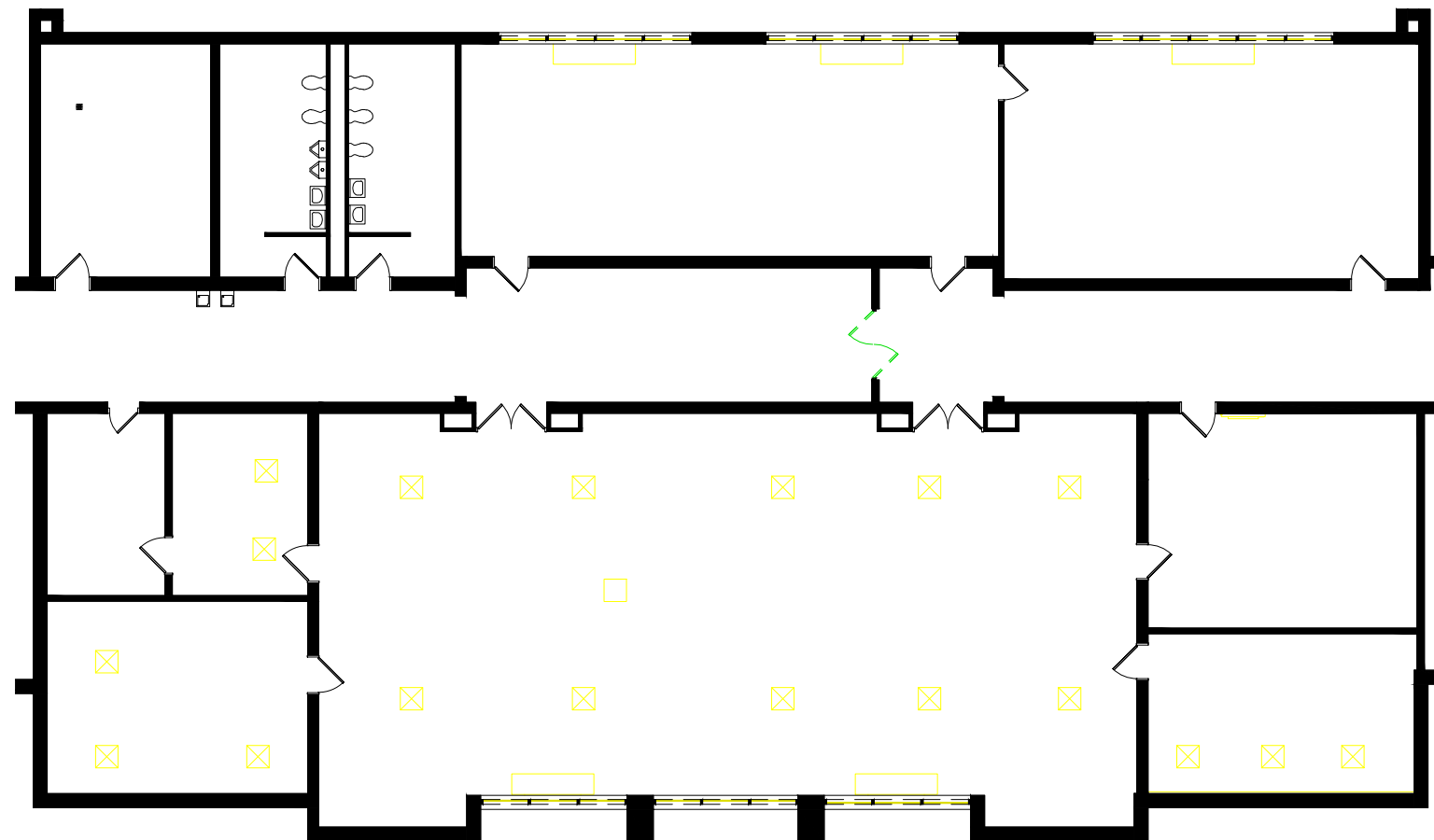
<b>SAMPLE LOCATION PLAN</b>	Drawn By:	Drawing:	Scale:	Project No.:	Date :
	JDF	11 of 19	As Noted	WT6401	June 2024
Phase 1 - Capital Project - Jr./Sr. High School General Brown CSD Dexter, New York		 <b>ATLANTIC TESTING LABORATORIES, Limited</b> <small>Albany, NY   Binghamton, NY   Buffalo, NY   Canton, NY   Elmira, NY   Plattsburgh, NY Poughkeepsie, NY   Rochester, NY   Syracuse, NY   Utica, NY   Watertown, NY</small> <b>WBE certified company</b> <span style="float: right;"><small>www.AtlanticTesting.com</small></span>			

Side C

**LEGEND :**

- WT6401AI01A Suspect Asbestos Sample ID and Approximate Location
- WT6401PI01 Suspect PCB-Containing Caulk Sample ID and Approximate Location
- WT6401LI01 Suspect Lead-Containing Caulk Sample ID and Approximate Location
- WT6401LX01 Suspect Lead-Based XRF Sample ID and Approximate Location
- Side A Side Designation for XRF Sampling

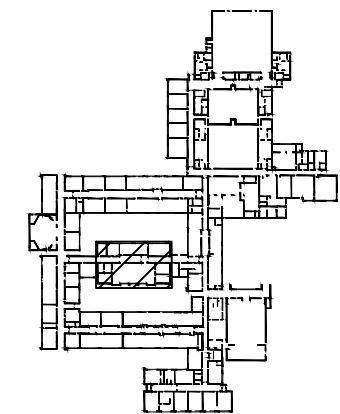
**ASBESTOS KEYNOTES :**



Side B

Side D

Side A



**Key Plan**  
Scale: NTS

**Partial First Floor Sample Location Plan**  
Scale: NTS

<b>SAMPLE LOCATION PLAN</b>	Drawn By: JDF	Drawing: 12 of 19	Scale: As Noted	Project No.: WT6401	Date : June 2024
Phase 1 - Capital Project - Jr./Sr. High School General Brown CSD Dexter, New York	<b>ATLANTIC TESTING LABORATORIES, Limited</b> <small>Albany, NY   Binghamton, NY   Buffalo, NY   Canton, NY   Elmira, NY   Plattsburgh, NY Poughkeepsie, NY   Rochester, NY   Syracuse, NY   Utica, NY   Watertown, NY</small>		<b>WBE certified company</b> <small>www.AtlanticTesting.com</small>		



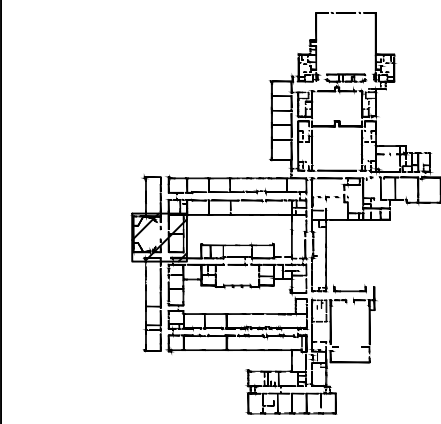
Side C

LEGEND :

- WT6401AI01A Suspect Asbestos Sample ID and Approximate Location
- WT6401PI01 Suspect PCB-Containing Caulk Sample ID and Approximate Location
- WT6401LI01 Suspect Lead-Containing Caulk Sample ID and Approximate Location
- WT6401LX01 Suspect Lead-Based XRF Sample ID and Approximate Location
- Side A Side Designation for XRF Sampling

ASBESTOS KEYNOTES :

- 12 Black Cove Base/9- by 9-Inch Edging and Associated Black Mastic
- 13 Light Green 9- by 9-Inch Marbled Floor Tile and Associated Black Mastic
- 14 Black Window Butyl
- 16 White 2-Inch Diameter Pipe TSI Paper (Above Ceiling)
- 17 Off-White Mudded TSI Pipe Fitting (Above Ceiling)
- 18 White Paper Roof TSI Jacket Associated with Roof Drain Pipe (Above Ceiling)
- 19 White HVAC TSI (Above Ceiling)

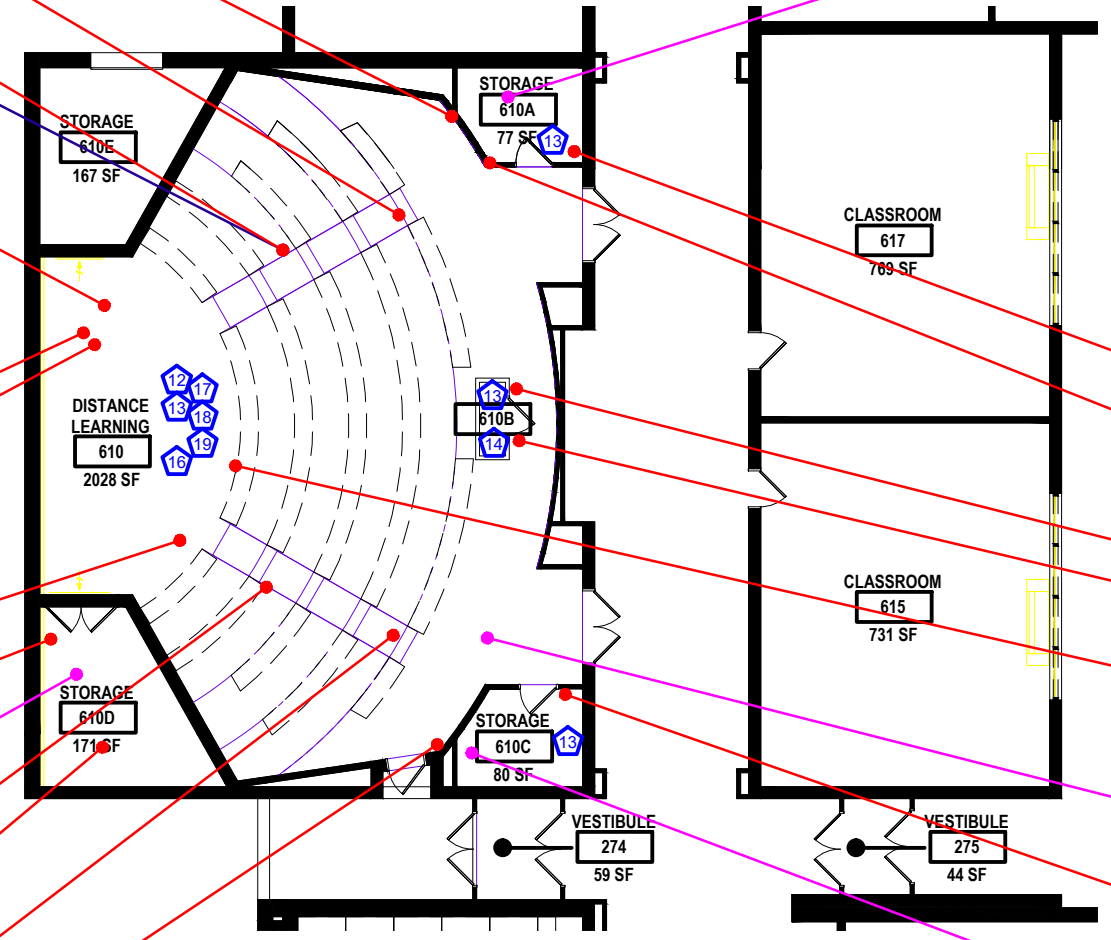


Key Plan  
Scale: NTS

- WT6401AI57B
- WT6401AI55B
- WT6401AI56B
- WT6401AI121A
- WT6401PI121
- WT6401AI58A
- WT6401AI58B
- WT6401AI58C
- WT6401AI53B
- WT6401AI54B
- WT6401AI41F
- WT6401AI42F
- WT6401LX89
- WT6401LX90
- WT6401LX91
- WT6401LX92
- WT6401LX93
- WT6401AI119B
- WT6401AI121B
- WT6401AI53D
- WT6401AI54D
- WT6401AI55A
- WT6401AI56A
- WT6401AI57A

- WT6401LX99
- WT6401LX100
- WT6401LX101
- WT6401LX102
- WT6401LX103
- WT6401LX104

- WT6401AI53C
- WT6401AI54C
- WT6401AI41E
- WT6401AI42E
- WT6401AI128A
- WT6401AI128B
- WT6401AI41C
- WT6401AI42C
- WT6401AI53A
- WT6401AI54A
- WT6401LX84
- WT6401LX85
- WT6401LX86
- WT6401LX87
- WT6401LX88
- WT6401AI41D
- WT6401AI42D
- WT6401LX94
- WT6401LX95
- WT6401LX96
- WT6401LX97
- WT6401LX98



Side A

SAMPLE LOCATION PLAN

Drawn By: JDF	Drawing: 13 of 19	Scale: As Noted	Project No.: WT6401	Date: June 2024
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Partial First Floor Sample Location Plan  
Scale: NTS

Phase 1 - Capital Project - Jr./Sr. High School  
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Dexter, New York



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 Poughkeepsie, NY    Rochester, NY    Syracuse, NY    Utica, NY    Watertown, NY

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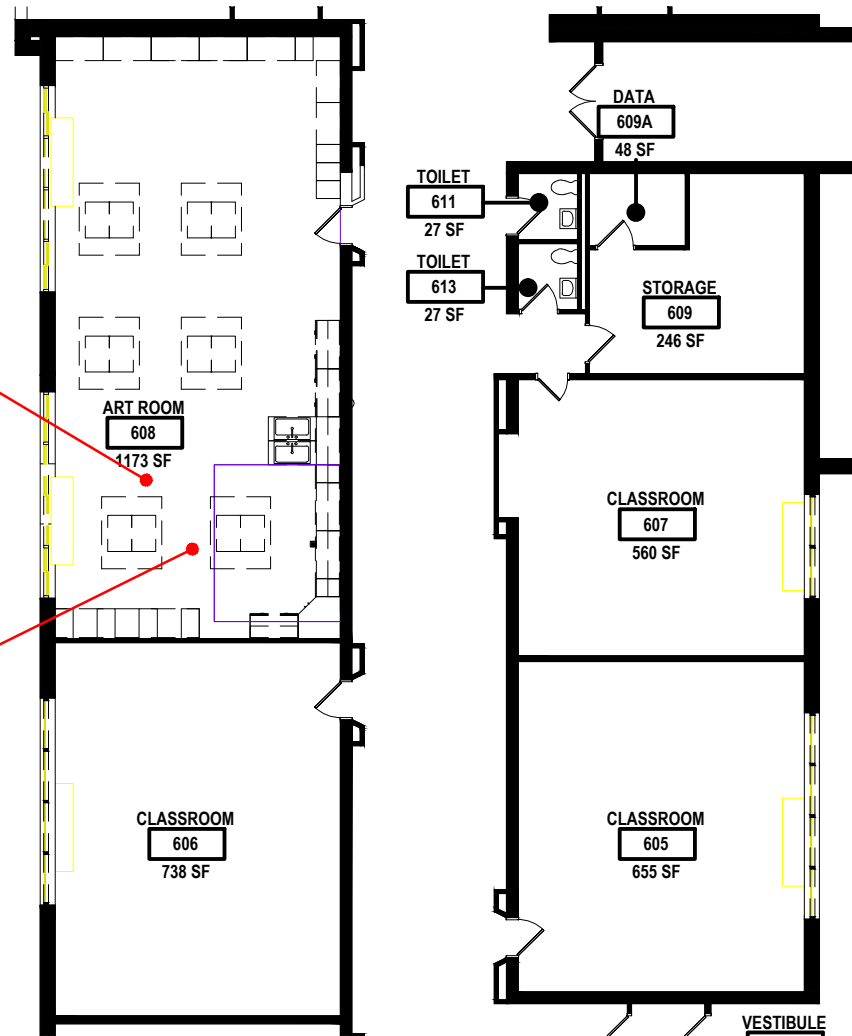
Side C

LEGEND :

- WT6401AI01A Suspect Asbestos Sample ID and Approximate Location
- WT6401PI01 Suspect PCB-Containing Caulk Sample ID and Approximate Location
- WT6401LI01 Suspect Lead-Containing Caulk Sample ID and Approximate Location
- WT6401LX01 Suspect Lead-Based XRF Sample ID and Approximate Location
- Side A Side Designation for XRF Sampling

ASBESTOS KEYNOTES :

WT6401AI41G  
WT6401AI42G

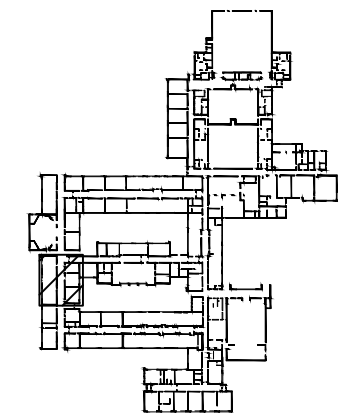


Side B

Side D


WT6401AI48A

Side A



Key Plan  
Scale: NTS

Partial First Floor Sample Location Plan  
Scale: NTS

<b>SAMPLE LOCATION PLAN</b>	Drawn By: JDF	Drawing: 14 of 19	Scale: As Noted	Project No.: WT6401	Date : June 2024
	Phase 1 - Capital Project - Jr./Sr. High School General Brown CSD Dexter, New York		 <b>ATLANTIC TESTING LABORATORIES, Limited</b> <small>Albany, NY   Binghamton, NY   Buffalo, NY   Canton, NY   Elmira, NY   Plattsburgh, NY Poughkeepsie, NY   Rochester, NY   Syracuse, NY   Utica, NY   Watertown, NY</small> <b>WBE certified company</b> <span style="float: right;"><small>www.AtlanticTesting.com</small></span>		

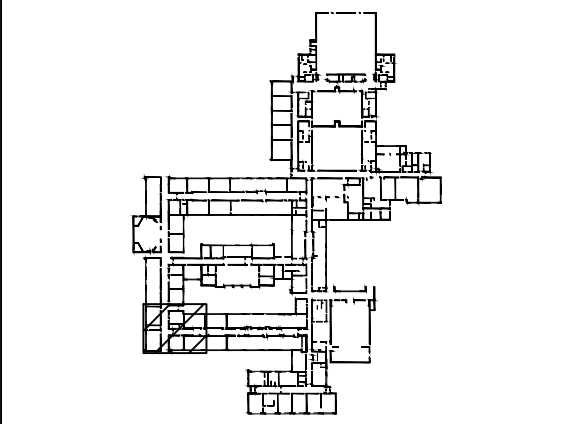
Side C

LEGEND :

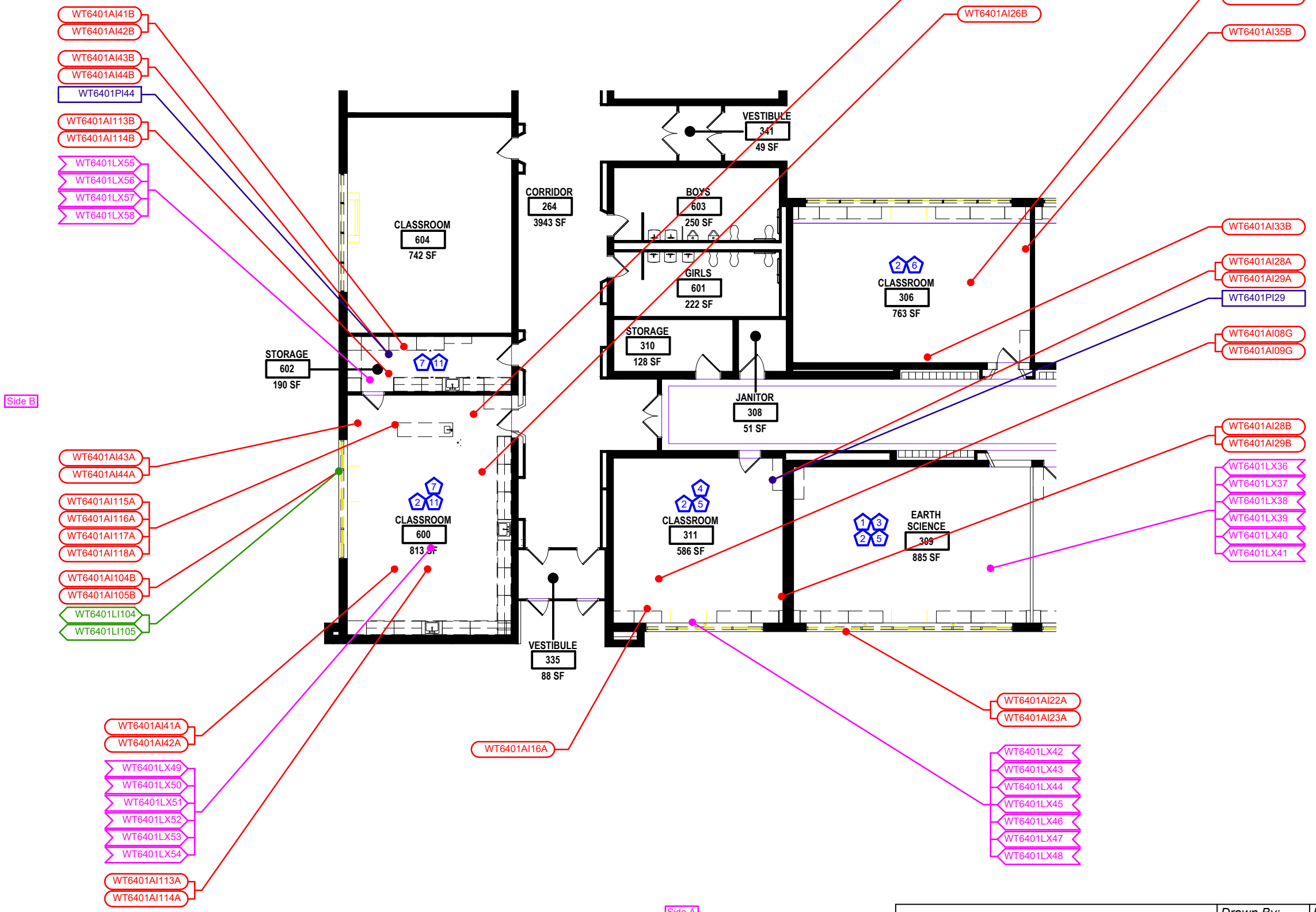
- WT6401AI01A Suspect Asbestos Sample ID and Approximate Location
- WT6401PI01 Suspect PCB-Containing Caulk Sample ID and Approximate Location
- WT6401LI01 Suspect Lead-Containing Caulk Sample ID and Approximate Location
- WT6401LX01 Suspect Lead-Based XRF Sample ID and Approximate Location
- Side A Side Designation for XRF Sampling

ASBESTOS KEYNOTES :

- 1 Green 9- by 9-Inch Streaked Floor Tile
- 2 Black Adhesive Associated with Black Chalk Board
- 3 Light Green 9- by 9-Inch Patch Floor Tile
- 4 Gray 12- by 12-Inch Floor Tile and Associated Black Mastic
- 5 Brown Cork Board Adhesive
- 6 Light Brown 9- by 9-Inch Streaked Floor Tile
- 7 Gray 12- by 12-Inch Marbled Floor Tile and Associated Black Mastic
- 11 Black Grout Associated with Black Countertop



Key Plan  
Scale: NTS



Side B

Side D

Side A

SAMPLE LOCATION PLAN

Drawn By: JDF	Drawing: 15 of 19	Scale: As Noted	Project No.: WT6401	Date: June 2024
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Partial First Floor Sample Location Plan  
Scale: NTS

Phase 1 - Capital Project - Jr./Sr. High School  
General Brown CSD  
Dexter, New York

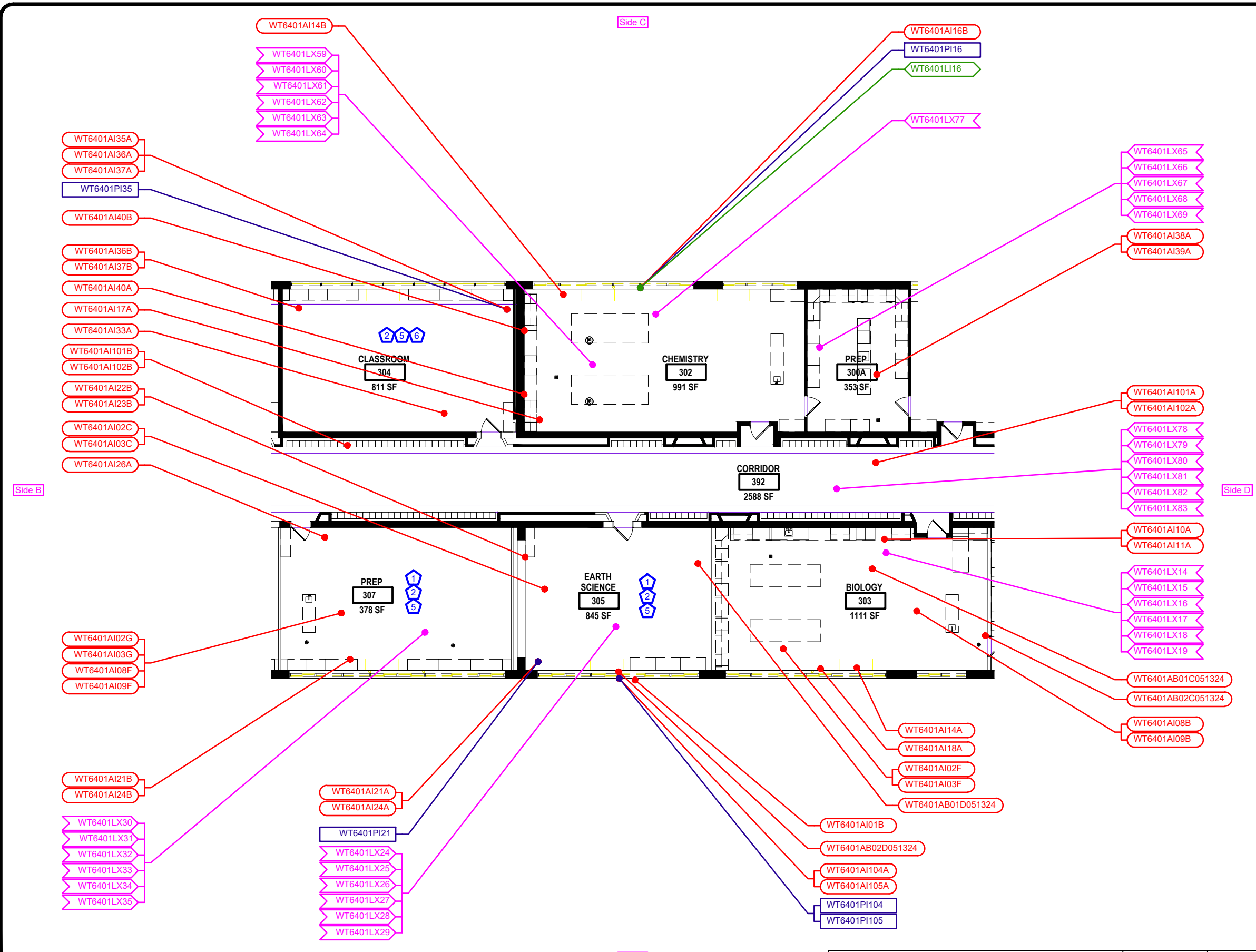


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 Poughkeepsie, NY    Rochester, NY    Syracuse, NY    Utica, NY    Watertown, NY

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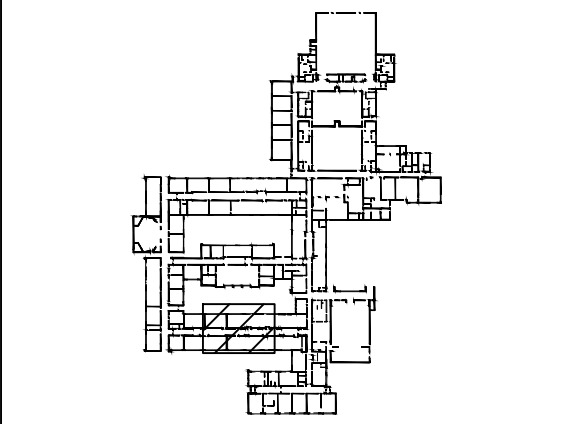


**LEGEND :**

<span style="border: 1px solid red; border-radius: 50%; padding: 2px;">WT6401AI01A</span>	Suspect Asbestos Sample ID and Approximate Location
<span style="border: 1px solid blue; border-radius: 50%; padding: 2px;">WT6401PI01</span>	Suspect PCB-Containing Caulk Sample ID and Approximate Location
<span style="border: 1px solid green; border-radius: 50%; padding: 2px;">WT6401LI01</span>	Suspect Lead-Containing Caulk Sample ID and Approximate Location
<span style="border: 1px solid purple; border-radius: 50%; padding: 2px;">WT6401LX01</span>	Suspect Lead-Based XRF Sample ID and Approximate Location
<span style="border: 1px solid purple; padding: 2px;">Side A</span>	Side Designation for XRF Sampling

**ASBESTOS KEYNOTES :**

<span style="border: 1px solid blue; border-radius: 50%; padding: 2px;">1</span>	Green 9- by 9-Inch Streaked Floor Tile
<span style="border: 1px solid blue; border-radius: 50%; padding: 2px;">2</span>	Black Adhesive Associated with Black Chalk Board
<span style="border: 1px solid blue; border-radius: 50%; padding: 2px;">5</span>	Brown Cork Board Adhesive
<span style="border: 1px solid blue; border-radius: 50%; padding: 2px;">6</span>	Light Brown 9- by 9-Inch Streaked Floor Tile



**Key Plan**  
Scale: NTS

**Partial First Floor Sample Location Plan**  
Scale: NTS

<b>SAMPLE LOCATION PLAN</b>	Drawn By:	Drawing:	Scale:	Project No.:	Date :
	JDF	16 of 19	As Noted	WT6401	June 2024
Phase 1 - Capital Project - Jr./Sr. High School General Brown CSD Dexter, New York		<b>ATLANTIC TESTING LABORATORIES, Limited</b> <small>Albany, NY    Binghamton, NY    Buffalo, NY    Canton, NY    Elmira, NY    Plattsburgh, NY Poughkeepsie, NY    Rochester, NY    Syracuse, NY    Utica, NY    Watertown, NY</small>		<b>WBE certified company</b> <small>www.AtlanticTesting.com</small>	

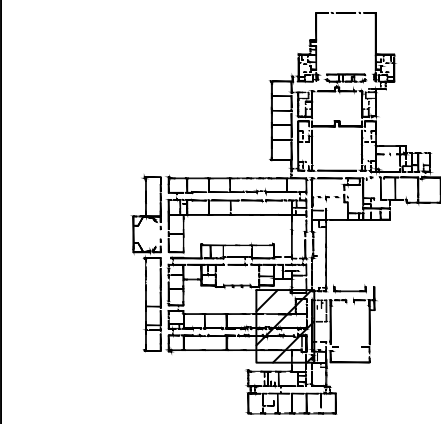
Side C

WT6401AI126A  
WT6401AI127A  
WT6401LI127

LEGEND :

- WT6401AI01A Suspect Asbestos Sample ID and Approximate Location
- WT6401PI01 Suspect PCB-Containing Caulk Sample ID and Approximate Location
- WT6401LI01 Suspect Lead-Containing Caulk Sample ID and Approximate Location
- WT6401LX01 Suspect Lead-Based XRF Sample ID and Approximate Location
- Side A Side Designation for XRF Sampling

ASBESTOS KEYNOTES :



Key Plan  
Scale: NTS

Side B

WT6401AI106B  
WT6401AI15A  
WT6401AI106A  
WT6401LX70  
WT6401LX71  
WT6401LX72  
WT6401LX73  
WT6401LX74  
WT6401LX75  
WT6401LX76

WT6401AI135A  
WT6401AI136A  
WT6401PI135  
WT6401AI126B  
WT6401AI127B  
WT6401PI127

WT6401AB01B051324  
WT6401AI63A  
WT6401AI64A  
WT6401LX04  
WT6401LX05  
WT6401LX06  
WT6401LX07

WT6401AI17B  
WT6401LX20  
WT6401LX21  
WT6401LX22  
WT6401LX23

WT6401AI05A  
WT6401AI06A  
WT6401AI07A  
WT6401AI02A  
WT6401AI03A  
WT6401AI08A  
WT6401AI09A  
WT6401AI12A  
WT6401AI13A  
WT6401AI19A

Side A

WT6401AI135B  
WT6401AI136B  
WT6401LI135

WT6401AB02B051324

WT6401AI01A

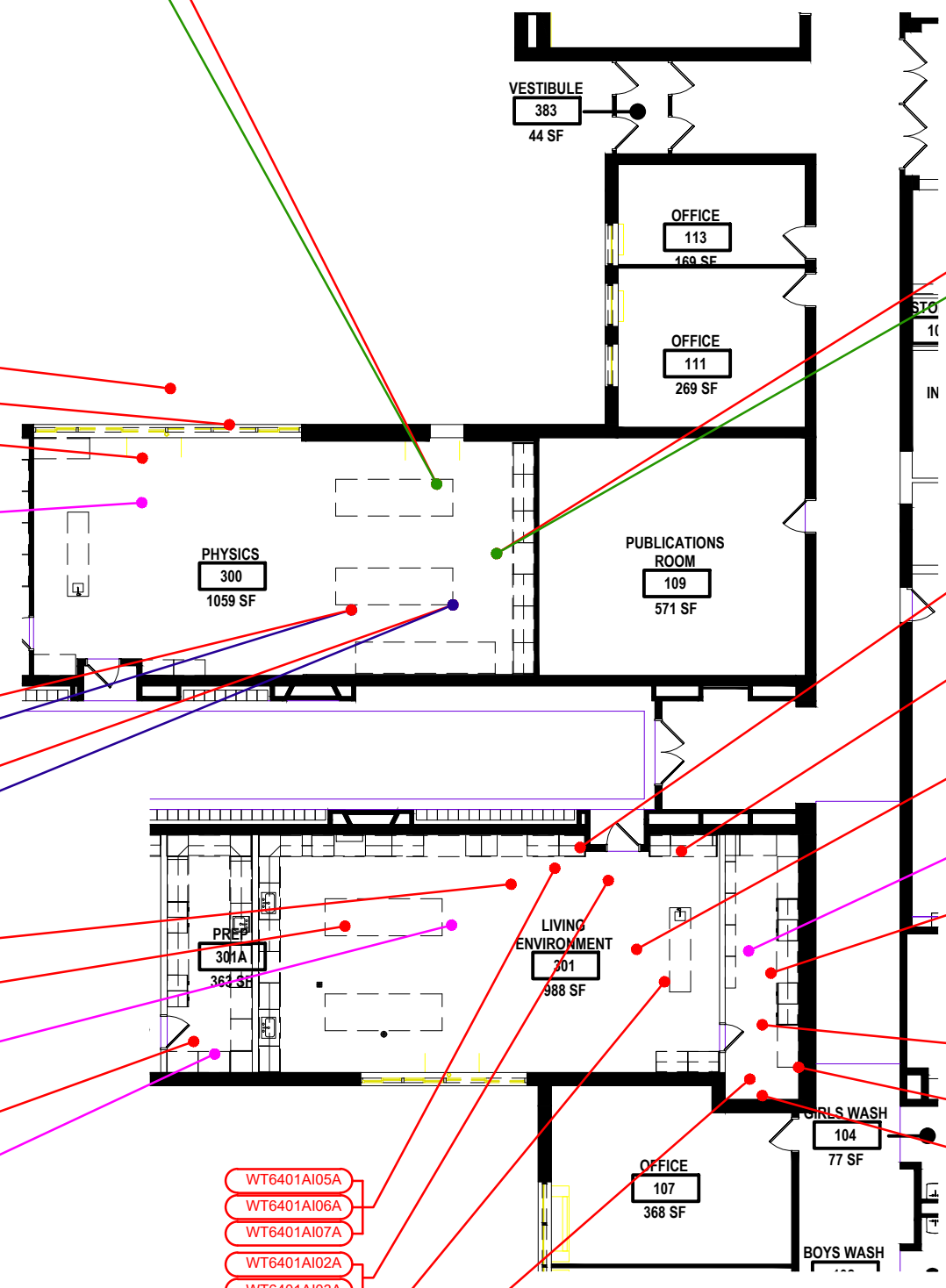
WT6401AI04A

WT6401LX08  
WT6401LX09  
WT6401LX10  
WT6401LX11  
WT6401LX12  
WT6401LX13

WT6401AB01A051324

WT6401AI02B  
WT6401AI03B  
WT6401AI08E  
WT6401AI09E  
WT6401AI68C  
WT6401AI69C  
WT6401AI70C

WT6401AB02A051324



SAMPLE LOCATION PLAN

Drawn By: JDF	Drawing: 17 of 19	Scale: As Noted	Project No.: WT6401	Date: June 2024
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Partial First Floor Sample Location Plan  
Scale: NTS

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General Brown CSD  
Dexter, New York

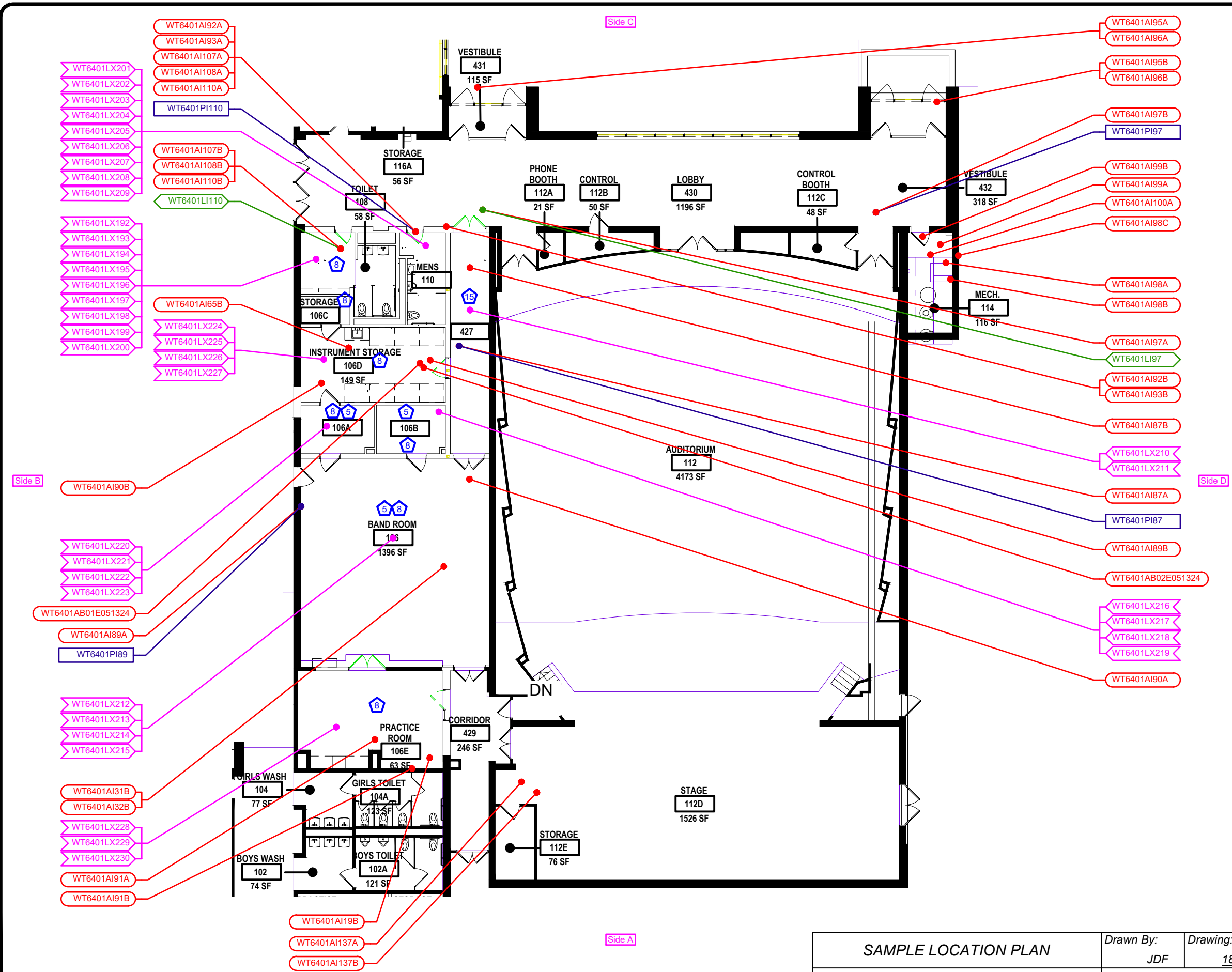


ATLANTIC TESTING LABORATORIES, Limited

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Poughkeepsie, NY Rochester, NY Syracuse, NY Utica, NY Watertown, NY

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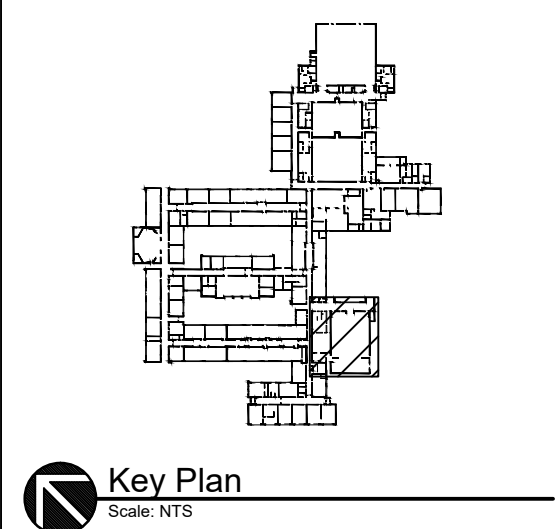


**LEGEND :**

WT6401AI01A	Suspect Asbestos Sample ID and Approximate Location
WT6401PI01	Suspect PCB-Containing Caulk Sample ID and Approximate Location
WT6401LI01	Suspect Lead-Containing Caulk Sample ID and Approximate Location
WT6401LX01	Suspect Lead-Based XRF Sample ID and Approximate Location
Side A	Side Designation for XRF Sampling

**ASBESTOS KEYNOTES :**

5	Brown Cork Board Adhesive
8	Gray 9- by 9-Inch Streaked Floor Tile and Associated Black Mastic
15	Brown 9- by 9-Inch Streaked Floor Tile



**Partial First Floor Sample Location Plan**  
Scale: NTS

<b>SAMPLE LOCATION PLAN</b>	Drawn By:	Drawing:	Scale:	Project No.:	Date :
	JDF	18 of 19	As Noted	WT6401	June 2024

Phase 1 - Capital Project - Jr./Sr. High School  
General Brown CSD  
Dexter, New York



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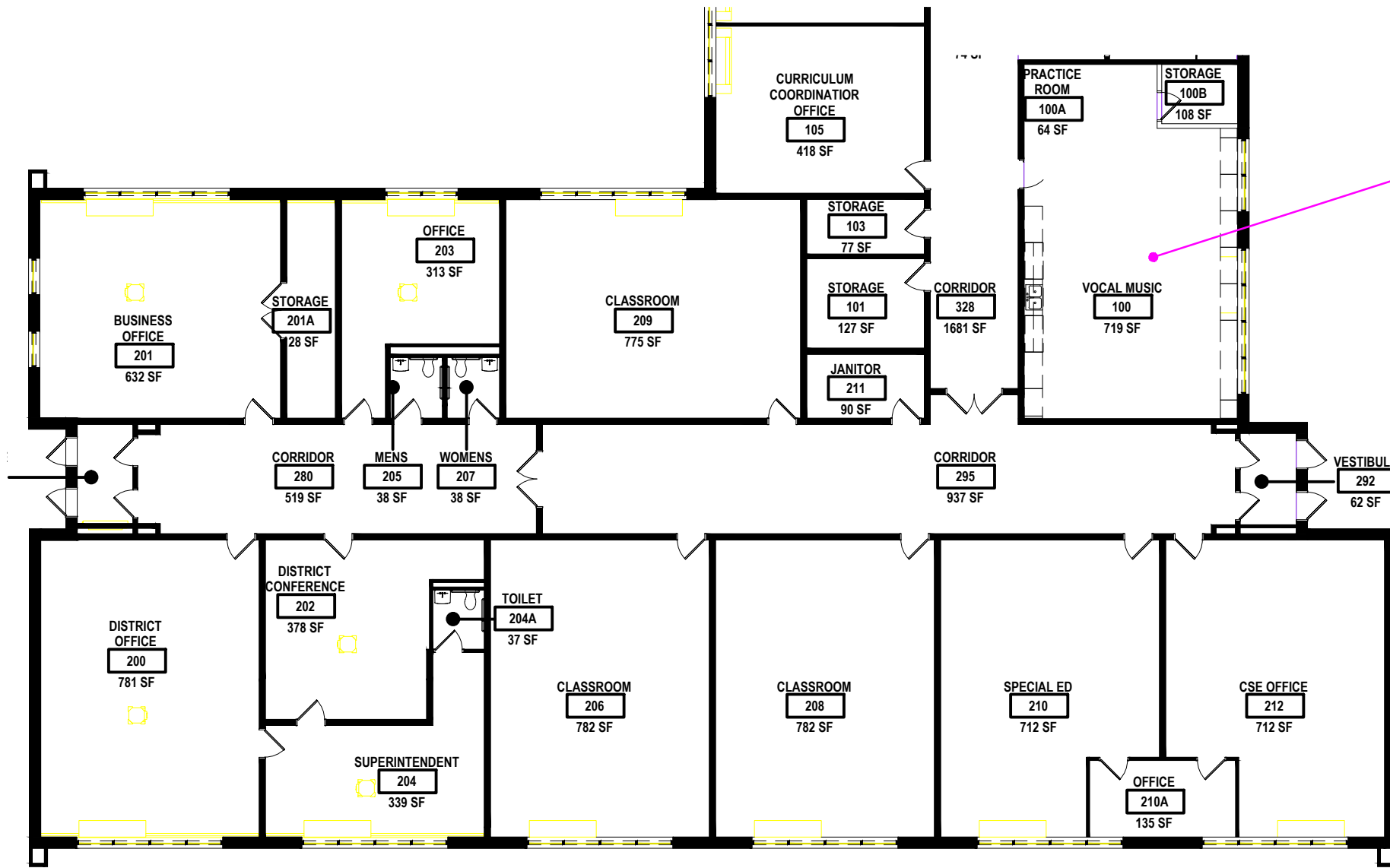


Side C

**LEGEND :**

- WT6401AI01A Suspect Asbestos Sample ID and Approximate Location
- WT6401PI01 Suspect PCB-Containing Caulk Sample ID and Approximate Location
- WT6401LI01 Suspect Lead-Containing Caulk Sample ID and Approximate Location
- WT6401LX01 Suspect Lead-Based XRF Sample ID and Approximate Location
- Side A Side Designation for XRF Sampling

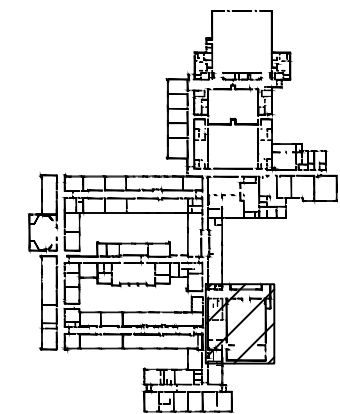
**ASBESTOS KEYNOTES :**



Side B

Side D

Side A



**Key Plan**  
Scale: NTS

**Partial First Floor Sample Location Plan**  
Scale: NTS

<b>SAMPLE LOCATION PLAN</b>	Drawn By: JDF	Drawing: 19 of 19	Scale: As Noted	Project No.: WT6401	Date: June 2024
Phase 1 - Capital Project - Jr./Sr. High School General Brown CSD Dexter, New York		<b>ATLANTIC TESTING LABORATORIES, Limited</b>		<small>Albany, NY    Binghamton, NY    Buffalo, NY    Canton, NY    Elmira, NY    Plattsburgh, NY Poughkeepsie, NY    Rochester, NY    Syracuse, NY    Utica, NY    Watertown, NY</small>	
		<b>WBE certified company</b>		<small>www.AtlanticTesting.com</small>	

## **APPENDIX C**

### **LABORATORY REPORTS AND CUSTODY DOCUMENTATION**



**AmeriSci New York**

117 EAST 30TH ST.  
NEW YORK, NY 10016  
TEL: (212) 679-8600 • FAX: (212) 679-3114

## PLM Bulk Asbestos Report

Atlantic Testing Laboratories, Limited  
Attn: Robert Faulkham  
6431 US Highway 11  
  
Canton, NY 13617

**Date Received** 05/01/24     **AmeriSci Job #** 224051036  
**Date Examined** 05/03/24     **P.O. #**  
**ELAP #** 11480     **Page** 1 of 50  
**RE:** WT6401; Capital Improvements / General Brown CSD; General  
Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI01A 01	224051036-01 <b>Location:</b> 301 - Row 1: White 2- By 2-Foot Fissured And Pinholed Ceiling Tile	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Gray, Homogeneous, Non-Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Non-fibrous 45.4%			
WT6401AI01B 01	224051036-02 <b>Location:</b> 305 - Row 1: White 2- By 2-Foot Fissured And Pinholed Ceiling Tile	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Gray, Homogeneous, Non-Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Non-fibrous 45%			
WT6401AI02A 02	224051036-03 <b>Location:</b> 301 - Row 2: Yellow Skim Coat Ceiling Plaster	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White, Homogeneous, Non-Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Non-fibrous 100%			
WT6401AI02B 02	224051036-04 <b>Location:</b> 301A - Row 2: Yellow Skim Coat Ceiling Plaster	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White, Homogeneous, Non-Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Non-fibrous 100%			
WT6401AI02C 02	224051036-05 <b>Location:</b> 305 - Row 2: Yellow Skim Coat Ceiling Plaster	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Tan, Homogeneous, Non-Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Non-fibrous 100%			



Client Name: Atlantic Testing Laboratories, Limited

# PLM Bulk Asbestos Report

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI02D 02	224051036-06 <b>Location:</b> 506 - Row 2: Yellow Skim Coat Ceiling Plaster	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Tan, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 100%			
WT6401AI02E 02	224051036-07 <b>Location:</b> 502 - Row 2: Yellow Skim Coat Ceiling Plaster	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Tan, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 100%			
WT6401AI02F 02	224051036-08 <b>Location:</b> 303 - Row 2: Yellow Skim Coat Ceiling Plaster	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Lt. Gray, Homogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose 1%, Non-fibrous 99%			
WT6401AI02G 02	224051036-09 <b>Location:</b> 307 - Row 2: Yellow Skim Coat Ceiling Plaster	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Tan, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 100%			
WT6401AI03A 03	224051036-10 <b>Location:</b> 301 - Row 3: Gray Base Coat Ceiling Plaster Row 2 "(SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16 - see PLM footnote."		NA <sup>1</sup>
<b>Analyst Description:</b> Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b>			
WT6401AI03B 03	224051036-11 <b>Location:</b> 301A - Row 3: Gray Base Coat Ceiling Plaster Row 2 "(SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16 - see PLM footnote."		NA <sup>1</sup>
<b>Analyst Description:</b> Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b>			

Client Name: Atlantic Testing Laboratories, Limited

**PLM Bulk Asbestos Report**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI03C 03	224051036-12		NA <sup>1</sup>
<b>Location:</b> 305 - Row 3: Gray Base Coat Ceiling Plaster Row 2 "(SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16 - see PLM footnote."			
<b>Analyst Description:</b> Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b>			
WT6401AI03D 03	224051036-13		NA <sup>1</sup>
<b>Location:</b> 506 - Row 3: Gray Base Coat Ceiling Plaster Row 2 "(SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16 - see PLM footnote."			
<b>Analyst Description:</b> Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b>			
WT6401AI03E 03	224051036-14		NA <sup>1</sup>
<b>Location:</b> 502 - Row 3: Gray Base Coat Ceiling Plaster Row 2 "(SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16 - see PLM footnote."			
<b>Analyst Description:</b> Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b>			
WT6401AI03F 03	224051036-15		NA <sup>1</sup>
<b>Location:</b> 303 - Row 3: Gray Base Coat Ceiling Plaster Row 2 "(SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16 - see PLM footnote."			
<b>Analyst Description:</b> Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b>			
WT6401AI03G 03	224051036-16		NA <sup>1</sup>
<b>Location:</b> 307 - Row 3: Gray Base Coat Ceiling Plaster Row 2 "(SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16 - see PLM footnote."			
<b>Analyst Description:</b> Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b>			
WT6401AI04A 04	224051036-17	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Location:</b> 301 - Row 4: Brown Insulation Backing Paper			
<b>Analyst Description:</b> Black/Brown, Heterogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 10.9%			

Client Name: Atlantic Testing Laboratories, Limited

**PLM Bulk Asbestos Report**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

<b>Client No. / HGA</b>	<b>Lab No.</b>	<b>Asbestos Present</b>	<b>Total % Asbestos</b>
WT6401AI04B 04	224051036-18 <b>Location:</b> 506 - Row 4: Brown Insulation Backing Paper	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black/Brown, Heterogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 0.6%			
WT6401AI04C 04	224051036-19 <b>Location:</b> 502 - Row 4: Brown Insulation Backing Paper	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black/Brown, Heterogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 3.7%			
WT6401AI05A 05	224051036-20 <b>Location:</b> 301 - Row 5: White Gypsum Wall Board	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Brown/White, Heterogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose 15%, Fibrous glass Trace, Non-fibrous 85%			
WT6401AI05B 05	224051036-21 <b>Location:</b> 506 - Row 5: White Gypsum Wall Board	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Brown/White, Heterogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose 15%, Fibrous glass 1%, Non-fibrous 84%			
WT6401AI06A 06	224051036-22 <b>Location:</b> 301 - Row 6: White Joint Compound Row 5	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI06B 06	224051036-23 <b>Location:</b> 506 - Row 6: White Joint Compound Row 5	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			

Client Name: Atlantic Testing Laboratories, Limited

**PLM Bulk Asbestos Report**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

<b>Client No. / HGA</b>	<b>Lab No.</b>	<b>Asbestos Present</b>	<b>Total % Asbestos</b>
WT6401AI07A 07	224051036-24 <b>Location:</b> 301 - Row 7: Off-White Seam Tape Row 5	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Cream, Homogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose 95%, Non-fibrous 5%			
WT6401AI07B 07	224051036-25 <b>Location:</b> 506 - Row 7: Off-White Seam Tape Row 5	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Cream, Homogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose 95%, Non-fibrous 5%			
WT6401AI08A 08	224051036-26 <b>Location:</b> 301 - Row 8: Yellow Skim Coat Wall Plaster	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Green, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 100%			
WT6401AI08B 08	224051036-27 <b>Location:</b> 303 - Row 8: Yellow Skim Coat Wall Plaster	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Green, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI08C 08	224051036-28 <b>Location:</b> 506 - Row 8: Yellow Skim Coat Wall Plaster	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Tan, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 100%			
WT6401AI08D 08	224051036-29 <b>Location:</b> 502 - Row 8: Yellow Skim Coat Wall Plaster	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Tan, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 100%			

Client Name: Atlantic Testing Laboratories, Limited

# PLM Bulk Asbestos Report

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI08E 08	224051036-30 <b>Location:</b> 301A - Row 8: Yellow Skim Coat Wall Plaster	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White/Tan, Heterogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 100%			
WT6401AI08F 08	224051036-31 <b>Location:</b> 307 - Row 8: Yellow Skim Coat Wall Plaster	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White/Tan, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 100%			
WT6401AI08G 08	224051036-32 <b>Location:</b> 311 - Row 8: Yellow Skim Coat Wall Plaster	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White/Tan, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 100%			
WT6401AI09A 09	224051036-33 <b>Location:</b> 301 - Row 9: Gray Base Coat Wall Plaster Row 8 "(SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16 - see PLM footnote."		NA <sup>1</sup>
<b>Analyst Description:</b> Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b>			
WT6401AI09B 09	224051036-34 <b>Location:</b> 303 - Row 9: Gray Base Coat Wall Plaster Row 8 "(SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16 - see PLM footnote."		NA <sup>1</sup>
<b>Analyst Description:</b> Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b>			
WT6401AI09C 09	224051036-35 <b>Location:</b> 506 - Row 9: Gray Base Coat Wall Plaster Row 8 "(SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16 - see PLM footnote."		NA <sup>1</sup>
<b>Analyst Description:</b> Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b>			

Client Name: Atlantic Testing Laboratories, Limited

# PLM Bulk Asbestos Report

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI09D 09	224051036-36		NA <sup>1</sup>
<b>Location:</b> 502 - Row 9: Gray Base Coat Wall Plaster Row 8 "(SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16 - see PLM footnote."			
<b>Analyst Description:</b> Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b>			
WT6401AI09E 09	224051036-37		NA <sup>1</sup>
<b>Location:</b> 301A - Row 9: Gray Base Coat Wall Plaster Row 8 "(SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16 - see PLM footnote."			
<b>Analyst Description:</b> Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b>			
WT6401AI09F 09	224051036-38		NA <sup>1</sup>
<b>Location:</b> 307 - Row 9: Gray Base Coat Wall Plaster Row 8 "(SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16 - see PLM footnote."			
<b>Analyst Description:</b> Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b>			
WT6401AI09G 09	224051036-39		NA <sup>1</sup>
<b>Location:</b> 311 - Row 9: Gray Base Coat Wall Plaster Row 8 "(SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16 - see PLM footnote."			
<b>Analyst Description:</b> Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b>			
WT6401AI10A 10	224051036-40	No	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Location:</b> 303 - Row 10: Black 4-Inch Cove Base			
<b>Analyst Description:</b> Black, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 3.2%			
WT6401AI10B 10	224051036-41	No	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Location:</b> 502 - Row 10: Black 4-Inch Cove Base			
<b>Analyst Description:</b> Black, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 1.6%			

## PLM Bulk Asbestos Report

WT6401; Capital Improvements / General Brown CSD; General  
Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI11A 11	224051036-42 Location: 303 - Row 11: Tan Adhesive Row 10	No	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Beige, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 1.4%			
WT6401AI11B 11	224051036-43 Location: 502 - Row 11: Tan Adhesive Row 10	No	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Beige, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 1.3%			
WT6401AI12A 12	224051036-44 Location: 301A - Row 12: White 12- By 12-Inch Streaked Floor Tile	No	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 0.7%			
WT6401AI12B 12	224051036-45 Location: 502 - Row 12: White 12- By 12-Inch Streaked Floor Tile	No	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 1.1%			
WT6401AI13A 13	224051036-46 Location: 301A - Row 13: Yellow Mastic Row 12	No	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White/Beige, Heterogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 9.2%			
WT6401AI13B 13	224051036-47 Location: 502 - Row 13: Yellow Mastic Row 12	No	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White/Tan, Heterogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 13.6%			

Client Name: Atlantic Testing Laboratories, Limited

**PLM Bulk Asbestos Report**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI14A 14	224051036-48 <b>Location:</b> 303 - Row 14: Black Window Sill	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Dark Gray/Black, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 100%			
WT6401AI14B 14	224051036-49 <b>Location:</b> 302 - Row 14: Black Window Sill	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Dark Gray/Black, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 100%			
WT6401AI15A 15	224051036-50 <b>Location:</b> 300 - Row 1 5: Black Grout Row 14	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Dark Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI15B 15	224051036-51 <b>Location:</b> 509 - Row 15: Black Grout Row 14	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Dark Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI16A 16	224051036-52 <b>Location:</b> 311 - Row 16: Gray Window Perimeter Caulk	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 8.4%			
WT6401AI16B 16	224051036-53 <b>Location:</b> 302 - Row 16: Gray Window Perimeter Caulk	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 2.4%			



Client Name: Atlantic Testing Laboratories, Limited

**PLM Bulk Asbestos Report**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI17A 17	224051036-54 <b>Location:</b> 302 - Row 17: Black Countertop	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Homogeneous, Non-Fibrous, Cementitious, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Non-fibrous 100%			
WT6401AI17B 17	224051036-55 <b>Location:</b> 302A - Row 17: Black Countertop	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Homogeneous, Non-Fibrous, Cementitious, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Non-fibrous 100%			
WT6401AI18A 18	224051036-56 <b>Location:</b> 303 - Row 18: Black Grout Row 17	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Dark Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI18B 18	224051036-57 <b>Location:</b> 509 - Row 18: Black Grout Row 17	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Dark Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI19A 19	224051036-58 <b>Location:</b> 301A - Row 19: Gray Block Mortar	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White/Gray, Heterogeneous, Non-Fibrous, Cementitious, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI19B 19	224051036-59 <b>Location:</b> 106E - Row 19: Gray Block Mortar	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White/Gray, Heterogeneous, Non-Fibrous, Cementitious, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			

Client Name: Atlantic Testing Laboratories, Limited

**PLM Bulk Asbestos Report**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI20B 20	224051036-60 <b>Location:</b> 307 - Row 20: Green 9- By 9-Inch Streaked Floor Tile "Sample Not Submitted"		NA
<b>Analyst Description:</b> Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b>			
WT6401AI21A 21	224051036-61 <b>Location:</b> 305 - Row 21: Black Mastic Row 20	<b>Yes</b>	Trace (<0.25 % pc) <sup>2</sup> (ELAP 400 PC) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Homogeneous, Non-Fibrous, Bulk Material <b>Asbestos Types:</b> Chrysotile <0.25 % pc <b>Other Material:</b> Non-fibrous 10.1%			
WT6401AI21B 21	224051036-62 <b>Location:</b> 307 - Row 21: Black Mastic Row 20	<b>Yes</b>	Trace (<0.25 % pc) <sup>2</sup> (ELAP 400 PC) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Heterogeneous, Non-Fibrous, Bulk Material <b>Asbestos Types:</b> Chrysotile <0.25 % pc <b>Other Material:</b> Non-fibrous 14.4%			
WT6401AI22A 22	224051036-63 <b>Location:</b> 307 - Row 22: Black Chalkboard	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Dark Gray/Black, Homogeneous, Non-Fibrous, Cementitious, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Non-fibrous 100%			
WT6401AI22B 22	224051036-64 <b>Location:</b> 309 - Row 22: Black Chalkboard	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Dark Gray/Black, Homogeneous, Non-Fibrous, Cementitious, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Non-fibrous 100%			
WT6401AI23A 23	224051036-65 <b>Location:</b> 307 - Row 23: Black Chalkboard Adhesive Row 22	<b>Yes</b>	4.1% (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Homogeneous, Fibrous, Bulk Material <b>Asbestos Types:</b> Chrysotile 4.1 % <b>Other Material:</b> Non-fibrous 22.8%			

Client Name: Atlantic Testing Laboratories, Limited

**PLM Bulk Asbestos Report**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI23B 23	224051036-66 <b>Location:</b> 309 - Row 23: Black Chalkboard Adhesive Row 22		NA/PS
<b>Analyst Description:</b> Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b>			
WT6401AI24A 24	224051036-67 <b>Location:</b> 305 - Row 24: Green 12- By 12-Inch Floor Tile	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Dark Green, Homogeneous, Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Non-fibrous 1.3%			
WT6401AI24B 24	224051036-68 <b>Location:</b> 307 - Row 24: Green 12- By 12-Inch Floor Tile	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Dark Green, Homogeneous, Non-Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Non-fibrous 1%			
WT6401AI26A 26	224051036-69 <b>Location:</b> 307 - Row 26: White 2- By 4-Foot Fissured And Pinholed Ceiling Tile	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Non-fibrous 33.5%			
WT6401AI26B 26	224051036-70 <b>Location:</b> 600 - Row 26: White 2- By 4-Foot Fissured And Pinholed Ceiling Tile	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Non-fibrous 43.3%			
WT6401AI28A 28	224051036-71 <b>Location:</b> 311 - Row 28: Gray 12- By 12-Inch Floor Tile	<b>Yes</b>	7.1% (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Fibrous, Bulk Material <b>Asbestos Types:</b> Chrysotile 7.1 % <b>Other Material:</b> Non-fibrous 26.5%			

Client Name: Atlantic Testing Laboratories, Limited

**PLM Bulk Asbestos Report**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI28B 28	224051036-72 Location: 311 - Row 28: Gray 12- By 12-Inch Floor Tile		NA/PS
<b>Analyst Description:</b> Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b>			
WT6401AI29A 29	224051036-73 Location: 311 - Row 29: Black Mastic	Yes	4.6% (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Homogeneous, Fibrous, Bulk Material <b>Asbestos Types:</b> Chrysotile 4.6 % <b>Other Material:</b> Non-fibrous 11.6%			
WT6401AI29B 29	224051036-74 Location: 311 - Row 29: Black Mastic		NA/PS
<b>Analyst Description:</b> Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b>			
WT6401AI31A 31	224051036-75 Location: 306 - Row 31: White 1- By 1-Foot Pinhole Ceiling Tile	No	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Brown, Homogeneous, Non-Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Non-fibrous 7.7%			
WT6401AI31B 31	224051036-76 Location: 106 - Row 31: White 1- By 1-Foot Pinhole Ceiling Tile	No	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Brown, Homogeneous, Non-Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Non-fibrous 5.7%			
WT6401AI32A 32	224051036-77 Location: 306 - Row 32: Brown Adhesive	No	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Brown, Homogeneous, Non-Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Non-fibrous 41.5%			

Client Name: Atlantic Testing Laboratories, Limited

# PLM Bulk Asbestos Report

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI32B 32	224051036-78 <b>Location:</b> 106 - Row 32: Brown Adhesive	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Brown, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 43.4%			
WT6401AI33A 33	224051036-79 <b>Location:</b> 304 - Row 33: White Gypsum Ceiling Board	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Brown/White, Heterogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose 20%, Fibrous glass Trace, Non-fibrous 80%			
WT6401AI33B 33	224051036-80 <b>Location:</b> 306 - Row 33: White Gypsum Ceiling Board	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Brown/White, Heterogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose 15%, Fibrous glass Trace, Non-fibrous 85%			
WT6401AI35A 35	224051036-81 <b>Location:</b> 304 - Row 35: Black Mastic Row 34	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 11.8%			
WT6401AI35B 35	224051036-82 <b>Location:</b> 306 - Row 35: Black Mastic Row 34	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 13.7%			
WT6401AI36A 36	224051036-83 <b>Location:</b> 304 - Row 36: Brown 12- By 12-Inch Mottled Floor Tile	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Dark Brown, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 0.5%			

Client Name: Atlantic Testing Laboratories, Limited

# PLM Bulk Asbestos Report

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI36B 36	224051036-84 <b>Location:</b> 304 - Row 36: Brown 12- By 12-Inch Mottled Floor Tile	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Dark Brown, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 0.9%			
WT6401AI37A 37	224051036-85 <b>Location:</b> 304 - Row 37: Yellow Mastic Row 36	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Yellow/Gray, Heterogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 24.5%			
WT6401AI37B 37	224051036-86 <b>Location:</b> 304 - Row 37: Yellow Mastic Row 36	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Yellow/Gray, Heterogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 31.3%			
WT6401AI38A 38	224051036-87 <b>Location:</b> 300A - Row 38: White 1- By 1-Foot Fissured Ceiling Tile	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Gray, Heterogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 23.6%			
WT6401AI38B 38	224051036-88 <b>Location:</b> 506 - Row 38: White 1- By 1-Foot Fissured Ceiling Tile	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Gray, Heterogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 25.6%			
WT6401AI39A 39	224051036-89 <b>Location:</b> 300A - Row 39: Brown Adhesive Row 38	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Dark Brown, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 43.4%			

**PLM Bulk Asbestos Report**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI39B 39	224051036-90 Location: 506 - Row 39: Brown Adhesive Row 38	No	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Dark Brown, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 51.9%			
WT6401AI40A 40	224051036-91 Location: 302 - Row 40: Gray Cementitious Board	No	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose 20%, Non-fibrous 80%			
WT6401AI40B 40	224051036-92 Location: 302 - Row 40: Gray Cementitious Board	No	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose 20%, Non-fibrous 80%			
WT6401AI41A 41	224051036-93 Location: 600 - Row 41: White Skim Coat Wall Plaster	No	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 100%			
WT6401AI41B 41	224051036-94 Location: 602 - Row 41: White Skim Coat Wall Plaster	No	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 100%			
WT6401AI41C 41	224051036-95 Location: 610 - Row 41: White Skim Coat Wall Plaster	No	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 100%			

Client Name: Atlantic Testing Laboratories, Limited

**PLM Bulk Asbestos Report**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI41D 41	224051036-96 <b>Location:</b> 610A - Row 41: White Skim Coat Wall Plaster	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 100%			
WT6401AI41E 41	224051036-97 <b>Location:</b> 610B - Row 41: White Skim Coat Wall Plaster	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 100%			
WT6401AI41F 41	224051036-98 <b>Location:</b> 610C - Row 41: White Skim Coat Wall Plaster	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 100%			
WT6401AI41G 41	224051036-99 <b>Location:</b> 608 - Row 41: White Skim Coat Wall Plaster	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 100%			
WT6401AI42A 42	224051036-100 <b>Location:</b> 600 - Row 42: Gray Base Coat Wall Plaster Row 41	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI42B 42	224051036-101 <b>Location:</b> 602 - Row 42: Gray Base Coat Wall Plaster Row 41	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			



Client Name: Atlantic Testing Laboratories, Limited

# PLM Bulk Asbestos Report

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI42C 42	224051036-102 <b>Location:</b> 610 - Row 42: Gray Base Coat Wall Plaster Row 41	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI42D 42	224051036-103 <b>Location:</b> 610A - Row 42: Gray Base Coat Wall Plaster Row 41	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI42E 42	224051036-104 <b>Location:</b> 610B - Row 42: Gray Base Coat Wall Plaster Row 41	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI42F 42	224051036-105 <b>Location:</b> 610C - Row 42: Gray Base Coat Wall Plaster Row 41	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI42G 42	224051036-106 <b>Location:</b> 608 - Row 42: Gray Base Coat Wall Plaster Row 41	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI43A 43	224051036-107 <b>Location:</b> 600 - Row 43: Gray 12- By 12-Inch Marbled Floor Tile	<b>Yes</b>	3.9% (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b> Chrysotile 3.9 %			
<b>Other Material:</b> Non-fibrous 20.3%			

Client Name: Atlantic Testing Laboratories, Limited

**PLM Bulk Asbestos Report**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI43B 43	224051036-108 <b>Location:</b> 602 - Row 43: Gray 12- By 12-Inch Marbled Floor Tile		NA/PS
<b>Analyst Description:</b> Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b>			
WT6401AI44A 44	224051036-109 <b>Location:</b> 600 - Row 44: Yellow Mastic Row 43	<b>Yes</b>	2.8% (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Homogeneous, Fibrous, Bulk Material <b>Asbestos Types:</b> Chrysotile 2.8 % <b>Other Material:</b> Non-fibrous 11%			
WT6401AI44B 44	224051036-110 <b>Location:</b> 602 - Row 44: Yellow Mastic Row 43		NA/PS
<b>Analyst Description:</b> Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b>			
WT6401AI45A 45	224051036-111 <b>Location:</b> 909 - Row 45: White Gypsum Board	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Brown/White, Heterogeneous, Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Cellulose 35%, Fibrous glass Trace, Non-fibrous 65%			
WT6401AI45B 45	224051036-112 <b>Location:</b> 909 - Row 45: White Gypsum Board	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Cellulose 2%, Fibrous glass Trace, Non-fibrous 98%			
WT6401AI46A 46	224051036-113 <b>Location:</b> 909 - Row 46: White Joint Compound Row 45	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			

Client Name: Atlantic Testing Laboratories, Limited

**PLM Bulk Asbestos Report**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI46B 46	224051036-114 <b>Location:</b> 909 - Row 46: White Joint Compound Row 45	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI47A 47	224051036-115 <b>Location:</b> 909 - Row 47: White Seam Sealant Row 45	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Cream, Homogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose 95%, Non-fibrous 5%			
WT6401AI47B 47	224051036-116 <b>Location:</b> 909 - Row 47: White Seam Sealant Row 45	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Cream, Homogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose 93%, Non-fibrous 7%			
WT6401AI48A 48	224051036-117 <b>Location:</b> 608 - Row 48: Black Sink Coating	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 29.2%			
WT6401AI48B 48	224051036-118 <b>Location:</b> 502 - Row 48: Black Sink Coating	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 23.4%			
WT6401AI49A 49	224051036-119 <b>Location:</b> 502 - Row 49: Brown 4-Inch Cove Base	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Dark Brown, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 0.9%			

Client Name: Atlantic Testing Laboratories, Limited

# PLM Bulk Asbestos Report

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI49B 49	224051036-120 <b>Location:</b> 506 - Row 49: Brown 4-Inch Cove Base	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Dark Brown, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 0.8%			
WT6401AI50A 50	224051036-121 <b>Location:</b> 502 - Row 50: Tan Adhesive Row 49	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White/Beige, Heterogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 0.8%			
WT6401AI50B 50	224051036-122 <b>Location:</b> 506 - Row 50: Tan Adhesive Row 49	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White/Beige, Heterogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 0.8%			
WT6401AI51A 51	224051036-123 <b>Location:</b> 905 - Row 51: Gray CFT Grout	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI51B 51	224051036-124 <b>Location:</b> 909 - Row 51: Gray CFT Grout	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI52A 52	224051036-125 <b>Location:</b> 905 - Row 52: Gray CFT Mortar	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			

Client Name: Atlantic Testing Laboratories, Limited

# PLM Bulk Asbestos Report

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401A152B 52	224051036-126 <b>Location:</b> 909 - Row 52: Gray CFT Mortar	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401A153A 53	224051036-127 <b>Location:</b> 610 - Row 53: White Skim Coat Ceiling Plaster	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Green, Heterogeneous, Non-Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Non-fibrous 100%			
WT6401A153B 53	224051036-128 <b>Location:</b> 610 - Row 53: White Skim Coat Ceiling Plaster	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Green, Heterogeneous, Non-Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Non-fibrous 100%			
WT6401A153C 53	224051036-129 <b>Location:</b> 610B - Row 53: White Skim Coat Ceiling Plaster	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Green, Heterogeneous, Non-Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Non-fibrous 100%			
WT6401A153D 53	224051036-130 <b>Location:</b> 610C - Row 53: White Skim Coat Ceiling Plaster	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Green, Heterogeneous, Non-Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Non-fibrous 100%			
WT6401A153E 53	224051036-131 <b>Location:</b> 700E - Row 53: White Skim Coat Ceiling Plaster	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Green, Heterogeneous, Non-Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Non-fibrous 100%			

Client Name: Atlantic Testing Laboratories, Limited

# PLM Bulk Asbestos Report

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401A154A 54	224051036-132 <b>Location:</b> 610 - Row 54: Gray Base Coat Ceiling Plaster Row 53	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401A154B 54	224051036-133 <b>Location:</b> 610 - Row 54: Gray Base Coat Ceiling Plaster Row 53	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401A154C 54	224051036-134 <b>Location:</b> 610B - Row 54: Gray Base Coat Ceiling Plaster Row 53	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401A154D 54	224051036-135 <b>Location:</b> 610C - Row 54: Gray Base Coat Ceiling Plaster Row 53	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401A154E 54	224051036-136 <b>Location:</b> 700E - Row 54: Gray Base Coat Ceiling Plaster Row 53	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401A155A 55	224051036-137 <b>Location:</b> 610 - Row 55: Blue Stair Tread	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Blue, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 47.5%			

Client Name: Atlantic Testing Laboratories, Limited

**PLM Bulk Asbestos Report**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI55B 55	224051036-138 <b>Location:</b> 610 - Row 55: Blue Stair Tread	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Blue, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 45.1%			
WT6401AI56A 56	224051036-139 <b>Location:</b> 610 - Row 56: Tan Adhesive Row 55	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Tan, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 23.9%			
WT6401AI56B 56	224051036-140 <b>Location:</b> 610 - Row 56: Tan Adhesive Row 55	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Tan/Brown, Heterogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 31.9%			
WT6401AI57A 57	224051036-141 <b>Location:</b> 610 - Row 57: Tan Stage Curtain	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Tan, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 0.6%			
WT6401AI57B 57	224051036-142 <b>Location:</b> 610 - Row 57: Tan Stage Curtain	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Tan, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 0.5%			
WT6401AI58A 58	224051036-143 <b>Location:</b> 610 - Row 58: White Pipe TSI Jacket	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Beige/Tan, Heterogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Fibrous Talc Trace, Non-fibrous 25.1%			

Client Name: Atlantic Testing Laboratories, Limited

**PLM Bulk Asbestos Report**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI58B 58	224051036-144 <b>Location:</b> 610 - Row 58: White Pipe TSI Jacket	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White/Beige, Heterogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Fibrous Talc Trace, Non-fibrous 23.6%			
WT6401AI58C 58	224051036-145 <b>Location:</b> 610 - Row 58: White Pipe TSI Jacket	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White/Beige, Heterogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 50.4%			
WT6401AI61A 61	224051036-146 <b>Location:</b> 902 - Row 61: Gray Block Mortar	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Gray, Heterogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI61B 61	224051036-147 <b>Location:</b> 902 - Row 61: Gray Block Mortar	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Gray, Heterogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI62A 62	224051036-148 <b>Location:</b> 902 - Row 62: Gray Door Frame Caulk	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 3.4%			
WT6401AI62B 62	224051036-149 <b>Location:</b> 902 - Row 62: Gray Door Frame Caulk	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 1.2%			



Client Name: Atlantic Testing Laboratories, Limited

# PLM Bulk Asbestos Report

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI63A 63	224051036-150 <b>Location:</b> 301 - Row 63: Tan Countertop Adhesive	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Tan, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 6.7%			
WT6401AI63B 63	224051036-151 <b>Location:</b> 509 - Row 63: Tan Countertop Adhesive	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Tan, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 7.2%			
WT6401AI65A 65	224051036-152 <b>Location:</b> 904 - Row 65: Black Sink Coating	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 16.9%			
WT6401AI65B 65	224051036-153 <b>Location:</b> 106B - Row 65: Black Sink Coating	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 16.7%			
WT6401AI66A 66	224051036-154 <b>Location:</b> 708 - Row 66: Gray Brick Mortar	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 100%			
WT6401AI66B 66	224051036-155 <b>Location:</b> 716 - Row 66: Gray Brick Mortar	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 100%			

Client Name: Atlantic Testing Laboratories, Limited

**PLM Bulk Asbestos Report**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI67A 67	224051036-156 <b>Location:</b> 708 - Row 67: Brown Expansion Joint Caulk	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 0.2%			
WT6401AI67B 67	224051036-157 <b>Location:</b> 708 - Row 67: Brown Expansion Joint Caulk	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 0.2%			
WT6401AI68A 68	224051036-158 <b>Location:</b> 708 - Row 68: White Pipe TSI Jacket	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Silver, Heterogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose 35%, Fibrous glass 10%, Non-fibrous 55%			
WT6401AI68B 68	224051036-159 <b>Location:</b> 909 - Row 68: White Pipe TSI Jacket	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Silver, Heterogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose 30%, Fibrous glass 10%, Non-fibrous 60%			
WT6401AI68C 68	224051036-160 <b>Location:</b> 911 - Row 68: White Pipe TSI Jacket	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Silver, Heterogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose 35%, Fibrous glass 10%, Non-fibrous 55%			
WT6401AI69A 69	224051036-161 <b>Location:</b> 708 - Row 69: White Pipe TSI Jacket	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Silver/Yellow, Heterogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose 30%, Fibrous glass 40%, Non-fibrous 30%			

Client Name: Atlantic Testing Laboratories, Limited

# PLM Bulk Asbestos Report

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI69B 69	224051036-162 <b>Location:</b> 907 - Row 69: White Pipe TSI Jacket	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Silver, Heterogeneous, Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Cellulose 35%, Fibrous glass 10%, Non-fibrous 55%			
WT6401AI69C 69	224051036-163 <b>Location:</b> 911 - Row 69: White Pipe TSI Jacket	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Silver, Heterogeneous, Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Cellulose 30%, Fibrous glass 10%, Non-fibrous 60%			
WT6401AI70A 70	224051036-164 <b>Location:</b> 708 - Row 70: White Pipe TSI End Sealant	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Heterogeneous, Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Fibrous glass 20%, Non-fibrous 35.7%			
WT6401AI70B 70	224051036-165 <b>Location:</b> Gym Mezzanine - Row 70: White Pipe TSI End Sealant	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Brown, Heterogeneous, Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Fibrous glass 10%, Non-fibrous 47.8%			
WT6401AI70C 70	224051036-166 <b>Location:</b> 301A - Row 70: White Pipe TSI End Sealant	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Brown, Heterogeneous, Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Fibrous glass 25%, Non-fibrous 31%			
WT6401AI71A 71	224051036-167 <b>Location:</b> 708 - Row 71: White Rope Gasket	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Fibrous glass 80%, Synthetic fibers 15%, Non-fibrous 5%			

Client Name: Atlantic Testing Laboratories, Limited

# PLM Bulk Asbestos Report

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI71B 71	224051036-168 <b>Location:</b> 708 - Row 71: White Rope Gasket	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Fibrous glass 85%, Synthetic fibers 10%, Non-fibrous 5%			
WT6401AI71C 71	224051036-169 <b>Location:</b> 708 - Row 71: White Rope Gasket	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray/Tan, Heterogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Fibrous glass 20%, Non-fibrous 80%			
WT6401AI72A 72	224051036-170 <b>Location:</b> 708 - Row 72: Red Seam Sealant	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Red, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 7.7%			
WT6401AI72B 72	224051036-171 <b>Location:</b> 708 - Row 72: Red Seam Sealant	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Red, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 8.4%			
WT6401AI73A 73	224051036-172 <b>Location:</b> 909 - Row 73: White 2- by 2-Foot Tectum Ceiling Tile	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Beige, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 7.3%			
WT6401AI73B 73	224051036-173 <b>Location:</b> 909 - Row 73: White 2- by 2-Foot Tectum Ceiling Tile	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Beige, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 7%			

Client Name: Atlantic Testing Laboratories, Limited

**PLM Bulk Asbestos Report**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI74A 74	224051036-174 <b>Location:</b> 909 - Row 74: Gray Mortar	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI74B 74	224051036-175 <b>Location:</b> 905 - Row 74: Gray Mortar	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI75A 75	224051036-176 <b>Location:</b> 909 - Row 75: White CWT Grout	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White/Beige, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI75B 75	224051036-177 <b>Location:</b> 905 - Row 75: White CWT Grout	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White/Beige, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI76A 76	224051036-178 <b>Location:</b> 909 - Row 76: Gray CWT Mortar Row 75	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White/Beige, Heterogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI76B 76	224051036-179 <b>Location:</b> 905 - Row 76: Gray CWT Mortar Row 75	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White/Beige, Heterogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			

Client Name: Atlantic Testing Laboratories, Limited

**PLM Bulk Asbestos Report**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI77A 77	224051036-180 <b>Location:</b> 909 - Row 77: Gray CFT Grout	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI77B 77	224051036-181 <b>Location:</b> 905 - Row 77: Gray CFT Grout	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI78A 78	224051036-182 <b>Location:</b> 909 - Row 78: Gray CFT Mortar Row 77	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI78B 78	224051036-183 <b>Location:</b> 905 - Row 78: Gray CFT Mortar Row 77	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI79A 79	224051036-184 <b>Location:</b> 905 - Row 79: White Fixture Caulk	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 15.2%			
WT6401AI79B 79	224051036-185 <b>Location:</b> 909 - Row 79: White Fixture Caulk	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 11.9%			

Client Name: Atlantic Testing Laboratories, Limited

**PLM Bulk Asbestos Report**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI80A 80	224051036-186 <b>Location:</b> 911 - Row 80: White CWT Grout	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI80B 80	224051036-187 <b>Location:</b> 905B - Row 80: White CWT Grout	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI81A 81	224051036-188 <b>Location:</b> 911 - Row 81: Gray CWT Mortar Row 80	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White, Heterogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 100%			
WT6401AI81B 81	224051036-189 <b>Location:</b> 905B - Row 81: Gray CWT Mortar Row 80	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White, Heterogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 100%			
WT6401AI82A 82	224051036-190 <b>Location:</b> 911 - Row 82: Gray CFT Grout	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Dark Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI82B 82	224051036-191 <b>Location:</b> 905B - Row 82: Gray CFT Grout	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Dark Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			

Client Name: Atlantic Testing Laboratories, Limited

**PLM Bulk Asbestos Report**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI83A 83	224051036-192 Location: 911 - Row 83: Gray CFT Mortar Row 82	No	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Dark Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI83B 83	224051036-193 Location: 905B - Row 83: Gray CFT Mortar Row 82	No	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Dark Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI84A 84	224051036-194 Location: 907A - Row 84: White Duct TSI	No	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White/Silver, Heterogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose 30%, Fibrous glass 10%, Non-fibrous 60%			
WT6401AI84B 84	224051036-195 Location: 907A - Row 84: White Duct TSI	No	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White/Silver/Tan, Heterogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose 30%, Fibrous glass 25%, Non-fibrous 45%			
WT6401AI84C 84	224051036-196 Location: 907A - Row 84: White Duct TSI	No	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White/Silver, Heterogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose 30%, Fibrous glass 15%, Non-fibrous 55%			
WT6401AI85A 85	224051036-197 Location: 970A - Row 85: Brown Pipe TSI Jacket	No	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Blue/Silver, Heterogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose 30%, Fibrous glass 5%, Non-fibrous 65%			



Client Name: Atlantic Testing Laboratories, Limited

# PLM Bulk Asbestos Report

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI85B 85	224051036-198 Location: 907A - Row 85: Brown Pipe TSI Jacket	No	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Blue/Silver, Heterogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose 25%, Fibrous glass 5%, Non-fibrous 70%			
WT6401AI85C 85	224051036-199 Location: 907A - Row 85: Brown Pipe TSI Jacket	No	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Blue/Silver, Heterogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose 30%, Fibrous glass 5%, Non-fibrous 65%			
WT6401AI87A 87	224051036-200 Location: 427 - Row 87: Black Mastic Row 86	Yes	Trace (<0.25 % pc) <sup>2</sup> (ELAP 400 PC) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b> Chrysotile <0.25 % pc			
<b>Other Material:</b> Non-fibrous 13.2%			
WT6401AI87B 87	224051036-201 Location: 427 - Row 87: Black Mastic Row 86	No	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 7.5%			
WT6401AI89A 89	224051036-202 Location: 106 - Row 89: Black Mastic Row 88	No	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black/Gray, Heterogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 14%			
WT6401AI89B 89	224051036-203 Location: 106B - Row 89: Black Mastic Row 88	Yes	Trace (<0.25 % pc) <sup>2</sup> (ELAP 400 PC) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black/Gray, Heterogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b> Chrysotile <0.25 % pc			
<b>Other Material:</b> Non-fibrous 18.2%			

Client Name: Atlantic Testing Laboratories, Limited

**PLM Bulk Asbestos Report**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI90A 90	224051036-204 <b>Location:</b> 106 - Row 90: Black Window Butyl	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 3.6%			
WT6401AI90B 90	224051036-205 <b>Location:</b> 106D - Row 90: Black Window Butyl	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 3%			
WT6401AI91A 91	224051036-206 <b>Location:</b> 106E - Row 91: Gray Mortar	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI91B 91	224051036-207 <b>Location:</b> 106E - Row 91: Gray Mortar	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI92A 92	224051036-208 <b>Location:</b> 110 - Row 92: White CWT Grout	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI92B 92	224051036-209 <b>Location:</b> 110 - Row 92: White CWT Grout	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			

Client Name: Atlantic Testing Laboratories, Limited

**PLM Bulk Asbestos Report**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI93A 93	224051036-210 Location: 110 - Row 93: Gray CWT Mortar Row 92	No	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Lt. Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI93B 93	224051036-211 Location: 110 - Row 93: Gray CWT Mortar Row 92	No	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Lt. Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI94A 94	224051036-212 Location: 504 - Row 94: Light Green Fire Blanket	No	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Teal, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 0.8%			
WT6401AI94B 94	224051036-213 Location: 504 - Row 94: Light Green Fire Blanket	No	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Teal, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 5.3%			
WT6401AI95A 95	224051036-214 Location: 431 - Row 95: Gray Grout	No	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Dark Gray, Heterogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI95B 95	224051036-215 Location: 432 - Row 95: Gray Grout	No	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Dark Gray, Heterogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			

Client Name: Atlantic Testing Laboratories, Limited

# PLM Bulk Asbestos Report

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI96A 96	224051036-216 Location: 431 - Row 96: Gray Mortar Row 95	No	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI96B 96	224051036-217 Location: 432 - Row 96: Gray Mortar Row 95	No	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI97A 97	224051036-218 Location: 430 - Row 97: Red Door Frame Caulk	No	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Red, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 2.5%			
WT6401AI97B 97	224051036-219 Location: 430 - Row 97: Red Door Frame Caulk	No	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Red, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 2.3%			
WT6401AI98A 98	224051036-220 Location: 114 - Row 98: White Tank TSI	No	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White, Heterogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Fibrous glass 3%, Non-fibrous 97%			
WT6401AI98B 98	224051036-221 Location: 114 - Row 98: White Tank TSI	No	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White, Heterogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Fibrous glass 2%, Non-fibrous 98%			

Client Name: Atlantic Testing Laboratories, Limited

**PLM Bulk Asbestos Report**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI98C 98	224051036-222 <b>Location:</b> 114 - Row 98: White Tank TSI	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White, Heterogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Fibrous glass 5%, Non-fibrous 95%			
WT6401AI99A 99	224051036-223 <b>Location:</b> 114 - Row 99: Orange Gasket	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Orange, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 14.6%			
WT6401AI99B 99	224051036-224 <b>Location:</b> 114 - Row 99: Orange Gasket	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Orange, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 34.7%			
WT6401AI100A 100	224051036-225 <b>Location:</b> 114 - Row 100: White Pipe TSI Jacket	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Silver, Heterogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose 40%, Fibrous glass 5%, Non-fibrous 55%			
WT6401AI100B 100	224051036-226 <b>Location:</b> Area A Crawlspace - Row 100: White Pipe TSI Jacket	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Silver/Yellow, Heterogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose 15%, Fibrous glass 65%, Non-fibrous 20%			
WT6401AI100C 100	224051036-227 <b>Location:</b> Area B Crawlspace - Row 100: White Pipe TSI Jacket	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Silver, Heterogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose 50%, Fibrous glass 5%, Non-fibrous 45%			

Client Name: Atlantic Testing Laboratories, Limited

# PLM Bulk Asbestos Report

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI101A 101	224051036-228 <b>Location:</b> 392 - Row 101: White CWT Grout	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI101B 101	224051036-229 <b>Location:</b> 392 - Row 101: White CWT Grout	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI102A 102	224051036-230 <b>Location:</b> 392 - Row 102: Gray CWT Mortar Row 101	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Gray, Heterogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI102B 102	224051036-231 <b>Location:</b> 392 - Row 102: Gray CWT Mortar Row 101	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Lt. Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI104A 104	224051036-232 <b>Location:</b> Exterior - Row 104: Gray Window Frame Caulk	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Dark Gray, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 0.3%			
WT6401AI104B 104	224051036-233 <b>Location:</b> Exterior - Row 104: Gray Window Frame Caulk	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 0.8%			

## PLM Bulk Asbestos Report

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI105A 105	224051036-234 <b>Location:</b> Exterior - Row 105: Light Gray Window Sill	<b>Yes</b>	Trace (<0.25 % pc) <sup>2</sup> (ELAP 400 PC) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Bulk Material <b>Asbestos Types:</b> Chrysotile <0.25 % pc <b>Other Material:</b> Fibrous Talc Trace, Non-fibrous 14.3%			
WT6401AI105B 105	224051036-235 <b>Location:</b> Exterior - Row 105: Light Gray Window Sill	<b>Yes</b>	Trace (<0.25 % pc) <sup>2</sup> (ELAP 400 PC) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Bulk Material <b>Asbestos Types:</b> Chrysotile <0.25 % pc <b>Other Material:</b> Fibrous Talc Trace, Non-fibrous 13%			
WT6401AI106A 106	224051036-236 <b>Location:</b> 502 - Row 106: Light Blue Fire Blanket	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Blue, Homogeneous, Non-Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Non-fibrous 3.4%			
WT6401AI106B 106	224051036-237 <b>Location:</b> 502 - Row 1 06: Light Blue Fire Blanket	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Blue, Homogeneous, Non-Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Non-fibrous 5.1%			
WT6401AI107A 107	224051036-238 <b>Location:</b> 110 - Row 107: Gray CFT Grout	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI107B 107	224051036-239 <b>Location:</b> 108 - Row 107: Gray CFT Grout	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			

Client Name: Atlantic Testing Laboratories, Limited

**PLM Bulk Asbestos Report**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI108A 108	224051036-240 <b>Location:</b> 110 - Row 108: Light Gray CFT Mortar Row 107	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI108B 108	224051036-241 <b>Location:</b> 108 - Row 108: Light Gray CFT Mortar Row 107	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI109A 109	224051036-242 <b>Location:</b> Crawlspace A - Row 109: Black Tar	<b>Yes</b>	17.6% (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black/Silver, Heterogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b> Chrysotile 17.6 %			
<b>Other Material:</b> Non-fibrous 26.4%			
WT6401AI109B 109	224051036-243 <b>Location:</b> Crawlspace B - Row 109: Black Tar		NA/PS
<b>Analyst Description:</b> Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b>			
WT6401AI109C 109	224051036-244 <b>Location:</b> Crawlspace C - Row 109: Black Tar		NA/PS
<b>Analyst Description:</b> Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b>			
WT6401AI110A 110	224051036-245 <b>Location:</b> 110 - Row 110: White Door Frame Caulk	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 1.6%			



Client Name: Atlantic Testing Laboratories, Limited

**PLM Bulk Asbestos Report**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI110B 110	224051036-246 <b>Location:</b> 108 - Row 110: White Door Frame Caulk	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 1.2%			
WT6401AI111A 111	224051036-247 <b>Location:</b> 907A - Row 111: Yellow Adhesive	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Yellow, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 37.9%			
WT6401AI111B 111	224051036-248 <b>Location:</b> 907A - Row 111: Yellow Adhesive	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Yellow, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 41.7%			
WT6401AI112A 112	224051036-249 <b>Location:</b> 907A - Row 112: White Caulk	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 0.3%			
WT6401AI112B 112	224051036-250 <b>Location:</b> 907B - Row 112: White Caulk	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 0.4%			
WT6401AI113A 113	224051036-251 <b>Location:</b> 600 - Row 113: Black Countertop	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black/Brown, Homogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose 80%, Non-fibrous 20%			

# PLM Bulk Asbestos Report

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI113B 113	224051036-252 <b>Location:</b> 602 - Row 113: Black Countertop	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Dark Brown, Homogeneous, Non-Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI114A 114	224051036-253 <b>Location:</b> 600 - Row 114: Black Countertop Grout Row 113	<b>Yes</b>	3.2% (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray/Black, Homogeneous, Fibrous, Bulk Material <b>Asbestos Types:</b> Chrysotile 3.2 % <b>Other Material:</b> Non-fibrous 32.1% <b>Comment:</b> Material Submitted Appears to be NOB Material.			
WT6401AI114B 114	224051036-254 <b>Location:</b> 602 - Row 114: Black Countertop Grout Row 113		NA/PS
<b>Analyst Description:</b> Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> <b>Comment:</b> Material Submitted Appears to be NOB Material.			
WT6401AI115A 115	224051036-255 <b>Location:</b> 600 - Row 115: Black Countertop	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Homogeneous, Non-Fibrous, Cementitious, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Non-fibrous 100%			
WT6401AI115B 115	224051036-256 <b>Location:</b> 600 - Row 115: Black Countertop	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Homogeneous, Non-Fibrous, Cementitious, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Non-fibrous 100%			

Client Name: Atlantic Testing Laboratories, Limited

# PLM Bulk Asbestos Report

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI116A 116	224051036-257 <b>Location:</b> 600 - Row 116: Black 4-Inch Cove Base	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 49.8%			
WT6401AI116B 116	224051036-258 <b>Location:</b> 602 - Row 116: Black 4-Inch Cove Base	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 50.8%			
WT6401AI117A 117	224051036-259 <b>Location:</b> 600 - Row 117: Brown Adhesive Row 116	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Brown/Gray, Heterogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 46.4%			
WT6401AI117B 117	224051036-260 <b>Location:</b> 602 - Row 117: Brown Adhesive Row 116	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Brown/Gray, Heterogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 46.4%			
WT6401AI118A 118	224051036-261 <b>Location:</b> 600 - Row 118: Gray Streaked Floor Tile	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 0.5%			
WT6401AI118B 118	224051036-262 <b>Location:</b> 600 - Row 118: Gray Streaked Floor Tile	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Gray, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 0.7%			

Client Name: Atlantic Testing Laboratories, Limited

**PLM Bulk Asbestos Report**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI119A 119	224051036-263 <b>Location:</b> 610 - Row 119: Black Cove Base	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 1.2%			
WT6401AI119B 119	224051036-264 <b>Location:</b> 610 - Row 119: Black Cove Base	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 0.4%			
WT6401AI121A 121	224051036-265 <b>Location:</b> 610 - Row 121: Black Mastic Row 120	<b>Yes</b>	2.1% (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Homogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b> Chrysotile 2.1 %			
<b>Other Material:</b> Non-fibrous 10%			
WT6401AI121B 121	224051036-266 <b>Location:</b> 610A - Row 121: Black Mastic Row 120		NA/PS
<b>Analyst Description:</b> Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b>			
WT6401AI126A 126	224051036-267 <b>Location:</b> 502 - Row 126: White Speckled Countertop	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Beige/Brown, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 0.9%			
WT6401AI126B 126	224051036-268 <b>Location:</b> 502 - Row 126: White Speckled Countertop	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Beige/Brown, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 1.6%			

Client Name: Atlantic Testing Laboratories, Limited

**PLM Bulk Asbestos Report**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI127A 127	224051036-269 Location: 502 - Row 127: White Caulk	No	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 1.6%			
WT6401AI127B 127	224051036-270 Location: 502 - Row 127: White Caulk	No	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 2%			
WT6401AI128A 128	224051036-271 Location: 610 - Row 128: Black Window Butyl	Yes	1.6% (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Homogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b> Chrysotile 1.6 %			
<b>Other Material:</b> Non-fibrous 9.4%			
WT6401AI128B 128	224051036-272 Location: 610 - Row 128: Black Window Butyl		NA/PS
<b>Analyst Description:</b> Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b>			
WT6401AI129A 129	224051036-273 Location: 708 - Row 129: White Joint Compound	No	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI129B 129	224051036-274 Location: 708 - Row 129: White Joint Compound	No	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			

Client Name: Atlantic Testing Laboratories, Limited

**PLM Bulk Asbestos Report**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI129C 129	224051036-275 <b>Location:</b> 708 - Row 129: White Joint Compound	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Cellulose Trace, Non-fibrous 100%			
WT6401AI130A 130	224051036-276 <b>Location:</b> 708 - Row 130: Off-White Gasket	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White/Beige, Homogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Fibrous glass 90%, Non-fibrous 10%			
WT6401AI130B 130	224051036-277 <b>Location:</b> 708 - Row 130: Off-White Gasket	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White/Brown, Heterogeneous, Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Fibrous glass 80%, Non-fibrous 20%			
WT6401AI131A 131	224051036-278 <b>Location:</b> 509 - Row 131: Black Countertop	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 100%			
WT6401AI131B 131	224051036-279 <b>Location:</b> 509 - Row 131: Black Countertop	<b>No</b>	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Black, Homogeneous, Non-Fibrous, Cementitious, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 100%			

# PLM Bulk Asbestos Report

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI132A 132	224051036-280 Location: 509 - Row 132: Black Grout Row 131	No	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<p><b>Analyst Description:</b> Black, Homogeneous, Fibrous, Bulk Material</p> <p><b>Asbestos Types:</b></p> <p><b>Other Material:</b> Wollastonite 5%, Non-fibrous 22.5%</p> <p><b>Comment:</b> Material Submitted Appears to be NOB Material.</p>			
WT6401AI132B 132	224051036-281 Location: 509 - Row 132: Black Grout Row 131	No	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<p><b>Analyst Description:</b> Black, Homogeneous, Fibrous, Bulk Material</p> <p><b>Asbestos Types:</b></p> <p><b>Other Material:</b> Wollastonite 5%, Non-fibrous 31.5%</p> <p><b>Comment:</b> Material Submitted Appears to be NOB Material.</p>			
WT6401AI133A 133	224051036-282 Location: 509 - Row 133: White Caulk	No	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<p><b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material</p> <p><b>Asbestos Types:</b></p> <p><b>Other Material:</b> Non-fibrous 17.2%</p>			
WT6401AI133B 133	224051036-283 Location: 509 - Row 133: White Caulk	No	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<p><b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material</p> <p><b>Asbestos Types:</b></p> <p><b>Other Material:</b> Non-fibrous 20%</p>			
WT6401AI134A 134	224051036-284 Location: Crawlspace A - Row 134: White Paper Pipe TSI Jacket	No	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<p><b>Analyst Description:</b> White/Silver/Black, Heterogeneous, Non-Fibrous, Bulk Material</p> <p><b>Asbestos Types:</b></p> <p><b>Other Material:</b> Non-fibrous 16.7%</p>			

## PLM Bulk Asbestos Report

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401AI134B 134	224051036-285 <b>Location:</b> Crawlspace B - Row 134: White Paper Pipe TSI Jacket	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Silver/Black, Heterogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 10.6%			
WT6401AI134C 134	224051036-286 <b>Location:</b> Crawlspace C - Row 134: White Paper Pipe TSI Jacket	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White/Silver/Black, Heterogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 21.1%			
WT6401AI135A 135	224051036-287 <b>Location:</b> 300 - Row 135: White Caulk	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 26%			
WT6401AI135B 135	224051036-288 <b>Location:</b> 300 - Row 135: White Caulk	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> White, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 30.2%			
WT6401AI136A 136	224051036-289 <b>Location:</b> 300 - Row 136: Off-White Countertop	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White/Brown, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 5.3%			
WT6401AI136B 136	224051036-290 <b>Location:</b> 300 - Row 136: Off-White Countertop	<b>No</b>	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White/Brown, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Non-fibrous 4.1%			



# PLM Bulk Asbestos Report

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401A1164A 164	224051036-291 Location: 301 - Off White Adhesive	No	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White, Homogeneous, Non-Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Non-fibrous 11.1%			
WT6401A1164B 164	224051036-292 Location: 303 - Off White Adhesive	No	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 05/03/24
<b>Analyst Description:</b> Off-White, Homogeneous, Non-Fibrous, Bulk Material <b>Asbestos Types:</b> <b>Other Material:</b> Non-fibrous 9.8%			

**Reporting Notes:**

- (1) (SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16. 10 gram minimum sample weight is required.
- (2) Sample prepared for analysis by ELAP 198.6 method

Analyzed by: Valeriu Voicu  
Date: 5/3/2024



Reviewed by: Marwan A. Alahiri



\*NAD/NSD =no asbestos detected; NA =not analyzed; NA/PS=not analyzed/positive stop, (SOF-V) = Sprayed On Fireproofing containing Vermiculite; (SM-V) = Surfacing Material containing Vermiculite; PLM Bulk Asbestos Analysis using Olympus, Model BH-2 Pol Scope, Microscope, Serial #: 229915, by Appd E to Subpt E, 40 CFR 763 quantified by either CVES or 400 pt ct as noted for each analysis (NVLAP 200546-0), ELAP PLM Method 198.1 for NY friable samples, which includes the identification and quantitation of vermiculite, or ELAP 198.6 for NOB samples, or EPA 400 pt ct by EPA 600-M4-82-020 (NY ELAP Lab 11480); Note:PLM is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. NAD or Trace results by PLM are inconclusive, TEM is currently the only method that can be used to determine if this material can be considered or treated as non asbestos-containing in NY State (also see EPA Advisory for floor tile, FR 59,146,38970,8/1/94) National Institute of Standards and Technology Accreditation requirements mandate that this report must not be reproduced except in full without the approval of the lab.This PLM report relates ONLY to the items tested. RI Cert AAL-094, CT Cert PH-0186, Mass Cert AA000054, NJ Lab ID #NY031.

Client Name: Atlantic Testing Laboratories, Limited

**Table I**  
**Summary of Bulk Asbestos Analysis Results**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
01	WT6401AI01A	01	0.299	22.9	31.7	45.4	NAD	NAD
	Location: 301 - Row 1: White 2- By 2-Foot Fissured And Pinholed Ceiling Tile							
02	WT6401AI01B	01	0.160	23.9	31.1	45.0	NAD	NAD
	Location: 305 - Row 1: White 2- By 2-Foot Fissured And Pinholed Ceiling Tile							
03	WT6401AI02A	02	----	----	----	----	NAD	NA
	Location: 301 - Row 2: Yellow Skim Coat Ceiling Plaster							
04	WT6401AI02B	02	----	----	----	----	NAD	NA
	Location: 301A - Row 2: Yellow Skim Coat Ceiling Plaster							
05	WT6401AI02C	02	----	----	----	----	NAD	NA
	Location: 305 - Row 2: Yellow Skim Coat Ceiling Plaster							
06	WT6401AI02D	02	----	----	----	----	NAD	NA
	Location: 506 - Row 2: Yellow Skim Coat Ceiling Plaster							
07	WT6401AI02E	02	----	----	----	----	NAD	NA
	Location: 502 - Row 2: Yellow Skim Coat Ceiling Plaster							
08	WT6401AI02F	02	----	----	----	----	NAD	NA
	Location: 303 - Row 2: Yellow Skim Coat Ceiling Plaster							
09	WT6401AI02G	02	----	----	----	----	NAD	NA
	Location: 307 - Row 2: Yellow Skim Coat Ceiling Plaster							
10	WT6401AI03A	03	----	----	----	----	NA	NA
	Location: 301 - Row 3: Gray Base Coat Ceiling Plaster Row 2 "(SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16 - see PLM footnote."							
11	WT6401AI03B	03	----	----	----	----	NA	NA
	Location: 301A - Row 3: Gray Base Coat Ceiling Plaster Row 2 "(SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16 - see PLM footnote."							
12	WT6401AI03C	03	----	----	----	----	NA	NA
	Location: 305 - Row 3: Gray Base Coat Ceiling Plaster Row 2 "(SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16 - see PLM footnote."							
13	WT6401AI03D	03	----	----	----	----	NA	NA
	Location: 506 - Row 3: Gray Base Coat Ceiling Plaster Row 2 "(SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16 - see PLM footnote."							
14	WT6401AI03E	03	----	----	----	----	NA	NA
	Location: 502 - Row 3: Gray Base Coat Ceiling Plaster Row 2 "(SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16 - see PLM footnote."							
15	WT6401AI03F	03	----	----	----	----	NA	NA
	Location: 303 - Row 3: Gray Base Coat Ceiling Plaster Row 2 "(SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16 - see PLM footnote."							

Client Name: Atlantic Testing Laboratories, Limited

**Table I**  
**Summary of Bulk Asbestos Analysis Results**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
16	WT6401AI03G	03	----	----	----	----	NA	NA
	Location: 307 - Row 3: Gray Base Coat Ceiling Plaster Row 2 "(SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16 - see PLM footnote."							
17	WT6401AI04A	04	0.210	48.5	40.6	10.9	NAD	NAD
	Location: 301 - Row 4: Brown Insulation Backing Paper							
18	WT6401AI04B	04	0.249	93.7	5.7	0.6	NAD	NAD
	Location: 506 - Row 4: Brown Insulation Backing Paper							
19	WT6401AI04C	04	0.208	82.8	13.5	3.7	NAD	NAD
	Location: 502 - Row 4: Brown Insulation Backing Paper							
20	WT6401AI05A	05	----	----	----	----	NAD	NA
	Location: 301 - Row 5: White Gypsum Wall Board							
21	WT6401AI05B	05	----	----	----	----	NAD	NA
	Location: 506 - Row 5: White Gypsum Wall Board							
22	WT6401AI06A	06	----	----	----	----	NAD	NA
	Location: 301 - Row 6: White Joint Compound Row 5							
23	WT6401AI06B	06	----	----	----	----	NAD	NA
	Location: 506 - Row 6: White Joint Compound Row 5							
24	WT6401AI07A	07	----	----	----	----	NAD	NA
	Location: 301 - Row 7: Off-White Seam Tape Row 5							
25	WT6401AI07B	07	----	----	----	----	NAD	NA
	Location: 506 - Row 7: Off-White Seam Tape Row 5							
26	WT6401AI08A	08	----	----	----	----	NAD	NA
	Location: 301 - Row 8: Yellow Skim Coat Wall Plaster							
27	WT6401AI08B	08	----	----	----	----	NAD	NA
	Location: 303 - Row 8: Yellow Skim Coat Wall Plaster							
28	WT6401AI08C	08	----	----	----	----	NAD	NA
	Location: 506 - Row 8: Yellow Skim Coat Wall Plaster							
29	WT6401AI08D	08	----	----	----	----	NAD	NA
	Location: 502 - Row 8: Yellow Skim Coat Wall Plaster							
30	WT6401AI08E	08	----	----	----	----	NAD	NA
	Location: 301A - Row 8: Yellow Skim Coat Wall Plaster							
31	WT6401AI08F	08	----	----	----	----	NAD	NA
	Location: 307 - Row 8: Yellow Skim Coat Wall Plaster							

Client Name: Atlantic Testing Laboratories, Limited

**Table I**  
**Summary of Bulk Asbestos Analysis Results**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
32	WT6401AI08G	08	----	----	----	----	NAD	NA
Location: 311 - Row 8: Yellow Skim Coat Wall Plaster								
33	WT6401AI09A	09	----	----	----	----	NA	NA
Location: 301 - Row 9: Gray Base Coat Wall Plaster Row 8 "(SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16 - see PLM footnote."								
34	WT6401AI09B	09	----	----	----	----	NA	NA
Location: 303 - Row 9: Gray Base Coat Wall Plaster Row 8 "(SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16 - see PLM footnote."								
35	WT6401AI09C	09	----	----	----	----	NA	NA
Location: 506 - Row 9: Gray Base Coat Wall Plaster Row 8 "(SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16 - see PLM footnote."								
36	WT6401AI09D	09	----	----	----	----	NA	NA
Location: 502 - Row 9: Gray Base Coat Wall Plaster Row 8 "(SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16 - see PLM footnote."								
37	WT6401AI09E	09	----	----	----	----	NA	NA
Location: 301A - Row 9: Gray Base Coat Wall Plaster Row 8 "(SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16 - see PLM footnote."								
38	WT6401AI09F	09	----	----	----	----	NA	NA
Location: 307 - Row 9: Gray Base Coat Wall Plaster Row 8 "(SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16 - see PLM footnote."								
39	WT6401AI09G	09	----	----	----	----	NA	NA
Location: 311 - Row 9: Gray Base Coat Wall Plaster Row 8 "(SOF-V) and (SM-V) must be analyzed by ELAP 198.8 or equivalent, effective 5/6/16 - see PLM footnote."								
40	WT6401AI10A	10	0.240	32.2	64.5	3.2	NAD	NAD
Location: 303 - Row 10: Black 4-Inch Cove Base								
41	WT6401AI10B	10	0.196	49.5	48.9	1.6	NAD	NAD
Location: 502 - Row 10: Black 4-Inch Cove Base								
42	WT6401AI11A	11	0.202	21.7	76.9	1.4	NAD	NAD
Location: 303 - Row 11: Tan Adhesive Row 10								
43	WT6401AI11B	11	0.343	26.3	72.4	1.3	NAD	NAD
Location: 502 - Row 11: Tan Adhesive Row 10								
44	WT6401AI12A	12	0.239	10.2	89.1	0.7	NAD	NAD
Location: 301A - Row 12: White 12- By 12-Inch Streaked Floor Tile								
45	WT6401AI12B	12	0.139	8.8	90.1	1.1	NAD	NAD
Location: 502 - Row 12: White 12- By 12-Inch Streaked Floor Tile								

Client Name: Atlantic Testing Laboratories, Limited

**Table I**  
**Summary of Bulk Asbestos Analysis Results**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
46	WT6401AI13A	13	0.185	25.6	65.2	9.2	NAD	NAD
	Location: 301A - Row 13: Yellow Mastic Row 12							
47	WT6401AI13B	13	0.273	29.0	57.4	13.6	NAD	NAD
	Location: 502 - Row 13: Yellow Mastic Row 12							
48	WT6401AI14A	14	----	----	----	----	NAD	NA
	Location: 303 - Row 14: Black Window Sill							
49	WT6401AI14B	14	----	----	----	----	NAD	NA
	Location: 302 - Row 14: Black Window Sill							
50	WT6401AI15A	15	----	----	----	----	NAD	NA
	Location: 300 - Row 1 5: Black Grout Row 14							
51	WT6401AI15B	15	----	----	----	----	NAD	NA
	Location: 509 - Row 15: Black Grout Row 14							
52	WT6401AI16A	16	0.156	70.2	21.5	8.4	NAD	NAD
	Location: 311 - Row 16: Gray Window Perimeter Caulk							
53	WT6401AI16B	16	0.143	68.9	28.7	2.4	NAD	NAD
	Location: 302 - Row 16: Gray Window Perimeter Caulk							
54	WT6401AI17A	17	----	----	----	----	NAD	NA
	Location: 302 - Row 17: Black Countertop							
55	WT6401AI17B	17	----	----	----	----	NAD	NA
	Location: 302A - Row 17: Black Countertop							
56	WT6401AI18A	18	----	----	----	----	NAD	NA
	Location: 303 - Row 18: Black Grout Row 17							
57	WT6401AI18B	18	----	----	----	----	NAD	NA
	Location: 509 - Row 18: Black Grout Row 17							
58	WT6401AI19A	19	----	----	----	----	NAD	NA
	Location: 301A - Row 19: Gray Block Mortar							
59	WT6401AI19B	19	----	----	----	----	NAD	NA
	Location: 106E - Row 19: Gray Block Mortar							
60	WT6401AI20B	20	----	----	----	----	NA	NA
	Location: 307 - Row 20: Green 9- By 9-Inch Streaked Floor Tile "Sample Not Submitted"							
61	WT6401AI21A	21	0.293	67.0	22.9	9.9	Chrysotile <0.25	Chrysotile <1.0
	Location: 305 - Row 21: Black Mastic Row 20							

See Reporting notes on last page

Client Name: Atlantic Testing Laboratories, Limited

**Table I**  
**Summary of Bulk Asbestos Analysis Results**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
62	WT6401AI21B	21	0.285	64.7	20.8	14.2	Chrysotile <0.25	Chrysotile <1.0
	Location: 307 - Row 21: Black Mastic Row 20							
63	WT6401AI22A	22	----	----	----	----	NAD	NA
	Location: 307 - Row 22: Black Chalkboard							
64	WT6401AI22B	22	----	----	----	----	NAD	NA
	Location: 309 - Row 22: Black Chalkboard							
65	WT6401AI23A	23	0.334	67.8	5.3	22.8	Chrysotile 4.1	NA
	Location: 307 - Row 23: Black Chalkboard Adhesive Row 22							
66	WT6401AI23B	23	0.502	67.5	4.6	27.9	NA/PS	NA
	Location: 309 - Row 23: Black Chalkboard Adhesive Row 22							
67	WT6401AI24A	24	0.317	10.5	88.2	1.3	NAD	NAD
	Location: 305 - Row 24: Green 12- By 12-Inch Floor Tile							
68	WT6401AI24B	24	0.344	10.2	88.8	1.0	NAD	NAD
	Location: 307 - Row 24: Green 12- By 12-Inch Floor Tile							
69	WT6401AI26A	26	0.172	22.7	43.7	33.5	NAD	NAD
	Location: 307 - Row 26: White 2- By 4-Foot Fissured And Pinholed Ceiling Tile							
70	WT6401AI26B	26	0.280	22.5	34.2	43.3	NAD	NAD
	Location: 600 - Row 26: White 2- By 4-Foot Fissured And Pinholed Ceiling Tile							
71	WT6401AI28A	28	0.300	23.0	43.3	26.5	Chrysotile 7.1	NA
	Location: 311 - Row 28: Gray 12- By 12-Inch Floor Tile							
72	WT6401AI28B	28	0.263	22.7	47.5	29.8	NA/PS	NA
	Location: 311 - Row 28: Gray 12- By 12-Inch Floor Tile							
73	WT6401AI29A	29	0.334	73.7	10.1	11.6	Chrysotile 4.6	NA
	Location: 311 - Row 29: Black Mastic							
74	WT6401AI29B	29	0.341	77.3	7.8	14.9	NA/PS	NA
	Location: 311 - Row 29: Black Mastic							
75	WT6401AI31A	31	0.193	88.4	3.9	7.7	NAD	NAD
	Location: 306 - Row 31: White 1- By 1-Foot Pinhole Ceiling Tile							
76	WT6401AI31B	31	0.144	91.2	3.1	5.7	NAD	NAD
	Location: 106 - Row 31: White 1- By 1-Foot Pinhole Ceiling Tile							
77	WT6401AI32A	32	0.243	19.6	11.7	68.7	NAD	NAD
	Location: 306 - Row 32: Brown Adhesive							

See Reporting notes on last page

Client Name: Atlantic Testing Laboratories, Limited

**Table I**  
**Summary of Bulk Asbestos Analysis Results**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
78	WT6401AI32B	32	0.154	51.8	4.8	43.4	NAD	NAD
	Location: 106 - Row 32: Brown Adhesive							
79	WT6401AI33A	33	----	----	----	----	NAD	NA
	Location: 304 - Row 33: White Gypsum Ceiling Board							
80	WT6401AI33B	33	----	----	----	----	NAD	NA
	Location: 306 - Row 33: White Gypsum Ceiling Board							
81	WT6401AI35A	35	0.177	77.2	11.0	11.8	NAD	NAD
	Location: 304 - Row 35: Black Mastic Row 34							
82	WT6401AI35B	35	0.323	74.1	12.2	13.7	NAD	NAD
	Location: 306 - Row 35: Black Mastic Row 34							
83	WT6401AI36A	36	0.320	12.1	87.4	0.5	NAD	NAD
	Location: 304 - Row 36: Brown 12- By 12-Inch Mottled Floor Tile							
84	WT6401AI36B	36	0.291	12.2	86.9	0.9	NAD	NAD
	Location: 304 - Row 36: Brown 12- By 12-Inch Mottled Floor Tile							
85	WT6401AI37A	37	0.325	19.0	56.5	24.5	NAD	NAD
	Location: 304 - Row 37: Yellow Mastic Row 36							
86	WT6401AI37B	37	0.332	7.7	61.0	31.3	NAD	NAD
	Location: 304 - Row 37: Yellow Mastic Row 36							
87	WT6401AI38A	38	0.312	8.9	67.4	23.6	NAD	NAD
	Location: 300A - Row 38: White 1- By 1-Foot Fissured Ceiling Tile							
88	WT6401AI38B	38	0.393	9.9	64.5	25.6	NAD	NAD
	Location: 506 - Row 38: White 1- By 1-Foot Fissured Ceiling Tile							
89	WT6401AI39A	39	0.182	51.8	4.8	43.4	NAD	NAD
	Location: 300A - Row 39: Brown Adhesive Row 38							
90	WT6401AI39B	39	0.212	47.4	0.8	51.9	NAD	NAD
	Location: 506 - Row 39: Brown Adhesive Row 38							
91	WT6401AI40A	40	----	----	----	----	NAD	NA
	Location: 302 - Row 40: Gray Cementitious Board							
92	WT6401AI40B	40	----	----	----	----	NAD	NA
	Location: 302 - Row 40: Gray Cementitious Board							
93	WT6401AI41A	41	----	----	----	----	NAD	NA
	Location: 600 - Row 41: White Skim Coat Wall Plaster							

See Reporting notes on last page

Client Name: Atlantic Testing Laboratories, Limited

**Table I**  
**Summary of Bulk Asbestos Analysis Results**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
94	WT6401AI41B	41	----	----	----	----	NAD	NA
	Location: 602 - Row 41: White Skim Coat Wall Plaster							
95	WT6401AI41C	41	----	----	----	----	NAD	NA
	Location: 610 - Row 41: White Skim Coat Wall Plaster							
96	WT6401AI41D	41	----	----	----	----	NAD	NA
	Location: 610A - Row 41: White Skim Coat Wall Plaster							
97	WT6401AI41E	41	----	----	----	----	NAD	NA
	Location: 610B - Row 41: White Skim Coat Wall Plaster							
98	WT6401AI41F	41	----	----	----	----	NAD	NA
	Location: 610C - Row 41: White Skim Coat Wall Plaster							
99	WT6401AI41G	41	----	----	----	----	NAD	NA
	Location: 608 - Row 41: White Skim Coat Wall Plaster							
100	WT6401AI42A	42	----	----	----	----	NAD	NA
	Location: 600 - Row 42: Gray Base Coat Wall Plaster Row 41							
101	WT6401AI42B	42	----	----	----	----	NAD	NA
	Location: 602 - Row 42: Gray Base Coat Wall Plaster Row 41							
102	WT6401AI42C	42	----	----	----	----	NAD	NA
	Location: 610 - Row 42: Gray Base Coat Wall Plaster Row 41							
103	WT6401AI42D	42	----	----	----	----	NAD	NA
	Location: 610A - Row 42: Gray Base Coat Wall Plaster Row 41							
104	WT6401AI42E	42	----	----	----	----	NAD	NA
	Location: 610B - Row 42: Gray Base Coat Wall Plaster Row 41							
105	WT6401AI42F	42	----	----	----	----	NAD	NA
	Location: 610C - Row 42: Gray Base Coat Wall Plaster Row 41							
106	WT6401AI42G	42	----	----	----	----	NAD	NA
	Location: 608 - Row 42: Gray Base Coat Wall Plaster Row 41							
107	WT6401AI43A	43	0.230	27.9	47.9	20.3	Chrysotile 3.9	NA
	Location: 600 - Row 43: Gray 12- By 12-Inch Marbled Floor Tile							
108	WT6401AI43B	43	0.246	26.6	53.3	20.1	NA/PS	NA
	Location: 602 - Row 43: Gray 12- By 12-Inch Marbled Floor Tile							
109	WT6401AI44A	44	0.209	78.9	7.3	11.0	Chrysotile 2.8	NA
	Location: 600 - Row 44: Yellow Mastic Row 43							

See Reporting notes on last page



Client Name: Atlantic Testing Laboratories, Limited

**Table I**  
**Summary of Bulk Asbestos Analysis Results**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
110	WT6401AI44B	44	0.174	77.9	8.3	13.8	NA/PS	NA
	Location: 602 - Row 44: Yellow Mastic Row 43							
111	WT6401AI45A	45	----	----	----	----	NAD	NA
	Location: 909 - Row 45: White Gypsum Board							
112	WT6401AI45B	45	----	----	----	----	NAD	NA
	Location: 909 - Row 45: White Gypsum Board							
113	WT6401AI46A	46	----	----	----	----	NAD	NA
	Location: 909 - Row 46: White Joint Compound Row 45							
114	WT6401AI46B	46	----	----	----	----	NAD	NA
	Location: 909 - Row 46: White Joint Compound Row 45							
115	WT6401AI47A	47	----	----	----	----	NAD	NA
	Location: 909 - Row 47: White Seam Sealant Row 45							
116	WT6401AI47B	47	----	----	----	----	NAD	NA
	Location: 909 - Row 47: White Seam Sealant Row 45							
117	WT6401AI48A	48	0.504	34.4	36.4	29.2	NAD	NAD
	Location: 608 - Row 48: Black Sink Coating							
118	WT6401AI48B	48	0.575	46.3	30.4	23.4	NAD	NAD
	Location: 502 - Row 48: Black Sink Coating							
119	WT6401AI49A	49	0.204	48.6	50.5	0.9	NAD	NAD
	Location: 502 - Row 49: Brown 4-Inch Cove Base							
120	WT6401AI49B	49	0.205	49.8	49.4	0.8	NAD	NAD
	Location: 506 - Row 49: Brown 4-Inch Cove Base							
121	WT6401AI50A	50	0.332	27.4	71.8	0.8	NAD	NAD
	Location: 502 - Row 50: Tan Adhesive Row 49							
122	WT6401AI50B	50	0.177	28.1	71.1	0.8	NAD	NAD
	Location: 506 - Row 50: Tan Adhesive Row 49							
123	WT6401AI51A	51	----	----	----	----	NAD	NA
	Location: 905 - Row 51: Gray CFT Grout							
124	WT6401AI51B	51	----	----	----	----	NAD	NA
	Location: 909 - Row 51: Gray CFT Grout							
125	WT6401AI52A	52	----	----	----	----	NAD	NA
	Location: 905 - Row 52: Gray CFT Mortar							

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Client Name: Atlantic Testing Laboratories, Limited

**Table I**  
**Summary of Bulk Asbestos Analysis Results**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
126	WT6401AI52B	52	----	----	----	----	NAD	NA
	Location: 909 - Row 52: Gray CFT Mortar							
127	WT6401AI53A	53	----	----	----	----	NAD	NA
	Location: 610 - Row 53: White Skim Coat Ceiling Plaster							
128	WT6401AI53B	53	----	----	----	----	NAD	NA
	Location: 610 - Row 53: White Skim Coat Ceiling Plaster							
129	WT6401AI53C	53	----	----	----	----	NAD	NA
	Location: 610B - Row 53: White Skim Coat Ceiling Plaster							
130	WT6401AI53D	53	----	----	----	----	NAD	NA
	Location: 610C - Row 53: White Skim Coat Ceiling Plaster							
131	WT6401AI53E	53	----	----	----	----	NAD	NA
	Location: 700E - Row 53: White Skim Coat Ceiling Plaster							
132	WT6401AI54A	54	----	----	----	----	NAD	NA
	Location: 610 - Row 54: Gray Base Coat Ceiling Plaster Row 53							
133	WT6401AI54B	54	----	----	----	----	NAD	NA
	Location: 610 - Row 54: Gray Base Coat Ceiling Plaster Row 53							
134	WT6401AI54C	54	----	----	----	----	NAD	NA
	Location: 610B - Row 54: Gray Base Coat Ceiling Plaster Row 53							
135	WT6401AI54D	54	----	----	----	----	NAD	NA
	Location: 610C - Row 54: Gray Base Coat Ceiling Plaster Row 53							
136	WT6401AI54E	54	----	----	----	----	NAD	NA
	Location: 700E - Row 54: Gray Base Coat Ceiling Plaster Row 53							
137	WT6401AI55A	55	0.332	33.7	18.8	47.5	NAD	NAD
	Location: 610 - Row 55: Blue Stair Tread							
138	WT6401AI55B	55	0.359	34.0	20.8	45.1	NAD	NAD
	Location: 610 - Row 55: Blue Stair Tread							
139	WT6401AI56A	56	0.245	61.4	14.8	23.9	NAD	NAD
	Location: 610 - Row 56: Tan Adhesive Row 55							
140	WT6401AI56B	56	0.272	44.0	24.1	31.9	NAD	NAD
	Location: 610 - Row 56: Tan Adhesive Row 55							
141	WT6401AI57A	57	0.396	97.6	1.8	0.6	NAD	NAD
	Location: 610 - Row 57: Tan Stage Curtain							

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Client Name: Atlantic Testing Laboratories, Limited

**Table I**  
**Summary of Bulk Asbestos Analysis Results**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
142	WT6401AI57B	57	0.212	98.1	1.5	0.5	NAD	NAD
	Location: 610 - Row 57: Tan Stage Curtain							
143	WT6401AI58A	58	0.127	59.9	15.0	25.1	NAD	NAD
	Location: 610 - Row 58: White Pipe TSI Jacket							
144	WT6401AI58B	58	0.142	60.9	15.5	23.6	NAD	NAD
	Location: 610 - Row 58: White Pipe TSI Jacket							
145	WT6401AI58C	58	0.406	39.8	9.8	50.4	NAD	NAD
	Location: 610 - Row 58: White Pipe TSI Jacket							
146	WT6401AI61A	61	----	----	----	----	NAD	NA
	Location: 902 - Row 61: Gray Block Mortar							
147	WT6401AI61B	61	----	----	----	----	NAD	NA
	Location: 902 - Row 61: Gray Block Mortar							
148	WT6401AI62A	62	0.157	64.8	31.8	3.4	NAD	NAD
	Location: 902 - Row 62: Gray Door Frame Caulk							
149	WT6401AI62B	62	0.154	68.5	30.3	1.2	NAD	NAD
	Location: 902 - Row 62: Gray Door Frame Caulk							
150	WT6401AI63A	63	0.243	52.6	40.7	6.7	NAD	NAD
	Location: 301 - Row 63: Tan Countertop Adhesive							
151	WT6401AI63B	63	0.242	52.3	40.5	7.2	NAD	NAD
	Location: 509 - Row 63: Tan Countertop Adhesive							
152	WT6401AI65A	65	0.207	17.1	66.0	16.9	NAD	NAD
	Location: 904 - Row 65: Black Sink Coating							
153	WT6401AI65B	65	0.310	17.2	66.1	16.7	NAD	NAD
	Location: 106B - Row 65: Black Sink Coating							
154	WT6401AI66A	66	----	----	----	----	NAD	NA
	Location: 708 - Row 66: Gray Brick Mortar							
155	WT6401AI66B	66	----	----	----	----	NAD	NA
	Location: 716 - Row 66: Gray Brick Mortar							
156	WT6401AI67A	67	0.153	97.8	2.0	0.2	NAD	NAD
	Location: 708 - Row 67: Brown Expansion Joint Caulk							
157	WT6401AI67B	67	0.124	97.3	2.6	0.2	NAD	NAD
	Location: 708 - Row 67: Brown Expansion Joint Caulk							

Client Name: Atlantic Testing Laboratories, Limited

**Table I**  
**Summary of Bulk Asbestos Analysis Results**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
158	WT6401AI68A	68	----	----	----	----	NAD	NA
	Location: 708 - Row 68: White Pipe TSI Jacket							
159	WT6401AI68B	68	----	----	----	----	NAD	NA
	Location: 909 - Row 68: White Pipe TSI Jacket							
160	WT6401AI68C	68	----	----	----	----	NAD	NA
	Location: 911 - Row 68: White Pipe TSI Jacket							
161	WT6401AI69A	69	----	----	----	----	NAD	NA
	Location: 708 - Row 69: White Pipe TSI Jacket							
162	WT6401AI69B	69	----	----	----	----	NAD	NA
	Location: 907 - Row 69: White Pipe TSI Jacket							
163	WT6401AI69C	69	----	----	----	----	NAD	NA
	Location: 911 - Row 69: White Pipe TSI Jacket							
164	WT6401AI70A	70	0.339	39.7	4.6	55.7	NAD	NAD
	Location: 708 - Row 70: White Pipe TSI End Sealant							
165	WT6401AI70B	70	0.264	38.1	4.1	57.8	NAD	NAD
	Location: Gym Mezzanine - Row 70: White Pipe TSI End Sealant							
166	WT6401AI70C	70	0.248	40.8	3.1	56.0	NAD	NAD
	Location: 301A - Row 70: White Pipe TSI End Sealant							
167	WT6401AI71A	71	----	----	----	----	NAD	NA
	Location: 708 - Row 71: White Rope Gasket							
168	WT6401AI71B	71	----	----	----	----	NAD	NA
	Location: 708 - Row 71: White Rope Gasket							
169	WT6401AI71C	71	----	----	----	----	NAD	NA
	Location: 708 - Row 71: White Rope Gasket							
170	WT6401AI72A	72	0.225	81.7	10.6	7.7	NAD	NAD
	Location: 708 - Row 72: Red Seam Sealant							
171	WT6401AI72B	72	0.174	79.8	11.9	8.4	NAD	NAD
	Location: 708 - Row 72: Red Seam Sealant							
172	WT6401AI73A	73	0.269	54.5	38.2	7.3	NAD	NAD
	Location: 909 - Row 73: White 2- by 2-Foot Tectum Ceiling Tile							
173	WT6401AI73B	73	0.203	57.9	35.1	7.0	NAD	NAD
	Location: 909 - Row 73: White 2- by 2-Foot Tectum Ceiling Tile							

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Client Name: Atlantic Testing Laboratories, Limited

**Table I**  
**Summary of Bulk Asbestos Analysis Results**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
174	WT6401AI74A	74	----	----	----	----	NAD	NA
	Location: 909 - Row 74: Gray Mortar							
175	WT6401AI74B	74	----	----	----	----	NAD	NA
	Location: 905 - Row 74: Gray Mortar							
176	WT6401AI75A	75	----	----	----	----	NAD	NA
	Location: 909 - Row 75: White CWT Grout							
177	WT6401AI75B	75	----	----	----	----	NAD	NA
	Location: 905 - Row 75: White CWT Grout							
178	WT6401AI76A	76	----	----	----	----	NAD	NA
	Location: 909 - Row 76: Gray CWT Mortar Row 75							
179	WT6401AI76B	76	----	----	----	----	NAD	NA
	Location: 905 - Row 76: Gray CWT Mortar Row 75							
180	WT6401AI77A	77	----	----	----	----	NAD	NA
	Location: 909 - Row 77: Gray CFT Grout							
181	WT6401AI77B	77	----	----	----	----	NAD	NA
	Location: 905 - Row 77: Gray CFT Grout							
182	WT6401AI78A	78	----	----	----	----	NAD	NA
	Location: 909 - Row 78: Gray CFT Mortar Row 77							
183	WT6401AI78B	78	----	----	----	----	NAD	NA
	Location: 905 - Row 78: Gray CFT Mortar Row 77							
184	WT6401AI79A	79	0.161	77.7	7.1	15.2	NAD	NAD
	Location: 905 - Row 79: White Fixture Caulk							
185	WT6401AI79B	79	0.276	82.9	5.2	11.9	NAD	NAD
	Location: 909 - Row 79: White Fixture Caulk							
186	WT6401AI80A	80	----	----	----	----	NAD	NA
	Location: 911 - Row 80: White CWT Grout							
187	WT6401AI80B	80	----	----	----	----	NAD	NA
	Location: 905B - Row 80: White CWT Grout							
188	WT6401AI81A	81	----	----	----	----	NAD	NA
	Location: 911 - Row 81: Gray CWT Mortar Row 80							
189	WT6401AI81B	81	----	----	----	----	NAD	NA
	Location: 905B - Row 81: Gray CWT Mortar Row 80							

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Client Name: Atlantic Testing Laboratories, Limited

**Table I**  
**Summary of Bulk Asbestos Analysis Results**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
190	WT6401AI82A	82	----	----	----	----	NAD	NA
	Location: 911 - Row 82: Gray CFT Grout							
191	WT6401AI82B	82	----	----	----	----	NAD	NA
	Location: 905B - Row 82: Gray CFT Grout							
192	WT6401AI83A	83	----	----	----	----	NAD	NA
	Location: 911 - Row 83: Gray CFT Mortar Row 82							
193	WT6401AI83B	83	----	----	----	----	NAD	NA
	Location: 905B - Row 83: Gray CFT Mortar Row 82							
194	WT6401AI84A	84	----	----	----	----	NAD	NA
	Location: 907A - Row 84: White Duct TSI							
195	WT6401AI84B	84	----	----	----	----	NAD	NA
	Location: 907A - Row 84: White Duct TSI							
196	WT6401AI84C	84	----	----	----	----	NAD	NA
	Location: 907A - Row 84: White Duct TSI							
197	WT6401AI85A	85	----	----	----	----	NAD	NA
	Location: 970A - Row 85: Brown Pipe TSI Jacket							
198	WT6401AI85B	85	----	----	----	----	NAD	NA
	Location: 907A - Row 85: Brown Pipe TSI Jacket							
199	WT6401AI85C	85	----	----	----	----	NAD	NA
	Location: 907A - Row 85: Brown Pipe TSI Jacket							
200	WT6401AI87A	87	0.254	61.7	25.1	11.2	Chrysotile <0.25	Chrysotile 2.0
	Location: 427 - Row 87: Black Mastic Row 86							
201	WT6401AI87B	87	0.252	71.2	21.3	7.5	NAD	NA/PS
	Location: 427 - Row 87: Black Mastic Row 86							
202	WT6401AI89A	89	0.200	64.6	21.4	12.6	NAD	Chrysotile 1.4
	Location: 106 - Row 89: Black Mastic Row 88							
203	WT6401AI89B	89	0.285	58.9	22.9	18.2	Chrysotile <0.25	NA/PS
	Location: 106B - Row 89: Black Mastic Row 88							
204	WT6401AI90A	90	0.182	84.3	12.2	3.6	NAD	NAD
	Location: 106 - Row 90: Black Window Butyl							
205	WT6401AI90B	90	0.172	84.2	12.8	3.0	NAD	NAD
	Location: 106D - Row 90: Black Window Butyl							

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Client Name: Atlantic Testing Laboratories, Limited

**Table I**  
**Summary of Bulk Asbestos Analysis Results**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
206	WT6401AI91A	91	----	----	----	----	NAD	NA
	Location: 106E - Row 91: Gray Mortar							
207	WT6401AI91B	91	----	----	----	----	NAD	NA
	Location: 106E - Row 91: Gray Mortar							
208	WT6401AI92A	92	----	----	----	----	NAD	NA
	Location: 110 - Row 92: White CWT Grout							
209	WT6401AI92B	92	----	----	----	----	NAD	NA
	Location: 110 - Row 92: White CWT Grout							
210	WT6401AI93A	93	----	----	----	----	NAD	NA
	Location: 110 - Row 93: Gray CWT Mortar Row 92							
211	WT6401AI93B	93	----	----	----	----	NAD	NA
	Location: 110 - Row 93: Gray CWT Mortar Row 92							
212	WT6401AI94A	94	0.241	82.4	16.8	0.8	NAD	NAD
	Location: 504 - Row 94: Light Green Fire Blanket							
213	WT6401AI94B	94	0.143	82.9	11.7	5.3	NAD	NAD
	Location: 504 - Row 94: Light Green Fire Blanket							
214	WT6401AI95A	95	----	----	----	----	NAD	NA
	Location: 431 - Row 95: Gray Grout							
215	WT6401AI95B	95	----	----	----	----	NAD	NA
	Location: 432 - Row 95: Gray Grout							
216	WT6401AI96A	96	----	----	----	----	NAD	NA
	Location: 431 - Row 96: Gray Mortar Row 95							
217	WT6401AI96B	96	----	----	----	----	NAD	NA
	Location: 432 - Row 96: Gray Mortar Row 95							
218	WT6401AI97A	97	0.256	72.1	25.3	2.5	NAD	NAD
	Location: 430 - Row 97: Red Door Frame Caulk							
219	WT6401AI97B	97	0.266	72.3	25.4	2.3	NAD	NAD
	Location: 430 - Row 97: Red Door Frame Caulk							
220	WT6401AI98A	98	----	----	----	----	NAD	NA
	Location: 114 - Row 98: White Tank TSI							
221	WT6401AI98B	98	----	----	----	----	NAD	NA
	Location: 114 - Row 98: White Tank TSI							

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Client Name: Atlantic Testing Laboratories, Limited

**Table I**  
**Summary of Bulk Asbestos Analysis Results**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
222	WT6401AI98C	98	----	----	----	----	NAD	NA
	Location: 114 - Row 98: White Tank TSI							
223	WT6401AI99A	99	0.157	25.7	59.6	14.6	NAD	NAD
	Location: 114 - Row 99: Orange Gasket							
224	WT6401AI99B	99	0.265	29.3	36.0	34.7	NAD	NAD
	Location: 114 - Row 99: Orange Gasket							
225	WT6401AI100A	100	----	----	----	----	NAD	NA
	Location: 114 - Row 100: White Pipe TSI Jacket							
226	WT6401AI100B	100	----	----	----	----	NAD	NA
	Location: Area A Crawlspace - Row 100: White Pipe TSI Jacket							
227	WT6401AI100C	100	----	----	----	----	NAD	NA
	Location: Area B Crawlspace - Row 100: White Pipe TSI Jacket							
228	WT6401AI101A	101	----	----	----	----	NAD	NA
	Location: 392 - Row 101: White CWT Grout							
229	WT6401AI101B	101	----	----	----	----	NAD	NA
	Location: 392 - Row 101: White CWT Grout							
230	WT6401AI102A	102	----	----	----	----	NAD	NA
	Location: 392 - Row 102: Gray CWT Mortar Row 101							
231	WT6401AI102B	102	----	----	----	----	NAD	NA
	Location: 392 - Row 102: Gray CWT Mortar Row 101							
232	WT6401AI104A	104	0.152	64.6	35.2	0.3	NAD	NAD
	Location: Exterior - Row 104: Gray Window Frame Caulk							
233	WT6401AI104B	104	0.146	58.7	40.6	0.8	NAD	NAD
	Location: Exterior - Row 104: Gray Window Frame Caulk							
234	WT6401AI105A	105	0.299	43.9	41.8	14.1	Chrysotile <0.25	Chrysotile <1.0
	Location: Exterior - Row 105: Light Gray Window Sill							
235	WT6401AI105B	105	0.227	41.9	45.0	12.8	Chrysotile <0.25	Chrysotile <1.0
	Location: Exterior - Row 105: Light Gray Window Sill							
236	WT6401AI106A	106	0.161	85.3	11.3	3.4	NAD	NAD
	Location: 502 - Row 106: Light Blue Fire Blanket							
237	WT6401AI106B	106	0.280	86.4	8.5	5.1	NAD	NAD
	Location: 502 - Row 1 06: Light Blue Fire Blanket							

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Client Name: Atlantic Testing Laboratories, Limited

**Table I**  
**Summary of Bulk Asbestos Analysis Results**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
238	WT6401AI107A	107	----	----	----	----	NAD	NA
	Location: 110 - Row 107: Gray CFT Grout							
239	WT6401AI107B	107	----	----	----	----	NAD	NA
	Location: 108 - Row 107: Gray CFT Grout							
240	WT6401AI108A	108	----	----	----	----	NAD	NA
	Location: 110 - Row 108: Light Gray CFT Mortar Row 107							
241	WT6401AI108B	108	----	----	----	----	NAD	NA
	Location: 108 - Row 108: Light Gray CFT Mortar Row 107							
242	WT6401AI109A	109	0.475	48.8	7.2	26.4	Chrysotile 17.6	NA
	Location: Crawlspace A - Row 109: Black Tar							
243	WT6401AI109B	109	0.299	47.4	9.8	42.9	NA/PS	NA
	Location: Crawlspace B - Row 109: Black Tar							
244	WT6401AI109C	109	0.237	47.9	7.2	44.9	NA/PS	NA
	Location: Crawlspace C - Row 109: Black Tar							
245	WT6401AI110A	110	0.305	21.9	76.5	1.6	NAD	NAD
	Location: 110 - Row 110: White Door Frame Caulk							
246	WT6401AI110B	110	0.295	23.1	75.7	1.2	NAD	NAD
	Location: 108 - Row 110: White Door Frame Caulk							
247	WT6401AI111A	111	0.244	54.0	8.1	37.9	NAD	NAD
	Location: 907A - Row 111: Yellow Adhesive							
248	WT6401AI111B	111	0.244	53.0	5.3	41.7	NAD	NAD
	Location: 907A - Row 111: Yellow Adhesive							
249	WT6401AI112A	112	0.313	49.5	50.2	0.3	NAD	NAD
	Location: 907A - Row 112: White Caulk							
250	WT6401AI112B	112	0.290	49.7	49.8	0.4	NAD	NAD
	Location: 907B - Row 112: White Caulk							
251	WT6401AI113A	113	----	----	----	----	NAD	NA
	Location: 600 - Row 113: Black Countertop							
252	WT6401AI113B	113	----	----	----	----	NAD	NA
	Location: 602 - Row 113: Black Countertop							
253	WT6401AI114A	114	0.159	60.9	3.8	32.1	Chrysotile 3.2	NA
	Location: 600 - Row 114: Black Countertop Grout Row 113							

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Client Name: Atlantic Testing Laboratories, Limited

**Table I**  
**Summary of Bulk Asbestos Analysis Results**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
254	WT6401AI114B	114	0.086	60.3	8.0	31.7	NA/PS	NA
	Location: 602 - Row 114: Black Countertop Grout Row 113							
255	WT6401AI115A	115	----	----	----	----	NAD	NA
	Location: 600 - Row 115: Black Countertop							
256	WT6401AI115B	115	----	----	----	----	NAD	NA
	Location: 600 - Row 115: Black Countertop							
257	WT6401AI116A	116	0.203	38.9	11.3	49.8	NAD	NAD
	Location: 600 - Row 116: Black 4-Inch Cove Base							
258	WT6401AI116B	116	0.245	40.2	9.0	50.8	NAD	NAD
	Location: 602 - Row 116: Black 4-Inch Cove Base							
259	WT6401AI117A	117	0.339	41.5	12.0	46.4	NAD	NAD
	Location: 600 - Row 117: Brown Adhesive Row 116							
260	WT6401AI117B	117	0.183	38.9	14.7	46.4	NAD	NAD
	Location: 602 - Row 117: Brown Adhesive Row 116							
261	WT6401AI118A	118	0.190	39.9	59.6	0.5	NAD	NAD
	Location: 600 - Row 118: Gray Streaked Floor Tile							
262	WT6401AI118B	118	0.299	35.9	63.5	0.7	NAD	NAD
	Location: 600 - Row 118: Gray Streaked Floor Tile							
263	WT6401AI119A	119	0.181	38.8	59.9	1.2	NAD	NAD
	Location: 610 - Row 119: Black Cove Base							
264	WT6401AI119B	119	0.267	38.6	61.0	0.4	NAD	NAD
	Location: 610 - Row 119: Black Cove Base							
265	WT6401AI121A	121	0.077	72.9	15.0	10.0	Chrysotile 2.1	NA
	Location: 610 - Row 121: Black Mastic Row 120							
266	WT6401AI121B	121	0.210	78.3	8.6	13.2	NA/PS	NA
	Location: 610A - Row 121: Black Mastic Row 120							
267	WT6401AI126A	126	0.303	95.9	3.3	0.9	NAD	NAD
	Location: 502 - Row 126: White Speckled Countertop							
268	WT6401AI126B	126	0.364	95.4	3.0	1.6	NAD	NAD
	Location: 502 - Row 126: White Speckled Countertop							
269	WT6401AI127A	127	0.257	35.5	62.9	1.6	NAD	NAD
	Location: 502 - Row 127: White Caulk							

Client Name: Atlantic Testing Laboratories, Limited

**Table I**  
**Summary of Bulk Asbestos Analysis Results**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
270	WT6401AI127B	127	0.272	34.3	63.7	2.0	NAD	NAD
	Location: 502 - Row 127: White Caulk							
271	WT6401AI128A	128	0.198	80.1	9.0	9.4	Chrysotile 1.6	NA
	Location: 610 - Row 128: Black Window Butyl							
272	WT6401AI128B	128	0.199	75.7	12.2	12.1	NA/PS	NA
	Location: 610 - Row 128: Black Window Butyl							
273	WT6401AI129A	129	----	----	----	----	NAD	NA
	Location: 708 - Row 129: White Joint Compound							
274	WT6401AI129B	129	----	----	----	----	NAD	NA
	Location: 708 - Row 129: White Joint Compound							
275	WT6401AI129C	129	----	----	----	----	NAD	NA
	Location: 708 - Row 129: White Joint Compound							
276	WT6401AI130A	130	----	----	----	----	NAD	NA
	Location: 708 - Row 130: Off-White Gasket							
277	WT6401AI130B	130	----	----	----	----	NAD	NA
	Location: 708 - Row 130: Off-White Gasket							
278	WT6401AI131A	131	----	----	----	----	NAD	NA
	Location: 509 - Row 131: Black Countertop							
279	WT6401AI131B	131	----	----	----	----	NAD	NA
	Location: 509 - Row 131: Black Countertop							
280	WT6401AI132A	132	0.243	60.7	11.7	27.5	NAD	NAD
	Location: 509 - Row 132: Black Grout Row 131							
281	WT6401AI132B	132	0.242	61.2	2.4	36.5	NAD	NAD
	Location: 509 - Row 132: Black Grout Row 131							
282	WT6401AI133A	133	0.258	73.5	9.2	17.2	NAD	NAD
	Location: 509 - Row 133: White Caulk							
283	WT6401AI133B	133	0.250	72.7	7.3	20.0	NAD	NAD
	Location: 509 - Row 133: White Caulk							
284	WT6401AI134A	134	0.234	58.8	24.4	16.7	NAD	NAD
	Location: Crawlspace A - Row 134: White Paper Pipe TSI Jacket							
285	WT6401AI134B	134	0.184	36.2	53.2	10.6	NAD	NAD
	Location: Crawlspace B - Row 134: White Paper Pipe TSI Jacket							

See Reporting notes on last page

Client Name: Atlantic Testing Laboratories, Limited

**Table I**  
**Summary of Bulk Asbestos Analysis Results**

WT6401; Capital Improvements / General Brown CSD; General Brown - General Brown CSD

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
286	WT6401AI134C	134	0.229	43.9	35.0	21.1	NAD	NAD
	Location: Crawlspace C - Row 134: White Paper Pipe TSI Jacket							
287	WT6401AI135A	135	0.303	61.1	12.9	26.0	NAD	NAD
	Location: 300 - Row 135: White Caulk							
288	WT6401AI135B	135	0.345	62.3	7.5	30.2	NAD	NAD
	Location: 300 - Row 135: White Caulk							
289	WT6401AI136A	136	0.176	93.3	1.4	5.3	NAD	NAD
	Location: 300 - Row 136: Off-White Countertop							
290	WT6401AI136B	136	0.285	93.0	3.0	4.1	NAD	NAD
	Location: 300 - Row 136: Off-White Countertop							
291	WT6401AI164A	164	0.327	47.5	41.3	11.1	NAD	NAD
	Location: 301 - Off White Adhesive							
292	WT6401AI164B	164	0.268	51.6	38.6	9.8	NAD	NAD
	Location: 303 - Off White Adhesive							

Analyzed by: Marwan A. Alahiri  
Date: 5/4/2024



Reviewed by: Marwan A. Alahiri



\*\*Quantitative Analysis (Semi/Full); Bulk Asbestos Analysis - PLM by Appd E to Subpt E, 40 CFR 763 or NYSDOH ELAP 198.1 for New York friable samples or NYSDOH ELAP 198.6 for New York NOB samples; TEM (Semi/Full) by EPA 600/R-93/116 (or NYSDOH ELAP 198.4; for New York samples). Analysis using Hitachi, Model H600-Noran 7 System, Microscope, Serial #: 600-27-6. NAD = no asbestos detected during a quantitative analysis; NA = not analyzed; Trace = < 1%; (SOF-V) = Sprayed On Fireproofing containing Vermiculite; (SM-V) = Surfacing Material containing Vermiculite; Quantitation for beginning weights of < 0.1 grams should be considered as qualitative only; Qualitative Analysis: Asbestos analysis results of "Present" or "NVA = No Visible Asbestos" represents results for Qualitative PLM or TEM Analysis only (no accreditation coverage available from any regulatory agency for qualitative analyses): NVLAP (PLM) 200546-0, NYSDOH ELAP Lab 11480, NJ Lab ID #NY031.

Warning Note: PLM limitation, only TEM will resolve fibers < 0.25 micrometers in diameter. TEM bulk analysis is representative of the fine grained matrix material and may not be representative of non-uniformly dispersed debris for which PLM evaluation is recommended (i.e. soils and other heterogenous materials).

**ATLANTIC TESTING LABORATORIES**  
**ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD**

224051036

- Albany** 22 Corporate Drive Clifton Park, NY 12065 518-383-9144 (T) 518-383-9166 (F) labsAT@atlantictesting.com
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- Utica** 301 St. Anthony Street Utica, NY 13501 315-735-3309 (T) 315-735-0742 (F) labsUT@atlantictesting.com
- Watertown** 26581 NYS Route 283 Watertown, NY 13601 315-786-7887 (T) 315-786-2022 (F) labsWT@atlantictesting.com

**Project Number:** WT6401      **Project Name:** Capital Improvements

**Project Manager:** R. Daniel Faulkham      **Email Results:** WBSOOT@atlantictesting.com

**Turn Around Time:**  12 hr       24 hr       48 hr       72 hr       5 day       Other:

**Special Instructions:**  Positive Stop Analysis       If negative by PLM-NOB, analyze by TEM-NOB       Other:

Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/23/2024	WT6401A101A-	301	Row 1: White 2- by 2-Foot Fissured and Pinholed Ceiling Tile	X			
04/23/2024	WT6401A101B	305	Row 1: White 2- by 2-Foot Fissured and Pinholed Ceiling Tile	X			
04/23/2024	WT6401A102A	301	Row 2: Yellow Skim Coat Ceiling Plaster	X			
04/29/2024	WT6401A102B	301A	Row 2: Yellow Skim Coat Ceiling Plaster	X			
04/23/2024	WT6401A102C	305	Row 2: Yellow Skim Coat Ceiling Plaster	X			
04/23/2024	WT6401A102D	506	Row 2: Yellow Skim Coat Ceiling Plaster	X			
04/29/2024	WT6401A102E	502	Row 2: Yellow Skim Coat Ceiling Plaster	X			
04/29/2024	WT6401A102F	303	Row 2: Yellow Skim Coat Ceiling Plaster	X			
04/29/2024	WT6401A102G	307	Row 2: Yellow Skim Coat Ceiling Plaster	X			
04/23/2024	WT6401A103A	301	Row 3: Gray Base Coat Ceiling Plaster Row 2	X			

**Sampler:** Brian Baisrock      **Date:** 04/30/24

**Name:** Brian Baisrock      **Date:** 04/30/24

**Signature:** [Signature]      **Time:** 0910

**Signature Received By:** [Signature]      **Date:** 5/1/24

**Name:** Alexandra      **Date:** 5/1/24

**Signature:** [Signature]      **Time:** 1044

**Field and Laboratory Remarks:**

**atl** ATLANTIC TESTING LABORATORIES  
**ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD** 224051086

- Albany** 22 Corporate Drive Clifton Park, NY 12065 518-383-9144 (T) 518-383-9166 (F) labsAT@atlantictesting.com
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- Utica** 301 St. Anthony Street Utica, NY 13501 315-735-3309 (T) 315-735-0742 (F) labsUT@atlantictesting.com
- Watertown** 26581 NYS Route 283 Watertown, NY 13601 315-786-7887 (T) 315-786-2022 (F) labsWT@atlantictesting.com

**Project Number:** WT6401 **Project Name:** Capital Improvements **Project Location:** General Brown

**Project Manager:** R. Daniel Faulkham **Email Results:** *WBS* @atlantictesting.com **Page Number:** 2 of 28

**Turn Around Time:**  12 hr  24 hr  48 hr  72 hr  5 day  Other:

**Special Instructions:**  Positive Stop Analysis  If negative by PLM-NOB, analyze by TEM-NOB  Other:

Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/29/2024	WT6401A103B	301A	Row 3: Gray Base Coat Ceiling Plaster Row 2	X			
04/29/2024	WT6401A103C	305	Row 3: Gray Base Coat Ceiling Plaster Row 2	X			
04/29/2024	WT6401A103D	506	Row 3: Gray Base Coat Ceiling Plaster Row 2	X			
04/29/2024	WT6401A103E	502	Row 3: Gray Base Coat Ceiling Plaster Row 2	X			
04/29/2024	WT6401A103F	303	Row 3: Gray Base Coat Ceiling Plaster Row 2	X			
04/29/2024	WT6401A103G	307	Row 3: Gray Base Coat Ceiling Plaster Row 2	X			
04/23/2024	WT6401A104A	301	Row 4: Brown Insulation Backing Paper	X			
04/23/2024	WT6401A104B	506	Row 4: Brown Insulation Backing Paper	X			
04/29/2024	WT6401A104C	502	Row 4: Brown Insulation Backing Paper	X			
04/23/2024	WT6401A105A	301	Row 5: White Gypsum Wall Board	X			

**Sampler:** **Laboratory:** **Field and Laboratory Remarks:**

**Name:** *Betha Baxendale* **Date:** 04/30/24 **Name:** **Date:**

**Signature:** *[Signature]* **Time:** 0910 **Signature:** **Time:**

**Samples Relinquished By:** **Samples Received By:**

**Name:** *Betha Baxendale* **Date:** 04/30/24 **Name:** *Alexa Cano* **Date:** 5/1/24

**Signature:** *[Signature]* **Time:** 0910 **Signature:** *[Signature]* **Time:** 10:44

**Name:** **Date:** **Name:** **Date:**

**Signature:** **Time:** **Signature:** **Time:**



# ATLANTIC TESTING LABORATORIES ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD

224051036

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- Plattsburgh** 130 Arizona Ave Plattsburgh, NY 12903 518-563-5878 (T) 518-562-1321 (F) labspL@atlantictesting.com
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- Utica** 301 St. Anthony Street Utica, NY 13501 315-735-3309 (T) 315-735-0742 (F) labseUR@atlantictesting.com
- Watertown** 26581 NYS Route 283 Watertown, NY 13601 315-786-7887 (T) 315-786-2022 (F) labseWT@atlantictesting.com

**Project Number:** WT6401 **Project Name:** Capital Improvements **Project Location:** General Brown

**Project Manager:** R. Daniel Faulkham **Email Results:** *WAS WT* @atlantictesting.com **Page Number:** 3 of 28

**Turn Around Time:**  12 hr  24 hr  48 hr  72 hr  5 day  Other:

**Special Instructions:**  Positive Stop Analysis  If negative by PLM-NOB, analyze by TEM-NOB  Other:

Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/23/2024	WT6401A105B		Row 5: White Gypsum Wall Board	X			
04/23/2024	WT6401A106A		Row 6: White Joint Compound Row 5	X			
04/23/2024	WT6401A106B		Row 6: White Joint Compound Row 5	X			
04/23/2024	WT6401A107A		Row 7: Off-White Seam Tape Row 5	X			
04/23/2024	WT6401A107B		Row 7: Off-White Seam Tape Row 5	X			
04/23/2024	WT6401A108A		Row 8: Yellow Skim Coat Wall Plaster	X			
04/29/2024	WT6401A108B		Row 8: Yellow Skim Coat Wall Plaster	X			
04/23/2024	WT6401A108C		Row 8: Yellow Skim Coat Wall Plaster	X			
04/29/2024	WT6401A108D		Row 8: Yellow Skim Coat Wall Plaster	X			
04/29/2024	WT6401A108E		Row 8: Yellow Skim Coat Wall Plaster	X			

**Sampler:** **Laboratory:** **Field and Laboratory Remarks:**

**Name:** **Date:** **Signature:** **Time:**

**Samples Relinquished By:**

**Name:** **Date:** **Signature:** **Time:**

**Name:** **Date:** **Signature:** **Time:**



224051036



**ATLANTIC TESTING LABORATORIES**  
**ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD**

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- Utica** 301 St. Anthony Street Utica, NY 13501 315-735-3309 (T) 315-735-0742 (F) labsUT@atlantictesting.com
- Watertown** 26581 NYS Route 283 Watertown, NY 13601 315-786-7887 (T) 315-786-2022 (F) labsWT@atlantictesting.com

**Project Number:** WT6401 **Project Name:** Capital Improvements **Project Location:** General Brown

**Project Manager:** R. Daniel Faulkham **Email Results:** *WRBS UT* @atlantictesting.com **Page Number:** 4 of 28

**Turn Around Time:**  12 hr  24 hr  48 hr  72 hr  5 day  Other:

**Special Instructions:**  Positive Stop Analysis  If negative by PLM-NOB, analyze by TEM-NOB  Other:

Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/29/2024	WT6401AI08F		Row 8: Yellow Skim Coat Wall Plaster	X			
04/29/2024	WT6401AI08G		Row 8: Yellow Skim Coat Wall Plaster	X			
04/29/2024	WT6401AI09A		Row 9: Gray Base Coat Wall Plaster Row 8	X			
04/29/2024	WT6401AI09B		Row 9: Gray Base Coat Wall Plaster Row 8	X			
04/29/2024	WT6401AI09C		Row 9: Gray Base Coat Wall Plaster Row 8	X			
04/29/2024	WT6401AI09D		Row 9: Gray Base Coat Wall Plaster Row 8	X			
04/29/2024	WT6401AI09E		Row 9: Gray Base Coat Wall Plaster Row 8	X			
04/29/2024	WT6401AI09F		Row 9: Gray Base Coat Wall Plaster Row 8	X			
04/29/2024	WT6401AI09G		Row 9: Gray Base Coat Wall Plaster Row 8	X			
04/23/2024	WT6401AI10A		Row 10: Black 4-inch Cove Base		X		

**Sampler:** **Laboratory:** **Field and Laboratory Remarks:**

**Name:** *Brian Barock* **Date:** *04/30/24* **Name:** **Date:**

**Signature:** *[Signature]* **Time:** *0500* **Signature:** **Time:**

**Samples Relinquished By:** **Samples Received By:**

**Name:** *Brian Barock* **Date:** *04/30/24* **Name:** *Alexa Cano* **Date:** *5/1/24*

**Signature:** *[Signature]* **Time:** *0900* **Signature:** *[Signature]* **Time:** *10:44*

**Name:** **Date:** **Name:** **Date:**

**Signature:** **Time:** **Signature:** **Time:**



**ATLANTIC TESTING LABORATORIES**  
**ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD**

224051036

- |   |  |   |  |   |  |   |  |  |
|---|--|---|--|---|--|---|--|--|
| <b>Albany</b><br>22 Corporate Drive<br>Clifton Park, NY 12065<br>518-383-9144 (T)<br>518-383-9166 (F)<br>labsaT@atlantictesting.com | <b>Binghamton</b><br>126 Park Avenue<br>Binghamton, NY 13903<br>607-773-1812 (T)<br>607-773-1835 (F)<br>labseT@atlantictesting.com | <b>Canton</b><br>6431 U.S. Highway 11<br>Canton, NY 13617<br>315-386-4578 (T)<br>315-386-1012 (F)<br>labscT@atlantictesting.com | <b>Plattsburgh</b><br>130 Arizona Ave<br>Plattsburgh, NY 12903<br>518-563-5878 (T)<br>518-562-1321 (F)<br>labspL@atlantictesting.com | <b>Poughkeepsie</b><br>251 Upper North Road<br>Highland, NY 12528<br>845-691-6098 (T)<br>845-691-6099 (F)<br>labspT@atlantictesting.com | <b>Rochester</b><br>3495 Winton Place<br>Rochester, NY 14623<br>585-427-9020 (T)<br>585-427-9021 (F)<br>labstr@atlantictesting.com | <b>Syracuse</b><br>6085 Court Street Road<br>Syracuse, NY 13206<br>315-699-5281 (T)<br>315-699-3374 (F)<br>labseT@atlantictesting.com | <b>Utica</b><br>301 St. Anthony Street<br>Utica NY 13501<br>315-735-3309 (T)<br>315-735-0742 (F)<br>labseT@atlantictesting.com | <b>Watertown</b><br>26581 NYS Route 283<br>Watertown, NY 13601<br>315-786-7887 (T)<br>315-786-2022 (F)<br>labswT@atlantictesting.com |
|---|--|---|--|---|--|---|--|--|

**Project Number:** WT6401      **Project Name:** Capital Improvements      **Project Location:** General Brown

**Project Manager:** R. Daniel Faulkham      **Email Results:** *WESSEY*@atlantictesting.com      **Page Number:** 5 of 28

**Turn Around Time:**  12 hr       24 hr       48 hr       72 hr       5 day       Other:

**Special Instructions:**  Positive Stop Analysis       If negative by PLM-NOB, analyze by TEM-NOB       Other:

Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/23/2024	WT6401A110B		Row 10: Black 4-Inch Cove Base		X	X	
04/23/2024	WT6401A111A		Row 11: Tan Adhesive Row 10		X	X	
04/23/2024	WT6401A111B		Row 11: Tan Adhesive Row 10		X	X	
04/25/2024	WT6401A112A		Row 12: White 12- by 12-Inch Streaked Floor Tile		X	X	
04/25/2024	WT6401A112B		Row 12: White 12- by 12-Inch Streaked Floor Tile		X	X	
04/25/2024	WT6401A113A		Row 13: Yellow Mastic Row 12		X	X	
04/25/2024	WT6401A113B		Row 13: Yellow Mastic Row 12		X	X	
04/23/2024	WT6401A114A		Row 14: Black Window Sill		X	X	
04/23/2024	WT6401A114B		Row 14: Black Window Sill		X	X	
04/25/2024	WT6401A115A		Row 15: Black Grout Row 14		X	X	

**Sampler:**      **Laboratory:**      **Field and Laboratory Remarks:**

**Name:** *Brian Basso*      **Date:** 04/30/24      **Name:**      **Date:**

**Signature:** *[Signature]*      **Time:** 0910      **Signature:**      **Time:**

**Samples Relinquished By:**      **Samples Received By:**

**Name:** *Brian Basso*      **Date:** 04/30/24      **Name:** *Alexa Curo*      **Date:** 5/1/24

**Signature:** *[Signature]*      **Time:** 0910      **Signature:** *[Signature]*      **Time:** 10:24

**Name:**      **Date:**      **Name:**      **Date:**

**Signature:**      **Time:**      **Signature:**      **Time:**



# ATLANTIC TESTING LABORATORIES ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD

## 224051036

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- Plattsburgh** 130 Arizona Ave Plattsburgh, NY 12903 518-563-5878 (T) 518-562-1321 (F) labsPL@atlantictesting.com
- Poughkeepsie** 251 Upper North Road Highland, NY 12528 845-691-6098 (T) 845-691-6099 (F) labsPT@atlantictesting.com
- Rochester** 3495 Winton Place Rochester, NY 14623 585-427-9020 (T) 585-427-9021 (F) labsRT@atlantictesting.com
- Syracuse** 6085 Court Street Road Syracuse, NY 13206 315-699-5281 (T) 315-699-3374 (F) labsST@atlantictesting.com
- Utica** 301 St. Anthony Street Utica, NY 13501 315-735-3309 (T) 315-735-0742 (F) labsUT@atlantictesting.com
- Watertown** 26581 NYS Route 283 Watertown, NY 13601 315-786-7887 (T) 315-786-2022 (F) labsWT@atlantictesting.com

**Project Number:** WT6401 **Project Name:** Capital Improvements **Project Location:** General Brown

**Project Manager:** R. Daniel Faulkham **Email Results:** LABSUOT@atlantictesting.com **Page Number:** 6 of 28

**Turn Around Time:**  12 hr  24 hr  48 hr  72 hr  5 day  Other:

**Special Instructions:**  Positive Stop Analysis  If negative by PLM-NOB, analyze by TEM-NOB  Other:

Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/25/2024	WT6401A115B		Row 15: Black GROUT Row 14	X	X	X	
04/24/2024	WT6401A116A		Row 16: Gray Window Perimeter Caulk	X	X	X	
04/24/2024	WT6401A116B		Row 16: Gray Window Perimeter Caulk	X	X	X	
04/23/2024	WT6401A117A		Row 17: Black Countertop	X	X	X	
04/23/2024	WT6401A117B		Row 17: Black Countertop	X	X	X	
04/23/2024	WT6401A118A		Row 18: Black GROUT Row 17	X	X	X	
04/23/2024	WT6401A118B		Row 18: Black GROUT Row 17	X	X	X	
04/23/2024	WT6401A119A		Row 19: Gray Block Mortar	X	X	X	
04/23/2024	WT6401A119B		Row 19: Gray Block Mortar	X	X	X	
04/23/2024	WT6401A119C		Row 19: Gray Block Mortar	X	X	X	

**Sampler:** Britta Barwick **Date:** 04/30/24

**Signature:** [Signature] **Time:** 0910

**Samples Relinquished By:**

**Name:** Britta Barwick **Date:** 04/30/24

**Signature:** [Signature] **Time:** 0910

**Samples Received By:**

**Name:** Alexa Carr **Date:** 5/1/24

**Signature:** [Signature] **Time:** 10:44

**Name:** [Signature] **Date:** [Signature] **Time:** [Signature]

**Field and Laboratory Remarks:**





# ATLANTIC TESTING LABORATORIES ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD

224051036

- Albany** 22 Corporate Drive Clifton Park, NY 12065 518-383-9144 (T) 518-383-9166 (F)
- Binghamton** 126 Park Avenue Binghamton, NY 13903 607-773-1812 (T) 607-773-1835 (F)
- Canton** 6431 U.S. Highway 11 Canton, NY 13617 315-386-4578 (T) 315-386-1012 (F)
- Plattsburgh** 130 Arizona Ave Plattsburgh, NY 12903 518-563-5878 (T) 518-562-1321 (F)
- Poughkeepsie** 251 Upper North Road Highland, NY 12528 845-691-6098 (T) 845-691-6099 (F)
- Rochester** 3495 Winton Place Rochester, NY 14623 585-427-9020 (T) 585-427-9021 (F)
- Syracuse** 6085 Court Street Road Syracuse, NY 13206 315-699-5281 (T) 315-699-3374 (F)
- Utica** 301 St. Anthony Street Utica, NY 13501 315-735-3309 (T) 315-735-0742 (F)
- Watertown** 26581 NYS Route 283 Watertown, NY 13601 315-786-7887 (T) 315-786-2022 (F)

Project Number: WT6401 Project Name: Capital Improvements Project Location: General Brown

Project Manager: R. Daniel Faulkham Email Results: WASUD @atlantictesting.com Page Number: 7 of 28

Turn Around Time:  12 hr  24 hr  48 hr  72 hr  5 day  Other:

Special Instructions:  Positive Stop Analysis  If negative by PLM-NOB, analyze by TEM-NOB  Other:

Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/24/2024	WT6401AI20B	Row 20: Green 9- by 9-inch Streaked Floor Tile			X	X	
04/24/2024	WT6401AI21A	Row 21: Black Mastic Row 20			X	X	
04/24/2024	WT6401AI21B	Row 21: Black Mastic Row 20			X	X	
04/24/2024	WT6401AI22A	Row 22: Black Chalkboard		X			
04/24/2024	WT6401AI22B	Row 22: Black Chalkboard		X			
04/25/2024	WT6401AI23A	Row 23: Black Chalkboard Adhesive Row 22			X	X	
04/25/2024	WT6401AI23B	Row 23: Black Chalkboard Adhesive Row 22			X	X	
04/24/2024	WT6401AI24A	Row 24: Green 12- by 12-inch Floor Tile			X	X	
04/24/2024	WT6401AI24B	Row 24: Green 12- by 12-inch Floor Tile			X	X	
04/23/2024	WT6401AI26A	Row 26: White 2- by 4-Foot Fissured and Pinholed Ceiling Tile		X			

Sampler: **Laboratory:** Field and Laboratory Remarks:

Name: Brian Basco Date: 04/30/24 Name: \_\_\_\_\_ Date: \_\_\_\_\_  
 Signature: \_\_\_\_\_ Time: 0910 Signature: \_\_\_\_\_ Time: \_\_\_\_\_

Samples Relinquished By: \_\_\_\_\_ Samples Received By: \_\_\_\_\_

Name: Brian Basco Date: 04/30/24 Name: Alexa Cano Date: 5/1/24  
 Signature: \_\_\_\_\_ Time: 0910 Signature: Alexa Cano Time: 10:49

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Name: \_\_\_\_\_ Date: \_\_\_\_\_  
 Signature: \_\_\_\_\_ Time: \_\_\_\_\_ Signature: \_\_\_\_\_ Time: \_\_\_\_\_



# ATLANTIC TESTING LABORATORIES ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD

224051036

- Albany**: 22 Corporate Drive, Clifton Park, NY 12065, 518-383-9144 (T), 518-383-9166 (F)
- Binghamton**: 126 Park Avenue, Binghamton, NY 13903, 607-773-1812 (T), 607-773-1835 (F)
- Canton**: 6431 U.S. Highway 11, Canton, NY 13617, 315-386-4578 (T), 315-386-1012 (F)
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- Rochester**: 3495 Winton Place, Rochester, NY 14623, 585-427-9020 (T), 585-427-9021 (F)
- Syracuse**: 6085 Court Street Road, Syracuse, NY 13206, 315-699-5281 (T), 315-699-3374 (F)
- Utica**: 301 St. Anthony Street, Utica, NY 13501, 315-735-3309 (T), 315-735-0742 (F)
- Watertown**: 26581 NYS Route 283, Watertown, NY 13601, 315-786-7887 (T), 315-786-2022 (F)

Project Number: WT6401      Project Name: Capital Improvements      Project Location: General Brown

Project Manager: R. Daniel Faulkham      Email Results: *LABSUJT*@atlantictesting.com      Page Number: 8 of 28

Turn Around Time:  12 hr     24 hr     48 hr     72 hr     5 day     Other:

Special Instructions:  Positive Stop Analysis     If negative by PLM-NOB, analyze by TEM-NOB     Other:

Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/23/2024	WT6401AI26B	600	Row 26: White 2- by 4-Foot Fissured and Pinholed Ceiling Tile	X			
<del>04/23/2024</del>	<del>WT6401AI27B</del>	<del>600</del>	<del>Row 27: Light Green 2- by 4-Foot Fissured and Pinholed Ceiling Tile</del>		X	X	
<del>04/23/2024</del>	<del>WT6401AI28B</del>	<del>600</del>	<del>Row 28: Light Green 2- by 4-Foot Fissured and Pinholed Ceiling Tile</del>		X	X	
04/24/2024	WT6401AI28A	311	Row 28: Gray 12- by 12-Inch Floor Tile		X	X	
04/24/2024	WT6401AI28B	311	Row 28: Gray 12- by 12-Inch Floor Tile		X	X	
04/24/2024	WT6401AI29A	311	Row 29: Black Mastic		X	X	
04/24/2024	WT6401AI29B	311	Row 29: Black Mastic		X	X	
04/24/2024	WT6401AI31A	306	Row 31: White 1- by 1-Foot Pinhole Ceiling Tile		X	X	
04/29/2024	WT6401AI31B	106	Row 31: White 1- by 1-Foot Pinhole Ceiling Tile		X	X	
04/29/2024	WT6401AI32A	306	Row 32: Brown Adhesive		X	X	

Sampler:      Laboratory:      Field and Laboratory Remarks:

Name: *Bruce Byrns*      Date: *04/30/24*      Name:      Date:      Signature:      Time: *0910*      Signature:      Time:

Signature: *B*      Time:      Signature:      Time:      Signature:      Time:

Name: *Bruce Byrns*      Date: *04/30/24*      Name: *Alexa Cano*      Date: *5/1/24*

Signature: *B*      Time: *0910*      Signature: *Alexa Cano*      Time: *10:49*

Name:      Date:      Name:      Date:      Signature:      Time:      Signature:      Time:







# ATLANTIC TESTING LABORATORIES ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD

224051036

- Albany**: 22 Corporate Drive, Clifton Park, NY 12065, 518-383-9144 (T), 518-383-9166 (F)
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  - Watertown**: 26581 NYS Route 283, Watertown, NY 13601, 315-786-7887 (T), 315-786-2022 (F)
- labsAT@atlantictesting.com    labseT@atlantictesting.com    labseCT@atlantictesting.com    labsePL@atlantictesting.com    labsePT@atlantictesting.com    labseRT@atlantictesting.com    labseST@atlantictesting.com    labseU@atlantictesting.com    labseWT@atlantictesting.com

**Project Number:** WT6401    **Project Name:** Capital Improvements    **Project Location:** General Brown

**Project Manager:** R. Daniel Faulkham    **Email Results:** LABSU@atlantictesting.com    **Page Number:** 10 of 28

**Turn Around Time:**  12 hr     24 hr     48 hr     72 hr     5 day     Other:

**Special Instructions:**  Positive Stop Analysis     If negative by PLM-NOB, analyze by TEM-NOB     Other:

Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/24/2024	WT6401A137B		Row 37: Yellow Mastic Row 36		X	X	
04/23/2024	WT6401A138A		Row 38: White 1 - by 1-Foot Fissured Ceiling Tile	X			
04/23/2024	WT6401A138B		Row 38: White 1 - by 1-Foot Fissured Ceiling Tile		X		
04/23/2024	WT6401A139A		Row 39: Brown Adhesive Row 38		X	X	
04/23/2024	WT6401A139B		Row 39: Brown Adhesive Row 38		X	X	
04/24/2024	WT6401A140A		Row 40: Gray Cementitious Board	X			
04/24/2024	WT6401A140B		Row 40: Gray Cementitious Board		X		
04/29/2024	WT6401A141A		Row 41: White Skim Coat Wall Plaster		X	X	
04/29/2024	WT6401A141B		Row 41: White Skim Coat Wall Plaster		X	X	
04/29/2024	WT6401A141C		Row 41: White Skim Coat Wall Plaster		X	X	

**Sampler:**

**Name:** Brian Vastack    **Date:** 04/30/24

**Signature:** [Signature]    **Time:** 0910

**Samples Relinquished By:**

**Name:** Brian Vastack    **Date:** 04/30/24

**Signature:** [Signature]    **Time:** 0910

**Samples Received By:**

**Name:** Alexa and    **Date:** 5/1/24

**Signature:** [Signature]    **Time:** 10:49

**Name:**    **Date:**

**Signature:**    **Time:**

**Field and Laboratory Remarks:**





# ATLANTIC TESTING LABORATORIES ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD

224051036

- Albany**: 22 Corporate Drive, Clifton Park, NY 12065, 518-383-9144 (T), 518-383-9166 (F), labsaT@atlantictesting.com
- Binghamton**: 126 Park Avenue, Binghamton, NY 13903, 607-773-1812 (T), 607-773-1835 (F), labseT@atlantictesting.com
- Canton**: 6431 U.S. Highway 11, Canton, NY 13617, 315-386-4578 (T), 315-386-1012 (F), labscT@atlantictesting.com
- Plattsburgh**: 130 Arizona Ave, Plattsburgh, NY 12903, 518-563-5878 (T), 518-562-1321 (F), labspL@atlantictesting.com
- Poughkeepsie**: 251 Upper North Road, Highland, NY 12528, 845-691-6098 (T), 845-691-6099 (F), labspT@atlantictesting.com
- Rochester**: 3495 Winton Place, Rochester, NY 14623, 585-427-9020 (T), 585-427-9021 (F), labseR@atlantictesting.com
- Syracuse**: 6085 Court Street Road, Syracuse, NY 13206, 315-699-5281 (T), 315-699-3374 (F), labseS@atlantictesting.com
- Utica**: 301 St. Anthony Street, Utica, NY 13501, 315-735-3309 (T), 315-735-0742 (F), labseU@atlantictesting.com
- Watertown**: 26581 NYS Route 283, Watertown, NY 13601, 315-786-7887 (T), 315-786-2022 (F), labseW@atlantictesting.com

**Project Number:** WT6401      **Project Name:** Capital Improvements      **Project Location:** General Brown

**Project Manager:** R. Daniel Faulkham      **Email Results:** WRSUT@atlantictesting.com      **Page Number:** 11 of 28

**Turn Around Time:**  12 hr       24 hr       48 hr       72 hr       5 day       Other:

**Special Instructions:**  Positive Stop Analysis       If negative by PLM-NOB, analyze by TEM-NOB       Other:

Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/29/2024	WT6401A141D		Row 41: White Skim Coat Wall Plaster		X	X	
04/29/2024	WT6401A141E		Row 41: White Skim Coat Wall Plaster		X	X	
04/24/2024	WT6401A141F		Row 41: White Skim Coat Wall Plaster		X	X	
04/29/2024	WT6401A141G		Row 41: White Skim Coat Wall Plaster		X	X	
04/29/2024	WT6401A142A		Row 42: Gray Base Coat Wall Plaster	X			
04/29/2024	WT6401A142B		Row 42: Gray Base Coat Wall Plaster	X			
04/29/2024	WT6401A142C		Row 42: Gray Base Coat Wall Plaster	X			
04/29/2024	WT6401A142D		Row 42: Gray Base Coat Wall Plaster	X			
04/29/2024	WT6401A142E		Row 42: Gray Base Coat Wall Plaster	X			
04/24/2024	WT6401A142F		Row 42: Gray Base Coat Wall Plaster	X			

**Sampler:** \_\_\_\_\_ **Laboratory:** \_\_\_\_\_ **Field and Laboratory Remarks:** \_\_\_\_\_

**Name:** Brian Baxendale      **Date:** 04/30/24      **Name:** \_\_\_\_\_      **Date:** \_\_\_\_\_

**Signature:** [Signature]      **Time:** 09:40      **Signature:** \_\_\_\_\_      **Time:** \_\_\_\_\_

**Samples Relinquished By:** \_\_\_\_\_ **Samples Received By:** \_\_\_\_\_

**Name:** Brian Baxendale      **Date:** 04/30      **Name:** Alexa Ann      **Date:** 5/1/24

**Signature:** [Signature]      **Time:** 09:10      **Signature:** [Signature]      **Time:** 10:49

**Name:** \_\_\_\_\_      **Date:** \_\_\_\_\_      **Name:** \_\_\_\_\_      **Date:** \_\_\_\_\_

**Signature:** \_\_\_\_\_      **Time:** \_\_\_\_\_      **Signature:** \_\_\_\_\_      **Time:** \_\_\_\_\_

224051036



**ATLANTIC TESTING LABORATORIES**  
**ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD**

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- Watertown** 26581 NYS Route 283 Watertown, NY 13601 315-786-7887 (T) 315-786-2022 (F)

**Project Number:** WT6401     **Project Name:** Capital Improvements  
**Project Manager:** R. Daniel Faulkham     **Email Results:** *ARSLST* @atlantictesting.com     **Page Number:** 12 of 28  
**Turn Around Time:**  12 hr      24 hr      48 hr      72 hr      5 day      Other:

**Special Instructions:**  Positive Stop Analysis      If negative by PLM-NOB, analyze by TEM-NOB      Other:

Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/29/2024	WT6401A142G	Row 42: Gray Base Coat Wall Plaster Row 41		X			
04/25/2024	WT6401A143A	Row 43: Gray 12- by 12-inch Marbled Floor Tile			X	X	
04/25/2024	WT6401A143B	Row 43: Gray 12- by 12-inch Marbled Floor Tile			X	X	
04/25/2024	WT6401A144A	Row 44: Yellow Mastic Row 43			X	X	
04/25/2024	WT6401A144B	Row 44: Yellow Mastic Row 43			X	X	
04/25/2024	WT6401A145A	Row 45: White Gypsum Board			X	X	
04/25/2024	WT6401A145B	Row 45: White Gypsum Board			X	X	
04/25/2024	WT6401A146A	Row 46: White Joint Compound Row 45			X	X	
04/25/2024	WT6401A146B	Row 46: White Joint Compound Row 45			X	X	
04/25/2024	WT6401A147A	Row 47: White Seam Sealant Row 45			X	X	

**Sampler:** \_\_\_\_\_ **Laboratory:** \_\_\_\_\_ **Field and Laboratory Remarks:** \_\_\_\_\_  
**Name:** *Brian Baseca*     **Date:** *04/30/24*     **Name:** \_\_\_\_\_     **Date:** \_\_\_\_\_  
**Signature:** *[Signature]*     **Time:** *0910*     **Signature:** \_\_\_\_\_     **Time:** \_\_\_\_\_  
**Samples Relinquished By:** \_\_\_\_\_ **Samples Received By:** \_\_\_\_\_  
**Name:** *Brian Baseca*     **Date:** *04/30/24*     **Name:** *Alexa and*     **Date:** *04/30/24*  
**Signature:** *[Signature]*     **Time:** *0910*     **Signature:** *[Signature]*     **Time:** *10:49*  
**Name:** \_\_\_\_\_     **Date:** \_\_\_\_\_     **Name:** \_\_\_\_\_     **Date:** \_\_\_\_\_  
**Signature:** \_\_\_\_\_     **Time:** \_\_\_\_\_     **Signature:** \_\_\_\_\_     **Time:** \_\_\_\_\_



**atl** ATLANTIC TESTING LABORATORIES  
 ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD 224051036

- Albany** 22 Corporate Drive Clifton Park, NY 12065 518-383-9144 (T) 518-383-9166 (F) labsAT@atlantictesting.com
- Binghamton** 126 Park Avenue Binghamton, NY 13903 607-773-1812 (T) 607-773-1835 (F) labSET@atlantictesting.com
- Canton** 6431 U.S. Highway 11 Canton, NY 13617 315-386-4578 (T) 315-386-1012 (F) labSCT@atlantictesting.com
- Plattsburgh** 130 Arizona Ave Plattsburgh, NY 12903 518-563-5878 (T) 518-562-1321 (F) labSPU@atlantictesting.com
- Poughkeepsie** 251 Upper North Road Highland, NY 12528 845-691-6098 (T) 845-691-6099 (F) labSPU@atlantictesting.com
- Rochester** 3495 Winton Place Rochester, NY 14623 585-427-9020 (T) 585-427-9021 (F) labSR@atlantictesting.com
- Syracuse** 6085 Court Street Road Syracuse, NY 13206 315-699-5281 (T) 315-699-3374 (F) labSST@atlantictesting.com
- Utica** 301 St. Anthony Street Utica, NY 13501 315-735-3309 (T) 315-735-0742 (F) labSUT@atlantictesting.com
- Watertown** 26581 NYS Route 283 Watertown, NY 13601 315-786-7887 (T) 315-786-2022 (F) labSWT@atlantictesting.com

Project Number: WT6401 Project Name: Capital Improvements Project Location: General Brown

Project Manager: R. Daniel Faulkham Email Results: UABSWT@atlantictesting.com Page Number: 13 of 31

Turn Around Time:  12 hr  24 hr  48 hr  72 hr  5 day  Other:

Special Instructions:  Positive Stop Analysis  If negative by PLM-NOB, analyze by TEM-NOB  Other:

Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/25/2024	WT6401A147B		Row 47: White Seam Sealant Row 45		X	X	
04/29/2024	WT6401A148A		Row 48: Black Sink Coating		X	X	
04/29/2024	WT6401A148B		Row 48: Black Sink Coating		X	X	
04/30/2024	WT6401A149A		Row 49: Brown 4-inch Cove Base		X	X	
04/30/2024	WT6401A149B		Row 49: Brown 4-inch Cove Base		X	X	
04/30/2024	WT6401A150A		Row 50: Tan Adhesive Row 49		X	X	
04/30/2024	WT6401A150B		Row 50: Tan Adhesive Row 49		X	X	
04/25/2024	WT6401A151A		Row 51: Gray CFT Grout		X	X	
04/25/2024	WT6401A151B		Row 51: Gray CFT Grout		X	X	
04/25/2024	WT6401A152A		Row 52: Gray CFT Mortar		X	X	

Sampler: Bruce Borsari Date: 04/30/24 Laboratory: Field and Laboratory Remarks:

Signature: [Signature] Time: 1010 Name: [Name] Date: [Date] Signature: [Signature] Time: [Time]

Samples Relinquished By: [Signature] Name: Alexa Curo Date: 5/1/24

Signature: [Signature] Time: 1010 Name: [Signature] Time: 1019

Name: [Name] Date: [Date] Signature: [Signature] Time: [Time]



# ATLANTIC TESTING LABORATORIES ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD

224051036

- Albany**: 22 Corporate Drive, Clifton Park, NY 12065, 518-383-9144 (T), 518-383-9166 (F)
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- Utica**: 301 St. Anthony Street, Utica, NY 13501, 315-735-3309 (T), 315-735-0742 (F)
- Watertown**: 26581 NYS Route 283, Watertown, NY 13601, 315-786-7887 (T), 315-786-2022 (F)

Project Number: WT6401      Project Name: Capital Improvements      Project Location: General Brown

Project Manager: R. Daniel Faulkham      Email Results: WRB@atlantictesting.com      Page Number: 14 of 31

Turn Around Time:  12 hr       24 hr       48 hr       72 hr       5 day       Other:

Special Instructions:  Positive Stop Analysis       If negative by PLM-NOB, analyze by TEM-NOB       Other:

Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/25/2024	WT6401A152B	909	Row 52: Gray CFT Mortar				
04/30/2024	WT6401A153A	610	Row 53: White Skim Coat Ceiling Plaster	X	X	X	
04/30/2024	WT6401A153B	610	Row 53: White Skim Coat Ceiling Plaster	X	X	X	
04/30/2024	WT6401A153C	610B	Row 53: White Skim Coat Ceiling Plaster	X	X	X	
04/30/2024	WT6401A153D	610C	Row 53: White Skim Coat Ceiling Plaster	X	X	X	
04/30/2024	WT6401A153E	700E	Row 53: White Skim Coat Ceiling Plaster	X	X	X	
04/30/2024	WT6401A154A	610	Row 54: Gray Base Coat Ceiling Plaster Row 53	X	X	X	
04/30/2024	WT6401A154B	610	Row 54: Gray Base Coat Ceiling Plaster Row 53	X	X	X	
04/30/2024	WT6401A154C	610B	Row 54: Gray Base Coat Ceiling Plaster Row 53	X	X	X	
04/30/2024	WT6401A154D	610C	Row 54: Gray Base Coat Ceiling Plaster Row 53	X	X	X	

**Sampler:** Name: Bevin Baysocd Date: 04/30/24

Signature: [Signature] Time: 10:10

**Samples Relinquished By:** Name: Bevin Baysocd Date: 04/30/24

Signature: [Signature] Time: 10:10

**Samples Received By:** Name: Alexa Camp Date: 5/1/24

Signature: [Signature] Time: 10:49

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Signature: \_\_\_\_\_ Time: \_\_\_\_\_

Field and Laboratory Remarks:

224051036

**ATLANTIC TESTING LABORATORIES**  
**ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD**

- Albany**: 22 Corporate Drive, Clifton Park, NY 12065, 518-383-9144 (T), 518-383-9166 (F)
- Binghamton**: 126 Park Avenue, Binghamton, NY 13903, 607-773-1812 (T), 607-773-1835 (F)
- Canton**: 6431 U.S. Highway 11, Canton, NY 13617, 315-386-4578 (T), 315-386-1012 (F)
- Plattsburgh**: 130 Arizona Ave, Plattsburgh, NY 12903, 518-563-5878 (T), 518-562-1321 (F)
- Poughkeepsie**: 251 Upper North Road, Highland, NY 12528, 845-691-6098 (T), 845-691-6099 (F)
- Rochester**: 3495 Winton Place, Rochester, NY 14623, 585-427-9020 (T), 585-427-9021 (F)
- Syracuse**: 6085 Court Street Road, Syracuse, NY 13206, 315-699-5281 (T), 315-699-3374 (F)
- Utica**: 301 St. Anthony Street, Utica, NY 13501, 315-735-3309 (T), 315-735-0742 (F)
- Watertown**: 26581 NYS Route 283, Watertown, NY 13601, 315-786-7887 (T), 315-786-2022 (F)

Project Number: WT6401      Project Name: Capital Improvements      Project Location: General Brown

Project Manager: R. Daniel Faulkham      Email Results: *WRB@atlantictesting.com*      Page Number: 15 of 31

Turn Around Time:  12 hr     24 hr     48 hr     72 hr     5 day     Other:

Special Instructions:  Positive Stop Analysis     If negative by PLM-NOB, analyze by TEM-NOB     Other:

Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/30/2024	WT6401A154E	700E	Row 54: Gray Base Coat Ceiling Plaster Row 53	X			
04/30/2024	WT6401A155A	610	Row 55: Blue Stair Tread		X		
04/30/2024	WT6401A155B	610	Row 55: Blue Stair Tread		X	X	
04/30/2024	WT6401A156A	610	Row 56: Tan Adhesive Row 55		X	X	
04/30/2024	WT6401A156B	610	Row 56: Tan Adhesive Row 55		X	X	
04/30/2024	WT6401A157A	610	Row 57: Tan Stage Curtain		X	X	
04/30/2024	WT6401A157B	610	Row 57: Tan Stage Curtain		X	X	
04/30/2024	WT6401A158A	610	Row 58: White Pipe TSI Jacket		X	X	
04/30/2024	WT6401A158B	610	Row 58: White Pipe TSI Jacket		X	X	
04/30/2024	WT6401A158C	610	Row 58: White Pipe TSI Jacket		X	X	

**Sampler:** Name: *Kevin Byszack* Date: *04/30/24*

Signature: *[Signature]* Time: *1010*

**Samples Relinquished By:** Name: *Kevin Byszack* Date: *04/30/24*

Signature: *[Signature]* Time: *1010*

**Samples Received By:** Name: *Alexa Carr* Date: *5/1/24*

Signature: *[Signature]* Time: *10:49*

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Signature: \_\_\_\_\_ Time: \_\_\_\_\_

**Field and Laboratory Remarks:**



# ATLANTIC TESTING LABORATORIES ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD

224051036

- Albany**: 22 Corporate Drive, Clifton Park, NY 12065
- Binghamton**: 126 Park Avenue, Binghamton, NY 13903
- Canton**: 6431 U.S. Highway 11, Canton, NY 13617
- Plattsburgh**: 130 Arizona Ave, Plattsburgh, NY 12903
- Poughkeepsie**: 251 Upper North Road, Highland, NY 12528
- Rochester**: 3495 Winton Place, Rochester, NY 14623
- Syracuse**: 6085 Court Street Road, Syracuse, NY 13206
- Utica**: 301 St. Anthony Street, Utica, NY 13501
- Watertown**: 26581 NYS Route 283, Watertown, NY 13601

labsAT@atlantictesting.com    labsBT@atlantictesting.com    labsCT@atlantictesting.com    labsPL@atlantictesting.com    labsPT@atlantictesting.com    labsRT@atlantictesting.com    labsST@atlantictesting.com    labsUT@atlantictesting.com    labsWT@atlantictesting.com

**Project Number:** WT6401    **Project Name:** Capital Improvements    **Project Location:** General Brown

**Project Manager:** R. Daniel Faulkham    **Email Results:** LABSUT@atlantictesting.com    **Page Number:** 16 of 31

**Turn Around Time:**  12 hr     24 hr     48 hr     72 hr     5 day     Other:

**Special Instructions:**  Positive Stop Analysis     If negative by PLM-NOB, analyze by TEM-NOB     Other:

Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/30/2024	WT6401A161A		Row 61: Gray Block Mortar		X	X	
04/30/2024	WT6401A161B		Row 61: Gray Block Mortar		X	X	
04/29/2024	WT6401A162A		Row 62: Gray Door Frame Caulk		X	X	
04/29/2024	WT6401A162B		Row 62: Gray Door Frame Caulk		X	X	
04/25/2024	WT6401A163A		Row 63: Tan Countertop Adhesive		X	X	
04/25/2024	WT6401A163B		Row 63: Tan Countertop Adhesive		X	X	
04/24/2024	WT6401A165A		Row 65: Black Sink Coating		X	X	
04/29/2024	WT6401A165B		Row 65: Black Sink Coating		X	X	
04/25/2024	WT6401A166A		Row 66: Gray Brick Mortar		X	X	
04/29/2024	WT6401A166B		Row 66: Gray Brick Mortar		X	X	

**Sampler:** \_\_\_\_\_    **Laboratory:** \_\_\_\_\_

**Name:** Brian Biscoe    **Date:** 04/30/24    **Name:** \_\_\_\_\_    **Date:** \_\_\_\_\_

**Signature:** [Signature]    **Time:** 1010    **Signature:** \_\_\_\_\_    **Time:** \_\_\_\_\_

**Samples Relinquished By:** \_\_\_\_\_    **Samples Received By:** \_\_\_\_\_

**Name:** Brian Biscoe    **Date:** 04/30/24    **Name:** Alexacane    **Date:** 5/1/24

**Signature:** [Signature]    **Time:** 1010    **Signature:** [Signature]    **Time:** 1044

**Name:** \_\_\_\_\_    **Date:** \_\_\_\_\_    **Name:** \_\_\_\_\_    **Date:** \_\_\_\_\_

**Signature:** \_\_\_\_\_    **Time:** \_\_\_\_\_    **Signature:** \_\_\_\_\_    **Time:** \_\_\_\_\_

**Field and Laboratory Remarks:** \_\_\_\_\_





# ATLANTIC TESTING LABORATORIES ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD

224051036

- Albany** 22 Corporate Drive Clifton Park, NY 12065 518-383-9144 (T) 518-383-9166 (F) labsAT@atlantictesting.com
- Binghamton** 126 Park Avenue Binghamton, NY 13903 607-773-1812 (T) 607-773-1835 (F) labSET@atlantictesting.com
- Canton** 6431 U.S. Highway 11 Canton, NY 13617 315-386-4578 (T) 315-386-1012 (F) labSCT@atlantictesting.com
- Plattsburgh** 130 Arizona Ave Plattsburgh, NY 12903 518-563-5878 (T) 518-562-1321 (F) labSPU@atlantictesting.com
- Poughkeepsie** 251 Upper North Road Highland, NY 12528 845-691-6098 (T) 845-691-6099 (F) labSPK@atlantictesting.com
- Rochester** 3495 Winton Place Rochester, NY 14623 585-427-9020 (T) 585-427-9021 (F) labSRT@atlantictesting.com
- Syracuse** 6085 Court Street Road Syracuse, NY 13206 315-699-5281 (T) 315-699-3374 (F) labSST@atlantictesting.com
- Utica** 301 St. Anthony Street Utica, NY 13501 315-735-3309 (T) 315-735-0742 (F) labSUT@atlantictesting.com
- Watertown** 26581 NYS Route 283 Watertown, NY 13601 315-786-7887 (T) 315-786-2022 (F) labSWT@atlantictesting.com

Project Number: WT6401      Project Name: Capital Improvements      Project Location: General Brown

Project Manager: R. Daniel Faulkham      Email Results: *LRBS* @atlantictesting.com      Page Number: 17 of 31

Turn Around Time:  12 hr       24 hr       48 hr       72 hr       5 day       Other:

Special Instructions:  Positive Stop Analysis       If negative by PLM-NOB, analyze by TEM-NOB       Other:

Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/29/2024	WT6401AI67A	708	Row 67: Brown Expansion Joint Caulk		X	X	
04/29/2024	WT6401AI67B	708	Row 67: Brown Expansion Joint Caulk		X	X	
04/29/2024	WT6401AI68A	708	Row 68: White Pipe TSI Jacket	X			
04/29/2024	WT6401AI68B	909	Row 68: White Pipe TSI Jacket	X			
04/29/2024	WT6401AI68C	911	Row 68: White Pipe TSI Jacket	X			
04/29/2024	WT6401AI69A	708	Row 69: White Pipe TSI Jacket	X			
04/29/2024	WT6401AI69B	907	Row 69: White Pipe TSI Jacket	X			
04/29/2024	WT6401AI69C	911	Row 69: White Pipe TSI Jacket	X			
04/29/2024	WT6401AI70A	708	Row 70: White Pipe TSI End Sealant	X			
04/29/2024	WT6401AI70B	Gym Mezzanine	Row 70: White Pipe TSI End Sealant	X			

Sampler:      Laboratory:      Field and Laboratory Remarks:

Name: *Brian Borscode*      Date: *04/30/24*      Name:      Date:

Signature: *[Signature]*      Time: *1010*      Signature:      Time:

Samples Relinquished By:      Samples Received By:

Name: *Brian Borscode*      Date: *04/30/24*      Name: *Alexa Cano*      Date: *5/1/24*

Signature: *[Signature]*      Time: *1010*      Signature: *[Signature]*      Time: *1014*

Name:      Date:      Name:      Date:

Signature:      Time:      Signature:      Time:



# ATLANTIC TESTING LABORATORIES

## ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD

224051036

- Albany** 22 Corporate Drive Clifton Park, NY 12065 518-383-9144 (T) 518-383-9166 (F)
- Binghamton** 126 Park Avenue Binghamton, NY 13903 607-773-1812 (T) 607-773-1835 (F)
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- Watertown** 26581 NYS Route 283 Watertown, NY 13601 315-786-7887 (T) 315-786-2022 (F)

labsAT@atlantictesting.com labsE@atlantictesting.com labsC@atlantictesting.com labsP@atlantictesting.com labsR@atlantictesting.com labsS@atlantictesting.com labsU@atlantictesting.com labsW@atlantictesting.com

**Project Number:** WT6401 **Project Name:** Capital Improvements

**Project Manager:** R. Daniel Faulkham **Email Results:** WRSU@atlantictesting.com

**Page Number:** 18 of 31

**Turn Around Time:**  12 hr  24 hr  48 hr  72 hr  5 day  Other:

**Special Instructions:**  Positive Stop Analysis  If negative by PLM-NOB, analyze by TEM-NOB  Other:

Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/29/2024	WT6401A170C	301A	Row 70: White Pipe TSI End Sealant	X			
04/25/2024	WT6401A171A	708	Row 71: White Rope Gasket		X	X	
04/25/2024	WT6401A171B	708	Row 71: White Rope Gasket		X	X	
04/25/2024	WT6401A171C	708	Row 71: White Rope Gasket		X	X	
04/25/2024	WT6401A172A	708	Row 72: Red Seam Sealant		X	X	
04/25/2024	WT6401A172B	708	Row 72: Red Seam Sealant		X	X	
04/25/2024	WT6401A173A	909	Row 73: White 2- by 2-Foot Tectum Ceiling Tile		X	X	
04/25/2024	WT6401A173B	909	Row 73: White 2- by 2-Foot Tectum Ceiling Tile		X	X	
04/25/2024	WT6401A174A	909	Row 74: Gray Mortar		X	X	
04/25/2024	WT6401A174B	905	Row 74: Gray Mortar		X	X	

**Sampler:**

Name: Brian Baylock Date: 04/30/24

Signature: [Signature] Time: 1010

Samples Relinquished By:

Name: Brian Baylock Date: 04/30/24

Signature: [Signature] Time: 1010

Samples Received By:

Name: Alexa Cano Date: 5/1/24

Signature: [Signature] Time: 10:49

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Signature: \_\_\_\_\_ Time: \_\_\_\_\_

**Laboratory:**

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Signature: \_\_\_\_\_ Time: \_\_\_\_\_

**Field and Laboratory Remarks:**



**ATLANTIC TESTING LABORATORIES**  
**ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD**

224051036

- Albany**: 22 Corporate Drive, Clifton Park, NY 12065, 518-383-9144 (T), 518-383-9166 (F)
- Binghamton**: 126 Park Avenue, Binghamton, NY 13903, 607-773-1812 (T), 607-773-1835 (F)
- Canton**: 6431 U.S. Highway 11, Canton, NY 13617, 315-386-4578 (T), 315-386-1012 (F)
- Plattsburgh**: 130 Arizona Ave, Plattsburgh, NY 12903, 518-563-5878 (T), 518-562-1321 (F)
- Poughkeepsie**: 251 Upper North Road, Highland, NY 12528, 845-691-6098 (T), 845-691-6099 (F)
- Rochester**: 3495 Winton Place, Rochester, NY 14623, 585-427-9020 (T), 585-427-9021 (F)
- Syracuse**: 6085 Court Street Road, Syracuse, NY 13206, 315-699-5281 (T), 315-699-3374 (F)
- Utica**: 301 St. Anthony Street, Utica, NY 13501, 315-735-3309 (T), 315-735-0742 (F)
- Watertown**: 26581 NYS Route 283, Watertown, NY 13601, 315-786-7887 (T), 315-786-2022 (F)

Project Number: WT6401      Project Name: Capital Improvements      Project Location: General Brown

Project Manager: R. Daniel Faulkham      Email Results: *LABSUT*@atlantictesting.com      Page Number: 19 of 31

Turn Around Time:  12 hr       24 hr       48 hr       72 hr       5 day       Other:

Special Instructions:  Positive Stop Analysis       If negative by PLM-NOB, analyze by TEM-NOB       Other:

Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/25/2024	WT6401A175A	Row 75: White CWT GROUT			X	X	
04/25/2024	WT6401A175B	Row 75: White CWT GROUT			X	X	
04/25/2024	WT6401A176A	Row 76: Gray CWT Mortar Row 75			X	X	
04/25/2024	WT6401A176B	Row 76: Gray CWT Mortar Row 75			X	X	
04/25/2024	WT6401A177A	Row 77: Gray CFT GROUT			X	X	
04/25/2024	WT6401A177B	Row 77: Gray CFT GROUT			X	X	
04/25/2024	WT6401A178A	Row 78: Gray CFT Mortar Row 77			X	X	
04/25/2024	WT6401A178B	Row 78: Gray CFT Mortar Row 77			X	X	
04/24/2024	WT6401A179A	Row 79: White Fixture Caulk			X	X	
04/29/2024	WT6401A179B	Row 79: White Fixture Caulk			X	X	

Sampler: **Beinn Batscock**      Date: 04/30/24

Name: **Beinn Batscock**      Date: 04/30/24

Signature: *[Signature]*      Time: 1010

Signature: *[Signature]*      Time: 1010

Samples Relinquished By: \_\_\_\_\_

Name: **Alexa Carr**      Date: 5/1/24

Signature: *[Signature]*      Time: 10:49

Name: \_\_\_\_\_      Date: \_\_\_\_\_

Signature: \_\_\_\_\_      Time: \_\_\_\_\_

Field and Laboratory Remarks: \_\_\_\_\_



# ATLANTIC TESTING LABORATORIES ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD

224051036

- Albany**: 22 Corporate Drive, Clifton Park, NY 12065, 518-383-9144 (T), 518-383-9166 (F)
- Binghamton**: 126 Park Avenue, Binghamton, NY 13903, 607-773-1812 (T), 607-773-1835 (F)
- Canton**: 6431 U.S. Highway 11, Canton, NY 13617, 315-386-4578 (T), 315-386-1012 (F)
- Plattsburgh**: 130 Arizona Ave, Plattsburgh, NY 12903, 518-563-5878 (T), 518-562-1321 (F)
- Poughkeepsie**: 251 Upper North Road, Highland, NY 12528, 845-691-6098 (T), 845-691-6099 (F)
- Rochester**: 3495 Wilton Place, Rochester, NY 14623, 585-427-9020 (T), 585-427-9021 (F)
- Syracuse**: 6085 Court Street Road, Syracuse, NY 13206, 315-699-5281 (T), 315-699-3374 (F)
- Utica**: 301 St. Anthony Street, Utica, NY 13501, 315-735-3309 (T), 315-735-0742 (F)
- Watertown**: 26581 NYS Route 283, Watertown, NY 13601, 315-786-7887 (T), 315-786-2022 (F)

Project Number: WT6401      Project Name: Capital Improvements      Project Location: General Brown

Project Manager: R. Daniel Faulkham      Email Results: LABSUST@atlantictesting.com      Page Number: 20 of 31

Turn Around Time:  12 hr     24 hr     48 hr     72 hr     5 day     Other:

Special Instructions:  Positive Stop Analysis     If negative by PLM-NOB, analyze by TEM-NOB     Other:

Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/25/2024	WT6401AI80A	911	Row 80: White CWT GROUT	X			
04/29/2024	WT6401AI80B	905B	Row 80: White CWT GROUT	X			
04/25/2024	WT6401AI81A	911	Row 81: Gray CWT Mortar Row 80	X			
04/29/2024	WT6401AI81B	905B	Row 81: Gray CWT Mortar Row 80	X			
04/25/2024	WT6401AI82A	911	Row 82: Gray CFT GROUT	X			
04/29/2024	WT6401AI82B	905B	Row 82: Gray CFT GROUT	X			
04/25/2024	WT6401AI83A	911	Row 83: Gray CFT Mortar Row 82	X			
04/29/2024	WT6401AI83B	905B	Row 83: Gray CFT Mortar Row 82	X			
04/29/2024	WT6401AI84A	907A	Row 84: White Duct TSI		X		
04/29/2024	WT6401AI84B	907A	Row 84: White Duct TSI		X		

Sampler: **Bevin Baysack**      Date: 04/30/24

Name: Bevin Baysack      Date: 04/30/24

Signature: [Signature]      Time: 10:10

Samples Relinquished By: \_\_\_\_\_

Name: Alexa Carr      Date: 5/1/24

Signature: [Signature]      Time: 10:44

Name: \_\_\_\_\_      Date: \_\_\_\_\_

Signature: \_\_\_\_\_      Time: \_\_\_\_\_

Field and Laboratory Remarks: \_\_\_\_\_





# ATLANTIC TESTING LABORATORIES ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD

224051036

- Albany**: 22 Corporate Drive, Clifton Park, NY 12065 (518-383-9144 (T), 518-383-9166 (F))
- Binghamton**: 126 Park Avenue, Binghamton, NY 13903 (607-773-1812 (T), 607-773-1835 (F))
- Canton**: 6431 U.S. Highway 11, Canton, NY 13617 (315-386-4578 (T), 315-386-1012 (F))
- Plattsburgh**: 130 Arizona Ave, Plattsburgh, NY 12903 (518-563-5878 (T), 518-562-1321 (F))
- Poughkeepsie**: 251 Upper North Road, Highland, NY 12528 (845-691-6098 (T), 845-691-6099 (F))
- Rochester**: 3495 Winton Place, Rochester, NY 14623 (585-427-9020 (T), 585-427-9021 (F))
- Syracuse**: 6085 Court Street, Syracuse, NY 13206 (315-699-5281 (T), 315-699-3374 (F))
- Utica**: 301 St. Anthony Street, Utica, NY 13501 (315-735-3309 (T), 315-735-0742 (F))
- Watertown**: 26581 NYS Route 283, Watertown, NY 13601 (315-786-7887 (T), 315-786-2022 (F))

**Project Number:** WT6401      **Project Name:** Capital Improvements  
**Project Manager:** R. Daniel Faulkham      **Email Results:** WBSUST@atlantictesting.com      **Page Number:** 21 of 31  
**Turn Around Time:**  12 hr     24 hr     48 hr     72 hr     5 day     Other:

**Special Instructions:**  Positive Stop Analysis     If negative by PLM-NOB, analyze by TEM-NOB     Other:

Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/29/2024	WT6401A184C	907A	Row 84: White Duct TSI	X	X	X	
04/29/2024	WT6401A185A	970A	Row 85: Brown Pipe TSI Jacket	X	X	X	
04/29/2024	WT6401A185B	907A	Row 85: Brown Pipe TSI Jacket	X	X	X	
04/29/2024	WT6401A185C	907A	Row 85: Brown Pipe TSI Jacket	X	X	X	
04/24/2024	WT6401A187A	427	Row 87: Black Mastic Row 86	X	X	X	
04/24/2024	WT6401A187B	427	Row 87: Black Mastic Row 86	X	X	X	
04/24/2024	WT6401A188B	408B	Row 88: Gray 9 by 9 inch Striated Floor Tile	X	X	X	
			Row 88: Gray 9 by 9 inch Striated Floor Tile	X	X	X	

**Sampler:** \_\_\_\_\_ **Laboratory:** \_\_\_\_\_ **Field and Laboratory Remarks:** \_\_\_\_\_  
**Name:** Brian Boyce **Date:** 04/29/24  
**Signature:** [Signature] **Time:** 10:10  
**Name:** Alexi Cava **Date:** 5/11/24  
**Signature:** [Signature] **Time:** 10:44  
**Name:** \_\_\_\_\_ **Date:** \_\_\_\_\_  
**Signature:** \_\_\_\_\_ **Time:** \_\_\_\_\_

**atl** ATLANTIC TESTING LABORATORIES  
 ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD

224051036

- Albany** 22 Corporate Drive Clifton Park, NY 12065 518-383-9144 (T) 518-383-9166 (F) labsAT@atlantictesting.com
- Binghamton** 126 Park Avenue Binghamton, NY 13903 607-773-1812 (T) 607-773-1835 (F) labseT@atlantictesting.com
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- Watertown** 26581 NYS Route 283 Watertown, NY 13601 315-786-7887 (T) 315-786-2022 (F) labseT@atlantictesting.com

**Project Number:** WT6401 **Project Name:** Capital Improvements **Project Location:** General Brown

**Project Manager:** R. Daniel Faulkham **Email Results:** WBSUT@atlantictesting.com **Page Number:** 22 of 31

**Turn Around Time:**  12 hr  24 hr  48 hr  72 hr  5 day  Other:

**Special Instructions:**  Positive Stop Analysis  If negative by PLM-NOB, analyze by TEM-NOB  Other:

Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/24/2024	WT6401AI93A		Row 89: Black Mastic Row 88	X	X	X	
04/29/2024	WT6401AI89B		Row 89: Black Mastic Row 88	X	X	X	
04/26/2024	WT6401AI90A		Row 90: Black Window Buy!	X	X	X	
04/26/2024	WT6401AI90B		Row 90: Black Window Buy!	X	X	X	
04/26/2024	WT6401AI91A		Row 91: Gray Mortar	X	X	X	
04/26/2024	WT6401AI91B		Row 91: Gray Mortar	X	X	X	
04/26/2024	WT6401AI92A		Row 92: White CWT Grout	X	X	X	
04/26/2024	WT6401AI92B		Row 92: White CWT Grout	X	X	X	
04/26/2024	WT6401AI93A		Row 93: Gray CWT Mortar Row 92	X	X	X	
04/26/2024	WT6401AI93B		Row 93: Gray CWT Mortar Row 92	X	X	X	

**Sampler:** **Laboratory:** **Field and Laboratory Remarks:**

**Name:** Brian Bussell **Date:** 04/30/24 **Name:** **Date:**

**Signature:** **Time:** 18:10 **Signature:** **Time:**

**Samples Relinquished By:** **Samples Received By:**

**Name:** Brian Bussell **Date:** 04/30/24 **Name:** Alex Cano **Date:** 5/1/24

**Signature:** **Time:** 10:10 **Signature:** **Time:** 10:15

**Name:** **Date:** **Name:** **Date:**

**Signature:** **Time:** **Signature:** **Time:**



**ATLANTIC TESTING LABORATORIES**  
**ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD**

- Albany** 22 Corporate Drive Clifton Park, NY 12065 518-383-9144 (T) 518-383-9166 (F) labSA@atlantictesting.com
- Binghamton** 126 Park Avenue Binghamton, NY 13903 607-773-1812 (T) 607-773-1835 (F) labSET@atlantictesting.com
- Canton** 6431 U.S. Highway 11 Canton, NY 13617 315-386-4578 (T) 315-386-1012 (F) labSCT@atlantictesting.com
- Plattsburgh** 130 Arizona Ave Plattsburgh, NY 12903 518-563-5878 (T) 518-562-1321 (F) labSP@atlantictesting.com
- Poughkeepsie** 251 Upper North Road Highland, NY 12528 845-691-6098 (T) 845-691-6099 (F) labSP@atlantictesting.com
- Rochester** 3495 Winton Place Rochester, NY 14623 585-427-9020 (T) 585-427-9021 (F) labSRT@atlantictesting.com
- Syracuse** 6085 Court Street Road Syracuse, NY 13206 315-699-5281 (T) 315-699-3374 (F) labSST@atlantictesting.com
- Utica** 301 St. Anthony Street Utica, NY 13501 315-735-3309 (T) 315-735-0742 (F) labSUT@atlantictesting.com
- Watertown** 26581 NYS Route 283 Watertown, NY 13601 315-786-7887 (T) 315-786-2022 (F) labSWT@atlantictesting.com

**Project Number:** WT6401      **Project Name:** Capital Improvements      **Project Location:** General Brown

**Project Manager:** R. Daniel Faulkham      **Email Results:** *LABSUT*@atlantictesting.com      **Page Number:** 23 of 31

**Turn Around Time:**  12 hr       24 hr       48 hr       72 hr       5 day       Other:

**Special Instructions:**  Positive Stop Analysis       If negative by PLM-NOB, analyze by TEM-NOB       Other:

Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/26/2024	WT6401A194A		Row 94: Light Green Fire Blanket		X	X	
04/26/2024	WT6401A194B		Row 94: Light Green Fire Blanket		X	X	
04/26/2024	WT6401A195A		Row 95: Gray GROUT		X	X	
04/26/2024	WT6401A195B		Row 95: Gray GROUT		X	X	
04/26/2024	WT6401A196A		Row 96: Gray Mortar Row 95		X	X	
04/26/2024	WT6401A196B		Row 96: Gray Mortar Row 95		X	X	
04/24/2024	WT6401A197A		Row 97: Red Door Frame Caulk		X	X	
04/24/2024	WT6401A197B		Row 97: Red Door Frame Caulk		X	X	
04/24/2024	WT6401A198A		Row 98: White Tank TSI		X		
04/24/2024	WT6401A198B		Row 98: White Tank TSI	X			

**Sampler:**      **Laboratory:**      **Field and Laboratory Remarks:**

**Name:** *Brian Byszock*      **Date:** 04/30/24      **Name:**      **Date:**      **Signature:**      **Time:** 10:10

**Signature:**      **Time:** 10:10      **Signature:**      **Time:**

**Samples Relinquished By:**      **Samples Received By:**

**Name:** *Brian Byszock*      **Date:** 04/30/24      **Name:** *Alexa Cano*      **Date:** 5/1/24

**Signature:**      **Time:** 10:10      **Signature:** *Alexa Cano*      **Time:** 10:49

**Name:**      **Date:**      **Name:**      **Date:**

**Signature:**      **Time:**      **Signature:**      **Time:**



# ATLANTIC TESTING LABORATORIES ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD

224051036

- Albany**: 22 Corporate Drive, Clifton Park, NY 12065, 518-383-9144 (T), 518-383-9166 (F), labsA1@atlantictesting.com
- Binghamton**: 126 Park Avenue, Binghamton, NY 13903, 607-773-1812 (T), 607-773-1835 (F), labsB1@atlantictesting.com
- Canton**: 6431 U.S. Highway 11, Canton, NY 13617, 315-386-4578 (T), 315-386-1012 (F), labsC1@atlantictesting.com
- Plattsburgh**: 130 Arizona Ave, Plattsburgh, NY 12903, 518-563-5878 (T), 518-562-1321 (F), labsPL@atlantictesting.com
- Poughkeepsie**: 251 Upper North Road, Highland, NY 12528, 845-691-6098 (T), 845-691-6099 (F), labsPT@atlantictesting.com
- Rochester**: 3495 Winton Place, Rochester, NY 14623, 585-427-9020 (T), 585-427-9021 (F), labsRT@atlantictesting.com
- Syracuse**: 6085 Court Street Road, Syracuse, NY 13206, 315-699-5281 (T), 315-699-3374 (F), labsST@atlantictesting.com
- Utica**: 301 St. Anthony Street, Utica, NY 13501, 315-735-3309 (T), 315-735-0742 (F), labsUT@atlantictesting.com
- Watertown**: 26581 NYS Route 283, Watertown, NY 13601, 315-786-7887 (T), 315-786-2022 (F), labsWT@atlantictesting.com

Project Number: WT6401      Project Name: Capital Improvements      Project Location: General Brown

Project Manager: R. Daniel Faulkham      Email Results: *WRB@atlantictesting.com*      Page Number: 24 of 31

Turn Around Time:  12 hr       24 hr       48 hr       72 hr       5 day       Other:

Special Instructions:  Positive Stop Analysis       If negative by PLM-NOB, analyze by TEM-NOB       Other:

Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/24/2024	WT6401A198C	114	Row 98: White Tank TSI	X			
04/24/2024	WT6401A199A	114	Row 99: Orange Gasket	X			
04/24/2024	WT6401A199B	114	Row 99: Orange Gasket	X			
04/24/2024	WT6401A1100A	114	Row 100: White Pipe TSI Jacket	X			
04/24/2024	WT6401A1100B	Area A crawlspace	Row 100: White Pipe TSI Jacket	X			
04/29/2024	WT6401A1100C	Area B crawlspace	Row 100: White Pipe TSI Jacket	X			
04/24/2024	WT6401A1101A	392	Row 101: White CWT GROUT		X	X	
04/24/2024	WT6401A1101B	392	Row 101: White CWT GROUT		X	X	
04/24/2024	WT6401A1102A	392	Row 102: Gray CWT Mortar Row 101		X	X	
04/24/2024	WT6401A1102B	392	Row 102: Gray CWT Mortar Row 101		X	X	

Sampler: *Brigitte Byszack*      Date: 04/30/24      Laboratory:      Field and Laboratory Remarks:

Signature: *[Signature]*      Time: 1610      Name:      Date:      Signature:      Time:      Name:      Date:      Signature:      Time:

Samples Relinquished By:      Samples Received By:      Name: *Alexa Cano*      Date: 5/1/24

Signature: *[Signature]*      Time: 1610      Signature: *[Signature]*      Time: 10:49

Name:      Date:      Name:      Date:      Signature:      Time:      Signature:      Time:

**ATLANTIC TESTING LABORATORIES**  
**ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD**

224051035

- Albany** 22 Corporate Drive Clifton Park, NY 12065 518-383-9144 (T) 518-383-9166 (F)
- Binghamton** 126 Park Avenue Binghamton, NY 13903 607-773-1812 (T) 607-773-1835 (F)
- Canton** 6431 U.S. Highway 11 Canton, NY 13617 315-386-4578 (T) 315-386-1012 (F)
- Plattsburgh** 130 Arizona Ave Plattsburgh, NY 12903 518-563-5878 (T) 518-562-1321 (F)
- Poughkeepsie** 251 Upper North Road Highland, NY 12528 845-691-6098 (T) 845-691-6099 (F)
- Rochester** 3495 Winton Place Rochester, NY 14623 585-427-9020 (T) 585-427-9021 (F)
- Syracuse** 6085 Court Street Road Syracuse, NY 13206 315-699-5281 (T) 315-699-3374 (F)
- Utica** 301 St. Anthony Street Utica, NY 13501 315-735-3309 (T) 315-735-0742 (F)
- Watertown** 26581 NYS Route 283 Watertown, NY 13601 315-786-7887 (T) 315-786-2022 (F)

**Project Number:** WT6401      **Project Name:** Capital Improvements      **Project Location:** General Brown

**Project Manager:** R. Daniel Faulkham      **Email Results:** *MRB@atlantictesting.com*      **Page Number:** 25 of 31

**Turn Around Time:**  12 hr     24 hr     48 hr     72 hr     5 day     Other:

**Special Instructions:**  Positive Stop Analysis     If negative by PLM-NOB, analyze by TEM-NOB     Other:

Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/30/2024	WT6401A1104A	Exterior	Row 104: Gray Window Frame Caulk	X	X	X	
04/30/2024	WT6401A1104B	Exterior	Row 104: Gray Window Frame Caulk	X	X	X	
04/30/2024	WT6401A1105A	Exterior	Row 105: Light Gray Window Sill	X	X	X	
04/30/2024	WT6401A1105B	Exterior	Row 105: Light Gray Window Sill	X	X	X	
04/24/2024	WT6401A1106A	502	Row 106: Light Blue Fire Blanket	X	X	X	
04/24/2024	WT6401A1106B	502	Row 106: Light Blue Fire Blanket	X	X	X	
04/26/2024	WT6401A1107A	110	Row 107: Gray CFT Grout	X	X	X	
04/26/2024	WT6401A1107B	108	Row 107: Gray CFT Grout	X	X	X	
04/26/2024	WT6401A1108A	110	Row 108: Light Gray CFT Mortar Row 107	X	X	X	
04/26/2024	WT6401A1108B	108	Row 108: Light Gray CFT Mortar Row 107	X	X	X	

**Sampler:** *Bryan Baxendale*      **Date:** 04/20/24

**Signature:** *[Signature]*      **Time:** 10:10

**Samples Relinquished By:** *[Signature]*

**Name:** *Alexa Cano*      **Date:** 5/11/24

**Signature:** *[Signature]*      **Time:** 10:49

**Name:**      **Date:**

**Signature:**      **Time:**

**Field and Laboratory Remarks:**







# ATLANTIC TESTING LABORATORIES

## ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD

224051036

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- Canton**: 6431 U.S. Highway 11, Canton, NY 13617, 315-386-4578 (T), 315-386-1012 (F)
- Plattsburgh**: 130 Arizona Ave, Plattsburgh, NY 12903, 518-563-5878 (T), 518-562-1321 (F)
- Poughkeepsie**: 251 Upper North Road, Highland, NY 12528, 845-691-6098 (T), 845-691-6099 (F)
- Rochester**: 3495 Winton Place, Rochester, NY 14623, 585-427-9020 (T), 585-427-9021 (F)
- Syracuse**: 6085 Court Street Road, Syracuse, NY 13206, 315-699-5281 (T), 315-699-3374 (F)
- Utica**: 301 St. Anthony Street, Utica, NY 13501, 315-735-3309 (T), 315-735-0742 (F)
- Watertown**: 26581 NYS Route 283, Watertown, NY 13601, 315-786-7887 (T), 315-786-2022 (F)

Project Number: WT6401      Project Name: Capital Improvements      Project Location: General Brown

Project Manager: R. Daniel Faulkham      Email Results: *LABSUST* @atlantictesting.com      Page Number: 27 of 31

Turn Around Time:  12 hr     24 hr     48 hr     72 hr     5 day     Other:

Special Instructions:  Positive Stop Analysis     If negative by PLM-NOB, analyze by TEM-NOB     Other:

Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/26/2024	WT6401A1113B		Row 113: Black Countertop		X	X	
04/26/2024	WT6401A1114A		Row 114: Black Countertop GROUT Row 113		X	X	
04/26/2024	WT6401A1114B		Row 114: Black Countertop GROUT Row 113		X	X	
04/26/2024	WT6401A1115A		Row 115: Black Countertop		X	X	
04/26/2024	WT6401A1115B		Row 115: Black Countertop		X	X	
04/26/2024	WT6401A1116A		Row 116: Black 4-Inch Cove Base		X	X	
04/26/2024	WT6401A1116B		Row 116: Black 4-Inch Cove Base		X	X	
04/26/2024	WT6401A1117A		Row 117: Brown Adhesive Row 116		X	X	
04/26/2024	WT6401A1117B		Row 117: Brown Adhesive Row 116		X	X	
04/26/2024	WT6401A1118A		Row 118: Gray Streaked Floor Tile		X	X	

Sampler:      Laboratory:      Field and Laboratory Remarks:

Name: *Bevin Borsic*      Date: *04/30/24*      Name:      Date:      Signature:      Time: *1414*      Signature:      Time:

Samples Relinquished By:      Samples Received By:      Name: *Alexa Carr*      Date: *04/12/24*      Signature: *Alexa Carr*      Time: *1049*      Signature:      Time:

Name:      Date:      Name:      Date:      Signature:      Time:      Signature:      Time:



ATLANTIC TESTING LABORATORIES  
ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD

224051036

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- Binhamnton**: 126 Park Avenue, Binghamton, NY 13903 (T) 607-773-1812 (F) 607-773-1835
- Canton**: 6431 U.S. Highway 11, Canton, NY 13617 (T) 315-386-4578 (F) 315-386-1012
- Plattsburgh**: 130 Arizona Ave, Plattsburgh, NY 12903 (T) 518-563-5878 (F) 518-562-1321
- Poughkeepsie**: 251 Upper North Road, Highland, NY 12528 (T) 845-691-6098 (F) 845-691-6099
- Rochester**: 3495 Winton Place, Rochester, NY 14623 (T) 585-427-9020 (F) 585-427-9021
- Syracuse**: 6085 Court Street Road, Syracuse, NY 13206 (T) 315-699-5281 (F) 315-699-3374
- Utica**: 301 St. Anthony Street, Utica NY 13501 (T) 315-735-3309 (F) 315-735-0742
- Watertown**: 26581 NYS Route 283, Watertown, NY 13601 (T) 315-786-7887 (F) 315-786-2022

Project Number: WT6401      Project Name: Capital Improvements      Project Location: General Brown

Project Manager: R. Daniel Faulkham      Email Results: WMSUT@atlantictesting.com      Page Number: 28 of 31

Turn Around Time:  12 hr       24 hr       48 hr       72 hr       5 day       Other:

Special Instructions:  Positive Stop Analysis       If negative by PLM-NOB, analyze by TEM-NOB       Other:

Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/26/2024	WT6401A11188	600	Row 118: Gray Streaked Floor Tile	X	X	X	
04/26/2024	WT6401A1119A	610	Row 119: Black Cove Base	X	X	X	
04/26/2024	WT6401A1119B	610	Row 119: Black Cove Base	X	X	X	
04/26/2024	WT6401A1120A	610	Row 120: Light Green by White Mastic Floor Tile	X	X	X	
04/26/2024	WT6401A1121A	610A	Row 121: Black Mastic Row 120	X	X	X	
04/26/2024	WT6401A1121B	610A	Row 121: Black Mastic Row 120	X	X	X	
04/26/2024	WT6401A1126A	502	Row 126: White Speckled Counterop	X	X	X	
04/26/2024	WT6401A1126B	502	Row 126: White Speckled Counterop	X	X	X	
04/26/2024	WT6401A1127A	502	Row 127: White Caulk	X	X	X	

Sampler:      Laboratory:      Field and Laboratory Remarks:

Name: Brian Biscoe      Date: 04/30/24      Name:      Date:      Name:      Date:      Name:      Date:

Signature: [Signature]      Time: 14:24      Signature:      Time:      Signature:      Time:      Signature:      Time:

Samples Relinquished By:      Samples Received By:      Signature:      Date:      Signature:      Date:      Signature:      Date:      Signature:      Date:



**atl**  
**ATLANTIC TESTING LABORATORIES**  
**ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD**  
**224051036**

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- Canton** 6431 U.S. Highway 11 Canton, NY 13617 315-386-4578 (T) 315-386-1012 (F) labSCT@atlantictesting.com
- Plattsburgh** 130 Arizona Ave Plattsburgh, NY 12903 518-563-5878 (T) 518-562-1321 (F) labSPt@atlantictesting.com
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- Rochester** 3495 Winton Place Rochester, NY 14623 585-427-9020 (T) 585-427-9021 (F) labSRT@atlantictesting.com
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- Watertown** 26581 NYS Route 283 Watertown, NY 13601 315-786-7887 (T) 315-786-2022 (F) labSWT@atlantictesting.com

**Project Number:** WT6401 **Project Name:** Capital Improvements **Project Location:** General Brown

**Project Manager:** R. Daniel Faulkham **Email Results:** *DRSUST*@atlantictesting.com **Page Number:** 29 of 31

**Turn Around Time:**  12 hr  24 hr  48 hr  72 hr  5 day  Other:

**Special Instructions:**  Positive Stop Analysis  If negative by PLM-NOB, analyze by TEM-NOB  Other:

Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/26/2024	WT6401A1127B		Row 127: White Caulk		X	X	
04/29/2024	WT6401A1128A		Row 128: Black Window Butyl		X	X	
04/29/2024	WT6401A1128B		Row 128: Black Window Butyl		X	X	
04/30/2024	WT6401A1129A		Row 129: White Joint Compound		X		
04/30/2024	WT6401A1129B		Row 129: White Joint Compound		X		
04/30/2024	WT6401A1129C		Row 129: White Joint Compound		X		
04/30/2024	WT6401A1130A		Row 130: Off-White Gasket		X	X	
04/30/2024	WT6401A1130B		Row 130: Off-White Gasket		X	X	
04/30/2024	WT6401A1131A		Row 131: Black Countertop		X	X	
04/30/2024	WT6401A1131B		Row 131: Black Countertop		X	X	

**Sampler:** *Bevin Bussard* **Date:** 04/30/24 **Laboratory:** **Field and Laboratory Remarks:**

**Signature:** *[Signature]* **Time:** 14:14 **Signature:** **Time:**

**Samples Relinquished By:** **Samples Received By:**

**Name:** *Bevin Bussard* **Date:** 04/30/24 **Name:** *Alexi Camo* **Date:** 5/1/24

**Signature:** *[Signature]* **Time:** 14:14 **Signature:** *[Signature]* **Time:** 10:44

**Name:** **Date:** **Name:** **Date:**

**Signature:** **Time:** **Signature:** **Time:**

**ATLANTIC TESTING LABORATORIES**  
**ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD**  
**224051036**

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- Canton** 6431 U.S. Highway 11 Canton, NY 13617 315-386-4578 (T) 315-386-1012 (F) labstCT@atlantictesting.com
- Plattsburgh** 130 Arizona Ave Plattsburgh, NY 12903 518-563-5878 (T) 518-562-1321 (F) labstPL@atlantictesting.com
- Poughkeepsie** 251 Upper North Road Highland, NY 12528 845-691-6098 (T) 845-691-6099 (F) labstPT@atlantictesting.com
- Rochester** 3495 Winton Place Rochester, NY 14623 585-427-9020 (T) 585-427-9021 (F) labstRT@atlantictesting.com
- Syracuse** 6085 Court Street Road Syracuse, NY 13206 315-699-5281 (T) 315-699-3374 (F) labstST@atlantictesting.com
- Utica** 301 St. Anthony Street Utica NY 13501 315-735-3309 (T) 315-735-0742 (F) labstUT@atlantictesting.com
- Watertown** 26581 NYS Route 283 Watertown, NY 13601 315-786-7887 (T) 315-786-2022 (F) labstWT@atlantictesting.com

**Project Number:** WT6401 **Project Name:** Capital Improvements **Project Location:** General Brown

**Project Manager:** R. Daniel Faulkham **Email Results:** *LABSUT* @atlantictesting.com **Page Number:** 30 of 31

**Turn Around Time:**  12 hr  24 hr  48 hr  72 hr  5 day  Other:

**Special Instructions:**  Positive Stop Analysis  If negative by PLM-NOB, analyze by TEM-NOB  Other:

Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/30/2024	WT6401A1132A		Row 132: Black Grout Row 131	X	X	X	
04/30/2024	WT6401A1132B		Row 132: Black Grout Row 131	X	X	X	
04/30/2024	WT6401A1133A		Row 133: White Caulk	X	X	X	
04/30/2024	WT6401A1133B		Row 133: White Caulk	X	X	X	
04/30/2024	WT6401A1134A		Row 134: White Paper Pipe TSI Jacket	X	X	X	
04/30/2024	WT6401A1134B		Row 134: White Paper Pipe TSI Jacket	X	X	X	
04/30/2024	WT6401A1134C		Row 134: White Paper Pipe TSI Jacket	X	X	X	
04/30/2024	WT6401A1135A		Row 135: White Caulk	X	X	X	
04/30/2024	WT6401A1135B		Row 135: White Caulk	X	X	X	
04/30/2024	WT6401A1136A		Row 136: Off-White Countertop	X	X	X	

**Sampler:** *Brian Bassock* **Date:** 04/30/24 **Laboratory:** **Field and Laboratory Remarks:**

**Signature:** *[Signature]* **Time:** 14:14 **Signature:** **Time:**

**Samples Relinquished By:** **Name:** *Brian Bassock* **Date:** 04/30/24 **Signature:** *[Signature]* **Time:** 14:14

**Samples Received By:** **Name:** *Alexa Ceno* **Date:** 5/1/24 **Signature:** *[Signature]* **Time:** 10:49

**Name:** **Date:** **Signature:** **Time:**



# ATLANTIC TESTING LABORATORIES ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD

224051036

- Albany** 22 Corporate Drive Clifton Park, NY 12065 518-383-9144 (T) 518-383-9166 (F) labSAI@atlantictesting.com
- Binghamton** 126 Park Avenue Binghamton, NY 13903 607-773-1812 (T) 607-773-1835 (F) labST@atlantictesting.com
- Canton** 6431 U.S. Highway 11 Canton, NY 13617 315-386-4578 (T) 315-386-1012 (F) labSC@atlantictesting.com
- Plattsburgh** 130 Arizona Ave Plattsburgh, NY 12903 518-563-5878 (T) 518-562-1321 (F) labSP@atlantictesting.com
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- Watertown** 26581 NYS Route 283 Watertown, NY 13601 315-786-7887 (T) 315-786-2022 (F) labSW@atlantictesting.com

Project Number: WT6401		Project Name: Capital Improvements		Project Location: General Brown			
Project Manager: R. Daniel Faulkham		Email Results: <u>WRB@atlantictesting.com</u>		Page Number: 31 of 31			
Turn Around Time:	<input type="checkbox"/> 12 hr	<input type="checkbox"/> 24 hr	<input type="checkbox"/> 48 hr	<input type="checkbox"/> 72 hr	<input checked="" type="checkbox"/> 5 day	<input type="checkbox"/> Other:	
Special Instructions:	<input checked="" type="checkbox"/> Positive Stop Analysis		<input checked="" type="checkbox"/> If negative by PLM-NOB, analyze by TEM-NOB		<input type="checkbox"/> Other:		
Date	Sample Number	Sample Location	Sample Description	PLM	PLM-NOB	TEM-NOB	Laboratory Sample ID Number
04/30/2024	WT6401A1136B	300	Row 136: Off-White Countertop		X	X	
Sampler:				Field and Laboratory Remarks:			
Name: <u>Brian Baxwood</u>		Date: <u>04/30/24</u>		Name:		Date:	
Signature: <u>[Signature]</u>		Time: <u>14K1</u>		Signature:		Time:	
Samples Relinquished By:				Samples Received By:			
Name: <u>Brian Baxwood</u>		Date: <u>04/30/24</u>		Name: <u>Alexa Cano</u>		Date: <u>5/1/24</u>	
Signature: <u>[Signature]</u>		Time: <u>14K1</u>		Signature: <u>[Signature]</u>		Time: <u>10:40</u>	
Name:		Date:		Name:		Date:	
Signature:		Time:		Signature:		Time:	





**AmeriSci New York**

117 EAST 30TH ST.  
NEW YORK, NY 10016  
TEL: (212) 679-8600 • FAX: (212) 679-3114

## PLM Bulk Asbestos Report

Atlantic Testing Laboratories, Limited  
Attn:  
6431 US Highway 11  
  
Canton, NY 13617

**Date Received** 05/21/24     **AmeriSci Job #** 224052668  
**Date Examined** 05/26/24     **P.O. #** 23661  
**ELAP #** 11480     **Page** 1 of 2  
**RE:** WT6401; GB-CSD C/O BC3A; Dexter N.Y.

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
WT6401A137A 01	224052668-01 <b>Location:</b> 1120 - Black Hardwood Floor Underlayment	<b>No</b>	NAD (by NYS ELAP 198.6) by Khaalid W. Perine on 05/26/24
<b>Analyst Description:</b> Black/Brown, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Fibrous glass Trace, Non-fibrous 2.8%			
WT6401A137B 01	224052668-02 <b>Location:</b> 1120 - Black Hardwood Floor Underlayment	<b>No</b>	NAD (by NYS ELAP 198.6) by Khaalid W. Perine on 05/26/24
<b>Analyst Description:</b> Black/Brown, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Fibrous glass Trace, Non-fibrous 1.2%			
WT6401A138A 02	224052668-03 <b>Location:</b> 907B - Brown Hardwood Floor Underlayment	<b>No</b>	NAD (by NYS ELAP 198.6) by Khaalid W. Perine on 05/26/24
<b>Analyst Description:</b> Black/Brown, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Fibrous glass 2%, Non-fibrous 15%			
WT6401A138B 02	224052668-04 <b>Location:</b> 907A - Brown Hardwood Floor Underlayment	<b>No</b>	NAD (by NYS ELAP 198.6) by Khaalid W. Perine on 05/26/24
<b>Analyst Description:</b> Black/Brown, Homogeneous, Non-Fibrous, Bulk Material			
<b>Asbestos Types:</b>			
<b>Other Material:</b> Fibrous glass Trace, Non-fibrous 9.3%			



Client Name: Atlantic Testing Laboratories, Limited

# PLM Bulk Asbestos Report

WT6401; GB-CSD C/O BC3A; Dexter N.Y.

---

## Reporting Notes:

Analyzed by: Khaalid W. Perine  
Date: 5/26/2024



Reviewed by: Marik Peysakhov



\*NAD/NSD =no asbestos detected; NA =not analyzed; NA/PS=not analyzed/positive stop, (SOF-V) = Sprayed On Fireproofing containing Vermiculite; (SM-V) = Surfacing Material containing Vermiculite; PLM Bulk Asbestos Analysis using Nikon , Model Labophot Pol, Microscope, Serial #: 952065, by Appd E to Subpt E, 40 CFR 763 quantified by either CVES or 400 pt ct as noted for each analysis (NVLAP 200546-0), ELAP PLM Method 198.1 for NY friable samples, which includes the identification and quantitation of vermiculite, or ELAP 198.6 for NOB samples, or EPA 400 pt ct by EPA 600-M4-82-020 (NY ELAP Lab 11480); Note:PLM is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. NAD or Trace results by PLM are inconclusive, TEM is currently the only method that can be used to determine if this material can be considered or treated as non asbestos-containing in NY State (also see EPA Advisory for floor tile, FR 59,146,38970,8/1/94) National Institute of Standards and Technology Accreditation requirements mandate that this report must not be reproduced except in full without the approval of the lab.This PLM report relates ONLY to the items tested. RI Cert AAL-094, CT Cert PH-0186, Mass Cert AA000054, NJ Lab ID #NY031.

\_\_\_\_\_END OF REPORT\_\_\_\_\_

Client Name: Atlantic Testing Laboratories, Limited

**Table I**  
**Summary of Bulk Asbestos Analysis Results**

WT6401; GB-CSD C/O BC3A; Dexter N.Y.

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
01	WT6401A137A	01	0.134	96.4	0.8	2.8	NAD	NAD
Location: 1120 - Black Hardwood Floor Underlayment								
02	WT6401A137B	01	0.117	97.8	1.0	1.2	NAD	NAD
Location: 1120 - Black Hardwood Floor Underlayment								
03	WT6401A138A	02	0.457	78.2	4.8	17.0	NAD	NAD
Location: 907B - Brown Hardwood Floor Underlayment								
04	WT6401A138B	02	0.245	83.8	6.9	9.3	NAD	NAD
Location: 907A - Brown Hardwood Floor Underlayment								

Analyzed by: Marik Peysakhov  
Date: 5/26/2024



Reviewed by: Marik Peysakhov



\*\*Quantitative Analysis (Semi/Full); Bulk Asbestos Analysis - PLM by Appd E to Subpt E, 40 CFR 763 or NYSDOH ELAP 198.1 for New York friable samples or NYSDOH ELAP 198.6 for New York NOB samples; TEM (Semi/Full) by EPA 600/R-93/116 (or NYSDOH ELAP 198.4; for New York samples). Analysis using Hitachi, Model H7000-Noran 7 System, Microscope, Serial #: 747-05-06. NAD = no asbestos detected during a quantitative analysis; NA = not analyzed; Trace = < 1%; (SOF-V) = Sprayed On Fireproofing containing Vermiculite; (SM-V) = Surfacing Material containing Vermiculite; Quantitation for beginning weights of < 0.1 grams should be considered as qualitative only; Qualitative Analysis: Asbestos analysis results of "Present" or "NVA = No Visible Asbestos" represents results for Qualitative PLM or TEM Analysis only (no accreditation coverage available from any regulatory agency for qualitative analyses): NVLAP (PLM) 200546-0, NYSDOH ELAP Lab 11480, NJ Lab ID #NY031.

Warning Note: PLM limitation, only TEM will resolve fibers < 0.25 micrometers in diameter. TEM bulk analysis is representative of the fine grained matrix material and may not be representative of non-uniformly dispersed debris for which PLM evaluation is recommended (i.e. soils and other heterogenous materials).



# ATLANTIC TESTING LABORATORIES

## ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD

No. 23661

**Albany**  
22 Corporate Drive  
Clifton Park, NY 12065  
518/383-9144 (T)  
518/383-9166 (F)  
labsAL@atlantictesting.com

**Binghamton**  
126 Park Avenue  
Binghamton, NY 13903  
607/773-1812 (T)  
607/773-1835 (F)  
labsBT@atlantictesting.com

**Canton**  
6431 U.S. Highway 11  
Canton, NY 13617  
315/386-4578 (T)  
315/386-1012 (F)  
labsCT@atlantictesting.com

**Elmira**  
2330 Route 352  
Elmira, NY 14903  
607/737-0700 (T)  
607/737-0714 (F)  
labsET@atlantictesting.com

**Plattsburgh**  
130 Arizona Ave  
Plattsburgh, NY 12903  
518/563-5878 (T)  
518/562-1321 (F)  
labsPL@atlantictesting.com

**Poughkeepsie**  
251 Upper North Road  
Highland, NY 12528  
845/691-6098 (T)  
845/691-6099 (F)  
labsPT@atlantictesting.com

**Rochester**  
3495 Winton Place  
Rochester, NY 14623  
585/427-9020 (T)  
585/427-9021 (F)  
labsRT@atlantictesting.com

**Syracuse**  
6085 Court Street Road  
Syracuse, NY 13206  
315/698-5281 (T)  
315/698-3374 (F)  
labsST@atlantictesting.com

**Utica**  
301 St. Anthony Street  
Utica, NY 13501  
315/735-3309 (T)  
315/735-0742 (F)  
labsUT@atlantictesting.com

**Watertown**  
26581 NYS Route 283  
Watertown, NY 13601  
315/786-7887 (T)  
315/786-2022 (F)  
labsWT@atlantictesting.com

Project No.	Project Name	Sample Location	Date Collected	Laboratory Instructions			Report Distribution		
				Turn-Around-Time:	Special Instructions:	Sample Description	Send Reports To (ATL Office):	ATL Contact:	Send Copy To:
WT6401	GB-CSD CB BCB A K. Faalkkum Dexter N.Y.		05/15/24 11	<input type="checkbox"/> 12hr <input checked="" type="checkbox"/> 24hr <input type="checkbox"/> 48hr <input type="checkbox"/> 72hr	<input checked="" type="checkbox"/> Positive Stop Analysis <input checked="" type="checkbox"/> negative by PLM-NOB, analyze by TEM-NOB <input type="checkbox"/> Other		Waterbury K. Faalkkum		
WT6401A1374	08 907B	1120	05/15/24			Black Horwood Floor Underlayment			
WT6401A1375	08 907C	1120	05/15/24			Black Horwood Floor Underlayment			
WT6401A1384	907B					Brown Horwood Floor Underlayment			
WT6401A1388	907A					Brown Horwood Floor Underlayment			
<i>[Handwritten Signature]</i>									
Sampler's Name:	Brian Barboc	Date:	05/15/24	Received at Laboratory (Name):		Date:		Shipment Rec'd Intact	
Sampler's Signature:	<i>[Signature]</i>	Time:	1100	Laboratory Signature:		Time:		<input type="checkbox"/> YES <input type="checkbox"/> NO	
Samples Relinquished By:									
Name:	Brian Barboc	Date:	05/15	Samples Received By:					
Signature:	<i>[Signature]</i>	Time:	1100	Name:	Fred Z	Date:		Field and Laboratory Remarks:	
Name:		Date:		Signature:	<i>[Signature]</i>	Time:		224052668	
Signature:		Time:		Name:	Alexandre	Date:	02/12/24		
				Signature:	<i>[Signature]</i>	Time:	1051		





**AmeriSci Richmond**

13635 GENITO ROAD  
MIDLOTHIAN, VIRGINIA 23112  
TEL: 8047631200 FAX: 8047631800

May 23, 2024

Atlantic Testing Laboratories, Limited  
Attn: R Faulkham  
26581 NYS Route 283  
Watertown, NY 13601

RE: Atlantic Testing Laboratories, Limited  
Job Number 124051625  
P.O. #23659  
WT6401; BC3A C/O GB CSD; Dexter, NY (WT6401AB01A51324 - WT6401AB01G51324 05/13/2024)

Dear R Faulkham:

Enclosed are the results of Asbestos Analysis - Bulk Protocol of the following Atlantic Testing Laboratories, Limited samples, received at AmeriSci on Wednesday, May 15, 2024, for a 7 day turnaround:

WT6401AB01A51324, WT6401AB01B51324, WT6401AB01C51324, WT6401AB01D51324, WT6401AB01E51324,  
WT6401AB01F51324, WT6401AB01G51324

The 7 samples, placed in zip lock bag, were shipped to AmeriSci via Fed Ex 8123 4312 2107 B 1050. Atlantic Testing Laboratories, Limited requested ELAP 198.8 SM-V analysis of these samples.

The results of the analysis which were performed under NYSDOH ELAP lab Certification #10984 following ELAP 198.8 PLM guidelines are presented within the report. This report must not be used to claim product endorsement or approval by these laboratories, NVLAP, ELAP, or any other associated agency. The National Institute of Standards and Technology Accreditation requirements mandate that this report must not be reproduced, except in full without the written approval of the laboratory. This report may contain specific data not covered by NVLAP or ELAP accreditations, respectively, if so identified in relevant footnotes.

AmeriSci appreciates this opportunity to serve your organization. Please contact us for any further assistance or with any questions.

Sincerely,

A handwritten signature in black ink, appearing to be "Cory M. Parnell".

Cory M. Parnell

Laboratory Director | Authorized Signatory

**AmeriSci Job #:** 124051625

**Client:** Atlantic Testing Laboratories

**Table I**  
**PLM Analysis of Surfacing Material Containing Vermiculite (SM-V) by NYS ELAP 198.8**  
Dexter, NY

AmeriSci Sample #	Client Sample #	Analyst Description	Percent Non-Fibrous	Percent Non-Asbestos Fibers	Percent Chrysotile	Percent Amphibole	Total Percent Asbestos	Footnote
1	T6401AB01A513	Hard/Cementitious	100	0	0	0	0	
2	T6401AB01B513	Hard/Cementitious	100	0	0	0	0	
3	T6401AB01C513	Hard/Cementitious	100	0	0	0	0	
4	T6401AB01D513	Hard/Cementitious	99	1	0	0	0	
5	T6401AB01E513	Hard/Cementitious	99	1	0	0	0	
6	T6401AB01F513	Hard/Cementitious	99	1	0	0	0	
7	T6401AB01G513	Hard/Cementitious	99	1	0	0	0	

Analyzed by: CDM

Date: 05/23/24

**Reporting Notes:**

**ELAP Lab ID: 10984** : PLM analysis by NY ELAP 198.8

**NAD**= No Asbestos Detected; **ND**= None Detected; **NA** = Not Analyzed; **NA/PS** = Not Analyzed/Positive Stop

**Footnote:**

AmeriSci Job #:	124-05-1625
Client:	Atlantic Testing Laboratories
Job Site:	Dexter, NY

**Asbestos Analysis of NYS ELAP Method 198.8  
PLM analysis for Asbestos in Surfacing Material Containing Vermiculite (SM-V)**

**BENCH SHEET**

AmeriSci Richmond Sample #:  Crucible ID#

	Tech/Analyst	Date
Gravimetric Prep	DB	05/20/24
PLM Chrysotile Analysis	CDM	05/21/24
Centrifugation	DB	05/23/24
PLM Amphibole Analysis	CDM	05/23/25

**STEREOBINOCULAR EXAMINATION**

COLOR: White/Gray TEXTURE: Hard/Cementi HOMOGENEITY: Homogeneous  
 HOMOGENIZATION: \_\_\_\_\_ PROBABLE FIBERS: None

INITIAL WEIGHTS	COMMENTS								
Weight Of Crucible	24.6705								
Weight of Cricible+Subsample	27.8235								
Weight of Subsample	3.1530								
<b>ASHING</b>									
Weight of Crucible+Ash	27.3834								
Weight of Ash	2.7129								
Weight Loss During Ash	0.4401								
Weight Percent Organic and Water	13.9581								
<b>ACID TREATMENT/FLOTATION</b>									
Weight of Dish for Floats		2nd Measure							
Weight of Dish and Floats		% Difference	Acceptable						
Weight of Floats	0.0000	0	#DIV/0!	#DIV/0!					
Weight Percent Floats	0.0000								
Weight of Dish+Filter for Residue	8.1475	2nd Measure							
Weight of Dish+Filter+Residue	9.0492	9.0493	% Difference	Acceptable					
Weight of Residue	0.9017	0.9018	0.01%	YES					
Weight Loss During Acid Treatment	1.8112								
Weight Percent Acid-Soluble Materials	57.4437								
Weight Percent Reside	28.5982								
<b>PLM EXAMINATION OF RESIDUE (CHRYSOTILE)</b>	Analyzed	<b>PTCT</b>	<b>Chrysotile</b>	<b>Non-Empty</b>	<b>PTCT</b>	<b>Chrysotile</b>	<b>Non-Empty</b>	<b>Trace Detected</b>	
Number of Occupied Points	400	Slide 1:	0	50	Slide 5:	0	50	NO	
Number of Chrysotile Points	0	Slide 2:	0	50	Slide 6:	0	50		
Percent Chrysotile by PTCT	0	Slide 3:	0	50	Slide 7:	0	50		
<b>PERCENT CHRYSOTILE IN SAMPLE</b>	<b>0.0</b>	Slide 4:	0	50	Slide 8:	0	50		
<b>HEAVY LIQUID CENTRIFUGATION</b>									
Weight Of Dish+Filter+Balance Of Residue	9.0373	<b>Morphology</b>	<b>RI</b>	<b>RI</b>	<b>Sign Of</b>	<b>Extinction</b>	<b>Birefringence</b>	<b>Fiber ID</b>	
Weight of Balance Of Residue	0.8898		Parallel	Perpindicular	Elongation	Angle			
Weight Of Dish+Filter for Centrifugate	8.171								
Weight Of Dish+Filter+Centrifugate	8.2417								
Weight Of Centrifugate	0.0707								
Weight Percent Centrifugate	2.2723								
<b>PLM EXAMINATION OF CENTRIFUGATE (AMPHIBOLE)</b>	Analyzed	<b>PTCT</b>	<b>Amphibole</b>	<b>Non-Empty</b>	<b>PTCT</b>	<b>Amphibole</b>	<b>Non-Empty</b>	<b>Trace Detected</b>	
Number of Occupied Points	400	Slide 1:	0	50	Slide 5:	0	50	NO	
Number of Amphibole Asbestos Points	0	Slide 2:	0	50	Slide 6:	0	50		
Percent Amphibole Asbestos by PTCT	0	Slide 3:	0	50	Slide 7:	0	50		
<b>PERCENT AMPHIBOLE ASBESTOS IN SAMPLE</b>	<b>0.00</b>	Slide 4:	0	50	Slide 8:	0	50		
<b>AMPHIBOLE IDENTIFICATION</b>									
<b>PERCENT TOTAL ASBESTOS IN SAMPLE</b>	<b>0.00</b>	<b>Morphology</b>	<b>RI</b>	<b>RI</b>	<b>Sign Of</b>	<b>Extinction</b>	<b>Birefringence</b>	<b>Fiber ID</b>	
			Parallel	Perpindicular	Elongation	Angle			



AmeriSci Job #:	124-05-1625
Client:	Atlantic Testing Laboratories
Job Site:	Dexter, NY

**Asbestos Analysis of NYS ELAP Method 198.8  
PLM analysis for Asbestos in Surfacing Material Containing Vermiculite (SM-V)**

**BENCH SHEET**

AmeriSci Richmond Sample #:  Crucible ID#

	Tech/Analyst	Date
Gravimetric Prep	DB	05/20/24
PLM Chrysotile Analysis	CDM	05/21/24
Centrifugation	DB	05/23/24
PLM Amphibole Analysis	CDM	05/23/24

**STEREOBINOCULAR EXAMINATION**

COLOR: White/Gray TEXTURE: Hard/Cementi HOMOGENEITY: Homogeneous  
HOMOGENIZATION: \_\_\_\_\_ PROBABLE FIBERS: None

INITIAL WEIGHTS	COMMENTS							
Weight Of Crucible	26.0312							
Weight of Cricible+Subsample	29.6396							
Weight of Subsample	3.6084							
<b>ASHING</b>								
Weight of Crucible+Ash	29.1865							
Weight of Ash	3.1553							
Weight Loss During Ash	0.4531							
Weight Percent Organic and Water	12.5568							
<b>ACID TREATMENT/FLOTATION</b>								
Weight of Dish for Floats	0	2nd Measure						
Weight of Dish and Floats	0	0	% Difference	Acceptable				
Weight of Floats	0.0000	0	#DIV/0!	#DIV/0!				
Weight Percent Floats	0.0000							
Weight of Dish+Filter for Residue	8.146	2nd Measure						
Weight of Dish+Filter+Residue	9.105	9.1053	% Difference	Acceptable				
Weight of Residue	0.9590	0.9593	0.03%	YES				
Weight Loss During Acid Treatment	2.1963							
Weight Percent Acid-Soluble Materials	60.8663							
Weight Percent Reside	26.5769							
<b>PLM EXAMINATION OF RESIDUE (CHRYSOTILE)</b>	Analyzed	PTCT	Chrysotile	Non-Empty	PTCT	Chrysotile	Non-Empty	Trace Detected
Number of Occupied Points	400	Slide 1:	0	50	Slide 5:	0	50	NO
Number of Chrysotile Points	0	Slide 2:	0	50	Slide 6:	0	50	
Percent Chrysotile by PTCT	0	Slide 3:	0	50	Slide 7:	0	50	
PERCENT CHRYSOTILE IN SAMPLE	0.0	Slide 4:	0	50	Slide 8:	0	50	
<b>HEAVY LIQUID CENTRIFUGATION</b>								
Weight Of Dish+Filter+Balance Of Residue	9.0942	Morphology	RI	RI	Sign Of	Extinction	Birefringence	Fiber ID
Weight of Balance Of Residue	0.9482		Parallel	Perpindicular	Elongation	Angle		
Weight Of Dish+Filter for Centrifugate	8.1741							
Weight Of Dish+Filter+Centrifugate	8.2702							
Weight Of Centrifugate	0.0961							
Weight Percent Centrifugate	2.6936							
<b>PLM EXAMINATION OF CENTRIFUGATE (AMPHIBOLE)</b>	Analyzed	PTCT	Amphibole	Non-Empty	PTCT	Amphibole	Non-Empty	Trace Detected
Number of Occupied Points	400	Slide 1:	0	50	Slide 5:	0	50	NO
Number of Amphibole Asbestos Points	0	Slide 2:	0	50	Slide 6:	0	50	
Percent Amphibole Asbestos by PTCT	0	Slide 3:	0	50	Slide 7:	0	50	
PERCENT AMPHIBOLE ASBESTOS IN SAMPLE	0.00	Slide 4:	0	50	Slide 8:	0	50	
<b>AMPHIBOLE IDENTIFICATION</b>								
PERCENT TOTAL ASBESTOS IN SAMPLE	0.00	Morphology	RI	RI	Sign Of	Extinction	Birefringence	Fiber ID
			Parallel	Perpindicular	Elongation	Angle		





AmeriSci Job #:	124-05-1625
Client:	Atlantic Testing Laboratories
Job Site:	Dexter, NY

**Asbestos Analysis of NYS ELAP Method 198.8**  
**PLM analysis for Asbestos in Surfacing Material Containing Vermiculite (SM-V)**

**BENCH SHEET**

AmeriSci Richmond Sample #:  Crucible ID#

	Tech/Analyst	Date
Gravimetric Prep	DB	05/20/24
PLM Chrysotile Analysis	CDM	05/21/24
Centrifugation	DB	05/23/24
PLM Amphibole Analysis	CDM	05/23/24

**STEREOBINOCULAR EXAMINATION**

COLOR: White/Gray    TEXTURE: Hard/Cementi    HOMOGENEITY: Homogeneous  
HOMOGENIZATION: \_\_\_\_\_    PROBABLE FIBERS: \_\_\_\_\_

INITIAL WEIGHTS	COMMENTS								
Weight Of Crucible	24.797								
Weight of Cricible+Subsample	28.1592								
Weight of Subsample	3.3622								
<b>ASHING</b>									
Weight of Crucible+Ash	27.6647								
Weight of Ash	2.8677								
Weight Loss During Ash	0.4945								
Weight Percent Organic and Water	14.7076								
<b>ACID TREATMENT/FLOTATION</b>									
Weight of Dish for Floats		2nd Measure							
Weight of Dish and Floats		% Difference	Acceptable						
Weight of Floats	0.0000	0	#DIV/0!	#DIV/0!					
Weight Percent Floats	0.0000								
Weight of Dish+Filter for Residue	8.1504	2nd Measure							
Weight of Dish+Filter+Residue	8.8927	8.8927	% Difference	Acceptable					
Weight of Residue	0.7423	0.7423	0.00%	YES					
Weight Loss During Acid Treatment	2.1254								
Weight Percent Acid-Soluble Materials	63.2146								
Weight Percent Reside	22.0778								
<b>PLM EXAMINATION OF RESIDUE (CHRYSOTILE)</b>	Analyzed	PTCT	Chrysotile	Non-Empty	PTCT	Chrysotile	Non-Empty	Trace Detected	
Number of Occupied Points	400	Slide 1:	0	50	Slide 5:	0	50	NO	
Number of Chrysotile Points	0	Slide 2:	0	50	Slide 6:	0	50		
Percent Chrysotile by PTCT	0	Slide 3:	0	50	Slide 7:	0	50		
<b>PERCENT CHRYSOTILE IN SAMPLE</b>	<b>0.0</b>	Slide 4:	0	50	Slide 8:	0	50		
<b>HEAVY LIQUID CENTRIFUGATION</b>									
Weight Of Dish+Filter+Balance Of Residue	8.883	Morphology	RI	RI	Sign Of	Extinction	Birefringence	Fiber ID	
Weight of Balance Of Residue	0.7326		Parallel	Perpindicular	Elongation	Angle			
Weight Of Dish+Filter for Centrifugate	8.1707								
Weight Of Dish+Filter+Centrifugate	8.1873								
Weight Of Centrifugate	0.0166								
Weight Percent Centrifugate	0.5003								
<b>PLM EXAMINATION OF CENTRIFUGATE (AMPHIBOLE)</b>	Analyzed	PTCT	Amphibole	Non-Empty	PTCT	Amphibole	Non-Empty	Trace Detected	
Number of Occupied Points	400	Slide 1:	0	50	Slide 5:	0	50	NO	
Number of Amphibole Asbestos Points	0	Slide 2:	0	50	Slide 6:	0	50		
Percent Amphibole Asbestos by PTCT	0	Slide 3:	0	50	Slide 7:	0	50		
<b>PERCENT AMPHIBOLE ASBESTOS IN SAMPLE</b>	<b>0.00</b>	Slide 4:	0	50	Slide 8:	0	50		
<b>AMPHIBOLE IDENTIFICATION</b>									
<b>PERCENT TOTAL ASBESTOS IN SAMPLE</b>	<b>0.00</b>	Morphology	RI	RI	Sign Of	Extinction	Birefringence	Fiber ID	
			Parallel	Perpindicular	Elongation	Angle			







# ATLANTIC TESTING LABORATORIES

## ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD

Nº 23659

**Albany**  
22 Corporate Drive  
Clifton Park, NY 12065  
518/383-9144 (T)  
518/383-9166 (F)  
labsAT@atlantictesting.com

**Binghamton**  
126 Park Avenue  
Binghamton, NY 13903  
607/773-1812 (T)  
607/773-1835 (F)  
labsBT@atlantictesting.com

**Canton**  
6431 U.S. Highway 11  
Canton, NY 13617  
315/386-4578 (T)  
315/386-1012 (F)  
labsCT@atlantictesting.com

**Elmira**  
2330 Route 352  
Elmira, NY 14903  
607/737-0700 (T)  
607/737-0714 (F)  
labsET@atlantictesting.com

**Plattsburgh**  
130 Arizona Ave  
Plattsburgh, NY 12903  
518/563-5878 (T)  
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labsPL@atlantictesting.com

**Poughkeepsie**  
251 Upper North Road  
Highland, NY 12528  
845/691-6088 (T)  
845/691-6099 (F)  
labsPT@atlantictesting.com

**Rochester**  
3495 Winton Place  
Rochester, NY 14623  
585/427-9020 (T)  
585/427-9021 (F)  
labsRT@atlantictesting.com

**Syracuse**  
6085 Court Street Road  
Syracuse, NY 13206  
315/699-5281 (T)  
315/699-3374 (F)  
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**Utica**  
301 St. Anthony Street  
Utica, NY 13501  
315/735-3309 (T)  
315/735-0742 (F)  
labsUT@atlantictesting.com

**Watertown**  
26581 NYS Route 283  
Watertown, NY 13601  
315/786-7887 (T)  
315/786-2022 (F)  
labsWT@atlantictesting.com

Project No. <b>WT6402</b>	Project Name <b>BCB at % GB CSO</b>	Date Collected <b>05/13/24</b>	Laboratory Instructions <b>124051625</b>				Report Distribution			
Project Contact: <b>R. F. F. F.</b>	Project Location: <b>Dexter NY.</b>	Turn-Around-Time: <input type="checkbox"/> 12hr <input type="checkbox"/> 24hr <input type="checkbox"/> 48hr <input type="checkbox"/> 72hr <input type="checkbox"/> 5day <input checked="" type="checkbox"/> 10 day	Special Instructions: <input checked="" type="checkbox"/> Positive Stop Analysis <input checked="" type="checkbox"/> If negative by PLM-NOB, analyze by TEM-NOB <input type="checkbox"/> Other	Send Reports To (ATL Office): <b>Watertown</b>	ATL Contact:	Send Copy To:	Email Results: <b>LABSWT@atlantictesting.com</b>			
Field Sample No.	Sample Location	Sample Description				Analysis Requested				Laboratory Sample ID No.
<b>WT6402AB01A051324</b>	<b>300A</b>	<b>Gray Ceiling BASECOAT PLASTER</b>				<b>198.8</b>				
<b>WT6402AB01B051324</b>	<b>301</b>	<b>Gray Ceiling BASECOAT PLASTER</b>								
<b>WT6402AB01C051324</b>	<b>303</b>	<b>Gray Ceiling BASECOAT PLASTER</b>								
<b>WT6402AB01D051324</b>	<b>305</b>	<b>Gray Ceiling BASECOAT PLASTER</b>								
<b>WT6402AB01E051324</b>	<b>1060</b>	<b>Gray Ceiling BASECOAT PLASTER</b>								
<b>WT6402AB01F051324</b>	<b>502</b>	<b>506</b>	<b>Gray Ceiling BASECOAT PLASTER</b>							
<b>WT6402AB01G051324</b>	<b>509</b>	<b>Gray Ceiling BASECOAT PLASTER</b>								
<b>Brian Barbic</b>										
Sampler's Name: <b>Brian Barbic</b>	Date: <b>05/13/24</b>	Received at Laboratory (Name):	Date:	Shipment Rec'd Intact						
Sampler's Signature: <b>[Signature]</b>	Time: <b>1800</b>	Laboratory Signature:	Time:	<input type="checkbox"/> YES <input type="checkbox"/> NO						
Samples Relinquished By:			Samples Received By:			Field and Laboratory Remarks:				
Name: <b>Brian Barbic</b>	Date: <b>5/13</b>	Name: <b>Fred SX</b>	Date:	<b>198.8</b>						
Signature: <b>[Signature]</b>	Time: <b>1800</b>	Signature:	Time:							
Name:	Date:	Name:	Date:							
Signature:	Time:	Signature:	Time:							

Distribution: White with Samples  
Yellow to Laboratory  
Pink to ATL Files

Think Quality

MAY 15 2024



**AmeriSci Richmond**

13635 GENITO ROAD  
MIDLOTHIAN, VIRGINIA 23112  
TEL: 8047631200 FAX: 8047631800

May 23, 2024

Atlantic Testing Laboratories, Limited  
Attn: R Faulkham  
26581 NYS Route 283  
Watertown, NY 13061

RE: Atlantic Testing Laboratories, Limited  
Job Number 124051661  
P.O. #23660  
WT6401; BC3A C/O GB CSD; Dexter, NY (WT640102A051324 - WT6401AB02G051324 05/13/2024)

Dear R Faulkham:

Enclosed are the results of Asbestos Analysis - Bulk Protocol of the following Atlantic Testing Laboratories, Limited samples, received at AmeriSci on Wednesday, May 15, 2024, for a 7 day turnaround:

WT6401AB02A51324, WT6401AB02B51324, WT6401AB02C51324, WT6401AB02D51324, WT6401AB02E51324,  
WT6401AB02F51324, WT6401AB02G51324

The 7 samples, placed in , were shipped to AmeriSci via Fed Ex 8123 4312 2107 B 1050. Atlantic Testing Laboratories, Limited requested ELAP 198.8 SM-V analysis of these samples.

The results of the analysis which were performed under NYSDOH ELAP lab Certification #10984 following ELAP 198.8 PLM guidelines are presented within the report. This report must not be used to claim product endorsement or approval by these laboratories, NVLAP, ELAP, or any other associated agency. The National Institute of Standards and Technology Accreditation requirements mandate that this report must not be reproduced, except in full without the written approval of the laboratory. This report may contain specific data not covered by NVLAP or ELAP accreditations, respectively, if so identified in relevant footnotes.

AmeriSci appreciates this opportunity to serve your organization. Please contact us for any further assistance or with any questions.

Sincerely,

A handwritten signature in black ink, appearing to be "Cory M. Parnell".

Cory M. Parnell  
Laboratory Director | Authorized Signatory

**AmeriSci Job #:** 124051661

**Client:** Atlantic Testing Laboratories

**Table I**  
**PLM Analysis of Surfacing Material Containing Vermiculite (SM-V) by NYS ELAP 198.8**  
Dexter, NY

AmeriSci Sample #	Client Sample #	Analyst Description	Percent Non-Fibrous	Percent Non-Asbestos Fibers	Percent Chrysotile	Percent Amphibole	Total Percent Asbestos	Footnote
1	WT6401AB02A51324	Hard/Cementitious	100	0	0	0	0	
2	WT6401AB02B51325	Hard/Cementitious	100	0	0	0	0	
3	WT6401AB02C51326	Hard/Cementitious	100	0	0	0	0	
4	WT6401AB02D51327	Hard/Cementitious	100	0	0	0	0	
5	WT6401AB02E51328	Hard/Cementitious	100	0	0	0	0	
6	WT6401AB02F51329	Hard/Cementitious	100	0	0	0	0	
7	WT6401AB02G51330	Hard/Cementitious	100	0	0	0	0	

Analyzed by: CDM

Date: 05/23/24

**Reporting Notes:**

**ELAP Lab ID: 10984** : PLM analysis by NY ELAP 198.8

NAD= No Asbestos Detected; ND= None Detected; NA = Not Analyzed; NA/PS = Not Analyzed/Positive Stop

**Footnote:**

AmeriSci Job #:	124-05-1661
Client:	Atlantic Testing Laboratories
Job Site:	Dexter, NY

**Asbestos Analysis of NYS ELAP Method 198.8  
PLM analysis for Asbestos in Surfacing Material Containing Vermiculite (SM-V)**

**BENCH SHEET**

AmeriSci Richmond Sample #:  Crucible ID#

	Tech/Analyst	Date
Gravimetric Prep	DB	05/22/24
PLM Chrysotile Analysis	CDM	05/23/24
Centrifugation	DB	05/23/24
PLM Amphibole Analysis	CDM	05/23/24

**STEREOBINOCULAR EXAMINATION**

COLOR:   Lt gray/Tan   TEXTURE:   Hard/Cementi   HOMOGENEITY:   Homogeneous    
HOMOGENIZATION: \_\_\_\_\_ PROBABLE FIBERS:   None  

INITIAL WEIGHTS	COMMENTS							
Weight Of Crucible	24.671							
Weight of Crucible+Subsample	27.8616							
Weight of Subsample	3.1906							
<b>ASHING</b>								
Weight of Crucible+Ash	27.6103							
Weight of Ash	2.9393							
Weight Loss During Ash	0.2513							
Weight Percent Organic and Water	7.8763							
<b>ACID TREATMENT/FLOTATION</b>								
Weight of Dish for Floats		2nd Measure						
Weight of Dish and Floats		% Difference	Acceptable					
Weight of Floats	0.0000	0	#DIV/0!	#DIV/0!				
Weight Percent Floats	0.0000							
Weight of Dish+Filter for Residue	8.1706	2nd Measure						
Weight of Dish+Filter+Residue	9.82	9.8202	% Difference	Acceptable				
Weight of Residue	1.6494	1.6496	0.01%	YES				
Weight Loss During Acid Treatment	1.2899							
Weight Percent Acid-Soluble Materials	40.4281							
Weight Percent Residue	51.6956							
<b>PLM EXAMINATION OF RESIDUE (CHRYSOTILE)</b>	Analyzed	<b>PTCT</b>	<b>Chrysotile</b>	<b>Non-Empty</b>	<b>PTCT</b>	<b>Chrysotile</b>	<b>Non-Empty</b>	<b>Trace Detected</b>
Number of Occupied Points	400	Slide 1:	0	50	Slide 5:	0	50	<b>NO</b>
Number of Chrysotile Points	0	Slide 2:	0	50	Slide 6:	0	50	
Percent Chrysotile by PTCT	0	Slide 3:	0	50	Slide 7:	0	50	
<b>PERCENT CHRYSOTILE IN SAMPLE</b>	<b>0.0</b>	Slide 4:	0	50	Slide 8:	0	50	
<b>CHRYSOTILE IDENTIFICATION</b>								
Weight Of Dish+Filter+Balance Of Residue	9.819	<b>Morphology</b>	<b>RI</b>	<b>RI</b>	<b>Sign Of</b>	<b>Extinction</b>	<b>Birefringence</b>	<b>Fiber ID</b>
Weight of Balance Of Residue	1.6484		Parallel	Perpendicular	Elongation	Angle		
Weight Of Dish+Filter for Centrifugate	8.1351							
Weight Of Dish+Filter+Centrifugate	8.1777							
Weight Of Centrifugate	0.0426							
Weight Percent Centrifugate	1.3360							
<b>PLM EXAMINATION OF CENTRIFUGATE (AMPHIBOLE)</b>	Analyzed	<b>PTCT</b>	<b>Amphibole</b>	<b>Non-Empty</b>	<b>PTCT</b>	<b>Amphibole</b>	<b>Non-Empty</b>	<b>Trace Detected</b>
Number of Occupied Points	400	Slide 1:	0	50	Slide 5:	0	50	<b>NO</b>
Number of Amphibole Asbestos Points	0	Slide 2:	0	50	Slide 6:	0	50	
Percent Amphibole Asbestos by PTCT	0	Slide 3:	0	50	Slide 7:	0	50	
<b>PERCENT AMPHIBOLE ASBESTOS IN SAMPLE</b>	<b>0.00</b>	Slide 4:	0	50	Slide 8:	0	50	
<b>AMPHIBOLE IDENTIFICATION</b>								
<b>PERCENT TOTAL ASBESTOS IN SAMPLE</b>	<b>0.00</b>	<b>Morphology</b>	<b>RI</b>	<b>RI</b>	<b>Sign Of</b>	<b>Extinction</b>	<b>Birefringence</b>	<b>Fiber ID</b>
			Parallel	Perpendicular	Elongation	Angle		





AmeriSci Job #:	124-05-1661
Client:	Atlantic Testing Laboratories
Job Site:	Dexter, NY

**Asbestos Analysis of NYS ELAP Method 198.8  
PLM analysis for Asbestos in Surfacing Material Containing Vermiculite (SM-V)**

**BENCH SHEET**

AmeriSci Richmond Sample #:  Crucible ID#

	Tech/Analyst	Date
Gravimetric Prep	DB	05/22/24
PLM Chrysotile Analysis	CDM	05/23/24
Centrifugation	DB	05/23/24
PLM Amphibole Analysis	CDM	05/23/24

**STEREOBINOCULAR EXAMINATION**

COLOR:   Lt Gray/Tan   TEXTURE:   Hard/Cementi   HOMOGENEITY:   Homogeneous    
HOMOGENIZATION: \_\_\_\_\_ PROBABLE FIBERS:   None  

INITIAL WEIGHTS	COMMENTS							
Weight Of Crucible	26.9893							
Weight of Cricible+Subsample	30.8308							
Weight of Subsample	3.8415							
<b>ASHING</b>								
Weight of Crucible+Ash	30.6125							
Weight of Ash	3.6232							
Weight Loss During Ash	0.2183							
Weight Percent Organic and Water	5.6827							
<b>ACID TREATMENT/FLOTATION</b>								
Weight of Dish for Floats		2nd Measure						
Weight of Dish and Floats		% Difference	Acceptable					
Weight of Floats	0.0000	0	#DIV/0!	#DIV/0!				
Weight Percent Floats	0.0000							
Weight of Dish+Filter for Residue	8.1714	2nd Measure						
Weight of Dish+Filter+Residue	9.8604	9.8607	% Difference	Acceptable				
Weight of Residue	1.6890	1.6893	0.02%	YES				
Weight Loss During Acid Treatment	1.9342							
Weight Percent Acid-Soluble Materials	50.3501							
Weight Percent Reside	43.9672							
<b>PLM EXAMINATION OF RESIDUE (CHRYSOTILE)</b>	Analyzed	PTCT	Chrysotile	Non-Empty	PTCT	Chrysotile	Non-Empty	Trace Detected
Number of Occupied Points	400	Slide 1:	0	50	Slide 5:	0	50	NO
Number of Chrysotile Points	0	Slide 2:	0	50	Slide 6:	0	50	
Percent Chrysotile by PTCT	0	Slide 3:	0	50	Slide 7:	0	50	
<b>PERCENT CHRYSOTILE IN SAMPLE</b>	<b>0.0</b>	Slide 4:	0	50	Slide 8:	0	50	
<b>HEAVY LIQUID CENTRIFUGATION</b>								
Weight Of Dish+Filter+Balance Of Residue	9.8423	Morphology	RI	RI	Sign Of	Extinction	Birefringence	Fiber ID
Weight of Balance Of Residue	1.6709		Parallel	Perpindicular	Elongation	Angle		
Weight Of Dish+Filter for Centrifugate	8.1382							
Weight Of Dish+Filter+Centrifugate	8.2124							
Weight Of Centrifugate	0.0742							
Weight Percent Centrifugate	1.9525							
<b>PLM EXAMINATION OF CENTRIFUGATE (AMPHIBOLE)</b>	Analyzed	PTCT	Amphibole	Non-Empty	PTCT	Amphibole	Non-Empty	Trace Detected
Number of Occupied Points	400	Slide 1:	0	50	Slide 5:	0	50	NO
Number of Amphibole Asbestos Points	0	Slide 2:	0	50	Slide 6:	0	50	
Percent Amphibole Asbestos by PTCT	0	Slide 3:	0	50	Slide 7:	0	50	
<b>PERCENT AMPHIBOLE ASBESTOS IN SAMPLE</b>	<b>0.00</b>	Slide 4:	0	50	Slide 8:	0	50	
<b>AMPHIBOLE IDENTIFICATION</b>								
<b>PERCENT TOTAL ASBESTOS IN SAMPLE</b>	<b>0.00</b>	Morphology	RI	RI	Sign Of	Extinction	Birefringence	Fiber ID
			Parallel	Perpindicular	Elongation	Angle		



AmeriSci Job #:	124-05-1661
Client:	Atlantic Testing Laboratories
Job Site:	Dexter, NY

**Asbestos Analysis of NYS ELAP Method 198.8  
PLM analysis for Asbestos in Surfacing Material Containing Vermiculite (SM-V)**

**BENCH SHEET**

AmeriSci Richmond Sample #:  Crucible ID#

	Tech/Analyst	Date
Gravimetric Prep	DB	05/22/24
PLM Chrysotile Analysis	CDM	05/23/24
Centrifugation	DB	05/23/24
PLM Amphibole Analysis	CDM	05/23/24

**STEREOBINOCULAR EXAMINATION**

COLOR:   Lt Gray/Tan   TEXTURE:   Hard/Cementi   HOMOGENEITY:   Homogeneous    
HOMOGENIZATION: \_\_\_\_\_ PROBABLE FIBERS:   None  

INITIAL WEIGHTS	COMMENTS							
Weight Of Crucible	25.7427							
Weight of Cricible+Subsample	28.8024							
Weight of Subsample	3.0597							
<b>ASHING</b>								
Weight of Crucible+Ash	28.3617							
Weight of Ash	2.619							
Weight Loss During Ash	0.4407							
Weight Percent Organic and Water	14.4034							
<b>ACID TREATMENT/FLOTATION</b>								
Weight of Dish for Floats		2nd Measure						
Weight of Dish and Floats		% Difference	Acceptable					
Weight of Floats	0.0000	0	#DIV/0!	#DIV/0!				
Weight Percent Floats	0.0000							
Weight of Dish+Filter for Residue	8.1712	2nd Measure						
Weight of Dish+Filter+Residue	8.8968	8.897	% Difference	Acceptable				
Weight of Residue	0.7256	0.7258	0.03%	YES				
Weight Loss During Acid Treatment	1.8934							
Weight Percent Acid-Soluble Materials	61.8819							
Weight Percent Reside	23.7147							
<b>PLM EXAMINATION OF RESIDUE (CHRYSOTILE)</b>	Analyzed	PTCT	Chrysotile	Non-Empty	PTCT	Chrysotile	Non-Empty	Trace Detected
Number of Occupied Points	400	Slide 1:	0	50	Slide 5:	0	50	NO
Number of Chrysotile Points	0	Slide 2:	0	50	Slide 6:	0	50	
Percent Chrysotile by PTCT	0	Slide 3:	0	50	Slide 7:	0	50	
PERCENT CHRYSOTILE IN SAMPLE	0.0	Slide 4:	0	50	Slide 8:	0	50	
<b>HEAVY LIQUID CENTRIFUGATION</b>								
Weight Of Dish+Filter+Balance Of Residue	8.9012	Morphology	RI	RI	Sign Of	Extinction	Birefringence	Fiber ID
Weight of Balance Of Residue	0.73		Parallel	Perpindicular	Elongation	Angle		
Weight Of Dish+Filter for Centrifugate	8.138							
Weight Of Dish+Filter+Centrifugate	8.1768							
Weight Of Centrifugate	0.0388							
Weight Percent Centrifugate	1.2605							
<b>PLM EXAMINATION OF CENTRIFUGATE (AMPHIBOLE)</b>	Analyzed	PTCT	Amphibole	Non-Empty	PTCT	Amphibole	Non-Empty	Trace Detected
Number of Occupied Points	400	Slide 1:	0	50	Slide 5:	0	50	NO
Number of Amphibole Asbestos Points	0	Slide 2:	0	50	Slide 6:	0	50	
Percent Amphibole Asbestos by PTCT	0	Slide 3:	0	50	Slide 7:	0	50	
PERCENT AMPHIBOLE ASBESTOS IN SAMPLE	0.00	Slide 4:	0	50	Slide 8:	0	50	
<b>AMPHIBOLE IDENTIFICATION</b>								
PERCENT TOTAL ASBESTOS IN SAMPLE	0.00	Morphology	RI	RI	Sign Of	Extinction	Birefringence	Fiber ID
			Parallel	Perpindicular	Elongation	Angle		







# ATLANTIC TESTING LABORATORIES

No 23660

## ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD 124051661

<b>Albany</b> 22 Corporate Drive Clifton Park, NY 12065 518/383-9144 (T) 518/383-9166 (F) labsAT@atlantictesting.com	<b>Binghamton</b> 126 Park Avenue Binghamton, NY 13903 607/773-1612 (T) 607/773-1835 (F) labsBT@atlantictesting.com	<b>Canton</b> 6431 U.S. Highway 11 Canton, NY 13617 315/386-4578 (T) 315/386-1012 (F) labsCT@atlantictesting.com	<b>Elmira</b> 2330 Route 352 Elmira, NY 14903 607/737-0700 (T) 607/737-0714 (F) labsHT@atlantictesting.com	<b>Plattsburgh</b> 130 Arizona Ave Plattsburgh, NY 12903 518/563-5878 (T) 518/562-1321 (F) labsPL@atlantictesting.com	<b>Poughkeepsie</b> 251 Upper North Road Highland, NY 12528 845/691-8098 (T) 845/691-6099 (F) labsPT@atlantictesting.com	<b>Rochester</b> 3495 Winton Place Rochester, NY 14623 585/427-9020 (T) 585/427-9021 (F) labsRT@atlantictesting.com	<b>Syracuse</b> 6085 Court Street Road Syracuse, NY 13206 315/699-5281 (T) 315/699-3374 (F) labsST@atlantictesting.com	<b>Utica</b> 301 St. Anthony Street Utica, NY 13501 315/735-3309 (T) 315/735-0742 (F) labsUT@atlantictesting.com	<b>Watertown</b> 26581 NYS Route 283 Watertown, NY 13601 315/786-7887 (T) 315/786-2022 (F) labsWT@atlantictesting.com
---	--	---	---	--	---	--	---	---	--

124051661 5-15-24

Project No. <b>WT10401</b>	Project Name <b>BCS A 6 GB CSD</b>	Date Collected <b>05/13/24</b> Page 2 of 2	Laboratory Instructions Turn-Around-Time: <input type="checkbox"/> 12hr <input type="checkbox"/> 24hr <input type="checkbox"/> 48hr <input type="checkbox"/> 72hr <input type="checkbox"/> 5day <input checked="" type="checkbox"/> 10 day.				Report Distribution Send Reports To (ATL Office): ATL Contact: Send Copy To: Email Results:			
Project Contact: <b>R. Faulkner</b>			Special Instructions: <input checked="" type="checkbox"/> Positive Stop Analysis <input checked="" type="checkbox"/> Negative by PLM-NOB, analyze by TEM-NOB <input type="checkbox"/> Other				Send Reports To (ATL Office): <b>Watertown</b> ATL Contact: <b>R. Faulkner</b> Send Copy To: Email Results: <b>LAPSL0T@atlantictesting.com</b>			
Project Location: <b>Dexter NY.</b>										

Field Sample No.	Sample Location	Sample Description	Analysis Requested				Laboratory Sample ID No.
			PLM-NOB	TEM-NOB	TEM-ONLY	MICRO-VAC	
WT10401AB024051324	300A	Grey Basemat Wall Plaster.					
WT10401AB024051324	301	Grey Basemat Wall Plaster.					
WT10401AB024051324	303	Grey Basemat Wall Plaster.					
WT10401AB024051324	305	Grey Basemat Wall Plaster.					
WT10401AB024051324	106 D	Grey Basemat Wall Plaster.					
WT10401AB024051324	BB <del>504</del> 504	Grey Basemat Wall Plaster.					
WT10401AB024051324	509	Grey Basemat Wall Plaster.					

B/B

*[Handwritten signature]*

05/13/24

Sampler's Name: <b>Brian Barbocid</b>	Date: <b>05/13/24</b>	Received at Laboratory (Name):	Date:	Shipment Rec'd Intact
Sampler's Signature: <i>[Signature]</i>	Time: <b>1800</b>	Laboratory Signature:	Time:	<input type="checkbox"/> YES <input type="checkbox"/> NO

Samples Relinquished By:		Samples Received By:		Field and Laboratory Remarks:	
Name: <b>Brian Barbocid</b>	Date: <b>05/13</b>	Name: <b>FWD EX</b>	Date:	<b>198E</b>	
Signature: <i>[Signature]</i>	Time: <b>1800</b>	Signature:	Time:		
Name:	Date:	Name:	Date:	<b>Received</b>	
Signature:	Time:	Signature:	Time:		

Think Quality

MAY 15 2024

Distribution: White with Samples  
Yellow to Laboratory  
Pink to ATL Files

# ANALYTICAL RESULTS

## LEVEL II DELIVERABLES FORMAT

Work Order Number: 24E0397

Pace - Alpha Analytical, Westborough, MA

Project: L2424182



Sudip Pradhan  
Laboratory Director

All Results meet the requirements of the National Environmental Laboratory Accreditation Conference and/or State specific certifications as applicable.

Report Date: May 20, 2024

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9.1. General Chemistry Results .....	48



## Sample Summary

**Work Order:** 24E0397

**Client:** Pace - Alpha Analytical, Westborough, MA

**Project:** L2424182

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WT6401PI13	24E0397-01	Solid	04/25/2024 08:14	05/07/2024 08:10
WT6401PI110	24E0397-02	Solid	04/26/2024 09:14	05/07/2024 08:10
WT6401PI21	24E0397-03	Solid	04/24/2024 09:44	05/07/2024 08:10
WT6401PI29	24E0397-04	Solid	04/24/2024 09:45	05/07/2024 08:10
WT6401PI35	24E0397-05	Solid	04/24/2024 11:03	05/07/2024 08:10
WT6401PI44	24E0397-06	Solid	04/25/2024 08:45	05/07/2024 08:10
WT6401PI62	24E0397-07	Solid	04/29/2024 10:12	05/07/2024 08:10
WT6401PI79	24E0397-08	Solid	04/24/2024 11:20	05/07/2024 08:10
WT6401PI87	24E0397-09	Solid	04/24/2024 09:56	05/07/2024 08:10
WT6401PI89	24E0397-10	Solid	04/24/2024 09:00	05/07/2024 08:10
WT6401PI97	24E0397-11	Solid	04/24/2024 08:37	05/07/2024 08:10
WT6401PI104	24E0397-12	Solid	04/30/2024 08:10	05/07/2024 08:10
WT6401PI105	24E0397-13	Solid	04/30/2024 08:17	05/07/2024 08:10
WT6401PI110	24E0397-14	Solid	04/26/2024 09:14	05/07/2024 08:10
WT6401PI112	24E0397-15	Solid	04/26/2024 10:45	05/07/2024 08:10
WT6401PI21	24E0397-16	Solid	04/24/2024 09:44	05/07/2024 08:10
WT6401PI127	24E0397-17	Solid	04/26/2024 13:09	05/07/2024 08:10
WT6401PI133	24E0397-18	Solid	04/30/2024 07:47	05/07/2024 08:10
WT6401PI135	24E0397-19	Solid	04/30/2024 08:00	05/07/2024 08:10

pg 1 of 3



### Subcontract Chain of Custody

APL/ Pace Fairfield  
1275 Bloomfield Ave.  
Bldg. 6  
Fairfield, NJ 07004



**24E0397**

Alpha Job Number  
L2424182

#### Client Information

Client: Alpha Analytical Labs  
Address: Eight Walkup Drive  
Westborough, MA 01581-1019  
Phone: 716.427.5229  
Email: Melissa.Deyo@pacelabs.com

#### Project Information

Pace - Alpha Analytical, Westborough, MA  
L2424182

Project Location: NY  
Project Manager: Melissa Deyo

#### Turnaround & Deliverables Information

Due Date:  
Deliverables:

#### Requirements/Report Limits

State/Federal Program:  
Regulatory Criteria:

#### Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2424182 Report to include Method Blank, LCS/LCSD:

Additional Comments: Invoices to: invoices@pacelabs.couphost.com Reports to: west.subreports@pacelabs.com ; No NJ DKQP questionnaire

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
WT6401PI13		04-25-24 08:14	SOLID	PCB by EPA 8082	
WT6401PI110		04-26-24 08:14	SOLID	PCB by EPA 8082	
WT6401PI21		04-24-24 09:44	SOLID	PCB by EPA 8082	
WT6401PI29		04-24-24 09:45	SOLID	PCB by EPA 8082	
WT6401PI35		04-24-24 11:03	SOLID	PCB by EPA 8082	
WT6401PI44		04-25-24 08:45	SOLID	PCB by EPA 8082	
WT6401PI62		04-29-24 10:12	SOLID	PCB by EPA 8082	
WT6401PI79		04-24-24 11:20	SOLID	PCB by EPA 8082	
WT6401PI87		04-24-24 09:56	SOLID	PCB by EPA 8082	


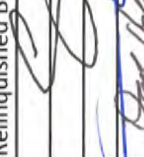


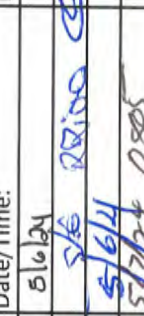
Relinquished By:	Date/Time:	Received By:	Date/Time:
<i>[Signature]</i>	5/6/24	<i>[Signature]</i>	5/6 17:36
<i>[Signature]</i>	5/6 22:00	<i>[Signature]</i>	5/9/24 20:21
<i>[Signature]</i>	5/6/24	<i>[Signature]</i>	5/14/24 06:35


202

Form No: AL\_subcoc



pg 2 of 3

	<b>Subcontract Chain of Custody</b> APL/ Pace Fairfield 1275 Bloomfield Ave. Bldg. 6 Fairfield, NJ 07004	Alpha Job Number L2424182			
<b>Client Information</b> Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 716.427.5229 Email: Melissa.Deyo@pacelabs.com		<b>Regulatory Requirements/Report Limits</b> State/Federal Program: Regulatory Criteria:			
<b>Project Information</b> Project Location: NY Project Manager: Melissa Deyo Turnaround & Deliverables Information Due Date: Deliverables:					
<b>Project Specific Requirements and/or Report Requirements</b> Reference following Alpha Job Number on final report/deliverables: L2424182      Report to include Method Blank, LCS/LCSD: Additional Comments: Send all results/reports to subreports@alphalab.com ; No NJ DKQP questionnaire					
Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	WT6401P189 WT6401P197 WT6401P1104 WT6401P1105 WT6401P1110 WT6401P1112 WT6401P121 WT6401P1127	04-24-24 09:00 04-24-24 08:37 04-30-24 08:10 04-30-24 08:17 04-26-24 08:14 04-26-24 10:45 04-24-24 09:44 04-26-24 13:09	SOLID SOLID SOLID SOLID SOLID SOLID SOLID SOLID	PCB by EPA 8082 PCB by EPA 8082 PCB by EPA 8082 PCB by EPA 8082 PCB by EPA 8082 PCB by EPA 8082 PCB by EPA 8082 PCB by EPA 8082	
Relinquished By:		Date/Time:	Received By:	Date/Time:	
 Melissa Deyo		5/6/24	 Melissa Deyo	5/6/24 17:30	
 APL/ Pace		5/6/24	 APL/ Pace	5/6/24 08:35	
Form No: AL_subcoc					

	<b>Subcontract Chain of Custody</b> APL/ Pace Fairfield 1275 Bloomfield Ave. Bldg. 6 Fairfield, NJ 07004	<b>Alpha Job Number</b> L2424182			
<b>Client Information</b> Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 716.427.5229 Email: Melissa.Deyo@pacelabs.com		<b>Regulatory Requirements/Report Limits</b>			
<b>Project Information</b> Project Location: NY Project Manager: Melissa Deyo Turnaround & Deliverables Information Due Date: Deliverables:		State/Federal Program: Regulatory Criteria:			
<b>Project Specific Requirements and/or Report Requirements</b> Reference following Alpha Job Number on final report/deliverables: L2424182      Report to include Method Blank, LCS/LCSD: Additional Comments: Send all results/reports to subreports@alphalab.com ; No NJ DKQP questionnaire					
Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	WT6401PI133 WT6401PI135	04-30-24 07:47 04-30-24 08:00	SOLID SOLID	PCB by EPA 8082 PCB by EPA 8082	
Relinquished By:		Date/Time:	Received By:	Date/Time:	
Form No: AL_subcoc		<i>[Signature]</i>	<i>[Signature]</i>	5/6/24 17:30	5/6/24 17:30
		<i>[Signature]</i>	<i>[Signature]</i>	5/6/24 23:00	5/6/24 23:00
		<i>[Signature]</i>	<i>[Signature]</i>	5/7/24 08:05	5/7/24 08:35



Sample Condition Upon Receipt Form (SCUR)

24E0397



Affix Sample Label Here

Date and Initials of person:

Examining contents: nf

Label: \_\_\_\_\_

Deliver to location: \_\_\_\_\_

pH: n/a

Thermometer Used: 71TK03 Date: 5/7/24 Time: 8:00 Initials: nf

State of Origin: NY

Cooler #1 Temp. °C 2.4 (Visual) -0.4 (Correction Factor) 2.0 (Actual)  Samples on ice, cooling process has begun

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace  Other \_\_\_\_\_

Shipping Method:  First Overnight  Priority Overnight  Standard Overnight  Ground  Other \_\_\_\_\_

Tracking # \_\_\_\_\_

Custody Seal on Cooler/Box Present:  Yes  No Seals intact:  Yes  No Ice:  Wet  Blue  Melted  None

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Samples were collected by Pace employee  Yes  No  N/A

Comments:

Chain of Custody Present	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody Filled Out	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Relinquished Signature on COC	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Sampler Name and Signature on COC	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples Arrived within Hold Time	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Rush TAT requested on COC	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient Volume	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<u>may or may not have enough</u>
Correct Containers Used	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Sample Labels match COC (sample IDs & date/time of collection)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
All containers needing acid/base preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Preservation Information: Preservative: _____
All Containers needing preservation are found to be in compliance with EPA recommendation: Exceptions: Vials, Microbiology, O&G, Metals	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Lot #/Trace #: _____ Date: _____ Time: _____ Initials: _____
Headspace in VOA Vials? (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

Additional Login Comments:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Client notification/ Resolution

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Comments/Resolution: \_\_\_\_\_

## Extractable Petroleum Hydrocarbons:

### *Gas Chromatography/Flame Ionization Detector*

New Jersey Department of Environmental Protection Site Remediation Program Extractable Petroleum Hydrocarbons Methodology (Version 3.0).

USEPA SW-846 Test Methods for Evaluating Solid Waste Physical/Chemical Methods Update III, Method 8015D or NJDEP Office of Quality Assurance Quantitation of Semi-Volatile Petroleum Products in Water, Soil and Sediment OQA-QAM-025, Revision 6.

## Metals:

### *Inductively-Coupled Plasma Atomic Emission Spectrometry or Inductively-Coupled Plasma Mass Spectroscopy*

**Wastewater and Groundwater Samples:** USEPA Methods for the Analysis of Water and Wastes, Method 200.7, Method 200.8.

**Soil Samples:** USEPA Methods for Evaluating Solid Waste Physical/Chemical Methods Update III, Method 6010D.

## Mercury:

### *Cold Vapor Atomic Absorption Spectrometry*

**Wastewater and Groundwater Samples:** USEPA Methods for the Analysis of Water and Wastes, Method 245.1.

**Soil Samples:** USEPA SW-846 Test Methods for Evaluating Solid Waste Physical/Chemical Methods Update III, Method 7471B.

## Volatile Organic Compounds:

### *Purge and Trap Gas Chromatography/Mass Spectroscopy*

**Drinking Water Samples:** USEPA Methods for the Determination of Organic Compounds in Drinking Water, Method 524.2.

**Wastewater Samples:** USEPA Methods for the Analysis of Water and Wastes, Method 624.1.

**Soil and Groundwater Samples:** USEPA SW-846 Test Methods for Evaluating Solid Waste Physical/Chemical Methods Update VI, Method 8260D.

## Semi-Volatile Organic Compounds:

### *Gas Chromatography/Mass Spectroscopy*

**Wastewater Samples:** USEPA Methods for the Analysis of Water and Wastes, Method 625.1.

**Soil and Groundwater Samples:** USEPA SW-846 Test Methods for Evaluating Solid Waste Physical/Chemical Methods Update VI, Method 8270E.

## PFAS Compounds:

### *Liquid Chromatography/Tandem Mass Spectroscopy*

**Drinking Water Samples:** USEPA Methods for the Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS), Method 537 (v1.1).

## Pesticides:

### *Gas Chromatography/Electron Capture Detector*

**Wastewater Samples:** USEPA Methods for the Analysis of Water and Wastes, Method 608.3.

**Soil and Groundwater Samples:** USEPA SW-846 Test Methods for Evaluating Solid Waste Physical/Chemical Methods Update III, Method 8081B.

## Polychlorinated Biphenyls (PCBs):

### *Gas Chromatography/Electron Capture Detector*

**Wastewater Samples:** USEPA Methods for the Analysis of Water and Wastes, Method 608.3.

**Soil and Groundwater Samples:** USEPA SW-846 Test Methods for Evaluating Solid Waste Physical/Chemical Methods Update III, Method 8082A.

## General Chemistry Methods:

*Various general chemistry methods are taken from "Standard Methods for the Examination of Water and Wastewater, 22nd Edition", .*

Specific method citations can be found on the Analytical Results Summary page of this report listed under 'Method'.

\*\* A complete list of Pace Fairfield's certified Methods are on the [Standards And Docs](#) page of the Results Retrieval System

## Pace Analytical Services, LLC-Fairfield Data Reporting Abbreviations and Qualifiers

### Method Detection Limit (MDL):

The MDL is defined as the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results. The value is calculated following the guidelines defined in:

“Definition and Procedure for the Determination of the Method Detection Limit, Revision 2”  
EPA 821-R-16-006, published December 2016.

### Reporting Limit (RL):

The RL is the Concentration of the lowest calibration standard that was included in the initial calibration of the instrument. On analytical reports this value is corrected for percent moisture and any concentration or dilution factors.

### Concentration (Conc.) / Result:

If the compound is detected, the measured concentration is reported. If this column is “ND”, or contains a 'less than' (<) symbol, the compound was not detected.

### Tentatively Identified Compound (TIC):

A TIC is a non-targeted compound, not included in the calibration, identified by a mass spectral library search OR requested to be identified and reported by the client.

### Abbreviations:

<b>ND</b>	Non-Detect
<b>TNTC</b>	Too Numerous To Count

### Qualifiers:

<b>D</b>	The concentration is from a dilution
<b>H</b>	Analyzed outside of holding time
<b>U</b>	Compound not detected

**QUALITY CONTROL**  
**Conformance/Non-Conformance Summary**

5  
5

**ANALYSIS: PCBs [8082A]**

COMMENTS:

The surrogate (Decachlorobiphenyl) recovery for sample 24E0397-04, 06, 07, 08, 11, 14, 16, 17 and 18 was outside QC limits (low).

The surrogate (Decachlorobiphenyl [2C]) recovery for sample 24E0397-13 was outside QC limits (low).

The surrogate (Tetrachloro-m-xylene [2C]) recovery for sample 24E0397-13 was outside QC limits (high).

Sample 24E0397-01 and 02 were analyzed beyond the holding time.



Reviewed By: \_\_\_\_\_ (IK) \_\_\_\_\_ 5/20/2024  
Sudip Pradhan - Laboratory Director Date

*For any questions about your Quality Control, please call us at 973-227-0422*





Pace Analytical Services, LLC-Fairfield

## Positive Results Only Summary

24E0397-13 (Solid)

Sample Name: WT6401PI105

SW 846 8082A - PCBs

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Aroclor-1254 [2C]	14600	D	595	1000	mg/kg dry	200	5/14/24 14:10
Total PCBs	14600	D	449	1000	mg/kg dry	200	5/14/24 14:10

ND - Indicates compound analyzed for but not detected  
 J - Indicates estimated value  
 B - Indicates compound found in associated blank  
 E - Concentration exceeds highest calibration standard

D - Indicates result is based on a dilution  
 H - Indicates a Hold Time violation  
 P - Greater than 25% diff. between 2 GC columns.  
 MDL - Minimum detection limit, RL - Reporting limit  
 D1 - Sample was Decanted (Dissolved)



Pace Analytical Services, LLC-Fairfield

## All Results Summary

Client: Pace - Alpha Analytical, Westborough, MA

Work Order: 24E0397

Project: L2424182

Date to Lab: 5/7/2024 8:10:00AM

<b>24E0397-01 (Solid)</b>	Sample Name: <b>WT6401PI13</b>	Collected: <b>4/25/2024 8:14:00AM</b>
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**SW 846 8082A - PCBs**

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Aroclor-1016	ND	U, H	0.167	0.269	mg/kg	1	5/17/24 10:37
Aroclor-1221	ND	U, H	0.121	0.269	mg/kg	1	5/17/24 10:37
Aroclor-1232	ND	U, H	0.189	0.269	mg/kg	1	5/17/24 10:37
Aroclor-1242	ND	U, H	0.201	0.269	mg/kg	1	5/17/24 10:37
Aroclor-1248	ND	U, H	0.187	0.269	mg/kg	1	5/17/24 10:37
Aroclor-1254	ND	U, H	0.158	0.269	mg/kg	1	5/17/24 10:37
Aroclor-1260	ND	U, H	0.194	0.269	mg/kg	1	5/17/24 10:37
Aroclor-1262	ND	U, H	0.204	0.269	mg/kg	1	5/17/24 10:37
Aroclor-1268	ND	U, H	0.228	0.269	mg/kg	1	5/17/24 10:37
Total PCBs	ND	U, H	0.121	0.269	mg/kg	1	5/17/24 10:37

**Gravimetric - General Chemistry**

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Percent Solids	41.8				%	1	5/8/24 10:00

<b>24E0397-02 (Solid)</b>	Sample Name: <b>WT6401PI110</b>	Collected: <b>4/26/2024 9:14:00AM</b>
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**SW 846 8082A - PCBs**

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Aroclor-1016	ND	U, H	0.214	0.345	mg/kg	1	5/17/24 11:00
Aroclor-1221	ND	U, H	0.155	0.345	mg/kg	1	5/17/24 11:00
Aroclor-1232	ND	U, H	0.242	0.345	mg/kg	1	5/17/24 11:00
Aroclor-1242	ND	U, H	0.257	0.345	mg/kg	1	5/17/24 11:00
Aroclor-1248	ND	U, H	0.239	0.345	mg/kg	1	5/17/24 11:00
Aroclor-1254	ND	U, H	0.203	0.345	mg/kg	1	5/17/24 11:00
Aroclor-1260	ND	U, H	0.249	0.345	mg/kg	1	5/17/24 11:00
Aroclor-1262	ND	U, H	0.261	0.345	mg/kg	1	5/17/24 11:00
Aroclor-1268	ND	U, H	0.291	0.345	mg/kg	1	5/17/24 11:00
Total PCBs	ND	U, H	0.155	0.345	mg/kg	1	5/17/24 11:00

**Gravimetric - General Chemistry**

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Percent Solids	95.7				%	1	5/8/24 10:00

ND, U - Indicates compound analyzed for but not detected  
 J - Indicates estimated value  
 B - Indicates compound found in associated blank  
 E - Concentration exceeds highest calibration standard

D - Indicates result is based on a dilution  
 H - Indicates a Hold Time violation  
 P - Greater than 25% diff. between 2 GC columns.  
 MDL - Minimum detection limit, RL - Reporting limit  
 D1 - Sample was Decanted (Dissolved)



Pace Analytical Services, LLC-Fairfield

## All Results Summary

Client: Pace - Alpha Analytical, Westborough, MA

Work Order: 24E0397

Project: L2424182

Date to Lab: 5/7/2024 8:10:00AM

<b>24E0397-03 (Solid)</b>	Sample Name: <b>WT6401PI21</b>	Collected: <b>4/24/2024 9:44:00AM</b>
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SW 846 8082A - PCBs

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Aroclor-1016	ND	U, H	0.407	0.655	mg/kg	1	5/17/24 11:31
Aroclor-1221	ND	U, H	0.294	0.655	mg/kg	1	5/17/24 11:31
Aroclor-1232	ND	U, H	0.460	0.655	mg/kg	1	5/17/24 11:31
Aroclor-1242	ND	U, H	0.488	0.655	mg/kg	1	5/17/24 11:31
Aroclor-1248	ND	U, H	0.454	0.655	mg/kg	1	5/17/24 11:31
Aroclor-1254	ND	U, H	0.385	0.655	mg/kg	1	5/17/24 11:31
Aroclor-1260	ND	U, H	0.472	0.655	mg/kg	1	5/17/24 11:31
Aroclor-1262	ND	U, H	0.496	0.655	mg/kg	1	5/17/24 11:31
Aroclor-1268	ND	U, H	0.553	0.655	mg/kg	1	5/17/24 11:31
Total PCBs	ND	U, H	0.294	0.655	mg/kg	1	5/17/24 11:31

Gravimetric - General Chemistry

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Percent Solids	47.3				%	1	5/8/24 10:00

<b>24E0397-04 (Solid)</b>	Sample Name: <b>WT6401PI29</b>	Collected: <b>4/24/2024 9:45:00AM</b>
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SW 846 8082A - PCBs

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Aroclor-1016	ND	U, H	0.643	1.04	mg/kg	1	5/17/24 11:55
Aroclor-1221	ND	U, H	0.464	1.04	mg/kg	1	5/17/24 11:55
Aroclor-1232	ND	U, H	0.728	1.04	mg/kg	1	5/17/24 11:55
Aroclor-1242	ND	U, H	0.772	1.04	mg/kg	1	5/17/24 11:55
Aroclor-1248	ND	U, H	0.718	1.04	mg/kg	1	5/17/24 11:55
Aroclor-1254	ND	U, H	0.608	1.04	mg/kg	1	5/17/24 11:55
Aroclor-1260	ND	U, H	0.746	1.04	mg/kg	1	5/17/24 11:55
Aroclor-1262	ND	U, H	0.784	1.04	mg/kg	1	5/17/24 11:55
Aroclor-1268	ND	U, H	0.875	1.04	mg/kg	1	5/17/24 11:55
Total PCBs	ND	U, H	0.464	1.04	mg/kg	1	5/17/24 11:55

Gravimetric - General Chemistry

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Percent Solids	95.7				%	1	5/8/24 10:00

ND, U - Indicates compound analyzed for but not detected  
 J - Indicates estimated value  
 B - Indicates compound found in associated blank  
 E - Concentration exceeds highest calibration standard

D - Indicates result is based on a dilution  
 H - Indicates a Hold Time violation  
 P - Greater than 25% diff. between 2 GC columns.  
 MDL - Minimum detection limit, RL - Reporting limit  
 D1 - Sample was Decanted (Dissolved)



PEOPLE ADVANCING SCIENCE

Pace Analytical Services, LLC-Fairfield

# All Results Summary

Client: Pace - Alpha Analytical, Westborough, MA

Work Order: 24E0397

Project: L2424182

Date to Lab: 5/7/2024 8:10:00AM

24E0397-05 (Solid) Sample Name: WT6401PI35 Collected: 4/24/2024 11:03:00AM

### SW 846 8082A - PCBs

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Aroclor-1016	ND	U, H	0.247	0.397	mg/kg	1	5/17/24 12:18
Aroclor-1221	ND	U, H	0.178	0.397	mg/kg	1	5/17/24 12:18
Aroclor-1232	ND	U, H	0.279	0.397	mg/kg	1	5/17/24 12:18
Aroclor-1242	ND	U, H	0.296	0.397	mg/kg	1	5/17/24 12:18
Aroclor-1248	ND	U, H	0.276	0.397	mg/kg	1	5/17/24 12:18
Aroclor-1254	ND	U, H	0.234	0.397	mg/kg	1	5/17/24 12:18
Aroclor-1260	ND	U, H	0.287	0.397	mg/kg	1	5/17/24 12:18
Aroclor-1262	ND	U, H	0.301	0.397	mg/kg	1	5/17/24 12:18
Aroclor-1268	ND	U, H	0.336	0.397	mg/kg	1	5/17/24 12:18
Total PCBs	ND	U, H	0.178	0.397	mg/kg	1	5/17/24 12:18

### Gravimetric - General Chemistry

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Percent Solids	95.8				%	1	5/8/24 10:00

24E0397-06 (Solid) Sample Name: WT6401PI44 Collected: 4/25/2024 8:45:00AM

### SW 846 8082A - PCBs

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Aroclor-1016	ND	U, H	0.527	0.849	mg/kg	1	5/17/24 12:42
Aroclor-1221	ND	U, H	0.381	0.849	mg/kg	1	5/17/24 12:42
Aroclor-1232	ND	U, H	0.597	0.849	mg/kg	1	5/17/24 12:42
Aroclor-1242	ND	U, H	0.633	0.849	mg/kg	1	5/17/24 12:42
Aroclor-1248	ND	U, H	0.589	0.849	mg/kg	1	5/17/24 12:42
Aroclor-1254	ND	U, H	0.499	0.849	mg/kg	1	5/17/24 12:42
Aroclor-1260	ND	U, H	0.612	0.849	mg/kg	1	5/17/24 12:42
Aroclor-1262	ND	U, H	0.643	0.849	mg/kg	1	5/17/24 12:42
Aroclor-1268	ND	U, H	0.718	0.849	mg/kg	1	5/17/24 12:42
Total PCBs	ND	U, H	0.381	0.849	mg/kg	1	5/17/24 12:42

### Gravimetric - General Chemistry

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Percent Solids	97.2				%	1	5/8/24 10:00

ND, U - Indicates compound analyzed for but not detected  
 J - Indicates estimated value  
 B - Indicates compound found in associated blank  
 E - Concentration exceeds highest calibration standard

D - Indicates result is based on a dilution  
 H - Indicates a Hold Time violation  
 P - Greater than 25% diff. between 2 GC columns.  
 MDL - Minimum detection limit, RL - Reporting limit  
 D1 - Sample was Decanted (Dissolved)



Pace Analytical Services, LLC-Fairfield

## All Results Summary

Client: Pace - Alpha Analytical, Westborough, MA

Work Order: 24E0397

Project: L2424182

Date to Lab: 5/7/2024 8:10:00AM

**24E0397-07 (Solid)** Sample Name: **WT6401PI62** Collected: **4/29/2024 10:12:00AM**

### SW 846 8082A - PCBs

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Aroclor-1016	ND	U, H	0.316	0.509	mg/kg	1	5/17/24 13:05
Aroclor-1221	ND	U, H	0.228	0.509	mg/kg	1	5/17/24 13:05
Aroclor-1232	ND	U, H	0.358	0.509	mg/kg	1	5/17/24 13:05
Aroclor-1242	ND	U, H	0.380	0.509	mg/kg	1	5/17/24 13:05
Aroclor-1248	ND	U, H	0.353	0.509	mg/kg	1	5/17/24 13:05
Aroclor-1254	ND	U, H	0.299	0.509	mg/kg	1	5/17/24 13:05
Aroclor-1260	ND	U, H	0.367	0.509	mg/kg	1	5/17/24 13:05
Aroclor-1262	ND	U, H	0.386	0.509	mg/kg	1	5/17/24 13:05
Aroclor-1268	ND	U, H	0.430	0.509	mg/kg	1	5/17/24 13:05
Total PCBs	ND	U, H	0.228	0.509	mg/kg	1	5/17/24 13:05

### Gravimetric - General Chemistry

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Percent Solids	97.2				%	1	5/8/24 10:00

**24E0397-08 (Solid)** Sample Name: **WT6401PI79** Collected: **4/24/2024 11:20:00AM**

### SW 846 8082A - PCBs

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Aroclor-1016	ND	U, H	0.243	0.391	mg/kg	1	5/17/24 13:29
Aroclor-1221	ND	U, H	0.175	0.391	mg/kg	1	5/17/24 13:29
Aroclor-1232	ND	U, H	0.275	0.391	mg/kg	1	5/17/24 13:29
Aroclor-1242	ND	U, H	0.291	0.391	mg/kg	1	5/17/24 13:29
Aroclor-1248	ND	U, H	0.271	0.391	mg/kg	1	5/17/24 13:29
Aroclor-1254	ND	U, H	0.230	0.391	mg/kg	1	5/17/24 13:29
Aroclor-1260	ND	U, H	0.282	0.391	mg/kg	1	5/17/24 13:29
Aroclor-1262	ND	U, H	0.296	0.391	mg/kg	1	5/17/24 13:29
Aroclor-1268	ND	U, H	0.330	0.391	mg/kg	1	5/17/24 13:29
Total PCBs	ND	U, H	0.175	0.391	mg/kg	1	5/17/24 13:29

### Gravimetric - General Chemistry

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Percent Solids	97.5				%	1	5/8/24 10:00

ND, U - Indicates compound analyzed for but not detected  
 J - Indicates estimated value  
 B - Indicates compound found in associated blank  
 E - Concentration exceeds highest calibration standard

D - Indicates result is based on a dilution  
 H - Indicates a Hold Time violation  
 P - Greater than 25% diff. between 2 GC columns.  
 MDL - Minimum detection limit, RL - Reporting limit  
 D1 - Sample was Decanted (Dissolved)





Pace Analytical Services, LLC-Fairfield

## All Results Summary

Client: Pace - Alpha Analytical, Westborough, MA

Work Order: 24E0397

Project: L2424182

Date to Lab: 5/7/2024 8:10:00AM

<b>24E0397-09 (Solid)</b>	Sample Name: <b>WT6401PI87</b>	Collected: <b>4/24/2024 9:56:00AM</b>
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SW 846 8082A - PCBs

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Aroclor-1016	ND	U, H	0.380	0.611	mg/kg	1	5/17/24 13:52
Aroclor-1221	ND	U, H	0.274	0.611	mg/kg	1	5/17/24 13:52
Aroclor-1232	ND	U, H	0.430	0.611	mg/kg	1	5/17/24 13:52
Aroclor-1242	ND	U, H	0.456	0.611	mg/kg	1	5/17/24 13:52
Aroclor-1248	ND	U, H	0.424	0.611	mg/kg	1	5/17/24 13:52
Aroclor-1254	ND	U, H	0.359	0.611	mg/kg	1	5/17/24 13:52
Aroclor-1260	ND	U, H	0.441	0.611	mg/kg	1	5/17/24 13:52
Aroclor-1262	ND	U, H	0.463	0.611	mg/kg	1	5/17/24 13:52
Aroclor-1268	ND	U, H	0.517	0.611	mg/kg	1	5/17/24 13:52
Total PCBs	ND	U, H	0.274	0.611	mg/kg	1	5/17/24 13:52

Gravimetric - General Chemistry

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Percent Solids	73.6				%	1	5/8/24 10:00

<b>24E0397-10 (Solid)</b>	Sample Name: <b>WT6401PI89</b>	Collected: <b>4/24/2024 9:00:00AM</b>
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SW 846 8082A - PCBs

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Aroclor-1016	ND	U, H	0.356	0.572	mg/kg	1	5/17/24 14:15
Aroclor-1221	ND	U, H	0.257	0.572	mg/kg	1	5/17/24 14:15
Aroclor-1232	ND	U, H	0.402	0.572	mg/kg	1	5/17/24 14:15
Aroclor-1242	ND	U, H	0.427	0.572	mg/kg	1	5/17/24 14:15
Aroclor-1248	ND	U, H	0.397	0.572	mg/kg	1	5/17/24 14:15
Aroclor-1254	ND	U, H	0.336	0.572	mg/kg	1	5/17/24 14:15
Aroclor-1260	ND	U, H	0.413	0.572	mg/kg	1	5/17/24 14:15
Aroclor-1262	ND	U, H	0.434	0.572	mg/kg	1	5/17/24 14:15
Aroclor-1268	ND	U, H	0.484	0.572	mg/kg	1	5/17/24 14:15
Total PCBs	ND	U, H	0.257	0.572	mg/kg	1	5/17/24 14:15

Gravimetric - General Chemistry

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Percent Solids	66.5				%	1	5/8/24 10:00

ND, U - Indicates compound analyzed for but not detected  
 J - Indicates estimated value  
 B - Indicates compound found in associated blank  
 E - Concentration exceeds highest calibration standard

D - Indicates result is based on a dilution  
 H - Indicates a Hold Time violation  
 P - Greater than 25% diff. between 2 GC columns.  
 MDL - Minimum detection limit, RL - Reporting limit  
 D1 - Sample was Decanted (Dissolved)



Pace Analytical Services, LLC-Fairfield

## All Results Summary

Client: Pace - Alpha Analytical, Westborough, MA

Work Order: 24E0397

Project: L2424182

Date to Lab: 5/7/2024 8:10:00AM

<b>24E0397-11 (Solid)</b>	Sample Name: <b>WT6401PI97</b>	Collected: <b>4/24/2024 8:37:00AM</b>
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### SW 846 8082A - PCBs

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Aroclor-1016	ND	U, H	0.211	0.339	mg/kg	1	5/17/24 14:39
Aroclor-1221	ND	U, H	0.152	0.339	mg/kg	1	5/17/24 14:39
Aroclor-1232	ND	U, H	0.238	0.339	mg/kg	1	5/17/24 14:39
Aroclor-1242	ND	U, H	0.253	0.339	mg/kg	1	5/17/24 14:39
Aroclor-1248	ND	U, H	0.235	0.339	mg/kg	1	5/17/24 14:39
Aroclor-1254	ND	U, H	0.199	0.339	mg/kg	1	5/17/24 14:39
Aroclor-1260	ND	U, H	0.244	0.339	mg/kg	1	5/17/24 14:39
Aroclor-1262	ND	U, H	0.257	0.339	mg/kg	1	5/17/24 14:39
Aroclor-1268	ND	U, H	0.287	0.339	mg/kg	1	5/17/24 14:39
Total PCBs	ND	U, H	0.152	0.339	mg/kg	1	5/17/24 14:39

### Gravimetric - General Chemistry

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Percent Solids	97.4				%	1	5/8/24 10:00

<b>24E0397-12 (Solid)</b>	Sample Name: <b>WT6401PI104</b>	Collected: <b>4/30/2024 8:10:00AM</b>
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### SW 846 8082A - PCBs

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Aroclor-1016	ND	U, H	0.112	0.180	mg/kg	1	5/17/24 15:02
Aroclor-1221	ND	U, H	0.0806	0.180	mg/kg	1	5/17/24 15:02
Aroclor-1232	ND	U, H	0.126	0.180	mg/kg	1	5/17/24 15:02
Aroclor-1242	ND	U, H	0.134	0.180	mg/kg	1	5/17/24 15:02
Aroclor-1248	ND	U, H	0.125	0.180	mg/kg	1	5/17/24 15:02
Aroclor-1254	ND	U, H	0.106	0.180	mg/kg	1	5/17/24 15:02
Aroclor-1260	ND	U, H	0.130	0.180	mg/kg	1	5/17/24 15:02
Aroclor-1262	ND	U, H	0.136	0.180	mg/kg	1	5/17/24 15:02
Aroclor-1268	ND	U, H	0.152	0.180	mg/kg	1	5/17/24 15:02
Total PCBs	ND	U, H	0.0806	0.180	mg/kg	1	5/17/24 15:02

### Gravimetric - General Chemistry

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Percent Solids	98.4				%	1	5/8/24 10:00

ND, U - Indicates compound analyzed for but not detected  
 J - Indicates estimated value  
 B - Indicates compound found in associated blank  
 E - Concentration exceeds highest calibration standard

D - Indicates result is based on a dilution  
 H - Indicates a Hold Time violation  
 P - Greater than 25% diff. between 2 GC columns.  
 MDL - Minimum detection limit, RL - Reporting limit  
 D1 - Sample was Decanted (Dissolved)



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Pace Analytical Services, LLC-Fairfield

# All Results Summary

Client: Pace - Alpha Analytical, Westborough, MA

Work Order: 24E0397

Project: L2424182

Date to Lab: 5/7/2024 8:10:00AM

<b>24E0397-13 (Solid)</b>	Sample Name: <b>WT6401PI105</b>	Collected: <b>4/30/2024 8:17:00AM</b>
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### SW 846 8082A - PCBs

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Aroclor-1016	ND	U	622	1000	mg/kg	200	5/14/24 14:10
Aroclor-1221	ND	U	449	1000	mg/kg	200	5/14/24 14:10
Aroclor-1232	ND	U	704	1000	mg/kg	200	5/14/24 14:10
Aroclor-1242	ND	U	747	1000	mg/kg	200	5/14/24 14:10
Aroclor-1248	ND	U	695	1000	mg/kg	200	5/14/24 14:10
<b>Aroclor-1254 [2C]</b>	<b>14600</b>	<b>D</b>	<b>595</b>	<b>1000</b>	<b>mg/kg</b>	<b>200</b>	<b>5/14/24 14:10</b>
Aroclor-1260	ND	U	723	1000	mg/kg	200	5/14/24 14:10
Aroclor-1262	ND	U	759	1000	mg/kg	200	5/14/24 14:10
Aroclor-1268	ND	U	847	1000	mg/kg	200	5/14/24 14:10
<b>Total PCBs</b>	<b>14600</b>	<b>D</b>	<b>449</b>	<b>1000</b>	<b>mg/kg</b>	<b>200</b>	<b>5/14/24 14:10</b>

### Gravimetric - General Chemistry

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Percent Solids	98.8				%	1	5/8/24 10:00

<b>24E0397-14 (Solid)</b>	Sample Name: <b>WT6401PI110</b>	Collected: <b>4/26/2024 9:14:00AM</b>
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### SW 846 8082A - PCBs

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Aroclor-1016	ND	U, H	0.0616	0.0991	mg/kg	1	5/17/24 15:26
Aroclor-1221	ND	U, H	0.0445	0.0991	mg/kg	1	5/17/24 15:26
Aroclor-1232	ND	U, H	0.0697	0.0991	mg/kg	1	5/17/24 15:26
Aroclor-1242	ND	U, H	0.0739	0.0991	mg/kg	1	5/17/24 15:26
Aroclor-1248	ND	U, H	0.0688	0.0991	mg/kg	1	5/17/24 15:26
Aroclor-1254	ND	U, H	0.0583	0.0991	mg/kg	1	5/17/24 15:26
Aroclor-1260	ND	U, H	0.0715	0.0991	mg/kg	1	5/17/24 15:26
Aroclor-1262	ND	U, H	0.0751	0.0991	mg/kg	1	5/17/24 15:26
Aroclor-1268	ND	U, H	0.0838	0.0991	mg/kg	1	5/17/24 15:26
Total PCBs	ND	U, H	0.0445	0.0991	mg/kg	1	5/17/24 15:26

### Gravimetric - General Chemistry

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Percent Solids	99.8				%	1	5/8/24 10:00

ND, U - Indicates compound analyzed for but not detected  
 J - Indicates estimated value  
 B - Indicates compound found in associated blank  
 E - Concentration exceeds highest calibration standard

D - Indicates result is based on a dilution  
 H - Indicates a Hold Time violation  
 P - Greater than 25% diff. between 2 GC columns.  
 MDL - Minimum detection limit, RL - Reporting limit  
 D1 - Sample was Decanted (Dissolved)



Pace Analytical Services, LLC-Fairfield

# All Results Summary

Client: Pace - Alpha Analytical, Westborough, MA

Work Order: 24E0397

Project: L2424182

Date to Lab: 5/7/2024 8:10:00AM

**24E0397-15 (Solid)** Sample Name: **WT6401PI112** Collected: **4/26/2024 10:45:00AM**

**SW 846 8082A - PCBs**

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Aroclor-1016	ND	U, H	0.183	0.294	mg/kg	1	5/17/24 15:49
Aroclor-1221	ND	U, H	0.132	0.294	mg/kg	1	5/17/24 15:49
Aroclor-1232	ND	U, H	0.207	0.294	mg/kg	1	5/17/24 15:49
Aroclor-1242	ND	U, H	0.219	0.294	mg/kg	1	5/17/24 15:49
Aroclor-1248	ND	U, H	0.204	0.294	mg/kg	1	5/17/24 15:49
Aroclor-1254	ND	U, H	0.173	0.294	mg/kg	1	5/17/24 15:49
Aroclor-1260	ND	U, H	0.212	0.294	mg/kg	1	5/17/24 15:49
Aroclor-1262	ND	U, H	0.223	0.294	mg/kg	1	5/17/24 15:49
Aroclor-1268	ND	U, H	0.248	0.294	mg/kg	1	5/17/24 15:49
Total PCBs	ND	U, H	0.132	0.294	mg/kg	1	5/17/24 15:49

**Gravimetric - General Chemistry**

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Percent Solids	99.1				%	1	5/8/24 10:00

**24E0397-16 (Solid)** Sample Name: **WT6401PI21** Collected: **4/24/2024 9:44:00AM**

**SW 846 8082A - PCBs**

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Aroclor-1016	ND	U, H	0.309	0.497	mg/kg	1	5/17/24 16:12
Aroclor-1221	ND	U, H	0.223	0.497	mg/kg	1	5/17/24 16:12
Aroclor-1232	ND	U, H	0.350	0.497	mg/kg	1	5/17/24 16:12
Aroclor-1242	ND	U, H	0.371	0.497	mg/kg	1	5/17/24 16:12
Aroclor-1248	ND	U, H	0.345	0.497	mg/kg	1	5/17/24 16:12
Aroclor-1254	ND	U, H	0.292	0.497	mg/kg	1	5/17/24 16:12
Aroclor-1260	ND	U, H	0.359	0.497	mg/kg	1	5/17/24 16:12
Aroclor-1262	ND	U, H	0.377	0.497	mg/kg	1	5/17/24 16:12
Aroclor-1268	ND	U, H	0.420	0.497	mg/kg	1	5/17/24 16:12
Total PCBs	ND	U, H	0.223	0.497	mg/kg	1	5/17/24 16:12

**Gravimetric - General Chemistry**

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Percent Solids	99.6				%	1	5/8/24 10:00

ND, U - Indicates compound analyzed for but not detected  
 J - Indicates estimated value  
 B - Indicates compound found in associated blank  
 E - Concentration exceeds highest calibration standard

D - Indicates result is based on a dilution  
 H - Indicates a Hold Time violation  
 P - Greater than 25% diff. between 2 GC columns.  
 MDL - Minimum detection limit, RL - Reporting limit  
 D1 - Sample was Decanted (Dissolved)



Pace Analytical Services, LLC-Fairfield

## All Results Summary

Client: Pace - Alpha Analytical, Westborough, MA

Work Order: 24E0397

Project: L2424182

Date to Lab: 5/7/2024 8:10:00AM

**24E0397-17 (Solid)**

Sample Name: **WT6401PI127**

Collected: **4/26/2024 1:09:00PM**

**SW 846 8082A - PCBs**

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Aroclor-1016	ND	U, H	0.104	0.167	mg/kg	1	5/17/24 16:36
Aroclor-1221	ND	U, H	0.0748	0.167	mg/kg	1	5/17/24 16:36
Aroclor-1232	ND	U, H	0.117	0.167	mg/kg	1	5/17/24 16:36
Aroclor-1242	ND	U, H	0.124	0.167	mg/kg	1	5/17/24 16:36
Aroclor-1248	ND	U, H	0.116	0.167	mg/kg	1	5/17/24 16:36
Aroclor-1254	ND	U, H	0.0981	0.167	mg/kg	1	5/17/24 16:36
Aroclor-1260	ND	U, H	0.120	0.167	mg/kg	1	5/17/24 16:36
Aroclor-1262	ND	U, H	0.126	0.167	mg/kg	1	5/17/24 16:36
Aroclor-1268	ND	U, H	0.141	0.167	mg/kg	1	5/17/24 16:36
Total PCBs	ND	U, H	0.0748	0.167	mg/kg	1	5/17/24 16:36

**Gravimetric - General Chemistry**

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Percent Solids	98.9				%	1	5/8/24 10:00

**24E0397-18 (Solid)**

Sample Name: **WT6401PI133**

Collected: **4/30/2024 7:47:00AM**

**SW 846 8082A - PCBs**

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Aroclor-1016	ND	U, H	0.123	0.199	mg/kg	1	5/17/24 18:09
Aroclor-1221	ND	U, H	0.0891	0.199	mg/kg	1	5/17/24 18:09
Aroclor-1232	ND	U, H	0.140	0.199	mg/kg	1	5/17/24 18:09
Aroclor-1242	ND	U, H	0.148	0.199	mg/kg	1	5/17/24 18:09
Aroclor-1248	ND	U, H	0.138	0.199	mg/kg	1	5/17/24 18:09
Aroclor-1254	ND	U, H	0.117	0.199	mg/kg	1	5/17/24 18:09
Aroclor-1260	ND	U, H	0.143	0.199	mg/kg	1	5/17/24 18:09
Aroclor-1262	ND	U, H	0.151	0.199	mg/kg	1	5/17/24 18:09
Aroclor-1268	ND	U, H	0.168	0.199	mg/kg	1	5/17/24 18:09
Total PCBs	ND	U, H	0.0891	0.199	mg/kg	1	5/17/24 18:09

**Gravimetric - General Chemistry**

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Percent Solids	99.6				%	1	5/8/24 10:00

ND, U - Indicates compound analyzed for but not detected  
 J - Indicates estimated value  
 B - Indicates compound found in associated blank  
 E - Concentration exceeds highest calibration standard

D - Indicates result is based on a dilution  
 H - Indicates a Hold Time violation  
 P - Greater than 25% diff. between 2 GC columns.  
 MDL - Minimum detection limit, RL - Reporting limit  
 D1 - Sample was Decanted (Dissolved)



Pace Analytical Services, LLC-Fairfield

## All Results Summary

Client: Pace - Alpha Analytical, Westborough, MA

Work Order: 24E0397

Project: L2424182

Date to Lab: 5/7/2024 8:10:00AM

<b>24E0397-19 (Solid)</b>	Sample Name: <b>WT6401PI135</b>	Collected: <b>4/30/2024 8:00:00AM</b>
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### SW 846 8082A - PCBs

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Aroclor-1016	ND	U, H	0.134	0.215	mg/kg	1	5/17/24 18:33
Aroclor-1221	ND	U, H	0.0965	0.215	mg/kg	1	5/17/24 18:33
Aroclor-1232	ND	U, H	0.151	0.215	mg/kg	1	5/17/24 18:33
Aroclor-1242	ND	U, H	0.160	0.215	mg/kg	1	5/17/24 18:33
Aroclor-1248	ND	U, H	0.149	0.215	mg/kg	1	5/17/24 18:33
Aroclor-1254	ND	U, H	0.127	0.215	mg/kg	1	5/17/24 18:33
Aroclor-1260	ND	U, H	0.155	0.215	mg/kg	1	5/17/24 18:33
Aroclor-1262	ND	U, H	0.163	0.215	mg/kg	1	5/17/24 18:33
Aroclor-1268	ND	U, H	0.182	0.215	mg/kg	1	5/17/24 18:33
Total PCBs	ND	U, H	0.0965	0.215	mg/kg	1	5/17/24 18:33

### Gravimetric - General Chemistry

Analyte	Result	Qual	MDL	RL	Units	Dilution	Analyzed
Percent Solids	100				%	1	5/8/24 10:00

ND, U - Indicates compound analyzed for but not detected  
 J - Indicates estimated value  
 B - Indicates compound found in associated blank  
 E - Concentration exceeds highest calibration standard

D - Indicates result is based on a dilution  
 H - Indicates a Hold Time violation  
 P - Greater than 25% diff. between 2 GC columns.  
 MDL - Minimum detection limit, RL - Reporting limit  
 D1 - Sample was Decanted (Dissolved)





# PCBs

Pace - Alpha Analytical, Westborough, MA

Work Order: 24E0397

Project: L2424182



# ANALYSIS DATA SHEET

PCBs - SW 846 8082A

Client: Pace - Alpha Analytical, Westborough, MA Project: L2424182  
Client Sample ID: Blank Work Order: 24E0397  
Lab Sample ID: BBE0692-BLK1

Init/Final Vol:	15 g / 10 mL	Prep Date:	05/13/2024 14:34	File ID:	5T75308.D
		Prep Batch:	BBE0692	Analyzed:	05/14/2024 10:03
		Matrix:	Soil	Sequence:	SBE0263
		Prep Method:	Microwave Extraction		

CAS NO.	COMPOUND	CONC. (mg/kg wet)	MDL	RL	Qual
12674-11-2	Aroclor-1016	ND	0.0205	0.0330	U
11104-28-2	Aroclor-1221	ND	0.0148	0.0330	U
11141-16-5	Aroclor-1232	ND	0.0232	0.0330	U
53469-21-9	Aroclor-1242	ND	0.0246	0.0330	U
12672-29-6	Aroclor-1248	ND	0.0229	0.0330	U
11097-69-1	Aroclor-1254	ND	0.0194	0.0330	U
11096-82-5	Aroclor-1260	ND	0.0238	0.0330	U
37324-23-5	Aroclor-1262	ND	0.0250	0.0330	U
11100-14-4	Aroclor-1268	ND	0.0279	0.0330	U
1336-36-3	Total PCBs	ND	0.0148	0.0330	U

8.1

# ANALYSIS DATA SHEET

PCBs - SW 846 8082A

Client: Pace - Alpha Analytical, Westborough, MA Project: L2424182  
Client Sample ID: Blank Work Order: 24E0397  
Lab Sample ID: BBE0909-BLK1

Init/Final Vol:	15 g / 10 mL	Prep Date:	05/16/2024 16:56	File ID:	6P01948.D
		Prep Batch:	BBE0909	Analyzed:	05/17/2024 09:50
		Matrix:	Soil	Sequence:	SBE0341
		Prep Method:	Sonication GC		

CAS NO.	COMPOUND	CONC. (mg/kg wet)	MDL	RL	Qual
12674-11-2	Aroclor-1016	ND	0.0205	0.0330	U
11104-28-2	Aroclor-1221	ND	0.0148	0.0330	U
11141-16-5	Aroclor-1232	ND	0.0232	0.0330	U
53469-21-9	Aroclor-1242	ND	0.0246	0.0330	U
12672-29-6	Aroclor-1248	ND	0.0229	0.0330	U
11097-69-1	Aroclor-1254	ND	0.0194	0.0330	U
11096-82-5	Aroclor-1260	ND	0.0238	0.0330	U
37324-23-5	Aroclor-1262	ND	0.0250	0.0330	U
11100-14-4	Aroclor-1268	ND	0.0279	0.0330	U
1336-36-3	Total PCBs	ND	0.0148	0.0330	U

8.1

# ANALYSIS DATA SHEET

PCBs - SW 846 8082A

**Client:** Pace - Alpha Analytical, Westborough, MA  
**Client Sample ID:** WT6401PI13  
**Lab Sample ID:** 24E0397-01  
**Project:** L2424182  
**Work Order:** 24E0397

Date Sampled: 04/25/24 08:14	Prep Date: 05/16/24 16:56	File ID: 6P01950.D
Init/Final Vol: 4.4 g / 10 mL	Prep Batch: BBE0909	Analyzed: 05/17/24 10:37
Dilution: 1	Matrix: Solid	Sequence: SBE0341
Percent Solids: 41.78	Prep Method: Sonication GC	

82

CAS NO.	COMPOUND	CONC. (mg/kg dry)	MDL	RL	Qual
12674-11-2	Aroclor-1016	ND	0.167	0.269	U, H
11104-28-2	Aroclor-1221	ND	0.121	0.269	U, H
11141-16-5	Aroclor-1232	ND	0.189	0.269	U, H
53469-21-9	Aroclor-1242	ND	0.201	0.269	U, H
12672-29-6	Aroclor-1248	ND	0.187	0.269	U, H
11097-69-1	Aroclor-1254	ND	0.158	0.269	U, H
11096-82-5	Aroclor-1260	ND	0.194	0.269	U, H
37324-23-5	Aroclor-1262	ND	0.204	0.269	U, H
11100-14-4	Aroclor-1268	ND	0.228	0.269	U, H
1336-36-3	Total PCBs	ND	0.121	0.269	U, H

**ND, U** - Indicates compound analyzed for but not detected  
**J** - Indicates estimated value  
**B** - Indicates compound found in associated blank  
**E** - Concentration exceeds highest calibration standard

**D** - Indicates result is based on a dilution  
**H** - Indicates a Hold Time violation  
**P** - Greater than 25% diff. between 2 GC columns.  
**MDL** - Minimum detection limit, **RL** - Reporting limit  
**D1** - Sample was Decanted (Dissolved)

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# ANALYSIS DATA SHEET

PCBs - SW 846 8082A

**Client:** Pace - Alpha Analytical, Westborough, MA  
**Client Sample ID:** WT6401PI110  
**Lab Sample ID:** 24E0397-02  
**Project:** L2424182  
**Work Order:** 24E0397

Date Sampled: 04/26/24 09:14	Prep Date: 05/16/24 16:56	File ID: 6P01951.D
Init/Final Vol: 1.5 g / 10 mL	Prep Batch: BBE0909	Analyzed: 05/17/24 11:00
Dilution: 1	Matrix: Solid	Sequence: SBE0341
Percent Solids: 95.73	Prep Method: Sonication GC	

82

CAS NO.	COMPOUND	CONC. (mg/kg dry)	MDL	RL	Qual
12674-11-2	Aroclor-1016	ND	0.214	0.345	U, H
11104-28-2	Aroclor-1221	ND	0.155	0.345	U, H
11141-16-5	Aroclor-1232	ND	0.242	0.345	U, H
53469-21-9	Aroclor-1242	ND	0.257	0.345	U, H
12672-29-6	Aroclor-1248	ND	0.239	0.345	U, H
11097-69-1	Aroclor-1254	ND	0.203	0.345	U, H
11096-82-5	Aroclor-1260	ND	0.249	0.345	U, H
37324-23-5	Aroclor-1262	ND	0.261	0.345	U, H
11100-14-4	Aroclor-1268	ND	0.291	0.345	U, H
1336-36-3	Total PCBs	ND	0.155	0.345	U, H

**ND, U** - Indicates compound analyzed for but not detected  
**J** - Indicates estimated value  
**B** - Indicates compound found in associated blank  
**E** - Concentration exceeds highest calibration standard

**D** - Indicates result is based on a dilution  
**H** - Indicates a Hold Time violation  
**P** - Greater than 25% diff. between 2 GC columns.  
**MDL** - Minimum detection limit, **RL** - Reporting limit  
**D1** - Sample was Decanted (Dissolved)

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# ANALYSIS DATA SHEET

PCBs - SW 846 8082A

**Client:** Pace - Alpha Analytical, Westborough, MA  
**Client Sample ID:** WT6401PI21  
**Lab Sample ID:** 24E0397-03  
**Project:** L2424182  
**Work Order:** 24E0397

Date Sampled: 04/24/24 09:44	Prep Date: 05/16/24 16:56	File ID: 6P01952.D
Init/Final Vol: 1.6 g / 10 mL	Prep Batch: BBE0909	Analyzed: 05/17/24 11:31
Dilution: 1	Matrix: Solid	Sequence: SBE0341
Percent Solids: 47.26	Prep Method: Sonication GC	

82

CAS NO.	COMPOUND	CONC. (mg/kg dry)	MDL	RL	Qual
12674-11-2	Aroclor-1016	ND	0.407	0.655	U, H
11104-28-2	Aroclor-1221	ND	0.294	0.655	U, H
11141-16-5	Aroclor-1232	ND	0.460	0.655	U, H
53469-21-9	Aroclor-1242	ND	0.488	0.655	U, H
12672-29-6	Aroclor-1248	ND	0.454	0.655	U, H
11097-69-1	Aroclor-1254	ND	0.385	0.655	U, H
11096-82-5	Aroclor-1260	ND	0.472	0.655	U, H
37324-23-5	Aroclor-1262	ND	0.496	0.655	U, H
11100-14-4	Aroclor-1268	ND	0.553	0.655	U, H
1336-36-3	Total PCBs	ND	0.294	0.655	U, H

**ND, U** - Indicates compound analyzed for but not detected  
**J** - Indicates estimated value  
**B** - Indicates compound found in associated blank  
**E** - Concentration exceeds highest calibration standard

**D** - Indicates result is based on a dilution  
**H** - Indicates a Hold Time violation  
**P** - Greater than 25% diff. between 2 GC columns.  
**MDL** - Minimum detection limit, **RL** - Reporting limit  
**D1** - Sample was Decanted (Dissolved)

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# ANALYSIS DATA SHEET

PCBs - SW 846 8082A

**Client:** Pace - Alpha Analytical, Westborough, MA  
**Client Sample ID:** WT6401PI29  
**Lab Sample ID:** 24E0397-04  
**Project:** L2424182  
**Work Order:** 24E0397

Date Sampled: 04/24/24 09:45	Prep Date: 05/16/24 16:56	File ID: 6P01953.D
Init/Final Vol: 0.5 g / 10 mL	Prep Batch: BBE0909	Analyzed: 05/17/24 11:55
Dilution: 1	Matrix: Solid	Sequence: SBE0341
Percent Solids: 95.65	Prep Method: Sonication GC	

8.2

CAS NO.	COMPOUND	CONC. (mg/kg dry)	MDL	RL	Qual
12674-11-2	Aroclor-1016	ND	0.643	1.04	U, H
11104-28-2	Aroclor-1221	ND	0.464	1.04	U, H
11141-16-5	Aroclor-1232	ND	0.728	1.04	U, H
53469-21-9	Aroclor-1242	ND	0.772	1.04	U, H
12672-29-6	Aroclor-1248	ND	0.718	1.04	U, H
11097-69-1	Aroclor-1254	ND	0.608	1.04	U, H
11096-82-5	Aroclor-1260	ND	0.746	1.04	U, H
37324-23-5	Aroclor-1262	ND	0.784	1.04	U, H
11100-14-4	Aroclor-1268	ND	0.875	1.04	U, H
1336-36-3	Total PCBs	ND	0.464	1.04	U, H

**ND, U** - Indicates compound analyzed for but not detected  
**J** - Indicates estimated value  
**B** - Indicates compound found in associated blank  
**E** - Concentration exceeds highest calibration standard

**D** - Indicates result is based on a dilution  
**H** - Indicates a Hold Time violation  
**P** - Greater than 25% diff. between 2 GC columns.  
**MDL** - Minimum detection limit, **RL** - Reporting limit  
**D1** - Sample was Decanted (Dissolved)

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# ANALYSIS DATA SHEET

PCBs - SW 846 8082A

**Client:** Pace - Alpha Analytical, Westborough, MA  
**Client Sample ID:** WT6401PI35  
**Lab Sample ID:** 24E0397-05  
**Project:** L2424182  
**Work Order:** 24E0397

Date Sampled: 04/24/24 11:03	Prep Date: 05/16/24 16:56	File ID: 6P01954.D
Init/Final Vol: 1.3 g / 10 mL	Prep Batch: BBE0909	Analyzed: 05/17/24 12:18
Dilution: 1	Matrix: Solid	Sequence: SBE0341
Percent Solids: 95.81	Prep Method: Sonication GC	

82

CAS NO.	COMPOUND	CONC. (mg/kg dry)	MDL	RL	Qual
12674-11-2	Aroclor-1016	ND	0.247	0.397	U, H
11104-28-2	Aroclor-1221	ND	0.178	0.397	U, H
11141-16-5	Aroclor-1232	ND	0.279	0.397	U, H
53469-21-9	Aroclor-1242	ND	0.296	0.397	U, H
12672-29-6	Aroclor-1248	ND	0.276	0.397	U, H
11097-69-1	Aroclor-1254	ND	0.234	0.397	U, H
11096-82-5	Aroclor-1260	ND	0.287	0.397	U, H
37324-23-5	Aroclor-1262	ND	0.301	0.397	U, H
11100-14-4	Aroclor-1268	ND	0.336	0.397	U, H
1336-36-3	Total PCBs	ND	0.178	0.397	U, H

**ND, U** - Indicates compound analyzed for but not detected  
**J** - Indicates estimated value  
**B** - Indicates compound found in associated blank  
**E** - Concentration exceeds highest calibration standard

**D** - Indicates result is based on a dilution  
**H** - Indicates a Hold Time violation  
**P** - Greater than 25% diff. between 2 GC columns.  
**MDL** - Minimum detection limit, **RL** - Reporting limit  
**D1** - Sample was Decanted (Dissolved)

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# ANALYSIS DATA SHEET

PCBs - SW 846 8082A

**Client:** Pace - Alpha Analytical, Westborough, MA  
**Client Sample ID:** WT6401PI44  
**Lab Sample ID:** 24E0397-06  
**Project:** L2424182  
**Work Order:** 24E0397

Date Sampled: 04/25/24 08:45	Prep Date: 05/16/24 16:56	File ID: 6P01955.D
Init/Final Vol: 0.6 g / 10 mL	Prep Batch: BBE0909	Analyzed: 05/17/24 12:42
Dilution: 1	Matrix: Solid	Sequence: SBE0341
Percent Solids: 97.18	Prep Method: Sonication GC	

82

CAS NO.	COMPOUND	CONC. (mg/kg dry)	MDL	RL	Qual
12674-11-2	Aroclor-1016	ND	0.527	0.849	U, H
11104-28-2	Aroclor-1221	ND	0.381	0.849	U, H
11141-16-5	Aroclor-1232	ND	0.597	0.849	U, H
53469-21-9	Aroclor-1242	ND	0.633	0.849	U, H
12672-29-6	Aroclor-1248	ND	0.589	0.849	U, H
11097-69-1	Aroclor-1254	ND	0.499	0.849	U, H
11096-82-5	Aroclor-1260	ND	0.612	0.849	U, H
37324-23-5	Aroclor-1262	ND	0.643	0.849	U, H
11100-14-4	Aroclor-1268	ND	0.718	0.849	U, H
1336-36-3	Total PCBs	ND	0.381	0.849	U, H

**ND, U** - Indicates compound analyzed for but not detected  
**J** - Indicates estimated value  
**B** - Indicates compound found in associated blank  
**E** - Concentration exceeds highest calibration standard

**D** - Indicates result is based on a dilution  
**H** - Indicates a Hold Time violation  
**P** - Greater than 25% diff. between 2 GC columns.  
**MDL** - Minimum detection limit, **RL** - Reporting limit  
**D1** - Sample was Decanted (Dissolved)

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# ANALYSIS DATA SHEET

PCBs - SW 846 8082A

**Client:** Pace - Alpha Analytical, Westborough, MA  
**Client Sample ID:** WT6401PI62  
**Lab Sample ID:** 24E0397-07  
**Project:** L2424182  
**Work Order:** 24E0397

Date Sampled: 04/29/24 10:12	Prep Date: 05/16/24 16:56	File ID: 6P01956.D
Init/Final Vol: 1 g / 10 mL	Prep Batch: BBE0909	Analyzed: 05/17/24 13:05
Dilution: 1	Matrix: Solid	Sequence: SBE0341
Percent Solids: 97.21	Prep Method: Sonication GC	

82

CAS NO.	COMPOUND	CONC. (mg/kg dry)	MDL	RL	Qual
12674-11-2	Aroclor-1016	ND	0.316	0.509	U, H
11104-28-2	Aroclor-1221	ND	0.228	0.509	U, H
11141-16-5	Aroclor-1232	ND	0.358	0.509	U, H
53469-21-9	Aroclor-1242	ND	0.380	0.509	U, H
12672-29-6	Aroclor-1248	ND	0.353	0.509	U, H
11097-69-1	Aroclor-1254	ND	0.299	0.509	U, H
11096-82-5	Aroclor-1260	ND	0.367	0.509	U, H
37324-23-5	Aroclor-1262	ND	0.386	0.509	U, H
11100-14-4	Aroclor-1268	ND	0.430	0.509	U, H
1336-36-3	Total PCBs	ND	0.228	0.509	U, H

**ND, U** - Indicates compound analyzed for but not detected  
**J** - Indicates estimated value  
**B** - Indicates compound found in associated blank  
**E** - Concentration exceeds highest calibration standard

**D** - Indicates result is based on a dilution  
**H** - Indicates a Hold Time violation  
**P** - Greater than 25% diff. between 2 GC columns.  
**MDL** - Minimum detection limit, **RL** - Reporting limit  
**D1** - Sample was Decanted (Dissolved)

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# ANALYSIS DATA SHEET

PCBs - SW 846 8082A

**Client:** Pace - Alpha Analytical, Westborough, MA  
**Client Sample ID:** WT6401PI79  
**Lab Sample ID:** 24E0397-08  
**Project:** L2424182  
**Work Order:** 24E0397

Date Sampled: 04/24/24 11:20	Prep Date: 05/16/24 16:56	File ID: 6P01957.D
Init/Final Vol: 1.3 g / 10 mL	Prep Batch: BBE0909	Analyzed: 05/17/24 13:29
Dilution: 1	Matrix: Solid	Sequence: SBE0341
Percent Solids: 97.48	Prep Method: Sonication GC	

82

CAS NO.	COMPOUND	CONC. (mg/kg dry)	MDL	RL	Qual
12674-11-2	Aroclor-1016	ND	0.243	0.391	U, H
11104-28-2	Aroclor-1221	ND	0.175	0.391	U, H
11141-16-5	Aroclor-1232	ND	0.275	0.391	U, H
53469-21-9	Aroclor-1242	ND	0.291	0.391	U, H
12672-29-6	Aroclor-1248	ND	0.271	0.391	U, H
11097-69-1	Aroclor-1254	ND	0.230	0.391	U, H
11096-82-5	Aroclor-1260	ND	0.282	0.391	U, H
37324-23-5	Aroclor-1262	ND	0.296	0.391	U, H
11100-14-4	Aroclor-1268	ND	0.330	0.391	U, H
1336-36-3	Total PCBs	ND	0.175	0.391	U, H

**ND, U** - Indicates compound analyzed for but not detected  
**J** - Indicates estimated value  
**B** - Indicates compound found in associated blank  
**E** - Concentration exceeds highest calibration standard

**D** - Indicates result is based on a dilution  
**H** - Indicates a Hold Time violation  
**P** - Greater than 25% diff. between 2 GC columns.  
**MDL** - Minimum detection limit, **RL** - Reporting limit  
**D1** - Sample was Decanted (Dissolved)

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# ANALYSIS DATA SHEET

PCBs - SW 846 8082A

**Client:** Pace - Alpha Analytical, Westborough, MA  
**Client Sample ID:** WT6401PI87  
**Lab Sample ID:** 24E0397-09  
**Project:** L2424182  
**Work Order:** 24E0397

Date Sampled: 04/24/24 09:56	Prep Date: 05/16/24 16:56	File ID: 6P01958.D
Init/Final Vol: 1.1 g / 10 mL	Prep Batch: BBE0909	Analyzed: 05/17/24 13:52
Dilution: 1	Matrix: Solid	Sequence: SBE0341
Percent Solids: 73.62	Prep Method: Sonication GC	

82

CAS NO.	COMPOUND	CONC. (mg/kg dry)	MDL	RL	Qual
12674-11-2	Aroclor-1016	ND	0.380	0.611	U, H
11104-28-2	Aroclor-1221	ND	0.274	0.611	U, H
11141-16-5	Aroclor-1232	ND	0.430	0.611	U, H
53469-21-9	Aroclor-1242	ND	0.456	0.611	U, H
12672-29-6	Aroclor-1248	ND	0.424	0.611	U, H
11097-69-1	Aroclor-1254	ND	0.359	0.611	U, H
11096-82-5	Aroclor-1260	ND	0.441	0.611	U, H
37324-23-5	Aroclor-1262	ND	0.463	0.611	U, H
11100-14-4	Aroclor-1268	ND	0.517	0.611	U, H
1336-36-3	Total PCBs	ND	0.274	0.611	U, H

**ND, U** - Indicates compound analyzed for but not detected  
**J** - Indicates estimated value  
**B** - Indicates compound found in associated blank  
**E** - Concentration exceeds highest calibration standard

**D** - Indicates result is based on a dilution  
**H** - Indicates a Hold Time violation  
**P** - Greater than 25% diff. between 2 GC columns.  
**MDL** - Minimum detection limit, **RL** - Reporting limit  
**D1** - Sample was Decanted (Dissolved)

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# ANALYSIS DATA SHEET

PCBs - SW 846 8082A

**Client:** Pace - Alpha Analytical, Westborough, MA  
**Client Sample ID:** WT6401PI89  
**Lab Sample ID:** 24E0397-10  
**Project:** L2424182  
**Work Order:** 24E0397

Date Sampled: 04/24/24 09:00	Prep Date: 05/16/24 16:56	File ID: 6P01959.D
Init/Final Vol: 1.3 g / 10 mL	Prep Batch: BBE0909	Analyzed: 05/17/24 14:15
Dilution: 1	Matrix: Solid	Sequence: SBE0341
Percent Solids: 66.53	Prep Method: Sonication GC	

82

CAS NO.	COMPOUND	CONC. (mg/kg dry)	MDL	RL	Qual
12674-11-2	Aroclor-1016	ND	0.356	0.572	U, H
11104-28-2	Aroclor-1221	ND	0.257	0.572	U, H
11141-16-5	Aroclor-1232	ND	0.402	0.572	U, H
53469-21-9	Aroclor-1242	ND	0.427	0.572	U, H
12672-29-6	Aroclor-1248	ND	0.397	0.572	U, H
11097-69-1	Aroclor-1254	ND	0.336	0.572	U, H
11096-82-5	Aroclor-1260	ND	0.413	0.572	U, H
37324-23-5	Aroclor-1262	ND	0.434	0.572	U, H
11100-14-4	Aroclor-1268	ND	0.484	0.572	U, H
1336-36-3	Total PCBs	ND	0.257	0.572	U, H

**ND, U** - Indicates compound analyzed for but not detected  
**J** - Indicates estimated value  
**B** - Indicates compound found in associated blank  
**E** - Concentration exceeds highest calibration standard

**D** - Indicates result is based on a dilution  
**H** - Indicates a Hold Time violation  
**P** - Greater than 25% diff. between 2 GC columns.  
**MDL** - Minimum detection limit, **RL** - Reporting limit  
**D1** - Sample was Decanted (Dissolved)

F-I

# ANALYSIS DATA SHEET

PCBs - SW 846 8082A

**Client:** Pace - Alpha Analytical, Westborough, MA  
**Client Sample ID:** WT6401PI97  
**Lab Sample ID:** 24E0397-11  
**Project:** L2424182  
**Work Order:** 24E0397

Date Sampled: 04/24/24 08:37	Prep Date: 05/16/24 16:56	File ID: 6P01960.D
Init/Final Vol: 1.5 g / 10 mL	Prep Batch: BBE0909	Analyzed: 05/17/24 14:39
Dilution: 1	Matrix: Solid	Sequence: SBE0341
Percent Solids: 97.36	Prep Method: Sonication GC	

82

CAS NO.	COMPOUND	CONC. (mg/kg dry)	MDL	RL	Qual
12674-11-2	Aroclor-1016	ND	0.211	0.339	U, H
11104-28-2	Aroclor-1221	ND	0.152	0.339	U, H
11141-16-5	Aroclor-1232	ND	0.238	0.339	U, H
53469-21-9	Aroclor-1242	ND	0.253	0.339	U, H
12672-29-6	Aroclor-1248	ND	0.235	0.339	U, H
11097-69-1	Aroclor-1254	ND	0.199	0.339	U, H
11096-82-5	Aroclor-1260	ND	0.244	0.339	U, H
37324-23-5	Aroclor-1262	ND	0.257	0.339	U, H
11100-14-4	Aroclor-1268	ND	0.287	0.339	U, H
1336-36-3	Total PCBs	ND	0.152	0.339	U, H

**ND, U** - Indicates compound analyzed for but not detected  
**J** - Indicates estimated value  
**B** - Indicates compound found in associated blank  
**E** - Concentration exceeds highest calibration standard

**D** - Indicates result is based on a dilution  
**H** - Indicates a Hold Time violation  
**P** - Greater than 25% diff. between 2 GC columns.  
**MDL** - Minimum detection limit, **RL** - Reporting limit  
**D1** - Sample was Decanted (Dissolved)

F-I

# ANALYSIS DATA SHEET

PCBs - SW 846 8082A

**Client:** Pace - Alpha Analytical, Westborough, MA  
**Client Sample ID:** WT6401PI104  
**Lab Sample ID:** 24E0397-12  
**Project:** L2424182  
**Work Order:** 24E0397

Date Sampled: 04/30/24 08:10	Prep Date: 05/16/24 16:56	File ID: 6P01961.D
Init/Final Vol: 2.8 g / 10 mL	Prep Batch: BBE0909	Analyzed: 05/17/24 15:02
Dilution: 1	Matrix: Solid	Sequence: SBE0341
Percent Solids: 98.41	Prep Method: Sonication GC	

8.2

CAS NO.	COMPOUND	CONC. (mg/kg dry)	MDL	RL	Qual
12674-11-2	Aroclor-1016	ND	0.112	0.180	U, H
11104-28-2	Aroclor-1221	ND	0.0806	0.180	U, H
11141-16-5	Aroclor-1232	ND	0.126	0.180	U, H
53469-21-9	Aroclor-1242	ND	0.134	0.180	U, H
12672-29-6	Aroclor-1248	ND	0.125	0.180	U, H
11097-69-1	Aroclor-1254	ND	0.106	0.180	U, H
11096-82-5	Aroclor-1260	ND	0.130	0.180	U, H
37324-23-5	Aroclor-1262	ND	0.136	0.180	U, H
11100-14-4	Aroclor-1268	ND	0.152	0.180	U, H
1336-36-3	Total PCBs	ND	0.0806	0.180	U, H

**ND, U** - Indicates compound analyzed for but not detected  
**J** - Indicates estimated value  
**B** - Indicates compound found in associated blank  
**E** - Concentration exceeds highest calibration standard

**D** - Indicates result is based on a dilution  
**H** - Indicates a Hold Time violation  
**P** - Greater than 25% diff. between 2 GC columns.  
**MDL** - Minimum detection limit, **RL** - Reporting limit  
**D1** - Sample was Decanted (Dissolved)

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# ANALYSIS DATA SHEET

PCBs - SW 846 8082A

**Client:** Pace - Alpha Analytical, Westborough, MA  
**Client Sample ID:** WT6401PI105  
**Lab Sample ID:** 24E0397-13  
**Project:** L2424182  
**Work Order:** 24E0397

Date Sampled: 04/30/24 08:17	Prep Date: 05/13/24 14:34	File ID: 5T75317.D
Init/Final Vol: 0.1 g / 10 mL	Prep Batch: BBE0692	Analyzed: 05/14/24 14:10
Dilution: 200	Matrix: Solid	Sequence: SBE0263
Percent Solids: 98.81	Prep Method: Microwave Extraction	

8.2

CAS NO.	COMPOUND	CONC. (mg/kg dry)	MDL	RL	Qual
12674-11-2	Aroclor-1016	ND	622	1000	U
11104-28-2	Aroclor-1221	ND	449	1000	U
11141-16-5	Aroclor-1232	ND	704	1000	U
53469-21-9	Aroclor-1242	ND	747	1000	U
12672-29-6	Aroclor-1248	ND	695	1000	U
11097-69-1	Aroclor-1254 [2C]	14600	595	1000	D
11096-82-5	Aroclor-1260	ND	723	1000	U
37324-23-5	Aroclor-1262	ND	759	1000	U
11100-14-4	Aroclor-1268	ND	847	1000	U
1336-36-3	Total PCBs	14600	449	1000	D

**ND, U** - Indicates compound analyzed for but not detected  
**J** - Indicates estimated value  
**B** - Indicates compound found in associated blank  
**E** - Concentration exceeds highest calibration standard

**D** - Indicates result is based on a dilution  
**H** - Indicates a Hold Time violation  
**P** - Greater than 25% diff. between 2 GC columns.  
**MDL** - Minimum detection limit, **RL** - Reporting limit  
**D1** - Sample was Decanted (Dissolved)

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# ANALYSIS DATA SHEET

PCBs - SW 846 8082A

**Client:** Pace - Alpha Analytical, Westborough, MA  
**Client Sample ID:** WT6401PI110  
**Lab Sample ID:** 24E0397-14  
**Project:** L2424182  
**Work Order:** 24E0397

Date Sampled: 04/26/24 09:14	Prep Date: 05/16/24 16:56	File ID: 6P01962.D
Init/Final Vol: 5 g / 10 mL	Prep Batch: BBE0909	Analyzed: 05/17/24 15:26
Dilution: 1	Matrix: Solid	Sequence: SBE0341
Percent Solids: 99.85	Prep Method: Sonication GC	

82

CAS NO.	COMPOUND	CONC. (mg/kg dry)	MDL	RL	Qual
12674-11-2	Aroclor-1016	ND	0.0616	0.0991	U, H
11104-28-2	Aroclor-1221	ND	0.0445	0.0991	U, H
11141-16-5	Aroclor-1232	ND	0.0697	0.0991	U, H
53469-21-9	Aroclor-1242	ND	0.0739	0.0991	U, H
12672-29-6	Aroclor-1248	ND	0.0688	0.0991	U, H
11097-69-1	Aroclor-1254	ND	0.0583	0.0991	U, H
11096-82-5	Aroclor-1260	ND	0.0715	0.0991	U, H
37324-23-5	Aroclor-1262	ND	0.0751	0.0991	U, H
11100-14-4	Aroclor-1268	ND	0.0838	0.0991	U, H
1336-36-3	Total PCBs	ND	0.0445	0.0991	U, H

**ND, U** - Indicates compound analyzed for but not detected  
**J** - Indicates estimated value  
**B** - Indicates compound found in associated blank  
**E** - Concentration exceeds highest calibration standard

**D** - Indicates result is based on a dilution  
**H** - Indicates a Hold Time violation  
**P** - Greater than 25% diff. between 2 GC columns.  
**MDL** - Minimum detection limit, **RL** - Reporting limit  
**D1** - Sample was Decanted (Dissolved)

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# ANALYSIS DATA SHEET

PCBs - SW 846 8082A

**Client:** Pace - Alpha Analytical, Westborough, MA  
**Client Sample ID:** WT6401PI112  
**Lab Sample ID:** 24E0397-15  
**Project:** L2424182  
**Work Order:** 24E0397

Date Sampled: 04/26/24 10:45	Prep Date: 05/16/24 16:56	File ID: 6P01963.D
Init/Final Vol: 1.7 g / 10 mL	Prep Batch: BBE0909	Analyzed: 05/17/24 15:49
Dilution: 1	Matrix: Solid	Sequence: SBE0341
Percent Solids: 99.09	Prep Method: Sonication GC	

82

CAS NO.	COMPOUND	CONC. (mg/kg dry)	MDL	RL	Qual
12674-11-2	Aroclor-1016	ND	0.183	0.294	U, H
11104-28-2	Aroclor-1221	ND	0.132	0.294	U, H
11141-16-5	Aroclor-1232	ND	0.207	0.294	U, H
53469-21-9	Aroclor-1242	ND	0.219	0.294	U, H
12672-29-6	Aroclor-1248	ND	0.204	0.294	U, H
11097-69-1	Aroclor-1254	ND	0.173	0.294	U, H
11096-82-5	Aroclor-1260	ND	0.212	0.294	U, H
37324-23-5	Aroclor-1262	ND	0.223	0.294	U, H
11100-14-4	Aroclor-1268	ND	0.248	0.294	U, H
1336-36-3	Total PCBs	ND	0.132	0.294	U, H

**ND, U** - Indicates compound analyzed for but not detected  
**J** - Indicates estimated value  
**B** - Indicates compound found in associated blank  
**E** - Concentration exceeds highest calibration standard

**D** - Indicates result is based on a dilution  
**H** - Indicates a Hold Time violation  
**P** - Greater than 25% diff. between 2 GC columns.  
**MDL** - Minimum detection limit, **RL** - Reporting limit  
**D1** - Sample was Decanted (Dissolved)

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# ANALYSIS DATA SHEET

PCBs - SW 846 8082A

**Client:** Pace - Alpha Analytical, Westborough, MA  
**Client Sample ID:** WT6401PI21  
**Lab Sample ID:** 24E0397-16  
**Project:** L2424182  
**Work Order:** 24E0397

Date Sampled: 04/24/24 09:44	Prep Date: 05/16/24 16:56	File ID: 6P01964.D
Init/Final Vol: 1 g / 10 mL	Prep Batch: BBE0909	Analyzed: 05/17/24 16:12
Dilution: 1	Matrix: Solid	Sequence: SBE0341
Percent Solids: 99.56	Prep Method: Sonication GC	

8.2

CAS NO.	COMPOUND	CONC. (mg/kg dry)	MDL	RL	Qual
12674-11-2	Aroclor-1016	ND	0.309	0.497	U, H
11104-28-2	Aroclor-1221	ND	0.223	0.497	U, H
11141-16-5	Aroclor-1232	ND	0.350	0.497	U, H
53469-21-9	Aroclor-1242	ND	0.371	0.497	U, H
12672-29-6	Aroclor-1248	ND	0.345	0.497	U, H
11097-69-1	Aroclor-1254	ND	0.292	0.497	U, H
11096-82-5	Aroclor-1260	ND	0.359	0.497	U, H
37324-23-5	Aroclor-1262	ND	0.377	0.497	U, H
11100-14-4	Aroclor-1268	ND	0.420	0.497	U, H
1336-36-3	Total PCBs	ND	0.223	0.497	U, H

**ND, U** - Indicates compound analyzed for but not detected  
**J** - Indicates estimated value  
**B** - Indicates compound found in associated blank  
**E** - Concentration exceeds highest calibration standard

**D** - Indicates result is based on a dilution  
**H** - Indicates a Hold Time violation  
**P** - Greater than 25% diff. between 2 GC columns.  
**MDL** - Minimum detection limit, **RL** - Reporting limit  
**D1** - Sample was Decanted (Dissolved)

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# ANALYSIS DATA SHEET

PCBs - SW 846 8082A

**Client:** Pace - Alpha Analytical, Westborough, MA  
**Client Sample ID:** WT6401PI127  
**Lab Sample ID:** 24E0397-17  
**Project:** L2424182  
**Work Order:** 24E0397

Date Sampled: 04/26/24 13:09	Prep Date: 05/16/24 16:56	File ID: 6P01965.D
Init/Final Vol: 3 g / 10 mL	Prep Batch: BBE0909	Analyzed: 05/17/24 16:36
Dilution: 1	Matrix: Solid	Sequence: SBE0341
Percent Solids: 98.90	Prep Method: Sonication GC	

82

CAS NO.	COMPOUND	CONC. (mg/kg dry)	MDL	RL	Qual
12674-11-2	Aroclor-1016	ND	0.104	0.167	U, H
11104-28-2	Aroclor-1221	ND	0.0748	0.167	U, H
11141-16-5	Aroclor-1232	ND	0.117	0.167	U, H
53469-21-9	Aroclor-1242	ND	0.124	0.167	U, H
12672-29-6	Aroclor-1248	ND	0.116	0.167	U, H
11097-69-1	Aroclor-1254	ND	0.0981	0.167	U, H
11096-82-5	Aroclor-1260	ND	0.120	0.167	U, H
37324-23-5	Aroclor-1262	ND	0.126	0.167	U, H
11100-14-4	Aroclor-1268	ND	0.141	0.167	U, H
1336-36-3	Total PCBs	ND	0.0748	0.167	U, H

**ND, U** - Indicates compound analyzed for but not detected  
**J** - Indicates estimated value  
**B** - Indicates compound found in associated blank  
**E** - Concentration exceeds highest calibration standard

**D** - Indicates result is based on a dilution  
**H** - Indicates a Hold Time violation  
**P** - Greater than 25% diff. between 2 GC columns.  
**MDL** - Minimum detection limit, **RL** - Reporting limit  
**D1** - Sample was Decanted (Dissolved)

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# ANALYSIS DATA SHEET

PCBs - SW 846 8082A

**Client:** Pace - Alpha Analytical, Westborough, MA  
**Client Sample ID:** WT6401PI133  
**Lab Sample ID:** 24E0397-18  
**Project:** L2424182  
**Work Order:** 24E0397

Date Sampled: 04/30/24 07:47	Prep Date: 05/16/24 16:56	File ID: 6P01969.D
Init/Final Vol: 2.5 g / 10 mL	Prep Batch: BBE0909	Analyzed: 05/17/24 18:09
Dilution: 1	Matrix: Solid	Sequence: SBE0341
Percent Solids: 99.63	Prep Method: Sonication GC	

82

CAS NO.	COMPOUND	CONC. (mg/kg dry)	MDL	RL	Qual
12674-11-2	Aroclor-1016	ND	0.123	0.199	U, H
11104-28-2	Aroclor-1221	ND	0.0891	0.199	U, H
11141-16-5	Aroclor-1232	ND	0.140	0.199	U, H
53469-21-9	Aroclor-1242	ND	0.148	0.199	U, H
12672-29-6	Aroclor-1248	ND	0.138	0.199	U, H
11097-69-1	Aroclor-1254	ND	0.117	0.199	U, H
11096-82-5	Aroclor-1260	ND	0.143	0.199	U, H
37324-23-5	Aroclor-1262	ND	0.151	0.199	U, H
11100-14-4	Aroclor-1268	ND	0.168	0.199	U, H
1336-36-3	Total PCBs	ND	0.0891	0.199	U, H

**ND, U** - Indicates compound analyzed for but not detected  
**J** - Indicates estimated value  
**B** - Indicates compound found in associated blank  
**E** - Concentration exceeds highest calibration standard

**D** - Indicates result is based on a dilution  
**H** - Indicates a Hold Time violation  
**P** - Greater than 25% diff. between 2 GC columns.  
**MDL** - Minimum detection limit, **RL** - Reporting limit  
**D1** - Sample was Decanted (Dissolved)

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# ANALYSIS DATA SHEET

PCBs - SW 846 8082A

**Client:** Pace - Alpha Analytical, Westborough, MA  
**Client Sample ID:** WT6401PI135  
**Lab Sample ID:** 24E0397-19  
**Project:** L2424182  
**Work Order:** 24E0397

Date Sampled: 04/30/24 08:00	Prep Date: 05/16/24 16:56	File ID: 6P01970.D
Init/Final Vol: 2.3 g / 10 mL	Prep Batch: BBE0909	Analyzed: 05/17/24 18:33
Dilution: 1	Matrix: Solid	Sequence: SBE0341
Percent Solids: 100.00	Prep Method: Sonication GC	

82

CAS NO.	COMPOUND	CONC. (mg/kg dry)	MDL	RL	Qual
12674-11-2	Aroclor-1016	ND	0.134	0.215	U, H
11104-28-2	Aroclor-1221	ND	0.0965	0.215	U, H
11141-16-5	Aroclor-1232	ND	0.151	0.215	U, H
53469-21-9	Aroclor-1242	ND	0.160	0.215	U, H
12672-29-6	Aroclor-1248	ND	0.149	0.215	U, H
11097-69-1	Aroclor-1254	ND	0.127	0.215	U, H
11096-82-5	Aroclor-1260	ND	0.155	0.215	U, H
37324-23-5	Aroclor-1262	ND	0.163	0.215	U, H
11100-14-4	Aroclor-1268	ND	0.182	0.215	U, H
1336-36-3	Total PCBs	ND	0.0965	0.215	U, H

**ND, U** - Indicates compound analyzed for but not detected  
**J** - Indicates estimated value  
**B** - Indicates compound found in associated blank  
**E** - Concentration exceeds highest calibration standard

**D** - Indicates result is based on a dilution  
**H** - Indicates a Hold Time violation  
**P** - Greater than 25% diff. between 2 GC columns.  
**MDL** - Minimum detection limit, **RL** - Reporting limit  
**D1** - Sample was Decanted (Dissolved)

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# SURROGATE RECOVERIES

Analysis Class: PCBs

**Matrix:** Soil **Method:** SW 846 8082A

**PCBs**

Lab Number	File ID	TCMX	DCB	TCMX[2C]	DCB[2C]
24E0397-01	6P01950.D	80.0	98.6	90.5	95.6
24E0397-02	6P01951.D	61.0	58.7	92.5	103
24E0397-03	6P01952.D	108	95.7	123	72.2
24E0397-04	6P01953.D	65.6	51.1 *	83.2	98.7
24E0397-05	6P01954.D	55.5	57.1	80.8	79.3
24E0397-06	6P01955.D	64.0	44.1 *	85.1	68.8
24E0397-07	6P01956.D	58.6	32.9 *	86.4	57.6
24E0397-08	6P01957.D	48.9	35.2 *	81.3	72.1
24E0397-09	6P01958.D	86.1	61.9	105	53.2
24E0397-10	6P01959.D	74.9	78.6	115	61.6
24E0397-11	6P01960.D	64.7	32.6 *	74.2	65.2
24E0397-12	6P01961.D	91.2	58.9	120	67.5
24E0397-13	5T75317.D	100	88.0	164 *	48.0 *
24E0397-14	6P01962.D	69.8	37.1 *	92.8	67.4
24E0397-15	6P01963.D	83.2	103	113	60.7
24E0397-16	6P01964.D	69.9	36.8 *	92.0	53.0
24E0397-17	6P01965.D	49.1	30.4 *	85.7	121
24E0397-18	6P01969.D	65.1	28.9 *	74.3	57.2
24E0397-19	6P01970.D	60.3	102	75.5	78.4
BBE0692-BLK1	5T75308.D	116	105	89.1	81.4
BBE0692-BS1	5T75307.D	121	103	98.6	88.3
BBE0692-BSD1	5T75309.D	120	106	99.0	88.4
BBE0909-BLK1	6P01948.D	93.3	78.3	95.6	88.5
BBE0909-BS1	6P01947.D	110	94.9	120	116
BBE0909-BSD1	6P01949.D	81.3	91.5	114	106

**Surrogate Limits**

Acronym	Lo Limit	Hi Limit	Analyte
TCMX	40.2	149	Tetrachloro-m-xylene
DCB	52.1	136	Decachlorobiphenyl
TCMX[2C]	40.2	149	Tetrachloro-m-xylene [2C]
DCB[2C]	52.1	136	Decachlorobiphenyl [2C]



**PCBs - Quality Control**  
**Pace Analytical Services, LLC-Fairfield**

<b>Batch BBE0692</b>		<b>Method: SW 846 8082A</b>			<b>Prepared: 05/13/2024</b>			
BBE0692-BS1		<b>Source:</b>						
<b>Analyte</b>	<b>Result</b>	<b>Units</b>	<b>Spike Level</b>	<b>Source Result</b>	<b>%REC</b>	<b>%REC Limits</b>	<b>RPD</b>	<b>RPD Limit</b>
Aroclor-1016	0.371	mg/kg wet	0.333		111	59.6-147		
Aroclor-1260	0.388	mg/kg wet	0.333		116	50.4-149		

<b>Batch BBE0692 (cont.)</b>		<b>Method: SW 846 8082A</b>			<b>Prepared: 05/13/2024</b>			
BBE0692-BSD1		<b>Source:</b>						
<b>Analyte</b>	<b>Result</b>	<b>Units</b>	<b>Spike Level</b>	<b>Source Result</b>	<b>%REC</b>	<b>%REC Limits</b>	<b>RPD</b>	<b>RPD Limit</b>
Aroclor-1016	0.385	mg/kg wet	0.333		116	59.6-147	3.72	200
Aroclor-1260	0.403	mg/kg wet	0.333		121	50.4-149	3.71	200

<b>Batch BBE0909</b>		<b>Method: SW 846 8082A</b>			<b>Prepared: 05/16/2024</b>			
BBE0909-BS1		<b>Source:</b>						
<b>Analyte</b>	<b>Result</b>	<b>Units</b>	<b>Spike Level</b>	<b>Source Result</b>	<b>%REC</b>	<b>%REC Limits</b>	<b>RPD</b>	<b>RPD Limit</b>
Aroclor-1016	0.393	mg/kg wet	0.333		118	59.6-147		
Aroclor-1260	0.310	mg/kg wet	0.333		93.1	50.4-149		

<b>Batch BBE0909 (cont.)</b>		<b>Method: SW 846 8082A</b>			<b>Prepared: 05/16/2024</b>			
BBE0909-BSD1		<b>Source:</b>						
<b>Analyte</b>	<b>Result</b>	<b>Units</b>	<b>Spike Level</b>	<b>Source Result</b>	<b>%REC</b>	<b>%REC Limits</b>	<b>RPD</b>	<b>RPD Limit</b>
Aroclor-1016	0.349	mg/kg wet	0.333		105	59.6-147	11.7	200
Aroclor-1260	0.290	mg/kg wet	0.333		87.0	50.4-149	6.76	200

\* - Outside of QC Limits      J - Result is between the MDL and RL for an Analysis reported to an RL  
 NC - Outside the recovery criteria but Spike Amount <1/4 amount found in Source Sample

F-III

8.4.



## METHOD BLANK SUMMARY

**Batch ID:** BBE0692

<u>Lab Number</u>	<u>Sample Id</u>	<u>Extraction Date</u>	<u>Analysis Date</u>
BBE0692-BLK1	BLK1	05/13/2024	05/14/2024 10:03
BBE0692-BS1	BS1	05/13/2024	05/14/2024 09:40
BBE0692-BSD1	BSD1	05/13/2024	05/14/2024 10:26
24E0397-13	WT6401PI105	05/13/2024	05/14/2024 14:10

**Batch ID:** BBE0909

<u>Lab Number</u>	<u>Sample Id</u>	<u>Extraction Date</u>	<u>Analysis Date</u>
BBE0909-BLK1	BLK1	05/16/2024	05/17/2024 09:50
BBE0909-BS1	BS1	05/16/2024	05/17/2024 09:27
BBE0909-BSD1	BSD1	05/16/2024	05/17/2024 10:14
24E0397-01	WT6401PI13	05/16/2024	05/17/2024 10:37
24E0397-02	WT6401PI110	05/16/2024	05/17/2024 11:00
24E0397-03	WT6401PI21	05/16/2024	05/17/2024 11:31
24E0397-04	WT6401PI29	05/16/2024	05/17/2024 11:55
24E0397-05	WT6401PI35	05/16/2024	05/17/2024 12:18
24E0397-06	WT6401PI44	05/16/2024	05/17/2024 12:42
24E0397-07	WT6401PI62	05/16/2024	05/17/2024 13:05
24E0397-08	WT6401PI79	05/16/2024	05/17/2024 13:29
24E0397-09	WT6401PI87	05/16/2024	05/17/2024 13:52
24E0397-10	WT6401PI89	05/16/2024	05/17/2024 14:15
24E0397-11	WT6401PI97	05/16/2024	05/17/2024 14:39
24E0397-12	WT6401PI104	05/16/2024	05/17/2024 15:02
24E0397-14	WT6401PI110	05/16/2024	05/17/2024 15:26
24E0397-15	WT6401PI112	05/16/2024	05/17/2024 15:49
24E0397-16	WT6401PI21	05/16/2024	05/17/2024 16:12
24E0397-17	WT6401PI127	05/16/2024	05/17/2024 16:36
24E0397-18	WT6401PI133	05/16/2024	05/17/2024 18:09
24E0397-19	WT6401PI135	05/16/2024	05/17/2024 18:33

8

8.5



# GENERAL CHEMISTRY

Pace - Alpha Analytical, Westborough, MA

Work Order: 24E0397

Project: L2424182



# ANALYSIS DATA SHEET

## General Chemistry

Client: Pace - Alpha Analytical, Westborough, MA  
Project: L2424182  
Work Order: 24E0397

### General Chemistry

#### 24E0397-01 (Solid) - WT6401PI13

Analyte	Units	Conc.	MDL	DF	Qual	Analyzed	Method
Percent Solids	%	41.8		1		05/08/24 10:00	Gravimetric

#### 24E0397-02 (Solid) - WT6401PI110

Analyte	Units	Conc.	MDL	DF	Qual	Analyzed	Method
Percent Solids	%	95.7		1		05/08/24 10:00	Gravimetric

#### 24E0397-03 (Solid) - WT6401PI21

Analyte	Units	Conc.	MDL	DF	Qual	Analyzed	Method
Percent Solids	%	47.3		1		05/08/24 10:00	Gravimetric

#### 24E0397-04 (Solid) - WT6401PI29

Analyte	Units	Conc.	MDL	DF	Qual	Analyzed	Method
Percent Solids	%	95.7		1		05/08/24 10:00	Gravimetric

#### 24E0397-05 (Solid) - WT6401PI35

Analyte	Units	Conc.	MDL	DF	Qual	Analyzed	Method
Percent Solids	%	95.8		1		05/08/24 10:00	Gravimetric

#### 24E0397-06 (Solid) - WT6401PI44

Analyte	Units	Conc.	MDL	DF	Qual	Analyzed	Method
Percent Solids	%	97.2		1		05/08/24 10:00	Gravimetric

#### 24E0397-07 (Solid) - WT6401PI62

Analyte	Units	Conc.	MDL	DF	Qual	Analyzed	Method
Percent Solids	%	97.2		1		05/08/24 10:00	Gravimetric

#### 24E0397-08 (Solid) - WT6401PI79

Analyte	Units	Conc.	MDL	DF	Qual	Analyzed	Method
Percent Solids	%	97.5		1		05/08/24 10:00	Gravimetric

#### 24E0397-09 (Solid) - WT6401PI87

Analyte	Units	Conc.	MDL	DF	Qual	Analyzed	Method
Percent Solids	%	73.6		1		05/08/24 10:00	Gravimetric

#### 24E0397-10 (Solid) - WT6401PI89

Analyte	Units	Conc.	MDL	DF	Qual	Analyzed	Method
Percent Solids	%	66.5		1		05/08/24 10:00	Gravimetric

#### 24E0397-11 (Solid) - WT6401PI97

Analyte	Units	Conc.	MDL	DF	Qual	Analyzed	Method
Percent Solids	%	97.4		1		05/08/24 10:00	Gravimetric

ND - Indicates compound analyzed for but not detected  
J - Indicates estimated value  
B - Indicates compound found in associated blank  
E - Concentration exceeds highest calibration standard

D - Indicates result is based on a dilution  
H - Indicates a Hold Time violation  
P - Greater than 25% diff. between 2 GC columns.  
MDL - Minimum detection limit, RL - Reporting limit

F-I

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## General Chemistry (Con't)

### 24E0397-12 (Solid) - WT6401PI104

Analyte	Units	Conc.	MDL	DF	Qual	Analyzed	Method
Percent Solids	%	98.4		1		05/08/24 10:00	Gravimetric

### 24E0397-13 (Solid) - WT6401PI105

Analyte	Units	Conc.	MDL	DF	Qual	Analyzed	Method
Percent Solids	%	98.8		1		05/08/24 10:00	Gravimetric

### 24E0397-14 (Solid) - WT6401PI110

Analyte	Units	Conc.	MDL	DF	Qual	Analyzed	Method
Percent Solids	%	99.8		1		05/08/24 10:00	Gravimetric

### 24E0397-15 (Solid) - WT6401PI112

Analyte	Units	Conc.	MDL	DF	Qual	Analyzed	Method
Percent Solids	%	99.1		1		05/08/24 10:00	Gravimetric

### 24E0397-16 (Solid) - WT6401PI21

Analyte	Units	Conc.	MDL	DF	Qual	Analyzed	Method
Percent Solids	%	99.6		1		05/08/24 10:00	Gravimetric

### 24E0397-17 (Solid) - WT6401PI127

Analyte	Units	Conc.	MDL	DF	Qual	Analyzed	Method
Percent Solids	%	98.9		1		05/08/24 10:00	Gravimetric

### 24E0397-18 (Solid) - WT6401PI133

Analyte	Units	Conc.	MDL	DF	Qual	Analyzed	Method
Percent Solids	%	99.6		1		05/08/24 10:00	Gravimetric

### 24E0397-19 (Solid) - WT6401PI135

Analyte	Units	Conc.	MDL	DF	Qual	Analyzed	Method
Percent Solids	%	100		1		05/08/24 10:00	Gravimetric

**ND** - Indicates compound analyzed for but not detected  
**J** - Indicates estimated value  
**B** - Indicates compound found in associated blank  
**E** - Concentration exceeds highest calibration standard

**D** - Indicates result is based on a dilution  
**H** - Indicates a Hold Time violation  
**P** - Greater than 25% diff. between 2 GC columns.  
**MDL** - Minimum detection limit, **RL** - Reporting limit

F-III

9.1

L2424182



# ATLANTIC TESTING LABORATORIES PCB CHAIN-OF-CUSTODY RECORD

<b>Albany</b> 22 Corporate Drive Clifton Park, NY 12065 518-383-9144 (T) 518-383-9166 (F) labsAT@atlantictesting.com	<b>Binghamton</b> 126 Park Avenue Binghamton, NY 13903 607-773-1812 (T) 607-773-1835 (F) labsBT@atlantictesting.com	<b>Canton</b> 6431 U.S. Highway 11 Canton, NY 13617 315-386-4578 (T) 315-386-1012 (F) labsCT@atlantictesting.com	<b>Plattsburgh</b> 130 Arizona Ave Plattsburgh, NY 12903 518-563-5878 (T) 518-562-1321 (F) labsPL@atlantictesting.com	<b>Poughkeepsie</b> 251 Upper North Road Highland, NY 12528 845-691-6098 (T) 845-691-6099 (F) labsPT@atlantictesting.com	<b>Rochester</b> 3495 Winton Place Rochester, NY 14623 585-427-9020 (T) 585-427-9021 (F) labsRT@atlantictesting.com	<b>Syracuse</b> 6085 Court Street Road Syracuse, NY 13206 315-699-5281 (T) 315-699-3374 (F) labsST@atlantictesting.com	<b>Utica</b> 301 St. Anthony Street Utica NY 13501 315-735-3309 (T) 315-735-0742 (F) labsUY@atlantictesting.com	<b>Watertown</b> 26581 NYS Route 283 Watertown, NY 13601 315-786-7887 (T) 315-786-2022 (F) labsWT@atlantictesting.com
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<b>Project Number:</b> WT6401	<b>Project Name:</b> Capital Improvements	<b>Project Location:</b> General Brown
<b>Project Manager:</b> R. Daniel Faulkham	<b>Email Results:</b> LABSWT@atlantictesting.com	<b>Page Number:</b> 1 of 2

**Turn Around Time:**  12 hr  24 hr  48 hr  72 hr  5 day  Other: STANDARD

Date	Time	Sample Number	Sample Location	Sample Description	Sample Type	Number of Containers	EPA 8082	Other	Laboratory Sample ID Number
04/25/2024	08:14	WT6401PI13	502	Row 13: Yellow Mastic Row 12	grab	1	X		
04/24/2024	07:52	WT6401PI16	302	Row 16: Gray Window Perimeter Caulk	grab	1	X		
04/24/2024	09:44	WT6401PI21	305	Row 21: Black Mastic Row 20	grab	1	X		
04/24/2024	09:45	WT6401PI29	311	Row 29: Black Mastic	grab	1	X		
04/24/2024	11:03	WT6401PI35	304	Row 35: Black Mastic Row 34	grab	1	X		
04/25/2024	08:45	WT6401PI44	602	Row 44: Yellow Mastic Row 43	grab	1	X		
04/29/2024	10:12	WT6401PI62	902	Row 62: Gray Door Frame Caulk	grab	1	X		
04/24/2024	11:20	WT6401PI79	905	Row 79: White Fixture Caulk	grab	1	X		
04/24/2024	09:56	WT6401PI87	427	Row 87: Black Mastic Row 86	grab	1	X		
04/24/2024	09:00	WT6401PI89	106	Row 89: Black Mastic Row 88	grab	1	X		

<b>Sampler:</b>	<b>Laboratory:</b>	<b>Field and Laboratory Remarks:</b>
Name: <u>Brian Baiscoe</u> Date: <u>04/30/24</u>	Name: _____ Date: _____	
Signature: <u>[Signature]</u> Time: <u>0900</u>	Signature: _____ Time: _____	
<b>Samples Relinquished By:</b>	<b>Samples Received By:</b> <u>AAL</u>	
Name: <u>Brian Baiscoe</u> Date: <u>04/30/24</u>	Name: <u>Eric Walker</u> Date: <u>5/2/24</u>	
Signature: <u>[Signature]</u> Time: <u>0900</u>	Signature: <u>[Signature]</u> Time: <u>1225</u>	
Name: <u>Eric Walker</u> Date: <u>5/2/24</u>	Name: <u>Shirley Hoffman</u> Date: <u>5/1/24</u>	
Signature: <u>[Signature]</u> Time: <u>1815</u>	Signature: <u>[Signature]</u> Time: <u>0100</u>	





# ATLANTIC TESTING LABORATORIES

## PCB CHAIN-OF-CUSTODY RECORD

<b>Albany</b> 22 Corporate Drive Clifton Park, NY 12065 518-383-9144 (T) 518-383-9166 (F) labsAT@atlantictesting.com	<b>Binghamton</b> 126 Park Avenue Binghamton, NY 13903 607-773-1812 (T) 607-773-1835 (F) labsET@atlantictesting.com	<b>Canton</b> 6431 U.S. Highway 11 Canton, NY 13617 315-386-4578 (T) 315-386-1012 (F) labsCT@atlantictesting.com	<b>Plattsburgh</b> 130 Arizona Ave Plattsburgh, NY 12903 518-563-5878 (T) 518-562-1321 (F) labsPL@atlantictesting.com	<b>Poughkeepsie</b> 251 Upper North Road Highland, NY 12528 845-691-6098 (T) 845-691-6099 (F) labsPT@atlantictesting.com	<b>Rochester</b> 3495 Winton Place Rochester, NY 14623 585-427-9020 (T) 585-427-9021 (F) labsRT@atlantictesting.com	<b>Syracuse</b> 6085 Court Street Road Syracuse, NY 13206 315-699-5281 (T) 315-699-3374 (F) labsST@atlantictesting.com	<b>Utica</b> 301 St. Anthony Street Utica NY 13501 315-735-3309 (T) 315-735-0742 (F) labsUT@atlantictesting.com	<b>Watertown</b> 26581 NYS Route 283 Watertown, NY 13601 315-786-7887 (T) 315-786-2022 (F) labsWT@atlantictesting.com
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<b>Project Number:</b> WT6401	<b>Project Name:</b> Capital Improvements	<b>Project Location:</b> General Brown
<b>Project Manager:</b> R. Daniel Faulkham	<b>Email Results:</b> <u>LABSWT</u> @atlantictesting.com	<b>Page Number:</b> 2 of 2

<b>Turn Around Time:</b>	<input type="checkbox"/> 12 hr	<input type="checkbox"/> 24 hr	<input type="checkbox"/> 48 hr	<input type="checkbox"/> 72 hr	<input type="checkbox"/> 5 day	<input checked="" type="checkbox"/> Other <u>Steward</u>
--------------------------	--------------------------------	--------------------------------	--------------------------------	--------------------------------	--------------------------------	--

Date	Time	Sample Number	Sample Location	Sample Description	Sample Type	Number of Containers	EPA 8082	Other	Laboratory Sample ID Number
04/24/2024	08:37	WT6401PI97	430	Row 97: Red Door Frame Caulk	grab	1	X		
04/30/2024	08:10	WT6401PI104	Exterior	Row 104: Gray Window Frame Caulk	grab	1	X		
04/30/2024	08:17	WT6401PI105	Exterior	Row 105: Light Gray Window Sill	grab	1	X		
04/26/2024	09:14	WT6401PI110	108	Row 110: White Door Frame Caulk	grab	1	X		
04/26/2024	10:45	WT6401PI112	907A	Row 112: White Caulk	grab	1	X		
04/26/2024	12:29	WT6401PI121	610	Row 121: Black Mastic Row 120	grab	1	X		
04/26/2024	13:09	WT6401PI127	502	Row 127: White Caulk	grab	1	X		
04/30/2024	07:47	WT6401PI133	509	Row 133: White Caulk	grab	1	X		
04/30/2024	08:00	WT6401PI135	509	Row 135: White Caulk	grab	1	X		

<b>Sampler:</b>	<b>Laboratory:</b>	<b>Field and Laboratory Remarks:</b>
Name: <u>Brian Bamscock</u> Date: <u>04/30/24</u> Signature: <u>[Signature]</u> Time: <u>0900</u>	Name: _____ Date: _____ Signature: _____ Time: _____	
<b>Samples Relinquished By:</b>	<b>Samples Received By:</b> <u>MLC</u>	
Name: <u>Brian Bamscock</u> Date: <u>04/30/24</u> Signature: <u>[Signature]</u> Time: <u>0900</u>	Name: <u>Eric Hahn</u> Date: <u>5/12/24</u> Signature: <u>[Signature]</u> Time: <u>1225</u>	
Name: <u>Eric Hahn</u> Date: <u>5/12/24</u> Signature: <u>[Signature]</u> Time: <u>1815</u>	Name: <u>Sharon Hoffman</u> Date: <u>5/12/24</u> Signature: <u>[Signature]</u> Time: <u>0100</u>	





## ANALYTICAL REPORT

Lab Number:	L2424191
Client:	Atlantic Testing Laboratories, Limited 26581 NYS Route 283 Watertown, NY 13601
ATTN:	R. Daniel Faulknham
Phone:	(315) 786-7887
Project Name:	CAPITAL IMPROVEMENTS
Project Number:	WT6401
Report Date:	05/15/24

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0826), IL (200077), IN (C-MA-03), KY (KY98045), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), OR (MA-1316), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #525-23-122-91930A1).

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Eight Walkup Drive, Westborough, MA 01581-1019  
508-898-9220 (Fax) 508-898-9193 800-624-9220 - [www.alphalab.com](http://www.alphalab.com)



**Project Name:** CAPITAL IMPROVEMENTS  
**Project Number:** WT6401

**Lab Number:** L2424191  
**Report Date:** 05/15/24

<b>Alpha Sample ID</b>	<b>Client ID</b>	<b>Matrix</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>	<b>Receive Date</b>
L2424191-01	WT6401LI16	SOLID	GENERAL BROWN	04/24/24 07:52	05/02/24
L2424191-02	WT6401LI62	SOLID	GENERAL BROWN	04/29/24 10:38	05/02/24
L2424191-03	WT6401LI79	SOLID	GENERAL BROWN	04/29/24 08:13	05/02/24
L2424191-04	WT6401LI97	SOLID	GENERAL BROWN	04/24/24 08:38	05/02/24
L2424191-05	WT6401LI104	SOLID	GENERAL BROWN	04/30/24 08:10	05/02/24
L2424191-06	WT6401LI105	SOLID	GENERAL BROWN	04/30/24 08:17	05/02/24
L2424191-07	WT6401LI110	SOLID	GENERAL BROWN	04/26/24 09:15	05/02/24
L2424191-08	WT6401LI112	SOLID	GENERAL BROWN	04/26/24 10:45	05/02/24
L2424191-09	WT6401LI127	SOLID	GENERAL BROWN	04/26/24 13:09	05/02/24
L2424191-10	WT6401LI133	SOLID	GENERAL BROWN	04/30/24 07:47	05/02/24
L2424191-11	WT6401LI135	SOLID	GENERAL BROWN	04/30/24 08:01	05/02/24

**Project Name:** CAPITAL IMPROVEMENTS  
**Project Number:** WT6401

**Lab Number:** L2424191  
**Report Date:** 05/15/24

### Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

**HOLD POLICY** - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

---

**Project Name:** CAPITAL IMPROVEMENTS  
**Project Number:** WT6401

**Lab Number:** L2424191  
**Report Date:** 05/15/24

### Case Narrative (continued)

#### Report Submission


All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

#### Total Metals

L2424191-01 through -11: The sample has an elevated detection limit due to the dilution required by the sample matrix.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 05/15/24

## METALS

**Project Name:** CAPITAL IMPROVEMENTS**Lab Number:** L2424191**Project Number:** WT6401**Report Date:** 05/15/24**SAMPLE RESULTS**

Lab ID: L2424191-01

Date Collected: 04/24/24 07:52

Client ID: WT6401LI16

Date Received: 05/02/24

Sample Location: GENERAL BROWN

Field Prep: Not Specified

Sample Depth:

Matrix: Solid

Percent Solids: Results are reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	0.591	J	mg/kg	3.88	0.208	2	05/14/24 22:51	05/15/24 10:23	EPA 3050B	1,6010D	JMF





**Project Name:** CAPITAL IMPROVEMENTS**Lab Number:** L2424191**Project Number:** WT6401**Report Date:** 05/15/24**SAMPLE RESULTS**

Lab ID: L2424191-02

Date Collected: 04/29/24 10:38

Client ID: WT6401LI62

Date Received: 05/02/24

Sample Location: GENERAL BROWN

Field Prep: Not Specified

Sample Depth:

Matrix: Solid

Percent Solids: Results are reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	0.216	J	mg/kg	3.97	0.213	2	05/14/24 22:51	05/15/24 10:40	EPA 3050B	1,6010D	JMF



**Project Name:** CAPITAL IMPROVEMENTS**Lab Number:** L2424191**Project Number:** WT6401**Report Date:** 05/15/24**SAMPLE RESULTS**

Lab ID: L2424191-03

Date Collected: 04/29/24 08:13

Client ID: WT6401LI79

Date Received: 05/02/24

Sample Location: GENERAL BROWN

Field Prep: Not Specified

Sample Depth:

Matrix: Solid

Percent Solids: Results are reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		mg/kg	3.91	0.209	2	05/14/24 22:51	05/15/24 10:45	EPA 3050B	1,6010D	JMF



**Project Name:** CAPITAL IMPROVEMENTS**Lab Number:** L2424191**Project Number:** WT6401**Report Date:** 05/15/24**SAMPLE RESULTS**

Lab ID: L2424191-04

Date Collected: 04/24/24 08:38

Client ID: WT6401LI97

Date Received: 05/02/24

Sample Location: GENERAL BROWN

Field Prep: Not Specified

Sample Depth:

Matrix: Solid

Percent Solids: Results are reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	0.612	J	mg/kg	3.92	0.210	2	05/14/24 22:51	05/15/24 10:49	EPA 3050B	1,6010D	JMF



**Project Name:** CAPITAL IMPROVEMENTS

**Lab Number:** L2424191

**Project Number:** WT6401

**Report Date:** 05/15/24

**SAMPLE RESULTS**

Lab ID: L2424191-05

Date Collected: 04/30/24 08:10

Client ID: WT6401LI104

Date Received: 05/02/24

Sample Location: GENERAL BROWN

Field Prep: Not Specified

Sample Depth:

Matrix: Solid

Percent Solids: Results are reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	7.54		mg/kg	3.95	0.212	2	05/14/24 22:51	05/15/24 10:52	EPA 3050B	1,6010D	JMF



**Project Name:** CAPITAL IMPROVEMENTS

**Lab Number:** L2424191

**Project Number:** WT6401

**Report Date:** 05/15/24

**SAMPLE RESULTS**

Lab ID: L2424191-06

Date Collected: 04/30/24 08:17

Client ID: WT6401LI105

Date Received: 05/02/24

Sample Location: GENERAL BROWN

Field Prep: Not Specified

Sample Depth:

Matrix: Solid

Percent Solids: Results are reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	2.52	J	mg/kg	9.90	0.530	5	05/14/24 22:51	05/15/24 11:40	EPA 3050B	1,6010D	JMF



**Project Name:** CAPITAL IMPROVEMENTS**Lab Number:** L2424191**Project Number:** WT6401**Report Date:** 05/15/24**SAMPLE RESULTS**

Lab ID: L2424191-07

Date Collected: 04/26/24 09:15

Client ID: WT6401LI110

Date Received: 05/02/24

Sample Location: GENERAL BROWN

Field Prep: Not Specified

Sample Depth:

Matrix: Solid

Percent Solids: Results are reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		mg/kg	9.66	0.518	5	05/14/24 22:51	05/15/24 14:06	EPA 3050B	1,6010D	JMF





**Project Name:** CAPITAL IMPROVEMENTS**Lab Number:** L2424191**Project Number:** WT6401**Report Date:** 05/15/24**SAMPLE RESULTS**

Lab ID: L2424191-08

Date Collected: 04/26/24 10:45

Client ID: WT6401LI112

Date Received: 05/02/24

Sample Location: GENERAL BROWN

Field Prep: Not Specified

Sample Depth:

Matrix: Solid

Percent Solids: Results are reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	2.64	J	mg/kg	9.77	0.524	5	05/14/24 22:51	05/15/24 14:10	EPA 3050B	1,6010D	JMF



**Project Name:** CAPITAL IMPROVEMENTS**Lab Number:** L2424191**Project Number:** WT6401**Report Date:** 05/15/24**SAMPLE RESULTS**

Lab ID: L2424191-09

Date Collected: 04/26/24 13:09

Client ID: WT6401LI127

Date Received: 05/02/24

Sample Location: GENERAL BROWN

Field Prep: Not Specified

Sample Depth:

Matrix: Solid

Percent Solids: Results are reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		mg/kg	9.98	0.535	5	05/14/24 22:51	05/15/24 14:14	EPA 3050B	1,6010D	JMF



**Project Name:** CAPITAL IMPROVEMENTS**Lab Number:** L2424191**Project Number:** WT6401**Report Date:** 05/15/24**SAMPLE RESULTS**

Lab ID: L2424191-10

Date Collected: 04/30/24 07:47

Client ID: WT6401LI133

Date Received: 05/02/24

Sample Location: GENERAL BROWN

Field Prep: Not Specified

Sample Depth:

Matrix: Solid

Percent Solids: Results are reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		mg/kg	3.93	0.211	2	05/14/24 22:51	05/15/24 11:12	EPA 3050B	1,6010D	JMF



**Project Name:** CAPITAL IMPROVEMENTS

**Lab Number:** L2424191

**Project Number:** WT6401

**Report Date:** 05/15/24

**SAMPLE RESULTS**

Lab ID: L2424191-11

Date Collected: 04/30/24 08:01

Client ID: WT6401LI135

Date Received: 05/02/24

Sample Location: GENERAL BROWN

Field Prep: Not Specified

Sample Depth:

Matrix: Solid

Percent Solids: Results are reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	ND		mg/kg	3.97	0.213	2	05/14/24 22:51	05/15/24 11:16	EPA 3050B	1,6010D	JMF



Project Name: CAPITAL IMPROVEMENTS

Lab Number: L2424191

Project Number: WT6401

Report Date: 05/15/24

## Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-11 Batch: WG1919656-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	05/14/24 22:51	05/15/24 08:35	1,6010D	JMF

### Prep Information

Digestion Method: EPA 3050B



### Lab Control Sample Analysis Batch Quality Control

**Project Name:** CAPITAL IMPROVEMENTS  
**Project Number:** WT6401

**Lab Number:** L2424191  
**Report Date:** 05/15/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-11 Batch: WG1919656-2								
Lead, Total	101		-		80-120	-		



**Matrix Spike Analysis**  
Batch Quality Control

**Project Name:** CAPITAL IMPROVEMENTS

**Lab Number:** L2424191

**Project Number:** WT6401

**Report Date:** 05/15/24

<b>Parameter</b>	<b>Native Sample</b>	<b>MS Added</b>	<b>MS Found</b>	<b>MS %Recovery</b>	<b>Qual</b>	<b>MSD Found</b>	<b>MSD %Recovery</b>	<b>Qual</b>	<b>Recovery Limits</b>	<b>RPD</b>	<b>Qual</b>	<b>RPD Limits</b>
Total Metals - Mansfield Lab Associated sample(s): 01-11    QC Batch ID: WG1919656-3    QC Sample: L2421715-08    Client ID: MS Sample												
Lead, Total	109	56.6	132	41	Q	-	-		75-125	-		20

**Project Name:** CAPITAL IMPROVEMENTS**Lab Number:** L2424191**Project Number:** WT6401**Report Date:** 05/15/24**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

**Cooler Information**

<b>Cooler</b>	<b>Custody Seal</b>
A	Absent

**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2424191-01A	Plastic 60ml unpreserved	A	NA		2.6	Y	Absent		PB-TI(180)
L2424191-02A	Plastic 60ml unpreserved	A	NA		2.6	Y	Absent		PB-TI(180)
L2424191-03A	Plastic 60ml unpreserved	A	NA		2.6	Y	Absent		PB-TI(180)
L2424191-04A	Plastic 60ml unpreserved	A	NA		2.6	Y	Absent		PB-TI(180)
L2424191-05A	Plastic 60ml unpreserved	A	NA		2.6	Y	Absent		PB-TI(180)
L2424191-06A	Plastic 60ml unpreserved	A	NA		2.6	Y	Absent		PB-TI(180)
L2424191-07A	Plastic 60ml unpreserved	A	NA		2.6	Y	Absent		PB-TI(180)
L2424191-08A	Plastic 60ml unpreserved	A	NA		2.6	Y	Absent		PB-TI(180)
L2424191-09A	Plastic 60ml unpreserved	A	NA		2.6	Y	Absent		PB-TI(180)
L2424191-10A	Plastic 60ml unpreserved	A	NA		2.6	Y	Absent		PB-TI(180)
L2424191-11A	Plastic 60ml unpreserved	A	NA		2.6	Y	Absent		PB-TI(180)

**Project Name:** CAPITAL IMPROVEMENTS  
**Project Number:** WT6401

**Lab Number:** L2424191  
**Report Date:** 05/15/24

## GLOSSARY

### Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)  Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



**Project Name:** CAPITAL IMPROVEMENTS  
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**Lab Number:** L2424191  
**Report Date:** 05/15/24

### Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### Terms

**Analytical Method:** Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

**Chlordane:** The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

**Difference:** With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

**Final pH:** As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

**Frozen Date/Time:** With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

**Gasoline Range Organics (GRO):** Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

**Initial pH:** As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

**PAH Total:** With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

**PFAS Total:** With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

**Total:** With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

### Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



**Project Name:** CAPITAL IMPROVEMENTS  
**Project Number:** WT6401

**Lab Number:** L2424191  
**Report Date:** 05/15/24

#### Data Qualifiers

Identified Compounds (TICs). For calculated parameters, this represents that one or more values used in the calculation were estimated.

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

**Project Name:** CAPITAL IMPROVEMENTS  
**Project Number:** WT6401

**Lab Number:** L2424191  
**Report Date:** 05/15/24

## REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

## LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.





## Certification Information

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The following analytes are not included in our Primary NELAP Scope of Accreditation:

### Westborough Facility

**EPA 624.1:** m/p-xylene, o-xylene, Naphthalene

**EPA 625.1:** alpha-Terpineol

**EPA 8260D:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

**EPA 8270E:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol, Azobenzene; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.

### Mansfield Facility

**SM 2540D:** TSS.

**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

**Nonpotable Water:** **EPA RSK-175 Dissolved Gases**

**Biological Tissue Matrix:** EPA 3050B

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The following analytes are included in our Massachusetts DEP Scope of Accreditation

### Westborough Facility:

#### Drinking Water

**EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

**EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**

**EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

#### Non-Potable Water

**SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

**SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.

**EPA 624.1:** Volatile Halocarbons & Aromatics,

**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables).

**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, EPA 1600, EPA 1603, SM9222D.**

### Mansfield Facility:

#### Drinking Water

**EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.

**EPA 522, EPA 537.1.**

#### Non-Potable Water

**EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

**EPA 245.1** Hg.

**SM2340B**

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For a complete listing of analytes and methods, please contact your Alpha Project Manager.

L2424191



# ATLANTIC TESTING LABORATORIES LEAD CHAIN-OF-CUSTODY RECORD

<b>Albany</b> 22 Corporate Drive Clifton Park, NY 12065 518-383-9144 (T) 518-383-9166 (F) labsAL@atlantictesting.com	<b>Binghamton</b> 126 Park Avenue Binghamton, NY 13903 607-773-1812 (T) 607-773-1835 (F) labsET@atlantictesting.com	<b>Canton</b> 6431 U.S. Highway 11 Canton, NY 13617 315-386-4578 (T) 315-386-1012 (F) labsCT@atlantictesting.com	<b>Plattsburgh</b> 130 Arizona Ave Plattsburgh, NY 12903 518-563-5878 (T) 518-562-1321 (F) labsPL@atlantictesting.com	<b>Poughkeepsie</b> 251 Upper North Road Highland, NY 12528 845-691-6098 (T) 845-691-6099 (F) labsPT@atlantictesting.com	<b>Rochester</b> 3495 Winton Place Rochester, NY 14623 585-427-9020 (T) 585-427-9021 (F) labsRT@atlantictesting.com	<b>Syracuse</b> 6085 Court Street Road Syracuse, NY 13206 315-699-5281 (T) 315-699-3374 (F) labsST@atlantictesting.com	<b>Utica</b> 301 St. Anthony Street Utica NY 13501 315-735-3309 (T) 315-735-0742 (F) labsUT@atlantictesting.com	<b>Watertown</b> 26581 NYS Route 283 Watertown, NY 13601 315-786-7887 (T) 315-786-2022 (F) labsWT@atlantictesting.com
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<b>Project Number:</b> WT6401	<b>Project Name:</b> Capital Improvements	<b>Project Location:</b> General Brown
<b>Project Manager:</b> R. Daniel Faulkham	<b>Email Results:</b> LABSWT@atlantictesting.com	<b>Page Number:</b> 1 of 2

**Turn Around Time:**  12 hr  24 hr  48 hr  72 hr  5 day  Other: STANDARD

Date	Time	Sample Number	Sample Location	Sample Description	Total Lead	Other	Laboratory Sample ID Number
04/24/2024	07:52	WT6401LI16	302	Row 16: Gray Window Perimeter Caulk	X		
04/29/2024	10:38	WT6401LI62	902	Row 62: Gray Door Frame Caulk	X		
04/29/2024	08:13	WT6401LI79	909	Row 79: White Fixture Caulk	X		
04/24/2024	08:38	WT6401LI97	430	Row 97: Red Door Frame Caulk	X		
04/30/2024	08:10	WT6401LI104	Exterior	Row 104: Gray Window Frame Caulk	X		
04/30/2024	08:17	WT6401LI105	Exterior	Row 105: Light Gray Window Sill	X		
04/26/2024	09:15	WT6401LI110	110	Row 110: White Door Frame Caulk	X		
04/26/2024	10:45	WT6401LI112	907B	Row 112: White Caulk	X		
04/26/2024	13:09	WT6401LI127	502	Row 127: White Caulk	X		
04/30/2024	07:47	WT6401LI133	509	Row 133: White Caulk	X		

<b>Sampler:</b>	<b>Laboratory:</b>	<b>Field and Laboratory Remarks:</b>
Name: <u>Brian Byrck</u> Date: <u>04/20/24</u> Signature: <u>[Signature]</u> Time: <u>0830</u>	Name: _____ Date: _____ Signature: _____ Time: _____	
<b>Samples Relinquished By:</b>	<b>Samples Received By:</b> <u>ATL</u>	
Name: <u>Brian Byrck</u> Date: <u>04/30/24</u> Signature: <u>[Signature]</u> Time: <u>0830</u>	Name: <u>Eric Whalen</u> Date: <u>5/2/24</u> Signature: <u>[Signature]</u> Time: <u>1225</u>	
Name: <u>Eric Whalen</u> Date: <u>5/2/24</u> Signature: <u>[Signature]</u> Time: <u>1815</u>	Name: <u>Melissa Hoffman</u> Date: <u>5/3/24</u> Signature: <u>[Signature]</u> Time: <u>0100</u>	



# ATLANTIC TESTING LABORATORIES LEAD CHAIN-OF-CUSTODY RECORD

<b>Albany</b> 22 Corporate Drive Clifton Park, NY 12065 518-383-9144 (T) 518-383-9166 (F) labsAT@atlantictesting.com	<b>Binghamton</b> 126 Park Avenue Binghamton, NY 13903 607-773-1812 (T) 607-773-1835 (F) labsBT@atlantictesting.com	<b>Canton</b> 6431 U.S. Highway 11 Canton, NY 13617 315-386-4578 (T) 315-386-1012 (F) labsCT@atlantictesting.com	<b>Plattsburgh</b> 130 Arizona Ave Plattsburgh, NY 12903 518-563-5878 (T) 518-562-1321 (F) labsPL@atlantictesting.com	<b>Poughkeepsie</b> 251 Upper North Road Highland, NY 12528 845-691-6098 (T) 845-691-6099 (F) labsPT@atlantictesting.com	<b>Rochester</b> 3495 Winton Place Rochester, NY 14623 585-427-9020 (T) 585-427-9021 (F) labsRT@atlantictesting.com	<b>Syracuse</b> 6085 Court Street Road Syracuse, NY 13206 315-699-5281 (T) 315-699-3374 (F) labsST@atlantictesting.com	<b>Utica</b> 301 St. Anthony Street Utica NY 13501 315-735-3309 (T) 315-735-0742 (F) labsUT@atlantictesting.com	<b>Watertown</b> 26581 NYS Route 283 Watertown, NY 13601 315-786-7887 (T) 315-786-2022 (F) labsWT@atlantictesting.com
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Project Number: WT6401		Project Name: Capital Improvements			Project Location: General Brown		
Project Manager: R. Daniel Faulknham		Email Results: <u>LABSWT</u> @atlantictesting.com			Page Number: 2 of 2		
Turn Around Time:		<input type="checkbox"/> 12 hr	<input type="checkbox"/> 24 hr	<input type="checkbox"/> 48 hr	<input type="checkbox"/> 72 hr	<input type="checkbox"/> 5 day	<input checked="" type="checkbox"/> Other <u>STANDARD</u>
Date	Time	Sample Number	Sample Location	Sample Description	Total Lead	Other	Laboratory Sample ID Number
04/30/2024	08:01	WT6401LI135	509	Row 135: White Caulk	X		
Sampler:		Laboratory:			Field and Laboratory Remarks:		
Name: <u>Brian Babcock</u> Date: <u>04/30/24</u>		Name: _____ Date: _____					
Signature: <u>[Signature]</u> Time: <u>0830</u>		Signature: _____ Time: _____					
Samples Relinquished By:		Samples Received By: <u>AMC</u>					
Name: <u>Brian Babcock</u> Date: <u>04/30/24</u>		Name: <u>Eric Walker</u> Date: <u>5/2/24</u>					
Signature: <u>[Signature]</u> Time: <u>0830</u>		Signature: <u>[Signature]</u> Time: <u>1225</u>					
Name: <u>Eric Walker</u> Date: <u>5/2/24</u>		Name: <u>Sharon Hoffman</u> Date: <u>5/2/24</u>					
Signature: <u>[Signature]</u> Time: <u>1815</u>		Signature: <u>[Signature]</u> Time: <u>0100</u>					

**APPENDIX D**  
**SUMMARY TABLES**

## KEY FOR SUMMARY TABLES

### Acronyms for the Known or Assumed ACM:

CFT = Ceramic Floor Tile

CWT = Ceramic Wall Tile

EPDM = Ethylene Propylene Diene Monomer

HVAC = Heating, Ventilation, and Air Conditioning

TSI = Thermal System Insulation

### Abbreviations for Friable/ACM Type:

Y = Yes

N = No

M = Miscellaneous

S = Surfacing

T = Thermal System Insulation

### Descriptions for Conditions:

The listed conditions of Good, Fair, and Poor generally correspond with the AHERA descriptions of Good, Damaged, and Significantly Damaged for different types of materials. The following summarizes additional details relative to the listed conditions.

Surfacing (Surf.) and Miscellaneous (Misc.) Materials

- Good: Material with no visible damage or deterioration, or showing only very limited damage or deterioration
- Fair: Material with characteristics of surface crumbling, blistered, water-stained, gouged, marred, or otherwise abraded over less than one tenth of the surface if the damage is evenly distributed or one quarter if the damage is localized.
- Poor: Material with one or more of the following characteristics:
  - Surface crumbling or blistering is present over at least one tenth of the surface, if the damage is evenly distributed or one quarter if the damage is localized.
  - One tenth (or one quarter, if localized) of material hanging from the surface, deteriorated, or showing adhesive failure.
  - Water stains, gouges, or mars over at least one tenth of the surface if the damage is evenly distributed or one quarter if the damage is localized.

Thermal System Insulation (TSI) Materials

- Good: Material with no visible damage or deterioration, or showing only very limited damage or deterioration
- Fair: Material with one or more of the following characteristics:
  - A few water stains or less than one tenth of insulation with missing jackets.
  - Crushed insulation or water stains, gouges, punctures, or mars on up to one tenth of the insulation if the damage is evenly distributed or up to one quarter if the damage is localized.
- Poor: Material with one or more of the following characteristics:
  - Missing jackets on at least one tenth of the piping or equipment.
  - Crushed or heavily gouged or punctured insulation on at least one tenth of the component (pipe runs/risers, boiler, tank, duct, etc.) if the damage is evenly distributed or one quarter if the damage is localized.

### Notes:

<sup>1</sup> Sample Location Plans are enclosed in Appendix B.

<sup>2a</sup> NAD = No Asbestos Detected/ <sup>2b</sup> ND = Not detected above the laboratory method detection limit.

<sup>3</sup> Quantities and locations are approximate and must be verified by asbestos abatement contractors prior to providing actual cost quotations and/or initiating abatement activities.

<sup>4</sup> NA = Not Applicable

<sup>5</sup> Material is considered ACM due to being co-mingled with asbestos-containing mastic.

<sup>6</sup> Material was determined to be an incidental disturbance and will need to have an incidental disturbance assessment performed prior to any abatement and/or renovation activities.

<sup>7</sup> Material assumed asbestos containing (ACM) based on client request.

<sup>8</sup> Material assumed asbestos containing due to accessibility.

**Table D-I**  
**Summary of Suspect ACM and Analytical Results**

<b>Material</b>	<b>General Location<sup>1, 2</sup></b>	<b>Friable/ ACM Type</b>	<b>% Asbestos</b>	<b>Condition</b>	<b>Sample Numbers</b>	<b>Estimated Quantity<sup>2</sup></b>
White 2- by 2-Foot Fissured and Pinholed Ceiling Tile	Room Nos. 301, 301A, 303, 303A, 305, 302, 300A, 300, 509, 904, 100, 905, 502, 504, 506, 909A, 911, 905B	Y/M	NAD	Good	WT6401AI01A WT6401AI01B	NA
Yellow Skim Coat Ceiling Plaster	Room Nos. 301, 303, 305, 307, 309, 302, 300A, 506, 504, 502, 509, 708, 106D, 106C, 110, 108, 106A, 106, 106B	Y / S	NAD	Fair	WT6401AI02A WT6401AI02B WT6401AI02C WT6401AI02D WT6401AI02E WT6401AI02F WT6401AI02G	NA
Gray Base Coat Ceiling Plaster Associated with Yellow Skim Coat Ceiling Plaster	Room Nos. 301, 303, 305, 307, 309, 302, 300A, 506, 504, 502, 509, 708, 106D, 106C, 110, 108, 106A, 106, 106B	Y / S	NAD	Fair	WT6401AI03A WT6401AI03B WT6401AI03C WT6401AI03D WT6401AI03E WT6401AI03F WT6401AI03G	NA
Brown Insulation Backing Paper Associated with Yellow Fiberglass	Room Nos. 301, 303, 305, 307, 309, 302, 300A, 506, 504, 502, 509, 708, 106D, 106C, 110, 108, 106A, 106, 106B	Y / S	NAD	Poor	WT6401AI04A WT6401AI04B WT6401AI04C	NA
White Gypsum Wall Board	Room Nos. 301, 303, 303A, 305, 302, 300A, 300, 506, 504, 502, 509, 427, 106, 106E	N / M	NAD	Fair	WT6401AI05A WT6401AI05B	NA
White Joint Compound Associated with White Gypsum Wall Board	Room Nos. 301, 303, 303A, 305, 302, 300A, 300, 506, 504, 502, 509, 427, 106, 106E	Y / M	NAD	Fair	WT6401AI06A WT6401AI06B	NA



**Table D-I**  
**Summary of Suspect ACM and Analytical Results**

<b>Material</b>	<b>General Location<sup>1, 2</sup></b>	<b>Friable/ ACM Type</b>	<b>% Asbestos</b>	<b>Condition</b>	<b>Sample Numbers</b>	<b>Estimated Quantity<sup>2</sup></b>
Off-White Seam Tape Associated with White Gypsum Wall Board	Room Nos. 301, 303, 303A, 305, 302, 300A, 300, 506, 504, 502, 509, 427, 106, 106E	N / M	NAD	Fair	WT6401AI07A WT6401AI07B	NA
Yellow Skim Coat Wall Plaster	Room Nos. 301, 303, 305, 307, 309, 311, 306, 304, 302, 300A, 300, 506, 504, 509, 112, 110, 108, 106, 106A, 106B, 106C, 106D, 427	Y / S	NAD	Fair	WT6401AI08A WT6401AI08B WT6401AI08C WT6401AI08D WT6401AI08E WT6401AI08F WT6401AI08G	NA
Gray Base Coat Wall Plaster Associated with Yellow Skim Coat Wall Plaster	Room Nos. 301, 303, 305, 307, 309, 311, 306, 304, 302, 300A, 300, 506, 504, 509, 112, 110, 108, 106, 106A, 106B, 106C, 106D, 427	Y / S	NAD	Fair	WT6401AI09A WT6401AI09B WT6401AI09C WT6401AI09D WT6401AI09E WT6401AI09F WT6401AI09G	NA
Black 4-Inch Cove Base	Room Nos. 301, 301A, 303, 303A, 302, 300A, 300, 502, 902B, 906, 902A, 106E	N / M	NAD	Fair	WT6401AI10A WT6401AI10B	NA
Tan Adhesive Associated with Black 4- Inch Cove Base	Room Nos. 301, 301A, 303, 303A, 302, 300A, 300, 502, 902B, 906, 902A, 106E	N / M	NAD	Fair	WT6401AI11A WT6401AI11B	NA
White 12- by 12-Inch with Brown Streaks Floor Tile	Room Nos. 301, 301A, 303, 303A, 302, 300A, 300, 502, 504, 506, 509, 904, 106E, 100, 106	N / M	NAD	Fair	WT6401AI12A WT6401AI12B	NA

**Table D-I**  
**Summary of Suspect ACM and Analytical Results**

<b>Material</b>	<b>General Location<sup>1, 2</sup></b>	<b>Friable/ ACM Type</b>	<b>% Asbestos</b>	<b>Condition</b>	<b>Sample Numbers</b>	<b>Estimated Quantity<sup>2</sup></b>
Yellow Mastic Associated with White 12- by 12-Inch with Brown Streaks Floor Tile	Room Nos. 301, 301A, 303, 303A, 302, 300A, 300, 502, 504, 506, 509, 904, 106E, 100, 106	N / M	NAD	Fair	WT6401AI13A WT6401AI13B	NA
Black Window Sill	Room Nos. 301, 303, 305, 307, 309, 311, 306, 304, 302, 300, 600, 506, 504, 509, 716, 608	N / M	NAD	Fair	WT6401AI14A WT6401AI14B	NA
Black Grout Associated with Black Window Sill	Room Nos. 301, 303, 305, 307, 309, 311, 306, 304, 302, 300, 600, 506, 504, 509, 716, 608	N / M	NAD	Fair	WT6401AI15A WT6401AI15B	NA
Gray Window Perimeter Caulk	Room Nos. 301, 303, 305, 307, 309, 311, 306, 304, 302, 300, 600, 506, 504, 509, 716, 608	N / M	NAD	Good	WT6401AI16A WT6401AI16B	NA
Black Countertop	Room Nos. 301, 303, 303A, 302, 300A, 300, 600, 509	N / M	NAD	Good	WT6401AI17A WT6401AI17B	NA
Black Grout Associated with Black Countertop	Room Nos. 301, 303, 303A, 302, 300A, 300, 600, 509	N / M	NAD	Fair	WT6401AI18A WT6401AI18B	NA
Gray Block Mortar	Room Nos. 301A, 302A, 708, 902, 907A, 716, 106E, 100	N / M	NAD	Fair	WT6401AI19A WT6401AI19B	NA
<b>Green 9- by 9-Inch- Streaked Floor Tile</b>	<b>Room Nos. 305, 307, 309</b>	<b>N / M</b>	<b>Assumed<sup>7</sup></b>	<b>Fair</b>	<b>WT6401AI20</b>	<b>2.250 Square Feet</b>
Black Mastic Associated with Green 9- by 9-Inch- Streaked Floor Tile	Room Nos. 305, 307, 309	N / M	Trace	Fair	WT6401AI21A WT6401AI21B	NA
Black Chalkboard	Room Nos. 305, 307, 309, 311, 306, 304, 600	N / M	NAD	Fair	WT6401AI22A WT6401AI22B	NA

**Table D-I**  
**Summary of Suspect ACM and Analytical Results**

Material	General Location <sup>1, 2</sup>	Friable/ ACM Type	% Asbestos	Condition	Sample Numbers	Estimated Quantity <sup>2</sup>
<b>Black Adhesive Associated with Black Chalkboard</b>	Room Nos. 305, 307, 309, 311, 306, 304, 600	N / M	4.1	Fair	WT6401AI23A WT6401AI23B	500 Square Feet
Green 12- by 12-Inch Self-Adhesive Floor Tile	Room Nos. 305, 307, 309, 311	N / M	NAD	Fair	WT6401AI24A WT6401AI24B	NA
White 2- by 4-Foot Fissured and Pinholed Ceiling Tile	Room Nos. 307, 309, 311, 306, 304, 600, 602, 608, 909, 911, 905B, 427, 430	Y / M	NAD	Good	WT6401AI26A WT6401AI26B	NA
<b>Light Green 9- by 9-Inch Patch Floor Tile</b>	Room No. 309	N / M	Assumed <sup>7</sup>	Fair	WT6401AI27	30 Square Feet
<b>Gray 12- by 12-Inch Floor Tile</b>	Room No. 311	N / M	7.1	Fair	WT6401AI28A WT6401AI28B	625 Square Feet
<b>Black Mastic Associated with Gray 12- by 12-Inch Floor Tile</b>	Room No. 311	N / M	4.6	Fair	WT6401AI29A WT6401AI29B	625 Square Feet
<b>Brown Corkboard Adhesive</b>	Room Nos. 311, 106, 106A, 106B, 305, 304, 306, 307, 309	N / M	Assumed <sup>7</sup>	Fair	WT6401AI30	560 Square Feet
White 1- by 1-Foot Pinhole Ceiling Tile	Room Nos. 306, 304, 106, 106A, 106B, Corridor 14, 610D	N / M	NAD	Fair	WT6401AI31A WT6401AI31B	NA
Brown Adhesive Associated with White 1- by 1-Foot Pinhole Ceiling Tile	Room Nos. 306, 304, 106, 106A, 106B, Corridor 14, 610D	N / M	NAD	Fair	WT6401AI32A WT6401AI32B	NA

**Table D-I**  
**Summary of Suspect ACM and Analytical Results**

<b>Material</b>	<b>General Location<sup>1, 2</sup></b>	<b>Friable/ ACM Type</b>	<b>% Asbestos</b>	<b>Condition</b>	<b>Sample Numbers</b>	<b>Estimated Quantity<sup>2</sup></b>
White Gypsum Ceiling Board (Unfinished)	Room Nos. 306, 304	N / M	NAD	Fair	WT6401AI33A WT6401AI33B	NA
<b>Light Brown 9- by 9-Inch- Streaked Floor Tile</b>	<b>Room Nos. 306, 304</b>	<b>N / M</b>	<b>Assumed<sup>7</sup></b>	<b>Fair</b>	<b>WT6401AI34</b>	<b>1,475 Square Feet</b>
Black Mastic Associated with Light Brown 9- by 9-Inch- Streaked Floor Tile	Room Nos. 306, 304	N / M	NAD	Fair	WT6401AI35A WT6401AI35B	NA
Brown 12- by 12-Inch Mottled Floor Tile	Room No. 304	N / M	NAD	Fair	WT6401AI36A WT6401AI36B	NA
Yellow Mastic Associated with Brown 12- by 12-Inch Mottled Floor Tile	Room No. 304	N / M	NAD	Fair	WT6401AI37A WT6401AI37B	NA
White 1- by 1-Foot Fissured Ceiling Tile	Room Nos. 302, 300A, 300, 610A, 506, 504	N / M	NAD	Fair	WT6401AI38A WT6401AI38B	NA
Brown Adhesive Associated with White 1- by 1-Foot Fissured Ceiling Tile	Room Nos. 302, 300A, 300, 610A, 506, 504	N / M	NAD	Fair	WT6401AI39A WT6401AI39B	NA
Gray Vent Hood	Room No. 302	N / M	NAD	Fair	WT6401AI40A WT6401AI40B	NA
White Skim Coat Wall Plaster	Room Nos. 600, 602, 608, 610, 610A, 610B, 610C	N / M	NAD	Fair	WT6401AI41A WT6401AI41B WT6401AI41C WT6401AI41D WT6401AI41E WT6401AI41F WT6401AI41G	NA

**Table D-I**  
**Summary of Suspect ACM and Analytical Results**

Material	General Location <sup>1, 2</sup>	Friable/ ACM Type	% Asbestos	Condition	Sample Numbers	Estimated Quantity <sup>2</sup>
Gray Base Coat Wall Plaster Associated with White Skim Coat Wall Plaster	Room Nos. 600, 602, 608, 610, 610A, 610B, 610C	Y / S	NAD	Fair	WT6401AI42A WT6401AI42B WT6401AI42C WT6401AI42D WT6401AI42E WT6401AI42F WT6401AI42G	NA
<b>Gray 12- by 12-Inch Marbled Floor Tile</b>	Room Nos. 600, 602	N / M	<b>3.9</b>	Fair	<b>WT6401AI43A WT6401AI43B</b>	<b>1,100 Square Feet</b>
<b>Black Mastic Associated with Gray 12- by 12-Inch Marbled Floor Tile</b>	Room Nos. 600, 602	N / M	<b>2.8</b>	Fair	<b>WT6401AI44A WT6401AI44B</b>	<b>1,100 Square Feet</b>
White Gypsum Board	Room Nos. 909, 610	N / M	NAD	Fair	WT6401AI45A WT6401AI45B	NA
White Joint Compound Associated with White Gypsum Board	Room Nos. 909, 610	N / M	NAD	Fair	WT6401AI46A WT6401AI46B	NA
White Seam Sealant Associated with White Gypsum Board	Room Nos. 909, 610	N / M	NAD	Fair	WT6401AI47A WT6401AI47B	NA
Black Sink Coating	Room Nos. 608, 502	N / M	NAD	Fair	WT6401AI48A WT6401AI48B	NA
Brown 4-Inch Cove Base	Room Nos. 608, 506, 509, 502, 504, 106, 106E, 100, 100A	N / M	NAD	Fair	WT6401AI49A WT6401AI49B	NA
Tan Adhesive Associated with Brown 4-Inch Cove Base	Room Nos. 608, 506, 509, 502, 504, 106, 106E, 100, 100A	N / M	NAD	Fair	WT6401AI50A WT6401AI50B	NA

**Table D-I**  
**Summary of Suspect ACM and Analytical Results**

<b>Material</b>	<b>General Location<sup>1, 2</sup></b>	<b>Friable/ ACM Type</b>	<b>% Asbestos</b>	<b>Condition</b>	<b>Sample Numbers</b>	<b>Estimated Quantity<sup>2</sup></b>
Gray Grout Associated with Quarry Floor Tile	Room Nos. 608, 909, 905, 700E	N / M	NAD	Fair	WT6401AI51A WT6401AI51B	NA
Gray Mortar Associated with Quarry Floor Tile	Room Nos. 608, 909, 905, 700E	N / M	NAD	Fair	WT6401AI52A WT6401AI52B	NA
White Skim Coat Ceiling Plaster	Room Nos. 610, 610B, 610C, 700E	Y / S	NAD	Fair	WT6401AI53A WT6401AI53B WT6401AI53C WT6401AI53D WT6401AI53E	NA
Gray Base Coat Ceiling Plaster Associated with White Skim Coat Ceiling Plaster	Room Nos. 610, 610B, 610C, 700E	Y / S	NAD	Fair	WT6401AI54A WT6401AI54B WT6401AI54C WT6401AI54D WT6401AI54E	NA
Blue Stair Tread	Room No. 610	N / M	NAD	Fair	WT6401AI55A WT6401AI55B	NA
Tan Adhesive Associated with Blue Stair Tread	Room No. 610	N / M	NAD	Fair	WT6401AI56A WT6401AI56B	NA
Tan Fabric on Wall Sound Damping Panels	Room No. 610	N / M	NAD	Fair	WT6401AI57A WT6401AI57B	NA
White Pipe TSI Jacket	Room No. 610	N / T	NAD	Fair	WT6401AI58A WT6401AI58B WT6401AI58C	NA
Gray Block Mortar	Room Nos. 902, 906, 904, 902A	N / M	NAD	Fair	WT6401AI61A WT6401AI61B	NA
Gray Door Frame Caulk	Room No. 902	N / M	NAD	Fair	WT6401AI62A WT6401AI62B	NA
Tan Adhesive Associated with Black Countertops and Work Stations	Room Nos. 301, 302, 303, 303A, 300, 300A, 509, 600	N / M	NAD	Fair	WT6401AI63A WT6401AI63B	NA



**Table D-I**  
**Summary of Suspect ACM and Analytical Results**

<b>Material</b>	<b>General Location<sup>1, 2</sup></b>	<b>Friable/ ACM Type</b>	<b>% Asbestos</b>	<b>Condition</b>	<b>Sample Numbers</b>	<b>Estimated Quantity<sup>2</sup></b>
Off-White Adhesive Associated with Black Countertops and Work Stations	Room Nos. 301, 302, 303, 303A, 300, 300A, 509, 600	N / M	NAD	Fair	WT6401AI64A WT6401AI64B	NA
Black Sink Coating	Room Nos. 904, 106B	N / M	NAD	Fair	WT6401AI65A WT6401AI65B	NA
Gray Brick Mortar	Room Nos. 708, 716, 430	N / M	NAD	Fair	WT6401AI66A WT6401AI66B	NA
Brown Expansion Board	Room No. 708 – Between CMU and Brick Walls	N / M	NAD	Fair	WT6401AI67A WT6401AI67B	NA
White 6-Inch Pipe TSI Jacket	Room Nos. 708, 909, 911, Gym mezzanine, Area A Crawlspace, Area B Crawlspace, Area C Crawlspace	N / T	NAD	Good	WT6401AI68A WT6401AI68B WT6401AI68C	NA
White 2-Inch Pipe TSI Jacket	Room Nos. 708, 905B, 907A, Gym mezzanine, 106E, 106, Area A Crawlspace, Area B Crawlspace, 301A, 907B	N / T	NAD	Good	WT6401AI69A WT6401AI69B WT6401AI69C	NA
White Pipe TSI End Sealant	Room Nos. 708, Gym mezzanine, Area A Crawlspace, Area B Crawlspace, 301A, 907A, 907B, 905B	N / T	NAD	Good	WT6401AI70A WT6401AI70B WT6401AI70C	NA
White Boiler Internal Rib Gasket	Room No. 708	N / M	NAD	Fair	WT6401AI71A WT6401AI71B WT6401AI71C	NA
Red Boiler Internal Rib Sealant	Room No. 708	N / M	NAD	Fair	WT6401AI72A WT6401AI72B	NA
White 2- by 2-Foot Tectum Ceiling Tile	Room No. 909	N / M	NAD	Fair	WT6401AI73A WT6401AI73B	NA

**Table D-I**  
**Summary of Suspect ACM and Analytical Results**

<b>Material</b>	<b>General Location<sup>1, 2</sup></b>	<b>Friable/ ACM Type</b>	<b>% Asbestos</b>	<b>Condition</b>	<b>Sample Numbers</b>	<b>Estimated Quantity<sup>2</sup></b>
Gray Mortar Associated with Green Glazed Block	Room Nos. 909, 905	N / M	NAD	Fair	WT6401AI74A WT6401AI74B	NA
White Grout Associated with Light Green CWT	Room Nos. 909, 905	N / M	NAD	Fair	WT6401AI75A WT6401AI75B	NA
Gray Mortar Associated with Light Green CWT	Room Nos. 909, 905	N / M	NAD	Fair	WT6401AI76A WT6401AI76B	NA
Gray Grout Associated with Green 2- by 2-Inch CFT	Room Nos. 909, 905	N / M	NAD	Fair	WT6401AI77A WT6401AI77B	NA
Gray Mortar Associated with Green 2- by 2-Inch CFT	Room Nos. 909, 905	N / M	NAD	Fair	WT6401AI78A WT6401AI78B	NA
White Fixture Caulk	Room Nos. 909, 911, 905, 905B, 110, and 108	N / M	NAD	Fair	WT6401AI79A WT6401AI79B	NA
White Grout Associated with Off- White 4- by 4-Inch CWT	Room Nos. 911, 905B	Y / M	NAD	Fair	WT6401AI80A WT6401AI80B	NA
Gray Mortar Associated with Off- White 4- by 4-Inch CWT	Room Nos. 911, 905B	Y / M	NAD	Fair	WT6401AI81A WT6401AI81B	NA
Gray Grout Associated with Blue 1- by 1-Inch CFT	Room Nos. 911, 905B	Y / M	NAD	Fair	WT6401AI82A WT6401AI82B	NA
Gray Mortar Associated with Blue 1- by 1-Inch CFT	Room Nos. 911, 905B	Y / M	NAD	Fair	WT6401AI83A WT6401AI83B	NA

**Table D-I**  
**Summary of Suspect ACM and Analytical Results**

Material	General Location <sup>1, 2</sup>	Friable/ ACM Type	% Asbestos	Condition	Sample Numbers	Estimated Quantity <sup>2</sup>
White Insulation Backing	Room Nos. 907A, 907B	N / T	NAD	Fair	WT6401AI84A WT6401AI84B WT6401AI84C	NA
Brown Pipe TSI Jacket	Room No. 907A	N / T	NAD	Fair	WT6401AI85A WT6401AI85B WT6401AI85C	NA
<b>Brown 9- by 9-Inch- Streaked Floor Tile</b>	Room No. 427	N / M	<b>Assumed<sup>7</sup></b>	Fair	<b>WT6401AI86</b>	<b>175 Square Feet</b>
<b>Black Mastic Associated with Brown 9- by 9- Inch- Streaked Floor Tile</b>	Room No. 427	N / M	<b>2.0</b>	Fair	<b>WT6401AI87A WT6401AI87B</b>	<b>175 Square Feet</b>
<b>Gray 9- by 9-Inch- Streaked Floor Tile</b>	Room Nos. 106, 106D, 106B, 106A, 108, 106C	N / M	<b>Assumed<sup>7</sup></b>	Fair	<b>WT6401AI88</b>	<b>2,085 Square Feet</b>
<b>Black Mastic Associated with Gray 9- by 9-Inch- Streaked Floor Tile</b>	Room Nos. 106, 106D, 106B, 106A, 108, 106C	N / M	<b>1.4</b>	Fair	<b>WT6401AI89A WT6401AI89B</b>	<b>2,085 Square Feet</b>
Black Door Window Butyl	Room Nos. 427, 106A, 106B, 106D, 106	N / M	NAD	Fair	WT6401AI90A WT6401AI90B	NA
Gray Mortar Associated with Stone Wall	Room No. 106E	N / M	NAD	Fair	WT6401AI91A WT6401AI91B	NA
White Grout Associated with 4- by 6- Inch CWT	Room No. 110	N / M	NAD	Fair	WT6401AI92A WT6401AI92B	NA
Gray Mortar Associated with 4-by 6- Inch CWT	Room No. 110	N / M	NAD	Fair	WT6401AI93A WT6401AI93B	NA

**Table D-I**  
**Summary of Suspect ACM and Analytical Results**

<b>Material</b>	<b>General Location<sup>1, 2</sup></b>	<b>Friable/ ACM Type</b>	<b>% Asbestos</b>	<b>Condition</b>	<b>Sample Numbers</b>	<b>Estimated Quantity<sup>2</sup></b>
Light Green Room Divider	Room No. 504	N / M	NAD	Fair	WT6401AI94A WT6401AI94B	NA
Gray Grout Associated with Stone Floor	Room Nos. 430, 431, 432	N / M	NAD	Fair	WT6401AI95A WT6401AI95B	NA
Gray Mortar Associated with Stone Floor	Room Nos. 430, 431, 432	N / M	NAD	Fair	WT6401AI96A WT6401AI96B	NA
Red Door Frame Caulk	Room No. 430	N / M	NAD	Good	WT6401AI97A WT6401AI97B	NA
White Tank TSI	Room No. 114	Y / S	NAD	Poor	WT6401AI98A WT6401AI98B WT6401AI98C	NA
Orange Gasket	Room No. 114	Y / M	NAD	Poor	WT6401AI99A WT6401AI99B	NA
White Pipe TSI Jacket	Room Nos. 114, Area A Crawlspace , Area B Crawlspace, Area C Crawlspace	N / M	NAD	Fair	WT6401AI100A WT6401AI100B WT6401AI100C	NA
White Grout Associated with Dark Tan 4- by 6- Inch CWT	Room No. 392	N / M	NAD	Fair	WT6401AI101A WT6401AI101B	NA
Gray Mortar Associated with Dark Tan 4- by 6- Inch	Room No. 392	N / M	NAD	Fair	WT6401AI102A WT6401AI102B	NA
<b>White Pipe TSI Debris</b>	<b>Area A Crawlspace</b>	<b>N / T</b>	<b>Assumed<sup>6/7</sup></b>	<b>Fair</b>	<b>WT6401AI103A WT6401AI103B</b>	<b>1 Square Foot</b>
Gray Window Frame Caulk	Exterior – 1955 and 1969 Vintages	N / M	NAD	Fair	WT6401AI104A WT6401AI104B	NA
Light Gray Window Sill Caulk	Exterior – 1955 and 1969 Vintages	N / M	Trace	Fair	WT6401AI105A WT6401AI105B	NA
Light Blue Room Divider	Room No. 502	N / M	NAD	Fair	WT6401AI106A WT6401AI106B	NA
Gray Grout Associated with Tan Mosaic CFT	Room Nos. 108 and 110	N / M	NAD	Fair	WT6401AI107A WT6401AI107B	NA

**Table D-I**  
**Summary of Suspect ACM and Analytical Results**

Material	General Location <sup>1, 2</sup>	Friable/ ACM Type	% Asbestos	Condition	Sample Numbers	Estimated Quantity <sup>2</sup>
Light Gray Mortar Associated with Tan Mosaic CFT	Room Nos. 108 and 110	N / M	NAD	Fair	WT6401AI108A WT6401AI108B	NA
<b>Black Tar Associated with White Pipe TSI Jacket</b>	<b>Area A crawlspace, Area B crawlspace, Area C crawlspace</b>	<b>N / T</b>	<b>17.6</b>	<b>Fair</b>	<b>WT6401AI109A WT6401AI109B WT6401AI109C</b>	<b>150 Linear Feet</b>
White Door Frame Caulk	Room Nos. 108, 110, and 909	N / M	NAD	Fair	WT6401AI110A WT6401AI110B	NA
Yellow Carpet Adhesive Associated with Tan Carpet	Room No. 907A	N / M	NAD	Fair	WT6401AI111A WT6401AI111B	NA
White Caulk Associated with Mirrors	Room Nos. 907A, 907B	N / M	NAD	Fair	WT6401AI112A WT6401AI112B	NA
Black Countertop	Room Nos. 600, 602	N / M	NAD	Fair	WT6401AI113A WT6401AI113B	NA
<b>Black Grout Associated with Black Countertop</b>	<b>Room Nos. 600, 602</b>	<b>N / M</b>	<b>3.2</b>	<b>Fair</b>	<b>WT6401AI114A WT6401AI114B</b>	<b>170 Square Feet</b>
Black Desktop	Room No. 600	N / M	NAD	Fair	WT6401AI115A WT6401AI115B	NA
Black 4-Inch Cove Base	Room Nos. 600, 602	N / M	NAD	Fair	WT6401AI116A WT6401AI116B	NA
Brown Adhesive Associated with Black 4-Inch Cove Base	Room Nos. 600, 602	N / M	NAD	Fair	WT6401AI117A WT6401AI117B	NA
Gray Streaked Floor Tile	Room No. 600	N / M	NAD	Fair	WT6401AI118A WT6401AI118B	NA
<b>Black Cove Base/ 9- by 9- Inch Edging</b>	<b>Room No. 610</b>	<b>N / M</b>	<b>Assumed<sup>5</sup></b>	<b>Fair</b>	<b>WT6401AI119</b>	<b>20 Square Feet</b>

**Table D-I**  
**Summary of Suspect ACM and Analytical Results**

Material	General Location <sup>1, 2</sup>	Friable/ ACM Type	% Asbestos	Condition	Sample Numbers	Estimated Quantity <sup>2</sup>
Light Green 9- by 9-Inch Marbled Floor Tile	Room Nos. 610, 610A, 610B, 610C	N / M	Assumed <sup>7</sup>	Fair	WT6401AI120A	1,260 Square Feet
Black Mastic Associated with Black Cove Base and Light Green 9- by 9-Inch Marbled Floor Tile	Room Nos. 610, 610A, 610B, 610C	N / M	2.1	Fair	WT6401AI121A WT6401AI121B	1,260 Square Feet
White 2-Inch Diameter Pipe TSI Paper	Room No. 610	N / T	Assumed <sup>8</sup>	Fair	WT6401AI122	200 Linear Feet
Off-White Mudded TSI Pipe Fitting Associated with White 2-Inch Diameter Pipe TSI Paper	Room No. 610	N / T	Assumed <sup>8</sup>	Fair	WT6401AI123	15 Linear Feet
White Paper Roof TSI Jacket Associated with Roof Drain Pipe	Room No. 610	N / T	Assumed <sup>8</sup>	Fair	WT6401AI124	10 Linear Feet
White HVAC TSI	Room No. 610	N / T	Assumed <sup>8</sup>	Fair	WT6401AI125	800 Square Feet
White Speckled Countertop	Room Nos. 502, 608	N / M	NAD	Fair	WT6401AI126A WT6401AI126B	NA
White Countertop Caulk	Room No. 502	N / M	NAD	Fair	WT6401AI127A WT6401AI127B	NA
Black Window Butyl	Room No. 610 (Booth Windows)	N / M	1.6	Fair	WT6401AI128A WT6401AI128B	1 Square Foot
White Ceiling Patch	Room No. 708-HVAC Ducts	Y / S	NAD	Fair	WT6401AI129A WT6401AI129B WT6401AI129C	NA



**Table D-I**  
**Summary of Suspect ACM and Analytical Results**

<b>Material</b>	<b>General Location<sup>1, 2</sup></b>	<b>Friable/ ACM Type</b>	<b>% Asbestos</b>	<b>Condition</b>	<b>Sample Numbers</b>	<b>Estimated Quantity<sup>2</sup></b>
Off-White Breaching Gasket	Room No. 708	N / M	NAD	Fair	WT6401AI130A WT6401AI130B	NA
Black Countertop	Room No. 509 – Lab Tables and Drain Basin/Sink	N / M	NAD	Fair	WT6401AI131A WT6401AI131B	NA
Black Grout Associated with Black Countertop	Room No. 509	N / M	NAD	Fair	WT6401AI132A WT6401AI132B	NA
White Caulk	Room No. 509	N / M	NAD	Fair	WT6401AI133A WT6401AI133B	NA
White Paper Pipe TSI Jacket	Crawlspace A, Crawlspace B, Crawlspace C	N / T	NAD	Fair	WT6401AI134A WT6401AI134B WT6401AI134C	NA
White Countertop Caulk	Room No. 300	N / M	NAD	Fair	WT6401AI135A WT6401AI135B	NA
Off-White Countertop	Room No. 300	N / M	NAD	Fair	WT6401AI136A WT6401AI136B	NA
Black Hardwood Floor Underlayment	Room No. 1120	N / M	NAD	Fair	WT6401AI137A WT6401AI137B	NA
Brown Hardwood Floor Underlayment	Room No. 907B	N / M	NAD	Fair	WT6401AI138A WT6401AI138B	NA

**Table D-II**  
**Summary of Suspect LCM and Analytical Results**

Surface Color / Material Description	General Location <sup>1</sup>	Sample Number	Laboratory Results <sup>2b</sup> (mg/kg Lead)
<b>Gray Window Perimeter Caulk</b>	Room Nos. 301, 303, 305, 307, 309, 311, 306, 304, 302, 300, 600, 506, 504, 509, 716, and 608	WT6401LI16	0.591
<b>Gray Door Frame Caulk</b>	Room No. 902	WT6401LI62	0.216
White Fixture Caulk	Room Nos. 909, 911, 905, 905B, 110, and 108	WT6401LI79	ND
<b>Red Door Frame Caulk</b>	Room No. 430	WT6401LI97	0.612
<b>Gray Window Frame Caulk</b>	Exterior- 1955 and 1969 Vintage	WT6401LI104	7.54
<b>Light Gray Window Sill Caulk</b>	Exterior- 1955 and 1969 Vintage	WT6401LI105	2.52
White Door Frame Caulk	Room Nos. 108, 110, and 909	WT6401LI110	ND
<b>White Caulk Associated with Mirrors</b>	Room Nos. 907A and 907B	WT6401LI112	2.64
White Countertop Caulk	Room No. 502	WT6401LI127	ND
White Silicone Caulk	Room No. 509	WT6401LI133	ND
White Countertop Caulk	Room No. 300	WT6401LI135	ND

**Table D-III**  
**Summary of Suspect PCB-Containing Caulk and Mastic and Analytical Results**

<b>Color / Material Description</b>	<b>General Location <sup>1</sup></b>	<b>Sample Number</b>	<b>Total PCB <sup>2b</sup> (ppm)</b>
Yellow Mastic Associated with White 12- by 12- Inch Streaked Floor Tile	Room Nos. 301, 301A, 303, 303A, 302, 300A, 300, 502, 504, 506, 509, 904, 106E, 100, and 106	WT6401PI13	ND
Gray Window Perimeter Caulk	Room Nos. 301, 303, 305, 307, 309, 311, 306, 304, 302, 300, 600, 506, 504, 509, 716, and 608	WT6401PI16	ND
Black Mastic Associated with Green 9- by 9-Inch Streaked Floor Tile	Room Nos. 305, 307, and 309	WT6401PI21	ND
Black Mastic Associated with Light Green 9- by 9- Inch Floor Tile	Room No. 311	WT6401PI29	ND
Black Mastic Associated with Brown 9- by 9-Inch Streaked Floor Tile	Room Nos. 306 and 304	WT6401PI35	ND
Yellow Mastic Associated with Gray 12- by 12-Inch Marbled Floor Tile	Room Nos. 600 and 602	WT6401PI44	ND
Gray Door Frame Caulk	Room No. 902	WT6401PI62	ND
White Fixture Caulk	Room Nos. 909, 911, 905, 905B, 110, and 108	WT6401PI79	ND
Black Mastic Associated with Brown 9- by 9-Inch Streaked Floor Tile	Room No. 427	WT6401PI87	ND
Black Mastic Associated with Gray 9- by 9-Inch Streaked Floor Tile	Room Nos. 106, 106D, 106B, 106A, 108, and 106C	WT6401PI89	ND
Red Door Frame Caulk	Room Nos. 430	WT6401PI97	ND

**Table D-III**  
**Summary of Suspect PCB-Containing Caulk and Mastic and Analytical Results**

<b>Color / Material Description</b>	<b>General Location <sup>1</sup></b>	<b>Sample Number</b>	<b>Total PCB <sup>2b</sup> (ppm)</b>
Gray Window Frame Caulk	Exterior- 1955 and 1969 Vintage	WT6401PI104	ND
<b>Light Gray Window Sill Caulk</b>	<b>Exterior- 1955 and 1969 Vintage</b>	<b>WT6401PI105</b>	<b>14,600</b>
White Door Frame Caulk	Room Nos. 108, 110, and 909	WT6401PI110	ND
White Caulk Associated with Mirrors	Room Nos. 907A and 907B	WT6401PI112	ND
Black Mastic Associated with Black Cove Base and Light Green 9-by 9-Inch Marbled Floor Tile	Room Nos. 610, 610A, 610B, and 610C	WT6401PI121	ND
White Countertop Caulk	Room No. 502	WT6401PI127	ND
White Silicone Caulk	Room No. 509	WT6401PI133	ND
White Countertop Caulk	Room No. 300	WT6401PI135	ND

## **APPENDIX E**

### **SUMMARY OF XRF RESULTS AND CALIBRATION CHECKS**

Table E-1  
Summary of XRF Test Results - Lead Detected at Greater than or Equal to 1 mg/cm<sup>2</sup>

Reading No.	Date	Time	Structure	Member	Substrate	Side	Condition	Color	Site	Room	Result (mg/cm <sup>2</sup> )
WT6401LX46	4/23/2024	8:36:52	Column	N/A	Metal	A	Intact	Off-White	General Brown CSD	311	7.3
WT6401LX126	4/23/2024	10:42:03	Room	Wall	Ceramic	Center	Intact	Light Green	General Brown CSD	909	3.5
WT6401LX127	4/23/2024	10:42:34	Room	Wall	Ceramic	A	Intact	Light Green	General Brown CSD	909	2.8
WT6401LX128	4/23/2024	10:43:08	Room	Wall	Ceramic	B	Intact	Light Green	General Brown CSD	909	2.4
WT6401LX129	4/23/2024	10:43:35	Room	Wall	Ceramic	C	Intact	Light Green	General Brown CSD	909	1
WT6401LX130	4/23/2024	10:44:24	Room	Wall	Ceramic	D	Intact	Light Green	General Brown CSD	909	2.7
WT6401LX142	4/23/2024	10:57:39	Room	Wall	Ceramic	A	Intact	Light Green	General Brown CSD	905	2.8
WT6401LX143	4/23/2024	10:58:05	Room	Wall	Ceramic	B	Intact	Light Green	General Brown CSD	905	3.4
WT6401LX144	4/23/2024	10:58:29	Room	Wall	Ceramic	C	Intact	Light Green	General Brown CSD	905	2
WT6401LX145	4/23/2024	10:58:54	Room	Wall	Ceramic	D	Intact	Light Green	General Brown CSD	905	2.7
WT6401LX175	4/23/2024	12:37:35	Room	Wall	Concrete	A	Intact	Brown	General Brown CSD	703	1.7
WT6401LX177	4/23/2024	12:39:24	Room	Wall	Concrete	C	Intact	Brown	General Brown CSD	703	1.2

Notes:  
Alpha numerical room side designations were based on A beginning with the address side of the building and progressing clockwise around the room.

Table E-11  
Summary of XRF Test Results - Lead Detected at Less than 1 mg/cm<sup>2</sup>

Reading No.	Date	Time	Structure	Member	Substrate	Side	Condition	Color	Site	Room	Result (mg/cm <sup>2</sup> )
WT6401LX07	4/23/2024	8:02:03	Door	Casing	Metal	C	Intact	Gold	General Brown CSD	301	0.1
WT6401LX08	4/23/2024	8:03:50	Room	Wall	Block	A	Intact	Off-White	General Brown CSD	301a	0.1
WT6401LX09	4/23/2024	8:04:19	Room	Wall	Block	B	Intact	Off-White	General Brown CSD	301a	0.1
WT6401LX10	4/23/2024	8:04:58	Room	Wall	Block	C	Intact	Off-White	General Brown CSD	301a	0.2
WT6401LX14	4/23/2024	8:09:56	Door	Casing	Metal	C	Intact	Gold	General Brown CSD	303	0.1
WT6401LX15	4/23/2024	8:10:31	Door	---	Wood	C	Intact	Varnish	General Brown CSD	303	0.1
WT6401LX16	4/23/2024	8:11:16	Room	Wall	Gypsum	A	Intact	Off-White	General Brown CSD	303	0.2
WT6401LX17	4/23/2024	8:11:50	Room	Wall	Gypsum	B	Intact	Off-White	General Brown CSD	303	0.1
WT6401LX20	4/23/2024	8:15:48	Room	Wall	Block	A	Intact	Off-White	General Brown CSD	303a	0.5
WT6401LX23	4/23/2024	8:17:15	Room	Wall	Block	D	Intact	Off-White	General Brown CSD	303a	0.2
WT6401LX25	4/23/2024	8:19:23	Door	Casing	Metal	C	Intact	Gold	General Brown CSD	305	0.1
WT6401LX27	4/23/2024	8:20:43	Room	Wall	Plaster	D	Intact	Off-White	General Brown CSD	305	0.1
WT6401LX29	4/23/2024	8:21:47	Room	Wall	Plaster	B	Intact	Off-White	General Brown CSD	305	0.2
WT6401LX30	4/23/2024	8:23:51	Room	Wall	Plaster	B	Intact	Off-White	General Brown CSD	307	0.1
WT6401LX31	4/23/2024	8:24:20	Room	Wall	Plaster	C	Intact	Off-White	General Brown CSD	307	0.1
WT6401LX33	4/23/2024	8:25:34	Room	Wall	Plaster	A	Intact	Off-White	General Brown CSD	307	0.3
WT6401LX37	4/23/2024	8:29:51	Door	---	Wood	C	Intact	Varnish	General Brown CSD	309	0.1
WT6401LX38	4/23/2024	8:30:36	Room	Wall	Plaster	C	Intact	Off-White	General Brown CSD	309	0.1
WT6401LX39	4/23/2024	8:31:08	Room	Wall	Plaster	D	Intact	Off-White	General Brown CSD	309	0.1
WT6401LX48	4/23/2024	8:38:21	Door	Casing	Metal	C	Intact	Gold	General Brown CSD	311	0.1
WT6401LX50	4/23/2024	8:40:57	Door	---	Wood	D	Intact	Varnish	General Brown CSD	600	0.1
WT6401LX51	4/23/2024	8:41:47	Room	Wall	Plaster	D	Intact	Off-White	General Brown CSD	600	0.2
WT6401LX54	4/23/2024	8:43:30	Room	Wall	Plaster	C	Intact	Off-White	General Brown CSD	600	0.2
WT6401LX55	4/23/2024	8:45:37	Room	Wall	Plaster	A	Intact	Off-White	General Brown CSD	602	0.1
WT6401LX56	4/23/2024	8:46:34	Room	Wall	Plaster	B	Intact	Off-White	General Brown CSD	602	0.2
WT6401LX57	4/23/2024	8:47:01	Room	Wall	Plaster	C	Intact	Off-White	General Brown CSD	602	0.2
WT6401LX59	4/23/2024	8:53:25	Room	Wall	Plaster	A	Intact	Off-White	General Brown CSD	302	0.1
WT6401LX61	4/23/2024	8:54:38	Room	Wall	Plaster	C	Intact	Off-White	General Brown CSD	302	0.1
WT6401LX63	4/23/2024	8:56:37	Door	---	Wood	A	Intact	Varnish	General Brown CSD	302	0.1
WT6401LX64	4/23/2024	8:57:13	Door	Casing	Metal	A	Intact	Gold	General Brown CSD	302	0.1
WT6401LX65	4/23/2024	8:59:17	Room	Wall	Plaster	A	Intact	Off-White	General Brown CSD	300a	0.1
WT6401LX66	4/23/2024	9:14:36	Room	Wall	Plaster	A	Intact	Off-White	General Brown CSD	300a	0.2
WT6401LX68	4/23/2024	9:16:31	Room	Wall	Plaster	C	Intact	Off-White	General Brown CSD	300a	0.1
WT6401LX71	4/23/2024	9:19:04	Room	Wall	Plaster	B	Intact	Off-White	General Brown CSD	300	0.3



**Table E-11**  
**Summary of XRF Test Results - Lead Detected at Less than 1 mg/cm<sup>2</sup>**

Reading No.	Date	Time	Structure	Member	Substrate	Side	Condition	Color	Site	Room	Result (mg/cm <sup>2</sup> )
WT6401LX74	4/23/2024	9:20:48	Door	---	Wood	A	Intact	Varnish	General Brown CSD	300	0.1
WT6401LX75	4/23/2024	9:21:24	Door	Casing	Metal	A	Intact	Gold	General Brown CSD	300	0.1
WT6401LX76	4/23/2024	9:22:23	Column	N/A	Metal	C	Intact	Gray	General Brown CSD	300	0.2
WT6401LX77	4/23/2024	9:24:09	Column	N/A	Metal	C	Intact	Gray	General Brown CSD	302	0.2
WT6401LX78	4/23/2024	9:27:48	Room	Wall	Ceramic	A	Intact	Peach	General Brown CSD	392	0.2
WT6401LX79	4/23/2024	9:28:29	Room	Wall	Ceramic	A	Intact	Salmon	General Brown CSD	392	0.3
WT6401LX80	4/23/2024	9:29:05	Room	Wall	Plaster	A	Intact	Off-White	General Brown CSD	392	0.2
WT6401LX81	4/23/2024	9:29:36	Room	Wall	Plaster	C	Intact	Off-White	General Brown CSD	392	0.3
WT6401LX82	4/23/2024	9:30:17	Room	Wall	Ceramic	C	Intact	Salmon	General Brown CSD	392	0.3
WT6401LX83	4/23/2024	9:30:45	Room	Wall	Ceramic	C	Intact	Peach	General Brown CSD	392	0.3
WT6401LX85	4/23/2024	9:35:23	Room	Wall	Plaster	B	Intact	Off-White	General Brown CSD	610	0.1
WT6401LX86	4/23/2024	9:36:05	Room	Wall	Plaster	C	Intact	Off-White	General Brown CSD	610	0.2
WT6401LX87	4/23/2024	9:36:38	Room	Wall	Plaster	D	Intact	Off-White	General Brown CSD	610	0.1
WT6401LX89	4/23/2024	9:39:41	Room	Ceiling	Plaster	D	Intact	Green	General Brown CSD	610d	0.2
WT6401LX91	4/23/2024	9:40:40	Room	Wall	Plaster	C	Intact	Green	General Brown CSD	610d	0.2
WT6401LX92	4/23/2024	9:41:07	Room	Wall	Plaster	B	Intact	Green	General Brown CSD	610d	0.1
WT6401LX93	4/23/2024	9:41:33	Room	Wall	Plaster	A	Intact	Green	General Brown CSD	610d	0.1
WT6401LX94	4/23/2024	9:46:15	Room	Wall	Plaster	A	Intact	Green	General Brown CSD	610c	0.2
WT6401LX95	4/23/2024	9:46:45	Room	Wall	Plaster	B	Intact	Green	General Brown CSD	610c	0.1
WT6401LX96	4/23/2024	9:47:10	Room	Wall	Plaster	C	Intact	Green	General Brown CSD	610c	0.2
WT6401LX101	4/23/2024	9:51:15	Room	Wall	Plaster	A	Intact	Green	General Brown CSD	610a	0.2
WT6401LX102	4/23/2024	9:51:41	Room	Wall	Plaster	B	Intact	Green	General Brown CSD	610a	0.2
WT6401LX103	4/23/2024	9:52:09	Room	Wall	Plaster	C	Intact	Green	General Brown CSD	610a	0.1
WT6401LX104	4/23/2024	9:52:36	Room	Wall	Plaster	D	Intact	Green	General Brown CSD	610a	0.1
WT6401LX105	4/23/2024	10:02:44	Room	Wall	Gypsum	A	Intact	Off-White	General Brown CSD	506	0.1
WT6401LX108	4/23/2024	10:04:27	Room	Wall	Plaster	D	Intact	Off-White	General Brown CSD	506	0.1
WT6401LX109	4/23/2024	10:05:41	Door	---	Wood	A	Intact	Varnish	General Brown CSD	506	0.1
WT6401LX110	4/23/2024	10:06:17	Door	Casing	Metal	A	Intact	Gold	General Brown CSD	506	0.1
WT6401LX112	4/23/2024	10:07:47	Door	---	Wood	A	Intact	Stain	General Brown CSD	504	0.1
WT6401LX113	4/23/2024	10:08:27	Room	Wall	Gypsum	A	Intact	Off-White	General Brown CSD	504	0.1
WT6401LX114	4/23/2024	10:09:08	Room	Wall	Gypsum	C	Intact	Off-White	General Brown CSD	504	0.1
WT6401LX118	4/23/2024	10:12:35	Room	Wall	Gypsum	C	Intact	Off-White	General Brown CSD	502	0.1
WT6401LX120	4/23/2024	10:16:07	Room	Wall	Gypsum	A	Intact	Off-White	General Brown CSD	509	0.2
WT6401LX121	4/23/2024	10:16:34	Room	Wall	Gypsum	B	Intact	Off-White	General Brown CSD	509	0.2

**Table E-11**  
**Summary of XRF Test Results - Lead Detected at Less than 1 mg/cm<sup>2</sup>**

Reading No.	Date	Time	Structure	Member	Substrate	Side	Condition	Color	Site	Room	Result (mg/cm <sup>2</sup> )
WT6401LX123	4/23/2024	10:17:53	Door	---	Wood	C	Intact	Varnish	General Brown CSD	509	0.2
WT6401LX124	4/23/2024	10:18:28	Door	Casing	Metal	C	Intact	Gold	General Brown CSD	509	0.2
WT6401LX125	4/23/2024	10:19:35	Column	N/A	Metal	A	Intact	Gray	General Brown CSD	509	0.1
WT6401LX131	4/23/2024	10:45:09	Room	Wall	Ceramic	A	Intact	Cream	General Brown CSD	909	0.5
WT6401LX132	4/23/2024	10:45:52	Room	Wall	Ceramic	B	Intact	Cream	General Brown CSD	909	0.4
WT6401LX133	4/23/2024	10:46:18	Room	Wall	Ceramic	C	Intact	Cream	General Brown CSD	909	0.5
WT6401LX134	4/23/2024	10:46:45	Room	Wall	Ceramic	D	Intact	Cream	General Brown CSD	909	0.5
WT6401LX135	4/23/2024	10:48:33	Room	Wall	Block	D	Intact	White	General Brown CSD	909	0.3
WT6401LX136	4/23/2024	10:49:01	Room	Wall	Block	A	Intact	White	General Brown CSD	909	0.2
WT6401LX137	4/23/2024	10:49:29	Room	Wall	Block	B	Intact	White	General Brown CSD	909	0.4
WT6401LX138	4/23/2024	10:52:48	Room	Wall	Ceramic	A	Intact	Off-White	General Brown CSD	909b	0.1
WT6401LX139	4/23/2024	10:53:33	Room	Wall	Ceramic	B	Intact	Off-White	General Brown CSD	909b	0.1
WT6401LX140	4/23/2024	10:53:59	Room	Wall	Ceramic	C	Intact	Off-White	General Brown CSD	909b	0.1
WT6401LX141	4/23/2024	10:54:24	Room	Wall	Ceramic	D	Intact	Off-White	General Brown CSD	909b	0.2
WT6401LX146	4/23/2024	10:59:26	Room	Wall	Ceramic	D	Intact	Cream	General Brown CSD	905	0.6
WT6401LX147	4/23/2024	11:00:00	Room	Wall	Ceramic	C	Intact	Cream	General Brown CSD	905	0.5
WT6401LX148	4/23/2024	11:00:24	Room	Wall	Ceramic	B	Intact	Cream	General Brown CSD	905	0.4
WT6401LX149	4/23/2024	11:00:51	Room	Wall	Ceramic	A	Intact	Cream	General Brown CSD	905	0.5
WT6401LX150	4/23/2024	11:01:44	Room	Wall	Block	A	Intact	White	General Brown CSD	905	0.2
WT6401LX152	4/23/2024	11:02:35	Room	Wall	Block	C	Intact	White	General Brown CSD	905	0.3
WT6401LX153	4/23/2024	11:04:04	Room	Wall	Ceramic	A	Intact	Off-White	General Brown CSD	905b	0.2
WT6401LX154	4/23/2024	11:04:50	Room	Wall	Ceramic	B	Intact	Off-White	General Brown CSD	905b	0.2
WT6401LX155	4/23/2024	11:05:15	Room	Wall	Ceramic	C	Intact	Off-White	General Brown CSD	905b	0.1
WT6401LX156	4/23/2024	11:05:38	Room	Wall	Ceramic	D	Intact	Off-White	General Brown CSD	905b	0.3
WT6401LX163	4/23/2024	12:15:17	Room	Wall	Block	A	Intact	White	General Brown CSD	902	0.2
WT6401LX164	4/23/2024	12:15:52	Room	Wall	Block	B	Intact	White	General Brown CSD	902	0.2
WT6401LX165	4/23/2024	12:16:17	Room	Wall	Block	C	Intact	White	General Brown CSD	902	0.1
WT6401LX166	4/23/2024	12:17:31	Room	Wall	Block	D	Intact	White	General Brown CSD	902	0.2
WT6401LX167	4/23/2024	12:21:08	Room	Wall	Block	D	Intact	White	General Brown CSD	716	0.2
WT6401LX169	4/23/2024	12:22:30	Room	Wall	Block	B	Intact	White	General Brown CSD	716	0.4
WT6401LX170	4/23/2024	12:23:06	Room	Wall	Block	A	Intact	White	General Brown CSD	716	0.3
WT6401LX171	4/23/2024	12:25:13	Room	Wall	Block	A	Intact	White	General Brown CSD	907	0.1
WT6401LX172	4/23/2024	12:25:42	Room	Wall	Block	B	Intact	White	General Brown CSD	907	0.1
WT6401LX173	4/23/2024	12:26:08	Room	Wall	Block	C	Intact	White	General Brown CSD	907	0.1
WT6401LX174	4/23/2024	12:26:41	Room	Wall	Block	D	Intact	White	General Brown CSD	907	0.1

Table E-II

Summary of XRF Test Results - Lead Detected at Less than 1 mg/cm<sup>2</sup>

Reading No.	Date	Time	Structure	Member	Substrate	Side	Condition	Color	Site	Room	Result (mg/cm <sup>2</sup> )
WT6401LX176	4/23/2024	12:38:10	Room	Wall	Concrete	B	Intact	Brown	General Brown CSD	703	0.4
WT6401LX178	4/23/2024	12:40:18	Room	Wall	Concrete	D	Intact	Brown	General Brown CSD	703	0.4
WT6401LX179	4/23/2024	12:40:51	Room	Wall	Block	D	Intact	Light Green	General Brown CSD	703	0.3
WT6401LX180	4/23/2024	12:41:31	Room	Wall	Block	A	Intact	Light Green	General Brown CSD	703	0.3
WT6401LX181	4/23/2024	12:41:57	Room	Wall	Block	B	Intact	Light Green	General Brown CSD	703	0.3
WT6401LX182	4/23/2024	12:42:40	Room	Wall	Block	C	Intact	Light Green	General Brown CSD	703	0.5
WT6401LX183	4/23/2024	12:43:47	Stair	Stringer	Metal	Center	Intact	Dark Gray	General Brown CSD	703	0.3
WT6401LX184	4/23/2024	12:44:14	Stair	Treads	Metal	Center	Intact	Dark Gray	General Brown CSD	703	0.3
WT6401LX186	4/23/2024	12:51:33	I-Beam	N/A	Metal	Center	Intact	Black	General Brown CSD	Mezzanine	0.2
WT6401LX187	4/23/2024	13:02:22	Room	Wall	Block	B	Intact	Off-White	General Brown CSD	709a	0.3
WT6401LX191	4/23/2024	13:04:49	Door	Lintel	Metal	Center	Intact	Off-White	General Brown CSD	709a	0.2
WT6401LX192	4/23/2024	13:10:43	Room	Wall	Plaster	A	Intact	Off-White	General Brown CSD	108	0.5
WT6401LX196	4/23/2024	13:13:04	Room	Wall	Ceramic	A	Intact	Off-White	General Brown CSD	108	0.4
WT6401LX197	4/23/2024	13:13:32	Room	Wall	Ceramic	B	Intact	Off-White	General Brown CSD	108	0.3
WT6401LX198	4/23/2024	13:13:57	Room	Wall	Ceramic	C	Intact	Off-White	General Brown CSD	108	0.2
WT6401LX199	4/23/2024	13:14:21	Room	Wall	Ceramic	D	Intact	Off-White	General Brown CSD	108	0.2
WT6401LX201	4/23/2024	13:16:32	Room	Ceiling	Plaster	Center	Intact	Off-White	General Brown CSD	110	0.2
WT6401LX202	4/23/2024	13:17:16	Room	Wall	Ceramic	B	Intact	Tan	General Brown CSD	110	0.3
WT6401LX203	4/23/2024	13:18:43	Room	Wall	Ceramic	C	Intact	Tan	General Brown CSD	110	0.3
WT6401LX204	4/23/2024	13:19:30	Room	Wall	Ceramic	D	Intact	Off-White	General Brown CSD	110	0.2
WT6401LX205	4/23/2024	13:19:56	Room	Wall	Ceramic	A	Intact	Off-White	General Brown CSD	110	0.3
WT6401LX206	4/23/2024	13:20:24	Room	Wall	Plaster	A	Intact	Off-White	General Brown CSD	110	0.3
WT6401LX207	4/23/2024	13:20:50	Room	Wall	Plaster	B	Intact	Off-White	General Brown CSD	110	0.3
WT6401LX208	4/23/2024	13:21:15	Room	Wall	Plaster	C	Intact	Off-White	General Brown CSD	110	0.2
WT6401LX209	4/23/2024	13:21:40	Room	Wall	Plaster	D	Intact	Off-White	General Brown CSD	110	0.2
WT6401LX212	4/23/2024	13:26:14	Room	Wall	Plaster	A	Intact	Off-White	General Brown CSD	106	0.1
WT6401LX213	4/23/2024	13:26:51	Room	Wall	Plaster	B	Intact	Off-White	General Brown CSD	106	0.3
WT6401LX215	4/23/2024	13:27:59	Room	Wall	Plaster	D	Intact	Off-White	General Brown CSD	106	0.3
WT6401LX216	4/23/2024	13:29:32	Room	Wall	Plaster	A	Intact	Off-White	General Brown CSD	106	0.1
WT6401LX217	4/23/2024	13:30:08	Room	Wall	Plaster	B	Intact	Off-White	General Brown CSD	106b	0.3
WT6401LX218	4/23/2024	13:30:41	Room	Wall	Plaster	C	Intact	Off-White	General Brown CSD	106b	0.3
WT6401LX220	4/23/2024	13:32:33	Room	Wall	Plaster	A	Intact	Off-White	General Brown CSD	106a	0.3
WT6401LX223	4/23/2024	13:33:53	Room	Wall	Plaster	C	Intact	Off-White	General Brown CSD	106a	0.3
WT6401LX226	4/23/2024	13:37:27	Room	Wall	Plaster	C	Intact	Off-White	General Brown CSD	106d	0.1
WT6401LX228	4/23/2024	13:39:55	Room	Wall	Block	A	Intact	Off-White	General Brown CSD	106e	0.3

Table E-11  
Summary of XRF Test Results - Lead Detected at Less than 1 mg/cm<sup>2</sup>

Reading No.	Date	Time	Structure	Member	Substrate	Side	Condition	Color	Site	Room	Result (mg/cm <sup>2</sup> )
WT6401LX230	4/23/2024	13:40:50	Room	Wall	Block	C	Intact	Off-White	General Brown CSD	106e	0.2
WT6401LX232	4/23/2024	14:08:23	Room	Wall	Block	D	Intact	Off-White	General Brown CSD	100	0.2
WT6401LX234	4/23/2024	14:16:00	Room	Wall	Ceramic	A	Intact	Salmon	General Brown CSD	243	0.2
WT6401LX235	4/23/2024	14:16:27	Room	Wall	Ceramic	A	Intact	Peach	General Brown CSD	243	0.3
WT6401LX236	4/23/2024	14:16:53	Room	Wall	Ceramic	C	Intact	Peach	General Brown CSD	243	0.2
WT6401LX237	4/23/2024	14:17:21	Room	Wall	Ceramic	C	Intact	Salmon	General Brown CSD	243	0.3
WT6401LX238	4/23/2024	14:17:59	Room	Wall	Plaster	C	Intact	Off-White	General Brown CSD	243	0.2
WT6401LX239	4/23/2024	14:18:29	Room	Wall	Plaster	A	Intact	Off-White	General Brown CSD	243	0.3

Table E-11  
Summary of XRF Test Results - No Lead Detected

Reading No.	Date	Time	Structure	Member	Substrate	Side	Condition	Color	Site	Room	Result (mg/cm <sup>2</sup> )
WT6401LX04	4/23/2024	7:59:41	Room	Wall	Gypsum	A	Intact	Off-White	General Brown CSD	301	0
WT6401LX05	4/23/2024	8:00:21	Room	Wall	Gypsum	B	Intact	Off-White	General Brown CSD	301	0
WT6401LX06	4/23/2024	8:00:59	Room	Wall	Plaster	C	Intact	Off-White	General Brown CSD	301	0
WT6401LX11	4/23/2024	8:05:24	Room	Wall	Block	D	Intact	Off-White	General Brown CSD	301a	0
WT6401LX12	4/23/2024	8:06:16	Door	---	Wood	B	Intact	Varnish	General Brown CSD	301a	0
WT6401LX13	4/23/2024	8:06:44	Door	Casing	Wood	B	Intact	Varnish	General Brown CSD	301a	0
WT6401LX18	4/23/2024	8:12:32	Room	Wall	Gypsum	C	Intact	Off-White	General Brown CSD	303	0
WT6401LX19	4/23/2024	8:13:19	Room	Wall	Gypsum	D	Intact	Off-White	General Brown CSD	303	0
WT6401LX21	4/23/2024	8:16:15	Room	Wall	Block	B	Intact	Off-White	General Brown CSD	303a	0
WT6401LX22	4/23/2024	8:16:51	Room	Wall	Block	C	Intact	Off-White	General Brown CSD	303a	0
WT6401LX24	4/23/2024	8:18:49	Door	---	Wood	C	Intact	Varnish	General Brown CSD	305	0
WT6401LX26	4/23/2024	8:20:10	Room	Wall	Plaster	C	Intact	Off-White	General Brown CSD	305	0
WT6401LX28	4/23/2024	8:21:11	Room	Wall	Plaster	A	Intact	Off-White	General Brown CSD	305	0
WT6401LX32	4/23/2024	8:24:55	Room	Wall	Plaster	D	Intact	Off-White	General Brown CSD	307	0
WT6401LX34	4/23/2024	8:26:53	Door	---	Wood	C	Intact	Varnish	General Brown CSD	307	0
WT6401LX35	4/23/2024	8:27:25	Door	Casing	Metal	C	Intact	Gold	General Brown CSD	307	0
WT6401LX36	4/23/2024	8:29:08	Door	Casing	Metal	C	Intact	Gold	General Brown CSD	309	0
WT6401LX40	4/23/2024	8:31:52	Room	Wall	Plaster	A	Intact	Off-White	General Brown CSD	309	0
WT6401LX41	4/23/2024	8:32:36	Room	Wall	Plaster	B	Intact	Off-White	General Brown CSD	309	0
WT6401LX42	4/23/2024	8:34:47	Room	Wall	Plaster	B	Intact	Off-White	General Brown CSD	311	0
WT6401LX43	4/23/2024	8:35:13	Room	Wall	Plaster	A	Intact	Off-White	General Brown CSD	311	0
WT6401LX44	4/23/2024	8:35:39	Room	Wall	Plaster	D	Intact	Off-White	General Brown CSD	311	0
WT6401LX45	4/23/2024	8:36:10	Room	Wall	Plaster	C	Intact	Off-White	General Brown CSD	311	0
WT6401LX47	4/23/2024	8:37:48	Door	---	Wood	C	Intact	Varnish	General Brown CSD	311	0
WT6401LX49	4/23/2024	8:40:18	Door	Casing	Metal	D	Intact	Gold	General Brown CSD	600	0
WT6401LX52	4/23/2024	8:42:21	Room	Wall	Plaster	A	Intact	Off-White	General Brown CSD	600	0
WT6401LX53	4/23/2024	8:42:53	Room	Wall	Plaster	B	Intact	Off-White	General Brown CSD	600	0
WT6401LX58	4/23/2024	8:47:29	Room	Wall	Plaster	D	Intact	Off-White	General Brown CSD	602	0
WT6401LX60	4/23/2024	8:54:06	Room	Wall	Plaster	B	Intact	Off-White	General Brown CSD	302	0
WT6401LX62	4/23/2024	8:55:19	Room	Wall	Plaster	D	Intact	Off-White	General Brown CSD	302	0
WT6401LX67	4/23/2024	9:15:59	Room	Wall	Plaster	B	Intact	Off-White	General Brown CSD	300a	0
WT6401LX69	4/23/2024	9:17:01	Room	Wall	Plaster	D	Intact	Off-White	General Brown CSD	300a	0
WT6401LX70	4/23/2024	9:18:17	Room	Wall	Plaster	A	Intact	Off-White	General Brown CSD	300	0
WT6401LX72	4/23/2024	9:19:34	Room	Wall	Plaster	C	Intact	Off-White	General Brown CSD	300	0

Table E-11

Summary of XRF Test Results - No Lead Detected

Reading No.	Date	Time	Structure	Member	Substrate	Side	Condition	Color	Site	Room	Result (mg/cm <sup>2</sup> )
WT6401LX73	4/23/2024	9:20:02	Room	Wall	Plaster	D	Intact	Off-White	General Brown CSD	300	0
WT6401LX84	4/23/2024	9:34:51	Room	Wall	Plaster	A	Intact	Off-White	General Brown CSD	610	0
WT6401LX88	4/23/2024	9:37:20	Room	Ceiling	Plaster	D	Intact	Off-White	General Brown CSD	610	0
WT6401LX90	4/23/2024	9:40:15	Room	Wall	Plaster	D	Intact	Green	General Brown CSD	610d	0
WT6401LX97	4/23/2024	9:47:55	Door	---	Wood	C	Intact	Green	General Brown CSD	610c	0
WT6401LX98	4/23/2024	9:48:20	Door	Casing	Wood	C	Intact	Green	General Brown CSD	610c	0
WT6401LX99	4/23/2024	9:50:13	Door	Casing	Wood	A	Intact	Green	General Brown CSD	610a	0
WT6401LX100	4/23/2024	9:50:39	Door	---	Wood	A	Intact	Green	General Brown CSD	610a	0
WT6401LX106	4/23/2024	10:03:18	Room	Wall	Plaster	A	Intact	Off-White	General Brown CSD	506	0
WT6401LX107	4/23/2024	10:04:01	Room	Wall	Plaster	C	Intact	Off-White	General Brown CSD	506	0
WT6401LX111	4/23/2024	10:07:14	Door	Casing	Metal	A	Intact	Gold	General Brown CSD	504	0
WT6401LX115	4/23/2024	10:10:07	Room	Wall	Gypsum	D	Intact	Off-White	General Brown CSD	504	0
WT6401LX116	4/23/2024	10:11:34	Room	Wall	Gypsum	A	Intact	Off-White	General Brown CSD	502	0
WT6401LX117	4/23/2024	10:12:00	Room	Wall	Gypsum	B	Intact	Off-White	General Brown CSD	502	0
WT6401LX119	4/23/2024	10:13:05	Room	Wall	Gypsum	D	Intact	Off-White	General Brown CSD	502	0
WT6401LX122	4/23/2024	10:17:09	Room	Wall	Gypsum	D	Intact	Off-White	General Brown CSD	509	0
WT6401LX151	4/23/2024	11:02:09	Room	Wall	Block	B	Intact	White	General Brown CSD	905	0
WT6401LX168	4/23/2024	12:21:37	Room	Wall	Block	C	Intact	White	General Brown CSD	716	0
WT6401LX185	4/23/2024	12:44:44	Stair	Railing	Metal	Center	Intact	Dark Gray	General Brown CSD	703	0
WT6401LX188	4/23/2024	13:02:49	Room	Wall	Block	C	Intact	Off-White	General Brown CSD	709a	0
WT6401LX189	4/23/2024	13:03:19	Room	Wall	Block	D	Intact	Off-White	General Brown CSD	709a	0
WT6401LX190	4/23/2024	13:03:48	Room	Wall	Block	A	Intact	Off-White	General Brown CSD	709a	0
WT6401LX193	4/23/2024	13:11:24	Room	Wall	Plaster	B	Intact	Off-White	General Brown CSD	108	0
WT6401LX194	4/23/2024	13:11:56	Room	Wall	Plaster	C	Intact	Off-White	General Brown CSD	108	0
WT6401LX195	4/23/2024	13:12:23	Room	Wall	Plaster	D	Intact	Off-White	General Brown CSD	108	0
WT6401LX200	4/23/2024	13:14:54	Room	Ceiling	Plaster	Center	Intact	Off-White	General Brown CSD	108	0
WT6401LX210	4/23/2024	13:23:14	Room	Wall	Plaster	B	Intact	Brown	General Brown CSD	427	0
WT6401LX211	4/23/2024	13:23:44	Room	Wall	Plaster	D	Intact	Brown	General Brown CSD	427	0
WT6401LX214	4/23/2024	13:27:24	Room	Wall	Plaster	C	Intact	Off-White	General Brown CSD	106	0
WT6401LX219	4/23/2024	13:31:17	Room	Wall	Plaster	D	Intact	Off-White	General Brown CSD	106b	0
WT6401LX221	4/23/2024	13:33:02	Room	Wall	Plaster	B	Intact	Off-White	General Brown CSD	106a	0
WT6401LX222	4/23/2024	13:33:25	Room	Wall	Plaster	C	Intact	Off-White	General Brown CSD	106a	0
WT6401LX224	4/23/2024	13:36:32	Room	Wall	Plaster	A	Intact	Off-White	General Brown CSD	106d	0
WT6401LX225	4/23/2024	13:37:00	Room	Wall	Plaster	B	Intact	Off-White	General Brown CSD	106d	0

Table E-II  
Summary of XRF Test Results - No Lead Detected

Reading No.	Date	Time	Structure	Member	Substrate	Side	Condition	Color	Site	Room	Result (mg/cm <sup>2</sup> )
WT6401LX227	4/23/2024	13:37:57	Room	Wall	Plaster	D	Intact	Off-White	General Brown CSD	106d	0
WT6401LX229	4/23/2024	13:40:19	Room	Wall	Block	B	Intact	Off-White	General Brown CSD	106e	0
WT6401LX231	4/23/2024	14:07:21	Room	Wall	Block	C	Intact	Off-White	General Brown CSD	100	0
WT6401LX233	4/23/2024	14:09:34	Room	Wall	Block	A	Intact	Off-White	General Brown CSD	100	0



**Table E-III  
Summary of XRF Calibration Results**

Reading No.	Date	Time	Structure	Member	Substrate	Side	Condition	Color	Site	Room	Result (mg/cm <sup>2</sup> )
WT6401LX01	4/23/2024	7:55:21	N/A	N/A	N/A	Calibration	N/A	N/A	General Brown CSD	N/A	1.1
WT6401LX02	4/23/2024	7:56:02	N/A	N/A	N/A	Calibration	N/A	N/A	General Brown CSD	N/A	1.2
WT6401LX03	4/23/2024	7:56:43	N/A	N/A	N/A	Calibration	N/A	N/A	General Brown CSD	N/A	1.2
WT6401LX157	4/23/2024	11:09:39	N/A	N/A	N/A	Calibration	N/A	N/A	General Brown CSD	N/A	1.1
WT6401LX158	4/23/2024	11:10:19	N/A	N/A	N/A	Calibration	N/A	N/A	General Brown CSD	N/A	1.1
WT6401LX159	4/23/2024	11:10:58	N/A	N/A	N/A	Calibration	N/A	N/A	General Brown CSD	N/A	1.1
WT6401LX160	4/23/2024	12:03:51	N/A	N/A	N/A	Calibration	N/A	N/A	General Brown CSD	N/A	1.1
WT6401LX161	4/23/2024	12:04:31	N/A	N/A	N/A	Calibration	N/A	N/A	General Brown CSD	N/A	1.1
WT6401LX162	4/23/2024	12:05:10	N/A	N/A	N/A	Calibration	N/A	N/A	General Brown CSD	N/A	1.1
WT6401LX240	4/23/2024	14:21:02	N/A	N/A	N/A	Calibration	N/A	N/A	General Brown CSD	N/A	1.1
WT6401LX241	4/23/2024	14:27:29	N/A	N/A	N/A	Calibration	N/A	N/A	General Brown CSD	N/A	1.1
WT6401LX242	4/23/2024	14:28:08	N/A	N/A	N/A	Calibration	N/A	N/A	General Brown CSD	N/A	1.2
WT6401LX243	4/23/2024	14:28:48	N/A	N/A	N/A	Calibration	N/A	N/A	General Brown CSD	N/A	1.1

**SECTION 02 4100  
DEMOLITION**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Selective demolition of building elements for alteration purposes.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 1000 - Summary - Multi Contract: Limitations on Contractor's use of site and premises.
- B. Section 01 1000 - Summary - Multi Contract: Sequencing and staging requirements.
- C. Section 01 3529.10 - Life Safety During School Construction
- D. Section 01 4510 - Asbestos Air & Project Monitoring and Control
- E. Section 01 5000 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.
- F. Section 01 6000 - Product Requirements: Handling and storage of items removed for salvage and relocation.
- G. Section 01 7000 - Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products; temporary bracing and shoring.
- H. Section 02 2600 - Asbestos, Lead and PCB Assessment
- I. Section 02 8213 - Asbestos Abatement
- J. Section 02 8313 - Lead Hazard Control Activities
- K. Section 02 8433 - Removal of PCB Containing Caulking.
- L. Division 31 - Earth work
- M. Division 32 - Exterior Improvements.

**1.03 DEFINITIONS**

- A. Demolition: Dismantle, raze, destroy or wreck any building or structure or any part thereof.
- B. Remove: Detach or dismantle items from existing construction and dispose of them off site, unless items are indicated to be salvaged or reinstalled.
- C. Remove and Salvage: Detach or dismantle items from existing construction in a manner to prevent damage. Clean, package, label and deliver salvaged items to Owner in ready-for-reuse condition.
- D. Remove and Reinstall: Detach or dismantle items from existing construction in a manner to prevent damage. Clean and prepare for reuse and reinstall where indicated.
- E. Existing to Remain: Designation for existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.

**1.04 REFERENCE STANDARDS**

- A. 29 CFR 1926 - U.S. Occupational Safety and Health Standards.
- B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations.

**1.05 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Site Plan: Indicate:
  - 1. Vegetation to be protected.
  - 2. Areas for temporary construction and field offices.
- C. Demolition Plan: Submit demolition plan.
  - 1. Indicate extent of demolition, removal sequencing, bracing and shoring, and location and construction of barricades and fences.

2. Demolition firm qualifications.
  3. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and for noise control. Coordinate proposed locations and construction of barriers with Construction Manager and Owner.
  4. Pre-demolition Photographs or Video: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by demolition operations. Submit to Construction Manager prior to the commencement of the Work.
  5. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.
- D. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

## **1.06 QUALITY ASSURANCE**

- A. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

## **1.07 PROJECT CONDITIONS**

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition in a manner to prevent disruption to Owner's operations.
- B. Notify Construction Manager and Architect of any discrepancies between the existing conditions and the Contract Drawings prior to proceeding with selective demolition.
- C. Existing Conditions: Do not disturb existing structures, construction, materials or equipment unless required by the Contract.
1. Do not cut, drill, or remove structural members such as joists, beams or columns supporting construction that is to remain unless expressly required by the Contract Documents.
- D. Asbestos, Lead and/or PCBs may be present in the building and structure to be selectively demolished. Reference Section 02 2600 Asbestos, Lead and Pcb Assessment. Examine Section 02 2600 to become aware of locations where hazardous materials may be present.
- E. Existing Paint: A lead survey was performed on existing surfaces for the presence of lead based paints. A list of the surfaces tested and the results of the survey are include in Section 02 2600. Take precautions as required to prevent the spread of lead containing particles and dust.
1. Assume existing painted surfaces that have not been tested to contain lead based paint. Take precautions as required to prevent spread of lead containing particles and dust.
- F. Burning is prohibited.
- G. The use of explosives is prohibited.
- H. Prior to beginning demolition/removals, verify that all utilities serving the building area to be demolished have been disconnected.
- I. Do not interrupt utility services to buildings which are to remain. Maintain existing utilities scheduled to remain and to remain in service. Protect existing utilities from damage during selective demolition operations and reconstruction work.

## **PART 2 PRODUCTS**

### **2.01 MATERIALS**

- A. Match the appearance and performance of existing corresponding materials as closely as practicable, unless otherwise indicated.
- B. Plugs, Caps, Flanges: Approved cast iron thread plugs, welded caps, or flange.
- C. Fill Material: See Division 31 for additional information.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Remove loose equipment, materials, supplies, and furnishings (desks, chairs, furniture, etc.) from building prior to demolition.
- B. Remove items scheduled to be salvaged for the Facility, and place in designated storage area.
- C. Provide temporary barricades and other protection required to prevent injury to people and damage to portions of building indicated to remain.
  - 1. Provide protection of people to ensure safe passage of people around selective demolition area and to and from occupied portions of the building.
  - 2. Protect walls, ceilings, floors and other existing finish work that are indicated to remain and that are exposed during selective demolition operations.
  - 3. Cover and protect furniture, furnishings, cabinetry and equipment that are not able to be removed or have not been removed from selective demolition area.
- D. Temporary Shoring: Design, provide and maintain shoring, bracing and structural supports as required to preservice stability and prevent movement, settlement or collapse of the building, the construction and finishes to remain and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
  - 1. Maintain shoring for entire duration of selective demolition; strengthen and/or new when required during the progress of the selective demolition work.

### **3.02 DEMOLITION**

- A. Remove portions of existing buildings as indicated on the Contract Drawings.
  - 1. Perform selective demolition in a systematic manner, beginning at the top of the higher level to the lower level. Complete selective demolition above each floor level before disturbing supporting members on lower levels.
- B. Remove paving, and curbs required to accomplish new work.
- C. Remove concrete slabs on grade as indicated on drawings.
- D. Remove manholes and manhole covers, curb inlets and catch basins.
- E. Remove fences and gates.
- F. Remove other items indicated, for relocation.
- G. Fill excavations, open pits, and holes in ground areas generated as result of removals, using specified fill; compact fill as required so that required rough grade elevations do not subside within one year after completion.

### **3.03 GENERAL PROCEDURES**

- A. When unanticipated mechanical, plumbing, structural or electrical elements conflict with the intended function or design are encountered, investigate and measure the nature of the conflict. Promptly notify and provide written report of investigation to the Construction Manager and the Architect.
- B. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
  - 1. Obtain required permits.
  - 2. Comply with applicable requirements of NFPA 241.
  - 3. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
  - 4. Provide, erect, and maintain temporary barriers and security devices.
  - 5. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
  - 6. Do not close or obstruct roadways or sidewalks without permits from authority having jurisdiction.
  - 7. Conduct operations to minimize obstruction of public and private entrances and exits. Do not obstruct required exits at any time. Protect persons using entrances and exits from removal operations.

8. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon, or limit access to their property.
- C. Do not begin removal until receipt of notification to proceed from Owner.
- D. Protect existing structures and other elements to remain in place and not removed.
  1. Prior to cutting, drilling or removal, investigate both sides of the surface involved. Determine the exact location of structural members.
  2. Provide bracing and shoring.
  3. Prevent movement or settlement of adjacent structures.
  4. Stop work immediately if adjacent structures appear to be in danger.
- E. Minimize production of dust due to demolition operations. Do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.
- F. Hazardous Materials:
  1. If hazardous materials are discovered during removal operations, stop work and notify Construction Manager, Architect and Owner; hazardous materials include regulated asbestos containing materials, lead, PCBs, and mercury.
- G. Partial Removal of Paving and Curbs: Neatly saw cut at right angle to surface.
- H. If unforeseen obstructions are encountered, take precautions necessary to prevent damage and obtain instructions from the Construction Manager and Architect before proceeding with the Work.

### **3.04 EXISTING UTILITIES**

- A. Verify utilities have been disconnected and capped prior to all demolition activities.
- B. Coordinate work with utility companies. Notify utilities before starting work, comply with their requirements, and obtain required permits.
- C. Protect existing utilities to remain from damage.
- D. Do not disrupt public utilities without permit from authority having jurisdiction.
- E. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.
- F. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.
- G. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.
- H. Existing services/systems to be removed, relocated or abandoned; locate, identify, disconnect, and seal/cap indicated utility services and mechanical, plumbing and electrical systems to be selectively demolished.
  1. Coordinate with Owner for shut off indicated services/systems.
  2. Coordinate shut off of building utilities with utility companies when required. Coordinate shut off with Owner and provide proper notification.
  3. Where services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition in order to maintain continuity of services/systems to other parts of the occupied building.
  4. Disconnect, demolish, remove fire-suppression systems, plumbing and HVAC systems, equipment and components indicated to be removed.
    - a. Piping to be removed: Remove portion of piping indicated to be removed and cap/plug remaining piping with compatible piping material.
    - b. Equipment to be removed: Disconnect and cap services and remove equipment.
    - c. Equipment to be removed and reinstalled: Disconnect and cap services. Remove, clean and store equipment, when appropriate, reinstall, reconnect and make equipment operational.
    - d. Equipment to be removed and salvaged: Disconnect and cap services and remove equipment; deliver to Owner at designated location to be determined by Owner.
    - e. Ductwork to be removed: Remove portions of ductwork indicated to be removed. Cap/seal remaining ductwork with compatible ductwork material as approved by the Architect.

- I. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

### **3.05 SELECTIVE DEMOLITION FOR ALTERATIONS**

- A. Existing construction and utilities indicated on drawings are based on casual field observation and existing record documents only.
  - 1. Verify construction and utility arrangements are as indicated.
  - 2. Report discrepancies to Architect before disturbing existing installation.
  - 3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.
- B. Separate areas in which demolition is being conducted from areas that remain occupied.
  - 1. Provide, erect, and maintain temporary dustproof partitions of construction indicated on drawings .
  - 2. Provide sound retardant partitions of construction and in locations indicated on drawings.
- C. Maintain weatherproof exterior building enclosure, except for interruptions required for replacement or modifications; prevent water and humidity damage.
- D. Remove existing work as indicated and required to accomplish new work.
  - 1. Remove items indicated on drawings.
- E. Services including, but not limited to, HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications: Remove existing systems and equipment as indicated.
  - 1. Maintain existing active systems to remain in operation, and maintain access to equipment and operational components.
  - 2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
  - 3. Verify that abandoned services serve only abandoned facilities before removal.
  - 4. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings. Remove back to source of supply where possible, otherwise cap stub and tag with identification.
- F. Protect existing work to remain.
  - 1. Prevent movement of structure. Provide shoring and bracing as required.
  - 2. Perform cutting to accomplish removal work neatly and as specified for cutting new work.
  - 3. Repair adjacent construction and finishes damaged during removal work.
  - 4. Patch to match new work.

### **3.06 REMOVALS, CUTTING, AND ALTERING**

- A. In addition to the items indicated to be removed on the Drawings, remove existing construction superseded by the Work except items such as pipes, conduits, recessed boxes, and ducts which are built into existing construction that is to remain. Cut off and conceal such items at face of remaining construction. Provide cover plates on recessed boxes.
- B. Remove and alter existing construction as required to install and connect the Work to adjacent construction in an approved manner.
- C. Cut and alter existing materials as required to perform the Work. Limit cutting to the smallest amount necessary. Core drill round holes and saw cut other openings where possible.
- D. Perform cutting, drilling, and removals in a manner which will prevent damage to construction which is to remain.
- E. Perform removal of items to remain the property of the State with such care as necessary to prevent damage to these items.

### **3.07 PATCHING**

- A. Patch existing construction and finishes defaced, damaged, or left incomplete due to alterations and removals. Patching, except as otherwise indicated, shall be limited to the areas which have been cut or altered. Finish patched surfaces to match existing adjacent surfaces as closely as practicable.

- B. Perform patching around items penetrating existing construction in a manner that will maintain the water and fire resistive capability of the existing construction.
- C. Paint patched areas and cover plates to match existing adjacent surfaces as closely as practicable using same type of paint. Painting, except as otherwise indicated, shall be limited to the areas which have been patched.
- D. Where surfaces exposed by removals are to remain as exposed surfaces, paint such areas to match existing adjacent surfaces as closely as practicable using same type of paint.

**3.08 REINSTALLATION**

- A. Where reinstallation of removed items is indicated, reinstall them to a condition equal to or better than their condition before removal.

**3.09 DEBRIS AND WASTE REMOVAL**

- A. Remove debris, junk, and trash from site as soon as practical.
- B. Leave site in clean condition, ready for subsequent work.
- C. Clean up spillage and wind-blown debris from public and private lands.

**END OF SECTION**



**SECTION 024115  
TEMPORARY EROSION AND SEDIMENT CONTROL**

**PART 1 GENERAL**

**1.01 SUMMARY AND RELATED REQUIREMENTS**

- A. Drawings and general provisions of Contract, including Division 01 – General Requirements, apply to work of this section.
- B. Refer to other sections of the specification, drawings, and details to determine type and extent of work there is affecting the work of this section, whether or not such work is specifically mentioned in this section. It is the intent of this specification to include all labor and material required to complete this section whether or not it is clearly or explicitly shown.
- C. Section Includes:
  - 1. Prevention of erosion due to construction activities.
  - 2. Prevention of sedimentation of waterways, open drainage ways, and storm and sanitary sewers due to construction activities.
  - 3. Restoration of areas eroded due to insufficient preventive measures.
  - 4. Compensation of owner for fines leveled by authorities having jurisdiction due to non-compliance by Contractor.
- D. Related Requirements:
  - 1. Section 024116 – Site Clearing
  - 2. Section 312000 – Earth Moving

**1.02 REFERENCE STANDARDS**

- A. New York Standards and Specifications for Erosion and Sediment Control, April 2005 by the New York State Department of Environmental Conservation
- B. EPA (NPDES) – National Pollutant Discharge Elimination System (NPDES), Construction General Permit; current edition.

**1.03 PERFORMANCE REQUIREMENTS**

- A. Comply with all requirements of the U.S. Environmental Protection Agency for erosion and sedimentation control, as specified for the National Pollutant Discharge Elimination System (NPDES), Phase I and II, under requirements for the 2010 Construction General Permit (CGP), whether the project is required by law to comply or not.
- B. Comply with all requirements of the NYS Department of Environmental Conservation – State Pollution Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity, Permit No. GP -0-20-001, and Standards and Specifications for Erosion and Sediment Control.
- C. Do not begin clearing, grading, or other work involving disturbance of ground surface cover until applicable permits have been obtained.
- D. Timing: Put preventive measures in place as soon as possible after disturbance of surface cover and before precipitation occurs.
- E. Storm Water Runoff: Control increased stormwater runoff due to disturbance of surface cover due to construction activities for this project.
  - 1. Prevent runoff into storm and sanitary sewer systems, including open drainage channels, in excess of actual capacity or the amount allowed by authorities having jurisdiction, whichever or less.
  - 2. Anticipate runoff volume due to the most extreme short-term and 24-hour rainfall events that might occur in 25 years.

- F. Erosion on Site: Minimize wind, water, and vehicular erosion of soil on project site due to construction activities for this project.
  - 1. Control movement of sediment and soil from temporary stockpiles of soil.
  - 2. Prevent development of ruts due to equipment and vehicular traffic.
  - 3. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to the Owner.
- G. Erosion Off-Site: Prevent erosion of soil and deposition of sediment on other properties caused by water leaving the project site due to construction activities for this project.
  - 1. Prevent windblown soil from leaving the project site.
  - 2. Prevent tracking of mud onto public roads outside site.
  - 3. Prevent mud and sediment from flowing onto sidewalks and pavements.
  - 4. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to Owner.
- H. Sedimentation of Waterways on Site: Prevent sedimentation of waterways on the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.
  - 1. If sedimentation occurs, Install or correct preventive measures immediately at no cost to Owner; remove deposited sediments; comply with requirements of authorities having jurisdiction.
  - 2. If sediment basins are used as temporary preventive measures, pump dry and remove deposited sediment after each storm.
- I. Sedimentation of Waterways Off-site; Prevent sedimentation of waterways of the project site including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.
  - 1. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments; comply with requirements of authorities having jurisdiction.
- J. Open Water: Prevent standing water that could become stagnant.
- K. Maintenance: Maintain temporary preventive measures until permanent measures have been established.

#### **1.04 SUBMITTALS**

- A. Certificate: Mill certificate for silt fence fabric attesting that fabric and factory seams comply with specified requirements, signed by legally authorized official of manufacturer; indicate actual minimum average roll values; identify fabric by roll identification numbers.

### **PART 2 PRODUCTS**

#### **2.01 MATERIALS**

- A. Mulch: All material should be reasonably free of undesirable seeds & coarse material, weeds, and other deleterious material. Use one of the following:
  - 1. Straw
  - 2. Wood waste, chips, or bark
  - 3. Wood fiber hydro-mulch or other sprayable products approved for erosion control.
  - 4. Erosion control matting or netting.
- B. Grass Seed For Temporary Cover:
  - 1. Spring, summer, or early fall: Seed the area with ryegrass (annual and/or perennial) at 30 lbs. per acre (Approx. 0.7 lb./1000 SF).
  - 2. Late fall or early winter: Seed certifies 'Aroostook' winter rye (cereal rye) at 100 lbs. per acre (2.5 lbs./1000 SF).
  - 3. Sod where slope is 3:1 or greater as shown on grading and erosion control plans.
- C. Silt Fence Fabric: Polypropylene geotextile resistant to common soil chemicals, mildew, and insects; non-biodegradable; in longest lengths possible; fabric including seams with the following minimum average roll lengths:

1. Average Opening Size: 30 U.S. Std. Sleeve, maximum, when tested in accordance with ASTM D 4751.
  2. Permittivity: 0.05 sec<sup>-1</sup>, minimum, when tested in accordance with ASTM D 4491.
  3. Ultraviolet Resistance: Retaining at least 70 percent of tensile strength, when tested in accordance with ASTM D 4355 after 500 hours exposure.
  4. Tensile Strength: 100 lb-f, minimum, in cross-machine direction; 124 lb-f, minimum, in machine direction, when tested in accordance with ASTM D 4632.
  5. Elongation: 15 to 30 percent, when tested in accordance with ASTM D 4632.
  6. Tear Strength: 55 lb-f, minimum, when tested in accordance with ASTM D 4533.
  7. Color: Manufacturer's standard, with embedment and fastener lines preprinted.
- D. Manufacturers:
1. TenCate; Mirafi 100x: [www.tencate.com](http://www.tencate.com).
  2. Or approved equal.
- E. Silt Fence Posts: Minimum 3 feet long
1. Hardwood, 2 X 2 inches in cross-section

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Examine site and identify existing features that contribute to erosion resistance; maintain such existing features to the greatest extent possible

### **3.02 PREPARATION**

- A. Schedule work so that soil surfaces are left exposed for the minimum amount of time.

### **3.03 SCOPE OF PREVENTATIVE MEASURES**

- A. Construction Entrances: Traffic-bearing aggregate surface.
1. Width: as required; 12 feet, minimum, 24' if single entrance to site.
  2. Length: 50 feet minimum.
  3. Provide at each construction entrance from public right-of-way.
  4. Where necessary to prevent tracking of mud onto right-of-way, provide wheel washing area out of direct traffic lane, with a drain into sediment trap or basin.
- B. Linear Sediment Barriers: Made of silt fences.
1. Provide linear sediment barriers:
    - a. Along downhill perimeter edge of disturbed areas, including soil stockpiles.
    - b. Along the top of the slope or top bank of drainage channels and swales that traverse disturbed areas.
    - c. Along the toe of cut slopes and fill slopes.
  2. Space sediment barriers with the following maximum slope length upslope from barrier:
    - a. Slope of Less Than 2 Percent: 100 feet.
    - b. Slope Between 2 and 5 Percent: 75 feet.
    - c. Slope Between 5 and 10 Percent: 50 feet.
    - d. Slope Between 10 and 20 Percent: 25 feet.
    - e. Slope Over 20 Percent: 15 feet.
- C. Place inlet protection on all open drainage structures which receive or potentially could receive runoff from the project area.
- D. Storm Drain Drop Inlet Sediment Traps: As detailed on drawings.
- E. Temporary Splash Pads: Stone aggregate over filter fabric; size to suit application; provide at downspout outlets and stormwater outlets.

- F. Soil Stockpiles: Protect using one of the following measures of the Erosion and Sediment Control Plan, as applicable:
  - 1. Cover with polyethylene film, secured by placing soil on outer edges.
  - 2. Cover with mulch at least 4 Inches thickness of pine needles, sawdust, bark, wood chips, or shredded leaves, or 6 inches of straw.
  - 3. If soil is to be stockpiled for longer than 14 days, the stockpile shall be mulched and seeded.
- G. Mulching: Use only for areas that may be subjected to erosion for less than 6 months.
  - 1. Wood Waste: Use only on slopes 3:1 or flatter; no anchoring required.
- H. Temporary Seeding: Use where temporary vegetated cover is required.
  - 1. Any seeding method may be used that will provide uniform application of seed to the area and result in relatively good soil to seed contact.
  - 2. Mulch the area with straw at 2 tons/acre (approx. 90 lbs./1,000 SF or 2 bales). Mulch anchoring will be required where wind or areas of concentrated water are of concern. Wood fiber hydro-mulch or other sprayable products approved for erosion control (nylon web or mesh) may be used if applied according to manufacturers' specifications. Caution is advised when using nylon or other synthetic products. They may be difficult to remove prior to final seeding.

### 3.04 INSTALLATION

- A. Traffic-Bearing Aggregate Surface:
  - 1. Excavate minimum of 6 inches.
  - 2. Place geotextile fabric full width and length, with minimum 12-inch overlap at joints.
  - 3. Place and compact at least 6 Inches of 1–4-inch diameter stone or reclaimed or recycled concrete equivalent.
- B. Silt Fences:
  - 1. Store and handle fabric in accordance with ASTM D 4873.
  - 2. Where slope gradient is less than 3:1 or barriers will be in place less than 6 months, use nominal 16-inch-high barriers with minimum 36-inch-long posts spaced at 6 feet maximum, with fabric embedded at least 4 inches in the ground.
  - 3. Where the slope gradient is steeper than 3:1 or barriers will be in place over 6 months, use nominal 28-inch-high barriers, minimum 48-inch-long posts spaced at 6 feet maximum, with fabric embedded at least 6 Inches in the ground.
  - 4. Where slope gradient is steeper than 3:1 and vertical height of slope between barriers is more than 20 feet, use nominal 32-inch-high barriers with woven wire reinforcement and steel posts spaced at 4 feet maximum, with fabric embedded at least 6 inches in the ground.
  - 5. Install with top of fabric at nominal height and embedment as specified.
  - 6. Embed bottom of fabric in a trench on the upslope side of fence, with 4 inches of fabric laid flat on bottom of trench facing upslope; backfill trench and compact.
  - 7. Do not splice fabric width; minimize splices in fabric length; splice at post only, overlapping at least 18 inches, with extra post.
  - 8. Fasten fabric to wood posts using one of the following:
    - 9. Four 3/4 Inch diameter, 1 inch long, 14 gage nails.
    - 10. Five 17-gage staples with 3/4-inch-wide crown and 1/2-inch legs.
  - 11. Wherever runoff will flow around end of barrier or over the top, provide temporary splash pad or other outlet protection; at such outlets in the run of the barrier, make barrier not more than 12 inches high with post spacing not more than 4 feet.
- C. Mulching Over Large Areas:
  - 1. Dry Straw: Apply 2-1/2 tons per acre; anchor sufficiently.
  - 2. Wood Waste: Apply 6 to 9 tons per acre; anchor sufficiently.
  - 3. Erosion Control Matting: Comply with manufacturer's instructions.
- D. Mulching Over Small and Medium Areas:

1. Dry Straw: Apply 4 to 6 inches depth.
  2. Wood Waste: Apply 2 to 3 inches depth
  3. Erosion Control Matting: Comply with manufacturer's instructions.
- E. Temporary Seeding:
1. When hydraulic seeder is used, seedbed preparation is not required.
  2. When surface soil has been sealed by rainfall or consists of smooth undisturbed cut slopes, and conventional or manual seeding is to be used, prepare seedbed by scarifying sufficiently to allow seed to lodge and germinate.
  3. If temporary mulching was used on planting area but not removed, apply nitrogen fertilizer at 1 pound per 1,000 sq ft.
  4. On soils of very low fertility, apply 10-10-10 fertilizer at rate of 12 to 16 pounds per 1,000 sq ft.
  5. Incorporate fertilizer into soil before seeding.
  6. Apply seed uniformly, if using drill or cultipacker seeders place seed 1/2 to 1 inch deep.
  7. Mulch the area with straw at 2 tons/acre (approx. 90 lbs./1,000 SF or 2 bales). Mulch anchoring will be required where wind or areas of concentrated water are of concern. Wood fiber hydro-mulch or other sprayable products approved for erosion control (nylon web or mesh) may be used if applied according to manufacturers' specifications. Caution is advised when using nylon or other synthetic products. They may be difficult to remove prior to final seeding.
  8. Irrigate as required to thoroughly wet soil to depth that will ensure germination, without causing runoff or erosion.
  9. Repeat Irrigation as required until grass is established.

### **3.05 MAINTENANCE**

- A. Inspect preventive measures weekly, and within 24 hours after the end of any storm that produces 0.5 inches or more rainfall at the project site, and daily during prolonged rainfall.
- B. Repair deficiencies immediately.
- C. Silt Fences:
  1. Promptly replace fabric that deteriorates unless need for fence has passed.
  2. Remove silt deposits that exceed one-third of the height of the fence or when "bulges" develop in the silt fence.
  3. Repair fences that are undercut by runoff or otherwise damaged, whether by runoff or other causes.
- D. Clean out temporary sediment control structures weekly and relocate soil on site.
- E. Place sediment in appropriate locations on-site; do not remove from site.

### **3.06 CLEAN UP**

- A. Remove temporary measures after permanent measures have been installed, unless permitted to remain by Landscape Architect- Engineer. Coordinate with Landscape Architect- Engineer prior to removal.
- B. Clean out temporary sediment control structures that are to remain as permanent measures.
- C. Where removal of temporary measures would leave exposed soil, shape surface to an acceptable grade and finish to match adjacent ground surfaces.

**END OF SECTION**

**SECTION 024116  
SITE CLEARING**

**PART 1 GENERAL**

**1.01 SUMMARY AND RELATED REQUIREMENTS**

- A. Drawings and general provisions of Contract, including Division 01 – General Requirements, apply to work of this section.
- B. Refer to other sections of the specification, drawings, and details to determine type and extent of work there is affecting the work of this section, whether or not such work is specifically mentioned in this section. It is the intent of this specification to include all labor and material required to complete this section whether or not it is clearly or explicitly shown.
  - 1. Section Includes: Clearing and removal of pavements, removal of topsoil, other such site improvements.
- C. Related Requirements:
  - 1. Section 024115 – Temporary Erosion and Sediment Control
  - 2. Section 312000 – Earth Moving

**1.02 DEFINITIONS**

- A. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.
- B. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called “topsoil,” but in disturbed areas such as urban environments, the surface soil can be subsoil.
- C. Topsoil: Top layer of the soil profile consists of existing native surface topsoil or existing in-places surface soil; the zone where plant roots grow. Its appearance is generally friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects larger than 1 inch in diameter; and free of weeds, roots, toxic materials, or other non-soil materials.
- D. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction and indicated on Drawings.
- E. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction and indicated on Drawings.
- F. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

**1.03 MATERIAL OWNERSHIP**

- A. Except for materials indicated to be stockpiled or otherwise remain Owner’s property, cleared materials shall become Contractor’s property and shall be removed from Project site and legally disposed and/or reused by the Contractor.

**1.04 PROJECT CONDITIONS**

- A. TRAFFIC
  - 1. Conduct site clearing operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks, or other occupied or used facilities without permission from authorities having jurisdiction.
- B. PROTECTION OF EXISTING IMPROVEMENTS
  - 1. Provide protection necessary to prevent damage to existing improvements indicated to remain in place.
  - 2. Protect improvements on adjoining properties and on Owner’s property.
  - 3. Restore damaged improvements to their original condition, as acceptable to property owners.

C. PROTECTION OF EXISTING TREES AND VEGETATION

1. Protect existing trees and other vegetation indicated to remain in place against unnecessary cutting, breaking, or skinning of roots, skinning or bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip line. Provide temporary guards to protect trees and vegetation to be left standing (if any) as shown on the drawings or as otherwise necessary.

D. UTILITIES

1. Coordinate work with and coordinate clearance from utility companies. Notify the Underground Facilities Protective Organization 72 HOURS before start of any work. Phone (800)962-7962.
2. Unless they are shown to be removed, protect active utility lines shown on Contract Drawings or otherwise made known to Contractor prior to excavating. If damaged, repair or replace such utility lines at no additional cost to the Owner.
3. If active utility lines are encountered and are not shown on the Contract Drawings or otherwise made known to Contractor, take necessary steps promptly to assure that services will not be interrupted. If a service is interrupted by work performed under this Section, immediately restore service by restoring damaged utility at no additional cost to the Owner.

E. PROTECTION OF PERSONS AND PROPERTY

1. Barricade open depressions and holes, which occur in the performance of this work. Post warning lights on property adjacent to, or with public access to the work site.
2. Operate warning lights during hours from dusk to dawn each day and as otherwise required.
3. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, staining, and other hazards created by operations under this Section.

F. DE-WATERING

1. Remove all water, including rainwater, encountered during performance of work under this Section to an approved location by pumps, drains and other approved methods.

G. DUST CONTROL

1. Control dust on and near work, and on and near off site areas.

H. TEMPORARY EROSION AND SEDIMENT CONTROL

1. Do not commence site clearing operations until temporary erosion and sedimentation control and plant-protection measures are in place as specified in Section 024115 – Temporary Erosion and Sediments Control.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Mirafi 100X or approved equal silt fence.

**PART 3 EXECUTION**

**3.01 GENERAL**

- A. All work shall be performed in accordance with the approved Erosion and Sediment Control Plans as indicated on the Drawings.
- B. Remove trees, shrubs, grass and other vegetation, improvements, or obstructions as required to permit installation of new construction. Remove similar items elsewhere on site or premises as specifically indicated. "Removal" includes digging out and off-site disposing of all such materials.
- C. Protect and maintain benchmarks and survey control points from disturbance during construction.

**3.02 EXECUTION**

A. TEMPORARY EROSION AND SEDIMENTATION CONTROL

1. Provide temporary erosion and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways,



according to erosion-and sedimentation-control Drawings and requirements of authorities having jurisdiction as specified in Section 024115 – Temporary Erosion and Sediment Control.

**B. EXISTING UTILITIES**

1. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place. Arrange with utility companies to shut off indicated utilities.
2. Locate, identify, and disconnect utilities indicated to be abandoned in place.
3. Interrupting Existing Utilities. Do not interrupt utilities serving facilities occupied by Owner or others, unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated. Do not proceed with utility interruptions without Civil Engineer or Landscape Architect's written permission.

**C. CLEARING AND GRUBBING**

1. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.
2. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
3. Completely grind down stumps and remove roots larger than 6" in diameter, obstructions, and debris to a depth of 18 inches below exposed subgrade.
4. Use only hand methods or air spade for grubbing within protection zones.
5. Chip removed tree branches and dispose of off-site.
6. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
7. Place fill material in horizontal layers not exceeding a loose depth of 6 inches and compact each layer to a density equal to adjacent original ground.

**D. TOPSOIL STRIPPING**

1. Remove sod and grass before stripping topsoil.
2. Strip topsoil to whatever depths encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.
3. Remove subsoil and non soil materials from topsoil, including clay lumps, gravel, and other objects larger than ½ inches in diameter; trash, debris, weeds, roots, and other waste materials.
4. Stockpile topsoil away from edge of excavation in location indicated on the Drawings without intermixing with subsoil or other materials. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water as shown on the drawings.
5. Do not stockpile topsoil within protection zones.
6. Dispose of surplus topsoil. Surplus topsoil is that which exceeds quantity indicated to be stockpiled or reused.

**E. REMOVAL OF IMPROVEMENTS**

1. Remove existing above-grade and below-grade improvements as indicated on the Drawings and as necessary to facilitate new construction.
2. Sawcut pavement at edges between pavement to remain and existing pavement to be demolished and removed, for utility lines and road curb cuts.

**F. DIVERSION OF STREAMS AND DRAINAGE WAYS**

1. If streams, drainage ways, or wet areas are observed, divert out of construction area. Also protect neighboring properties from outfall.

**G. DISPOSAL OF WASTE MATERIALS**

1. Burning is not permitted on Owner's property.
2. Remove indicated improvements and waste material from Owner's property and dispose of in accordance with governing authorities. Excess soil shall remain on site and will be contoured to create berms as directed by Landscape Architect or returned to owner for use elsewhere.

**END OF SECTION**

**SECTION 02 8213  
ASBESTOS ABATEMENT**

**GENERAL**

**1.01 SCOPE OF WORK**

- A. The removal and disposal of asbestos-containing material (ACM) as described herein and as shown in the Contract Drawings. The Work shall be conducted in accordance with the applicable codes, rules and regulations applicable to asbestos removal and disposal, but not limited to the New York State Industrial Code Rule 56 (as known as 12 NYCRR Part 56.)
- B. Type of Asbestos Abatement Project:
  - 1. Large Asbestos Abatement Project: An Asbestos Abatement Project involving the removal, disturbance, repair or handling of more than 160 square feet or 260 linear feet of asbestos containing material.
- C. The Asbestos Abatement Contractor is responsible for all work related to the abatement of identified ACM, including, but not limited to, the following:
  - 1. Submission and approval of required notification prior to commencement of work.
  - 2. Coordination with the Owner or Owner's designated representative for removal of movable furnishings and equipment, including miscellaneous small items such as tools, stored materials, files, and records, prior to asbestos abatement work commencing.
  - 3. Protection of Work to Remain: Preserve and protect building materials and finishes, electrical equipment, and heating and ventilation equipment present within each work area that is not removed or abated. Perform work without damage to or contamination of adjacent areas. The Contractor and Owner shall agree in writing on the condition of the building and fixtures and background level, prior to commencement of the work.
  - 4. Removal of all ACM within the areas of work, as designated on the Contract Drawings.
  - 5. Inspection of areas of work to ensure that all ACM has been removed in accordance with the Contract Documents. Inspection shall be completed with Owner's Environmental Consultant (Project Monitor).
  - 6. Maintain the required log of all persons entering work area.
  - 7. Post all applicable regulations at the project site.
  - 8. Be responsible for obtaining approval for a waste disposal site and transportation of waste to waste disposal facility. Waste disposal facility must have a valid NYSDEC or Regulatory Waste Authority permit. Waste transporter shall have a valid NYSDEC, Division of Solid & Hazardous Materials, Part 364 Waste Transporter Permit.
  - 9. Provide Owner with record drawing of asbestos removal including location, quantity and type of asbestos removed.
  - 10. Provide Owner with close-out report and record drawings containing all information pertaining to the removal and disposal of ACM (quantity and location). Close-out Report is to include a completed and signed waste manifest.

**1.02 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 specification sections shall apply to work of this section.
- B. Section 00 3113 - Milestone Schedule.
- C. Section 01 3000 - Administrative Requirements.
- D. Section 01 4510 - Asbestos Removal Air & Project Monitoring and Control.
- E. Section 02 2600 Asbestos, Lead, and PCB Assessment.

**1.03 GENERAL CONDITIONS OF ASBESTOS ABATEMENT**

- A. The Owner will make necessary arrangement prior to the start of the asbestos abatement work to remove moveable objects such as equipment, desks, chairs, etc. from the asbestos work areas in order to provide the Contractor with access to the work area to construct required critical barriers, isolation barriers and exhaust areas which adjoin or are part of the area to be abated.

- B. The asbestos abatement work is to be conducted by a New York State licensed asbestos abatement contractor in accordance with all applicable codes, rules, and regulations including, but not limited to, New York State Industrial Code Rule 56 that apply to the work.
1. If the Contractor wishes to deviate from the Contract Documents or amend their procedures, the Contractor may, at its own expense, obtain and use a site-specific variance to conduct the asbestos abatement work.
  2. The site-specific variance is to be prepared by a NYSDOL certified Project Designer and will be subject to prior review and approval by the Owner, Architect, Asbestos Designer of Record, Resident Project Representative, and Environmental Consultant (Project Monitor). The Contractor prepared site-specific variance will only be considered when that the site-specific variance petition process does not delay the start or finish of the asbestos abatement work as scheduled or the overall schedule of the Work.
    - a. Should the NYSDOL approve the site specific variance application, the Contractor will provide a copy of the NYSDOL approved variance to the Owner, Architect, Asbestos Designer of Record, Resident Project Representative, and Environmental Consultant (Project Monitor) for their records.
    - b. The NYSDOL approved Site Specific Variance is to be posted in the asbestos work area.
    - c. All associated cost of the NYSDOL approved Site Specific Variance, including but not limited to additional air & project monitoring, Owner, Architect, Asbestos Designer of Record, Resident Project Representative, and Environmental Consultant (Project Monitor) expenses and any expenses of other Contractors as a result of the Site Specific Variance, are to be borne by the Contractor.
  3. The Abatement Contractor shall employ only New York State Department of Labor (NYSDOL) certified Asbestos Supervisors and Handlers. The Contractor shall provide the appropriate quantity of certified personnel to work as many shifts and as many hours as needed to complete the work within the specified time period as scheduled.
    - a. The Contractor's Project Supervisor shall have a minimum of 5 years of experience as a project supervisor. His experience shall be similar in scope, size, and complexity.
    - b. The Project Supervisor shall be capable of communicating in English and the native language of the asbestos abatement work crew.
- C. Procedures for abatement of asbestos-containing materials (ACM) from the areas of scheduled work.
1. ACM and assumed ACM that are located within the areas of scheduled work will require abatement prior to, or in coordination with, the scheduled demolition and renovation activities. Reference the contract drawings for additional details pertaining to abatement of identified or assumed ACM.
  2. Materials with trace asbestos have been identified within the areas of scheduled work. Although not considered regulated ACM, work activities affecting materials with trace asbestos are subject to criteria specified in OSHA 29 CFR 1926.1101.
  3. Verify the locations and quantities of materials to be removed as the basis for the bid. Contract Drawings depict the areas in which the work will be conducted, and show the general location of identified or assumed ACM, as determined from the hazardous materials assessment performed for the site.
  4. Suspect ACM that have not been tested must be assumed to contain asbestos, unless proved otherwise through sampling and analysis.
  5. The Contract Drawings indicate the extent of the removal and disposal and is to be used as a guideline.
    - a. The Contractor is to field verify to his satisfaction all quantities, locations and conditions ACMs to be removed and disposed under this project.
    - b. The Contractor will review all architectural drawings as to the extent, location and configuration of the abatement work areas. Such as, but not limited to, a detailed representation of the general layout of the site buildings, building access, the extent of asbestos removal specified per work area, and ancillary machinery or equipment (i.e., mechanical, electrical, landscaping, etc.) located within each specific work area.

- c. The Contractor is to protect architectural finishes, landscaping, fixtures, structures and equipment outside the abatement work area and all adjacent non-abatement work area from damage as a result of the asbestos abatement work. If any damage occurs, the Contractor is responsible for all cost related to the repair, restoration or replacement of the damaged finishes, landscaping, equipment, fixtures or structures. Repair, restoration or replacement work required as a result of the asbestos abatement work will be completed at no cost to the Owner.
- D. The Contractor is to perform all work in such a manner as to minimize the risk of exposure to personnel, to prevent exposure to occupants, and to minimize the risk of release of asbestos or asbestos-containing debris to the environment.
- E. The Contractor is to notify and make employees aware of the occupational safety hazards associated with the abatement work and other work being performed on-site.
- F. The Contractor is to perform all work in strict accordance with the Contract Documents and all governing codes, rules, and regulations. Where conflicts occur between the Contract Documents and applicable codes, rules, and regulations, the more stringent procedure(s) shall apply. Interpretation of regulations or differences in interpretation of applicable regulations between any parties associated with the project shall be settled in a manner consistent with the administrative and contractual procedures specified in other applicable sections of the Contract Documents. If a resolution cannot be readily obtained, the applicable regulatory authority will be contacted for interpretation. The interpretation of the regulatory authority will be final.

#### 1.04 REGULATIONS AND CODES

- A. Comply with the codes and standards listed below, except where more stringent requirements are shown and/or specified. Specific regulations, standards, and guidance documents are listed for informational purposes due to relevance to the work described herein. Specific regulations, standards, and guidance documents that are not listed may also be applicable to the work.
  - 1. Federal Regulations:
    - a. American National Standard Institute (ANSI)
      - 1) ANSI Z88.2-80, Practices for Respiratory Protection
      - 2) ANSI Z9.2-79, Fundamentals Governing the Design and Operation of Local Exhaust Systems
    - b. Code of Federal Regulations (CFR)
      - 1) 29 CFR 1910.1001, "Asbestos" (OSHA)
      - 2) 29 CFR 1910.1200, "Hazard Communication" (OSHA)
      - 3) 29 CFR 1910.134, "Respiratory Protection" (OSHA)
      - 4) 29 CFR 1910.145, "Specification for Accident Prevention Signs and Tags" (OSHA)
      - 5) 29 CFR 1926, "Construction Industry" (OSHA)
      - 6) OSHA 29 CFR Part 1926.2 – Variances from Health and Safety Standards
      - 7) 29 CFR 1926.1101 "Asbestos" (OSHA)
      - 8) 29 CFR 1926.500, "Guardrails, Handrails and Covers" (OSHA)
      - 9) 40 CFR 61, Subpart A, "General Provisions" (EPA)
      - 10) 40 CFR 61, Subpart M, "National Emission Standard for Asbestos" (USEPA)
      - 11) 49 CFR 171-172, "Transportation Standards" (USDOT)
      - 12) 40 CFR 763, Subpart E, "Asbestos-Containing Materials in Schools" (USEPA)
    - c. Occupational Safety and Health Administration (OSHA)
    - d. United States Department of Transportation (USDOT)
    - e. United States Environmental Protection Agency (USEPA)
      - 1) USEPA 560/585-024, Guidance for Controlling Asbestos-Containing Materials in Buildings (Purple Book)
      - 2) USEPA 530-SW-85-007, Asbestos Waste Management Guidance
  - 2. New York State regulations, which govern asbestos abatement, hauling, and disposal of asbestos waste materials include, but are not limited to, the following:
    - a. Compilation of the Rules and Regulations of the State of New York (NYCRR)
      - 1) 6 NYCRR, Parts 360 and 364, "Disposal and Transportation" (NYSDEC)

- 2) 10 NYCRR, Part 73, "Asbestos Safety Program Requirements" (NYSDOH)
- 3) 12 NYCRR, Part 56, "Asbestos", Industrial Code Rule 56 (NYSDOL)
- 4) Guidance Document (AGD-v2.0) on 12 NYCRR, Part 56
- b. The New York State Uniform Fire Prevention and Building Code (the Uniform Code) 2020.
  - 1) The Building Code of New York State 2020
    - (a) Chapter 33 Safeguards During Construction
  - 2) The Existing Building Code of New York State 2020
    - (a) Chapter 15 Construction Safeguards
  - 3) The Fire Code of New York State 2020
    - (a) Chapter 33 Fire Safety During Construction and Demolition
  - 4) The Mechanical Code of New York State 2020
  - 5) The Plumbing Code of New York State 2020
  - 6) The Fuel Gas Code of New York State 2020
  - 7) The Property Maintenance Code of New York State 2020
    - (a) Chapter 7 Fire Safety Requirements
- c. New York State Department of Environmental Conservation (NYSDEC)
  - 1) Part 360 Solid Waste Management Facilities
  - 2) Part 364 Waste Transporter Permits.
  - 3) Part 370 Hazardous Waste Management System-General
  - 4) Part 371 Identification and Listing of Hazardous Waste
  - 5) Part 372 Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities
  - 6) Part 373 Hazardous Waste Management Facilities.
- d. New York State Department of Health (NYSDOH)
  - 1) 10NYCRR Part 73 Asbestos Safety Program Requirements.
- e. New York State Department of Labor (NYSDOL)
  - 1) 12 NYCRR Part 56 - Asbestos (also known as Industrial Code Rule 56) as amended March 21, 2007.
    - (a) Guidance Document 2.0 released January 24, 2009.
- f. New York State Department of State (NYSDOS)
- g. New York State Department of Transportation (NYSDOT)
- h. New York State School Asbestos Safety Act (SASA).
- i. NFPA 72 - the National Electric Code (NEC).
- j. NFPA 101 - the Life Safety Code.
- k. Toxic Substances Control Act (TSCA) Title II Asbestos Hazard Emergency Response Act (AHERA) (October 22, 1986) and most recent amendments/editions.

## 1.05 DEFINITIONS

- A. See NYSDOL Industrial Code Rule No. 56.
- B. See Chapter 2 of the Fire Code, Existing Building Code & Building Code of New York State for other definitions.

## 1.06 QUALITY ASSURANCE

- A. Consult with the local fire/rescue department in the preparation of the Emergency Procedures Plan for fire and medical emergencies.
  1. Notify the local fire/rescue department at least seven days prior to the start of abatement work.
  2. Establish a system for alerting project personnel of fire or other hazards that require escape routes, development of an assigned meeting place, development of a building floor plan showing work areas and emergency exits, mark arrows on floor and/or walls in the work areas to show all emergency exits, provide an on-site telephone for emergency notification to authorities, provide a person who is trained in First Aid, and chemical fire extinguishers on site for emergencies. In case of emergency due to fire, shut off all negative air machines during the fire.
  3. Post asbestos abatement work plan near the entrance to decontamination indicating work area layout for emergency department use.

- B. The Environmental Consultant (Project Monitor) is authorized by the Owner to oversee all removal work, interpret all procedures and enforce all provisions of the Contract Documents pertaining to asbestos removal and disposal. The Project Monitor is authorized to stop work if, in their judgment, there is substantial non-compliance with Contract Documents, or there is a situation of serious health risk to workers or occupants due to the performance of work by the Contractor. Such stop work order shall be effective immediately and remain in effect until corrective measures have been taken and the situation has been remedied to the satisfaction of the Owner. Standby time required to resolve such situations shall be at the Contractor's own expense.
- C. Negative Air Pressure Filtration System Monitoring will include the following:
  - 1. Continuous 24-hour per day monitoring of pressure differential relative to adjacent unsealed areas shall be performed by automatic recording instruments. (When applicable to the project).
  - 2. Pressure differential recordings for each day the negative air pressure filtration system shall be reviewed by the Project Monitor, if applicable to the project. The Project Monitor shall immediately notify the Abatement Contractor and the Owner of any variance in the pressure differential, which could cause exposure of adjacent unsealed areas to asbestos fiber contamination.

#### **1.07 CONTRACTOR LIABILITY**

- A. It is understood and agreed that the handling, removal and disposition of asbestos or asbestos products involves certain health risks which require specific safety measures. Owner, Architect, and Resident Project Representative are not responsible for safety measures on the job, including measures for the protection of employees or other contractors or subcontractors, nor for the protection of the general public. Such responsibility for safety is and shall remain the of Contractor. Therefore, except for claims and damages arising for negligent acts, errors or omissions of Architect, Contractor agrees to hold harmless, defend and indemnify Owner, Architect, and Resident Project Representative from all claims, suits, expenses, or damages arising from or alleged to arise from exposure to or inhalation of asbestos or asbestos fibers.

#### **1.08 ENVIRONMENTAL CONSULTANT (PROJECT MONITOR)**

- A. An Environmental Consultant (Project Monitor) will be retained by the Owner under separate contract, to represent the Owner in matters pertaining to the work performed in accordance with these specifications and requirements.
- B. The Environmental Consultant is authorized by the Owner to provide monitoring during removal work, to interpret procedures and to enforce provisions of the contract documents and NYS Code Rule 56 pertaining to the removal of ACM.
- C. If, in the opinion of the Environmental Consultant, there is a substantial non-conformance with the Contract Documents and NYS Code Rule 56 and/or a situation presenting a health hazard to workers or to the Owner's employees, the Environmental Consultant will be authorized to stop work.
- D. The Environmental Consultant's role in health and safety matters does not alleviate the Contractor's obligation to comply with all applicable health and safety regulations promulgated by the local, state or federal government regulations and laws.
- E. The Environmental Consultant will provide Air Monitoring, Project Monitoring, and work area clearance pursuant to requirements of 12 NYCRR Part 56 and 40 CFR 763, Subpart E.
  - 1. Should any visual clearance or clearance air sample(s) fail to meet clearance criteria, the Contractor will be directed to re-clean the work area and new clearance air samples will be collected. The Contractor will be responsible for any and all costs incurred due to clearance sample failures.

#### **1.09 SUBMITTALS**

- A. Submit in accordance with applicable provisions of the Contract Documents. See Section 01 3000 - Administrative Requirements, for submittal process.
- B. "Submit" means to forward and electronic copy to the Asbestos Designer of Record and the Environmental Consultant for review.
- C. Pre-Work Submittals: Submit a minimum of 10 calendar days prior to the anticipated commencement of the asbestos abatement work and expedite any resubmissions.
  - 1. Submit a copy of the Contractor's New York State Asbestos Contractor License.

- a. A copy of the Abatement Contractor's license shall be conspicuously displayed proximate to but outside the work area during the duration of the project.
  - b. Should the Contractor's NYS Asbestos Contractor License expire during the duration of the Project, the Contractor is to submit copy of updated license.
2. Work Plan:
- a. Describe the abatement methods to be used and schedule of removal.
  - b. The type, size and quantity of decontamination units
  - c. Describe worker protection plan.
  - d. Provide Material Safety Data Sheets (MSDS) or Safety Data Sheets (SDS) for any chemicals or products to be used to facilitate the work.
  - e. The Work Plan shall also show the limits of the work area(s), locations of decontamination units, critical barrier locations, isolation barriers, tent locations entrance and exit to the work area(s), fire extinguisher locations, shut-off locations for equipment and power as well as exhaust locations.
    - 1) Use of the Architect's Contract Drawings as part of work plan submission is prohibited.
3. Submit satisfactory proof to Asbestos Designer of Record, Resident Project Representative, and Environmental Consultant (Project Monitor) that all required permits, licenses and certifications have been obtained, notifications have been issued, and arrangements made for transport and disposal of ACM, including:
- a. Copy of project notifications for the asbestos abatement work, as applicable and required by federal and state regulatory agencies, together with proof of transmittal (i.e., certified mail return receipt).
  - b. Copy of building occupant notification, as applicable and as required by regulatory agencies.
  - c. One current copy of each Contractor's asbestos handler's license and one copy of each employee's asbestos handler's certificate. In addition to the asbestos handler's licenses, the Contractor shall submit each employees "OSHA 10" card.
    - 1) Should Handlers' or Supervisor's documentation expire during the duration of the project, the Contractor shall submit replacement documents.
  - d. Copy of waste hauler's NYSDEC permit and one copy of NYSDEC Certificate of Approval for the ACM waste disposal site.
  - e. Submit documentation indicating that all employees have had instruction on the hazards of asbestos exposure, on use of fitting of respirators, on protective dress, on use of showers, on entry and exit from work areas, and on all aspects of work procedures and protective measures.
  - f. Submit documentation certifying that all workers employed in asbestos related aspects of the job have had medical examinations as prescribed by the OSHA regulations and have been found fit to perform work while wearing a respirator. This certification is to be signed by a physician indicating that he has reviewed the relevant medical records and that they support the certification. Medical records are not to be submitted and will not be accepted.
  - g. Submit manufacturer's certification that vacuums, ventilation equipment and other equipment required to contain airborne fibers, conform to ANSI Z9.2.
  - h. Establish a manifest system that accounts for all asbestos waste. The manifest system shall be described in writing and will be subject to the approval of the Environmental Consultant. Copies of the written description and any receipts generated during the handling and disposal process shall be provided to the Owner. The Contractor must be able to demonstrate custody over all asbestos waste from the time it is removed from the work area until it is deposited at the landfill.
- D. Project Close-out Submittals: Within 30 days of project completion, and prior to final payment, submit a closeout package to include:
1. Copy of final project notifications.
  2. Copy of Contractor asbestos license and certifications for employees involved in the project.
  3. Copy of Haulers Permit.
  4. Copy of daily work area entry logs.
  5. Copy of laboratory reports for personal air monitoring.



6. Copy of asbestos disposal manifests completed by all parties, for each phase of work as applicable.
7. Copy of record drawing indicating locations type, and quantities of ACM removed.
8. Copy of the fully executed copy of the waste disposal manifest.
9. Provide additional documents as described in Sections 01 7000 Execution and Closeout Requirements and 01 7800 Closeout Submittals.

## **PART 2 PRODUCTS**

### **2.01 PROJECT LOG BOOK**

- A. Provide a permanently bound project log book. The log book shall contain, on the title page, the project name; name, address, and telephone number of Owner, Architect, Asbestos Designer of Record, Resident Project Representative, and Environmental Consultant (Project Monitor); name, address, and telephone number of the Contractor; and emergency numbers, including, but not limited to, local Fire/Rescue Department.
- B. Record all entries into the log with non-washable, permanent ink. Under no circumstances shall pencil entries be permitted.
- C. Ensure that all persons entering and exiting the work area sign the log and include name, employer, NYSDOL certification number, and time of entrance and exiting.
- D. Ensure that the Project Supervisor documents all work performed daily and notes all visual assessments required by 12 NYCRR Part 56 (e.g., testing and inspection of barriers and enclosure by smoke testing, negative air systems, and manometer readings).
- E. Project log book is to be maintained on site at all times during asbestos abatement.

### **2.02 PERSONAL PROTECTIVE EQUIPMENT**

- A. Comply with applicable OSHA regulations and procedures for selection and use of personal protective equipment (PPE).
- B. The minimum PPE is Level D Modified (hard hat, safety glasses, and steel-toed boots), at all times at the project site both inside and outside the work areas. Additional PPE is required to reduce exposure to asbestos, including the following:
  1. Respiratory Protection
    - a. Select respirators from those approved by the NIOSH, Department of Health and Human Services.
    - b. Ensure that respirators and filters are selected, used, maintained, and stored pursuant to an established respiratory protection program, pursuant to 29 CFR 1910.134.
    - c. Provide for surveillance of working conditions to ensure the selected respirator provides adequate protection, as defined in 29 CFR 1926.1101.
  2. Disposable Protective Clothing
    - a. Provide disposable fire resistant protective whole body clothing, head coverings, plastic or rubber gloves, and foot coverings to personnel utilized during the project. Cloth gloves may be worn inside the plastic or rubber gloves for comfort, but shall not be used alone. Secure sleeves at the wrists, and foot coverings at the ankles, by the use of tape, or provide disposable coverings with elastic wrists or tops.
    - b. The Abatement Contractor shall provide a sufficient quantity of protective clothing to all authorized persons entering regulated work areas until the work has been completed.
- C. In accordance with OSHA, provide workers and authorized visitors with suitable protective clothing, headgear, eye protection, and footwear whenever they enter the work area.
- D. The Contractor is responsible for the proper selection of PPE for the workers and authorized visitors.

### **2.03 SIGNS AND LABELS**

- A. Provide warning signs and barrier tapes at all approaches to the work area. Locate signs at such distance that personnel may read the sign and take the necessary protective steps required before entering the area.
- B. Provide danger signs in vertical format conforming to 29 CFR 1926.1101, minimum size of 20 inches by 14 inches, and displaying the following legend:

**DANGER  
ASBESTOS  
MAY CAUSE CANCER  
CAUSES DAMAGE TO LUNGS  
AUTHORIZED PERSONNEL ONLY**

**WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA**

- C. Provide 3-inch wide red barrier tape printed with black letters, "**DANGER ASBESTOS REMOVAL**". Locate barrier tape across all corridors, entrances, and across routes to each asbestos work area. Install tape 3 to 4 feet above finish floor.
- D. Provide asbestos danger labels affixed to all asbestos materials, scrap, waste, debris, and other products contaminated with asbestos. Labels shall state the following.

**DANGER  
CONTAINS ASBESTOS FIBERS  
MAY CAUSE CANCER  
CAUSES DAMAGE TO LUNGS  
DO NOT BREATHE DUST  
AVOID CREATING DUST**

- E. Provide the following asbestos label, of sufficient size to be clearly legible, for display on waste containers (bags or drums) that will be used to transport asbestos contaminated material in accordance with 49 CFR Parts 171 and 172. Labels shall state the following.

**RQ HAZARDOUS SUBSTANCE  
SOLID, NOS  
FORM E, NA 9188  
ASBESTOS**

- F. Generator identification information shall be affixed to each waste container, indicating the following and printed in indelible ink.

**Generator Name:  
Facility Building Name:  
Facility Address:  
Date: MM/DD/YYYY**

**2.04 PERSONAL DECONTAMINATION ENCLOSURE SYSTEM**

- A. For each abatement area, provide decontamination facilities located in an area agreed upon with the Owner, Project Monitor, and Resident Project Representative. The decontamination facilities shall include a Decontamination Enclosure System for workers and visitors and a Decontamination Enclosure System for loading asbestos out of the work area for transportation to the landfill.
- B. The Decontamination Enclosure System for workers and visitors shall consist of three rooms equipped with Air Locks as follows: Clean Room at entrance, Air Lock, Shower Room, Air Lock, an Equipment Room, and Air Lock leading to the Work Area.
- C. See Part 3 for further information.

**2.05 POLYETHYLENE SHEETING**

- A. Utilize minimum thickness of 6 mil opaque fire retardant plastic sheeting for decontamination enclosure systems, isolation barriers and critical barrier.
- B. Duct tape or equivalent shall be capable of sealing joints of adjacent sheets of plastic, facilitating attachment of plastic sheets to finished or unfinished surfaces of dissimilar materials, and adhering under both dry and wet conditions, including during the use of amended water.
- C. Spray adhesive shall be capable of providing additional sealing of joints and facilitating attachment of plastic sheeting to finished or unfinished surfaces where needed. Adhesive shall be capable of adhering under dry and wet conditions, including during the use of amended water.
- D. Contractor is clean all duct tape and spray adhesive residue from existing surfaces scheduled to remain.

## **2.06 HEPA VACUUM EQUIPMENT**

- A. Conduct all vacuuming using HEPA-filter equipped industrial vacuums conforming to ANSI Z9.2.
- B. Provide tools and specialized equipment, including scraping nozzles with integral vacuum hoods connected to a HEPA vacuum with flexible hose.
- C. Provide back up HEPA Vacuum Equipment.
  - 1. One for every five units.

## **2.07 DISPOSAL BAGS, DRUMS, AND CONTAINERS**

- A. Provide 6 mil polyethylene disposal bags printed with asbestos caution labels, and imprinted with USDOT required markings.
- B. Provide 30- or 55-gallon capacity fiber or metal drums capable of being sealed air- and water-tight if asbestos waste has the potential to damage or puncture disposal bags. Affix asbestos caution labels on lids and at one-third points around drum circumference to assure ready identification.
- C. Label containers and bags with the name of the waste generator and the location at which the waste was generated, in accordance with 40 CFR 61 - NESHAPS.
- D. Label containers and bags with the date moved from the waste decontamination enclosure to the waste transport container, in accordance with 12 NYCRR 56, Subpart 8.9(C)(3).
- E. Do not use labeled ACM waste containers or bags for non-ACM waste or trash. Any material placed in labeled containers or bags, whether turned inside out or not, will need to be handled and disposed of as ACM waste.

## **2.08 SURFACTANT (AMENDED WATER)**

- A. Wet all ACM prior to removal with surfactant mix, and apply in accordance with manufacturer's printed instructions.
- B. Maintain ACM in adequately wet state during abatement procedures and bagging of waste.

## **2.09 POWER TOOLS**

- A. Ensure that any power tools used to drill, cut into, or otherwise disturb asbestos material is manufacturer equipped with HEPA filtered local exhaust ventilation.

## **2.10 WATER, VENTILATION AND ELECTRICAL**

- A. Coordinate water and electrical service with Owner and Resident Project Representative prior to initiation of abatement activities. Verify suitability and location of all connections.
- B. At all times, maintain water and electric services to those portions of the building and remaining facility not a part of the asbestos abatement work area.
- C. Follow all NYS DOL Code Rule 56 regulations and Owner's procedure for electric power shut down in asbestos abatement work area.
- D. Coordinate ventilation and air handling system shut down with the Owner and Resident Project Representative.
  - 1. If total shut down of the ventilation and air handling system is not possible, follow all regulations for local isolation in accordance with NYS DOL Code Rule 56.

## **2.11 OTHER PRODUCTS OR MATERIALS**

- A. Where applicable, ensure that other products or materials required for use during abatement activities are in compliance with local, state, and federal codes and regulations. Furnish and utilize industry standard equipment and materials. Do not furnish equipment or materials that have been modified or altered in such a manner to violate local, state, and/or federal codes and regulations, or presents unnecessary health and safety risks.

## **PART 3 EXECUTION**

### **3.01 NOTICES**

- A. Provide notification of intent to commence asbestos abatement activities as indicated below.
  - 1. At least 10 working days prior to beginning abatement activities, send written notification to:

United States Environmental Protection Agency  
National Emissions Standards for Hazardous Air Pollutants Coordinator  
26 Federal Plaza  
New York, New York 10007

2. At least 10 calendar days prior to beginning abatement activities, send written notification to:  
New York State Department of Labor  
Division of Safety and Health, Asbestos Control Program  
State Office Campus  
Building 12 - Room 454  
Albany, New York 12240

- B. Send notifications to regulatory agencies via mail or package delivery service that will provide proof of delivery and receipt.
- C. Post and/or provide Building Occupant Notification at least 10 calendar days prior to beginning abatement activities, as required by 12 NYCRR Part 56. The posting must include the following information.
  1. The locations of the abatement project.
  2. The amounts and types of ACM being abated.
  3. The commencement and completion dates of the project.
  4. The name, address, and asbestos license number of the Asbestos Abatement Contractor.
  5. The name, address, and license number of the Asbestos Abatement Project Monitor.
  6. The name, address, and NYSDOH ELAP number of the laboratory providing analytical services.

### **3.02 PERSONAL PROTECTIVE EQUIPMENT**

- A. Reference Part 2 for applicable PPE requirements.
- B. Ensure that respirators are worn until outside the decontamination room.
- C. Ensure that disposable protective clothing is donned upon entering the decontamination room and before entering the work area, and street clothes are placed in a storable locker or bin. Ensure that workers exiting the work area immediately remove protective clothing and place the waste into sealable containers.

### **3.03 PERSONAL AIR MONITORING**

- A. The Contractor is responsible for conducting personal sampling in accordance with applicable rules and regulations. The Contractor is responsible for all cost associated with personal air monitoring.
- B. In addition to the requirements of OSHA 1926.1101, the contractor shall be required to perform personal air monitoring during every work shift in each work area during which abatement activities occur in order to verify that appropriate respirator protection is being utilized.
- C. Results of the personal air monitoring shall be returned to the site, at least verbally, and posted no later than 24 hours following the time the sample was collected. Written results shall be returned to the site and posted no more than five days after the monitoring was performed.
- D. Personal air samples shall be analyzed by a laboratory which holds certification by the New York State Department of Health's Environmental Laboratory Approval Program. The Owner, Asbestos Designer of Record, and Environmental Consultant (Project Monitor) must approve the laboratory the contractor intends to use.
  1. Copies of personal air monitoring are to be included with contractor's closeout documentation.

### **3.04 PROJECT SUPERVISOR**

- A. Designate a full-time Project Supervisor, who meets the following qualifications.
  1. The Project Supervisor must hold a current New York State certification as an Asbestos Contractor Supervisor.
  2. The Project Supervisor must meet the requirements of a "Competent Person", as defined by OSHA 1926.1101, and have a minimum of 5 years experience as a Supervisor.
  3. The Project Supervisor must be able to speak, read, and write English fluently, as well as communicate in the primary language of the Workers.

- B. Ensure the Project Supervisor is on-site at all times during abatement work, until the Project is complete. Work will be stopped if the Project Supervisor is not present on-site. The Project Supervisor is responsible for the performance of the work and will be required to represent the Contractor in all respects at the Project site. The Supervisor will be the primary point of contact for the Asbestos Abatement Project Monitor. The Project Supervisor cannot be removed from the Project without the written consent of the Owner. The Project Supervisor will be removed from the Project, if so requested, by the Owner.
- C. Ensure the Project Supervisor maintains the Project Log Book in accordance with 12 NYCRR 56, Subpart 7.3, and as described in Part 2 of this Specification.

### **3.05 MEDICAL REQUIREMENTS**

- A. Comply with medical examination and recordkeeping requirements, and maintain a medical surveillance program, pursuant to requirements of 29 CFR 1910.1001 and 29 CFR 1926.1101.

### **3.06 TRAINING**

- A. As required by applicable regulations, prior to assignment to asbestos work, instruct each employee with regard to the hazards of asbestos, safety and health precautions, and the use and requirements of protective clothing and equipment.
- B. Maintain an established respirator program, as required by ANSI Z88.2, 29 CFR 1910.134, and 29 CFR 1926.1101. Comply with requirements for respirator training and fit testing.
- C. Ensure that all Workers and Supervisors have successfully completed training and received appropriate certifications, in accordance with NYS DOL and NYS DOH requirements.

### **3.07 ON-SITE DOCUMENTATION**

- A. Maintain the following submittals, documentation, and postings on-site during abatement activities, at a location approved by the Asbestos Abatement Project Monitor.
  - 1. Valid Contractor license issued by the NYS DOL.
  - 2. Worker certification, training, and medical surveillance records
    - a. Current New York State Asbestos Handler certification cards for each person employed in the removal, handling, or disturbance of asbestos
    - b. Evidence that Workers have received proper training required by the regulations and the medical examinations required by OSHA 29 CFR 1926.1101
    - c. Documentation that Workers have been fit tested specifically for respirators used on the project
    - d. Workers Acknowledgment Statements signed by each employee stating that the employee has received training in the proper handling of ACM; understands the health implications and risks involved; and understands the use and limitations of the respiratory equipment to be used
  - 3. Daily OSHA personal air monitoring results
  - 4. NYS DOH ELAP certification for the laboratory that will be analyzing the OSHA personal air samples
  - 5. NYS DEC Waste Transporter Permit
  - 6. Contract Documents (Project Manual and Contract Drawings)
  - 7. Notifications and variances (site-specific) - ensure the most up-to-date notifications and variances are on-site
  - 8. Applicable regulations
  - 9. Material Safety Data Sheets (MSDS) or Safety Data Sheets (SDS) of supplies/chemicals used on the project
  - 10. Approved Abatement Work Plan
  - 11. List of emergency telephone numbers
  - 12. Waste disposal log
  - 13. Project log book

### **3.08 TEMPORARY UTILITIES**

- A. Shut down and lock out all electrical power to the asbestos abatement work area in accordance with Owner's lock-out/tag-out procedure.
- B. In addition to the below paragraphs, reference Section 01 5100 Temporary Utilities.

1. Provide temporary 120-240 volt, single phase, three-wire, 100 amp electric service with ground fault circuit interrupters (GFCI) for all electric requirements within the asbestos abatement work area.
  - a. Where available, obtain a power supply from the Owner's existing system. Otherwise, provide power from other sources (i.e., generator).
  - b. Provide temporary wiring and "weatherproof" receptacles in sufficient quantity and location to serve all HEPA equipment and tools.
  - c. Provide wiring and receptacles, as required by the Asbestos Abatement Project Monitor, for air sampling equipment.
  - d. Supply all power to the work area from outside the area through GFCI at the source.
  - e. Provide temporary lighting with "weatherproof" fixtures for the work area, including decontamination chambers.
    - 1) Maintain the work area in an illuminated condition at all times during work.
    - 2) Provide lighting, as required by the Asbestos Abatement Project Monitor, for performance of required visual assessments.
  - f. All temporary devices and wiring used in the work area must be capable of withstanding decontamination procedures, including HEPA vacuuming and wet wiping.
  - g. Utilize domestic water services, if available, from the Owner's existing system. Provide hot water heaters with sufficient capacity to meet project demands.

### **3.09 DECONTAMINATION ENCLOSURES AND WORK AREA PREPARATION**

- A. The work area must be vacated by building occupants prior to decontamination enclosure construction and work area preparation.
- B. All demolition necessary to access ACM for removal must be conducted within negative pressure enclosures by licensed asbestos handlers. Demolition debris must be disposed of as asbestos waste.
- C. Provide a personal decontamination enclosure contiguous to each work area. The following conditions apply for the construction of a personal decontamination enclosure.
  1. Utilize a decontamination enclosure that is attached to the work area and fully framed and sheathed to prevent unauthorized entry.
  2. For large asbestos projects, provide access to the work area from the clean room through an airlock to the shower, followed by an airlock to the equipment room to the work area. Each airlock must be a minimum of 3 feet from door to door.
  3. Cover the decontamination enclosure (ceiling, floors and walls) fire rated 6 mil polyethylene sheeting.
    - a. The decontamination unit shall be constructed of appropriate framing and fully lined utilizing two layers of 6-mil fire-retardant polyethylene sheeting.
    - b. In accordance with regulations, reinforced polyethylene sheeting shall be utilized for lining the floor of the decontamination enclosure unit.
  4. Establish a triple layer of polyethylene sheeting at the decontamination chamber doorways, weighted to ensure a tight seal of the enclosure. Prior to establishing doorway seals, move all required tools, scaffolding, and equipment into the work area.
  5. Provide a lockable door for the entrance to the clean room.
  6. The clean room must be sized to accommodate all full-shift Workers and the Asbestos Project Monitor.
    - a. The minimum dimensions of the clean room must be 32 square feet for every 6 full-shift Workers, and 6 feet in height.
    - b. Provide suitable lockers for storage of Workers' street clothes. Provide for storage of respirators, along with replacement filters and disposable towels.
    - c. Provide or Post the following information in the Clean Room:
      - 1) A copy of the U.S. Environmental Protection Agency Regulations for Asbestos, 40 CFR 61 Subparts A and M and a copy of OSHA Asbestos Regulations, 29 CFR 1926.1101, and a copy of NYS Department of labor industrial code rule 56 with any applicable or site specific variances.

- 2) A list of telephone numbers for local hospital, local emergency squad, local fire department, the Owner, Asbestos Designer of Record, and Resident Project Representative and NYS Department of Labor.
  - 3) A copy of all Material Safety Data Sheets (MSDS) for hazardous chemicals used during the asbestos project.
7. Provide a temporary shower, with individual hot and cold water supplies and faucets. Provide a sufficient supply of soap and shampoo.
    - a. There must be at least 1 shower for every 6 full-shift abatement Workers.
    - b. Construct the shower room in such a way so that travel through the shower chamber will be through the shower. The shower must not be able to be bypassed.
  8. Drain, collect, and filter shower water through a system with at least a 5.0 micron particle size collection capability, containing a series of several filters with progressively smaller pore sizes to avoid rapid clogging of the system.
    - a. Discharge the filtered wastewater in accordance with applicable codes and regulations and local municipality's requirements.
    - b. Dispose of the contaminated filters as asbestos waste.
    - c. Any penalties, fines and litigation cost associated with the contractor's illegal dumping will be at the cost of the contractor.
  9. The equipment room is to be used for the storage of tools and equipment. Place a walk-off pan filled with water in the work area outside the equipment room for workers to clean foot coverings when leaving the work area. Place a labeled 6 mil plastic ACM waste bag, for collection of contaminated clothing, in this room.
  10. At a minimum, clean and disinfect the personal decontamination enclosure at the end of each work shift and as otherwise directed by the Asbestos Project Monitor.
  11. Provide heating and ventilation in the entire Decontamination System so that airflow will be from the outside towards work space as further described herein.
- D. Provide a waste decontamination enclosure contiguous to each work area. The following conditions apply for the construction of a waste decontamination enclosure.
1. The decontamination enclosure must be attached to the work area and not located within it. The decontamination enclosure must be fully framed and sheathed to prevent unauthorized entry.
  2. Construct the waste decontamination enclosure system to include a washroom/cleanup room to the work area and an airlock doorway to the holding area. The airlock must be a minimum of 3 feet from door to door. Provide a lockable door for the entrance to the holding area.
  3. Cover the decontamination enclosure ceiling and walls with one layer of polyethylene sheeting. Utilize two layers of reinforced polyethylene sheeting to cover the floor.
  4. Establish a triple layer of polyethylene sheeting at the decontamination chamber doorways, weighted to ensure a tight seal of the enclosure. Prior to establishing doorway seals, move all required tools, scaffolding, and equipment into the work area.
  5. Provide heating and ventilation in the entire Decontamination System so that airflow will be from the outside towards work space.
  6. Where there is only one egress from the work area, the holding area of the waste decontamination enclosure system may branch off from the personal decontamination enclosure equipment room, which may then serve as the waste wash room.
- E. The following conditions apply to work area preparation procedures.
1. Post asbestos danger signs at all approaches to the asbestos abatement work area. Post all emergency exit signs only on the work area side at the containment, and post with asbestos caution signs on the non-work area side. Provide all non-work area stairs and corridors accessible to the asbestos abatement work area with warning tapes at the base of stairs and beginning of corridors. Utilize warning tape in addition to caution signs.
  2. Shut down and lock out the building heating, ventilation, and air conditioning (HVAC) and electrical systems. Provide temporary electric power and lighting, as specified in this Section.
  3. Pre-clean all surfaces and objects within the work area, using HEPA vacuuming and/or wet wiping methods. Dry sweeping and any other methods that raise dust are prohibited. ACM must not be disturbed during pre-cleaning.



4. For movable objects within the work area, clean via HEPA vacuum and/or wet wipe and remove from the work area.
5. For all non-movable equipment in the work area, completely cover with 2 layers of polyethylene sheeting, that is secured in place with duct tape and/or spray adhesive.
6. Provide enclosure of the asbestos abatement work area necessary to isolate it from unsealed areas of the building, in accordance with the approved Asbestos Abatement Work Plan, and as specified herein.
7. Seal off all openings, including, but not limited to, windows, diffusers, grills, electrical outlets and boxes, doors, floor drains, and any other penetrations of the work area enclosure, using 2 layers of polyethylene sheeting to form a critical barrier.
8. Provide temporary framing and gypsum sheathing at openings larger than 32 square feet that form the limits of the asbestos abatement work area. Sheathing thickness must be a minimum of 5/8-inch type x, and all sheathing shall be caulked and the work area side sealed with 2 layers of fire resistant polyethylene sheeting to form an isolation barrier.
9. Secure sheeting with spray adhesive and then sealed with duct tape. Ensure all joints in polyethylene sheeting overlap a minimum of 12 inches.
10. Frame out emergency exits. Provide double-layered polyethylene sheeting and tape seal opening. Post as emergency exits only. Within the work area, mark the locations and directions of emergency exits throughout the work area, using exit signs and/or duct tape.
11. Remove all items attached to, or in contact with, ACM only after the work area enclosure is in place. HEPA vacuum and wet wipe with amended water all removed items prior to removal from the work area and before the start of asbestos removal operations.

### **3.10 WORK AREA ENTRY AND EXIT PROCEDURES**

- A. Access to and from the asbestos abatement work area is permitted only through the personal decontamination enclosure, unless otherwise stipulated in 12 NYCRR and/or a site-specific or applicable variance.
- B. Workers must sign the entry/exit log upon every entry and exit.
- C. The following procedures must be followed when entering the work area.
  1. Before entering the work area, Workers must proceed to the clean room, remove all street clothes, and don protective clothing, equipment, and respirators.
  2. Workers must proceed from the clean room, through the shower room and the equipment room, and into the work area.
- D. The following procedures must be followed when exiting the work area.
  1. Before leaving the work area, remove gross asbestos contamination by brushing, wet cleaning, and/or HEPA vacuuming.
  2. In the equipment room, Workers are to remove disposable clothing, but not respirators, and place clothing in plastic disposal bags for disposal as contaminated debris prior to entering the shower room.
  3. Workers are to shower thoroughly while wearing respirators, and then wash respirator with soap and water prior to removal.
- E. Upon exiting the shower, Workers are to don new disposable clothing if the work shift is to continue or street clothes to exit the area. Under no circumstances shall Workers enter public, non-work areas in disposable protective clothing.
- F. Posted Asbestos Work Area Entry and Exit Procedures in the Clean Room and the Equipment Room.
- G. At the end of a work period, the exit from the Worker Decontamination Enclosure system shall be secured to prevent unauthorized entry.

### **3.11 NEGATIVE AIR PRESSURE FILTRATION SYSTEM**

- A. Provide a portable asbestos filtration system that develops a minimum pressure differential of negative 0.02 inches of water column within all full enclosure areas relative to adjacent unsealed areas, and that provides a minimum of 4 air changes per hour in the work area during abatement.

- B. Such filtration systems must be operated 24 hours per day during the entire Project, until the final cleanup is completed and satisfactory results of the final air samples are received from the laboratory.
- C. Ensure the system includes a series of pre-filters and filters to provide HEPA filtration of particles down to 0.3 microns at 100% efficiency and below 0.3 microns at 99.97% efficiency. Provide sufficient replacement filters to replace pre-filters every 2 hours, secondary pre-filters every 24 hours, and primary HEPA filters every 600 hours of operation.
- D. A minimum of one additional filtration unit of at least the same capacity as the primary unit(s) must be installed and fully functional to be used during primary unit(s) filter changing and in case of primary failure. Install at least one back-up unit for every five primary units.
- E. Upon electric power failure or shut-down of any filtration unit, all abatement activities must stop immediately and only resume after power is restored and all filtration units are fully operating. For shut-downs longer than one hour, all openings into the work area, including the decontamination enclosures, must be sealed.
- F. Provide a manometer with a chart recorder to measure and record negative pressure differential across the work area barriers without interruption 24 hours per day for all OSHA Class I friable asbestos projects.

### **3.12 REMOVAL OF ASBESTOS-CONTAINING MATERIALS**

- A. Remove ACM in accordance with the Contract Documents, NYS Code Rule 56 and the approved Asbestos Abatement Work Plan.
- B. Should the area beyond the work area become contaminated with ACM or elevated fiber levels, immediately stop work and institute emergency procedures. Contaminated non-work areas must be isolated and subsequently decontaminated in accordance with procedures established for asbestos removal. All costs incurred from decontaminating such non-work areas and the contents thereof will be borne solely by the Contractor, at no additional cost to the Owner.
- C. Perform all asbestos removal work using wet removal procedures. Mix and apply surfactant in accordance with manufacturer's written instructions. Dry removal procedures are not permitted.
- D. Sufficiently wet asbestos materials with a low pressure, airless fine spray of amended water to ensure full penetration prior to ACM removal. Re-wet materials that do not display evidence of saturation.
- E. Employ a sufficient number of Workers to continuously apply amended water while ACM is being removed. Contain excess water within the work area at all times, and continuously containerize through the use of a HEPA equipped wet/dry vacuum or other adequate methods.
- F. Perform cutting, drilling, abrading, or any penetration or disturbance of ACM in a manner to minimize the dispersal of asbestos fibers into the air. Use equipment and methods specifically designed to limit generation of airborne asbestos particles. All power-operated tools used must be provided with HEPA equipped filtered local exhaust ventilation.
- G. Place all removed material into 6 mil plastic disposal bags or other suitable container upon detachment from the substrate or whenever there is enough accumulation to fill a single bag or container. Maintain work area surfaces free of accumulation of asbestos debris.
- H. Power or pressure washers are not permitted for asbestos removal or clean-up procedures.
- I. Encapsulate all open ends of pipe and duct insulation not scheduled for removal, using lag cloth.
- J. All construction and demolition debris determined by the Asbestos Abatement Project Monitor to be contaminated with asbestos must be handled and disposed of as asbestos waste.
- K. The use of metal shovels, metal dust pans, etc. are not permitted inside the work area.

### **3.13 EQUIPMENT AND WASTE CONTAINER DECONTAMINATION AND REMOVAL PROCEDURES**

- A. Clean external surfaces of contaminated containers and equipment by wet cleaning and/or HEPA vacuuming in the work area before moving such items into the waste decontamination enclosure system airlock by persons assigned to this duty. The work area personnel are not to enter the airlock.

- B. Remove the containers and equipment from the airlock by personnel stationed in the wash room during waste removal operations. Clean the external surfaces of containers and equipment a second time by wet cleaning.
- C. The cleaned containers of asbestos material and equipment are to be dried of any excessive pooled or beaded liquid, placed in uncontaminated plastic bags or sheeting, dependent upon the physical characteristics of the item, and sealed airtight.
- D. Transfer the clean re-containerized items into the airlock that leads to the holding area. Workers in the wash room are not to enter this airlock or the work area until waste removal is finished for that period.
- E. Transfer containers and equipment from the airlock and into the holding area by personnel dressed in clean personal protective equipment, and who have entered from uncontaminated areas.
- F. Place the cleaned containers of asbestos material and equipment in water tight carts with doors or tops that are to be closed and secured. Maintain these carts in the holding area pending removal. Ensure the carts are wet cleaned and/or HEPA vacuumed at least once each day.
- G. Secure the exit from the decontamination enclosure system to prevent unauthorized entry.
- H. Where the waste removal enclosure is part of the personal decontamination enclosure, ensure waste removal does not occur during shift changes or when otherwise occupied. Implement precautions to prevent short circuiting and cycling of air outward through the shower and clean room.

### **3.14 WORK AREA DECONTAMINATION**

- A. Following completion of gross abatement and after all accumulations of asbestos waste materials have been containerized, perform decontamination procedures, as specified in 12 NYCRR 56, Subpart 9.1, unless modified by a site-specific or applicable variance.
- B. Secure the exit from the decontamination enclosure system to prevent unauthorized entry.
- C. Where the waste removal enclosure is part of the personnel decontamination enclosure, ensure waste removal does not occur during shift changes or when otherwise occupied. Implement precautions to prevent short circuiting and cycling of air outward through the shower and clean room.
- D. After isolation and critical barriers are removed, the Project Monitor will inspect the work area for cleanliness. If necessary, perform additional cleaning, as directed by the Project Monitor.
- E. As a result of any unsatisfactory visual assessment by the Project Monitor, or should final clearance air sampling results indicate high fiber levels, the affected areas will be required to be cleaned or re-cleaned at no additional expense to the Owner.

### **3.15 TENT ENCLOSURES (IF APPLICABLE)**

- A. Tent enclosures may only be used in areas specifically permitted by 12 NYCRR Part 56 or a project site-specific variance issued by the NYS DOL.
- B. Restrict access to the immediate area where tent removal procedures are taking place using barrier tape and/or construction barriers, and post caution signs.
- C. Remote personal and waste decontamination enclosure systems are not to be constructed or utilized. The personal and waste decontamination enclosure systems must be connected to the work area.
- D. Pre-clean the work area. For all objects and equipment that will remain in the restricted area during abatement, seal with 2 layers polyethylene sheeting and tape.
- E. For the tent, utilize a single-use barrier constructed with a rigid frame and at least 2 layers of polyethylene sheeting, unless 1 layer of polyethylene sheeting is otherwise permitted by 12 NYCRR 56 and/or a site-specific variance. Ensure all seams are sealed airtight using duct tape and/or spray adhesive.
- F. During removals, utilize negative pressure filtration units to maintain negative air pressure inside the tent.
- G. Perform ACM removal following procedures described in previous paragraphs of this Section..

- H. Place waste material in properly labeled 6 mil plastic bags or other appropriate containers. Ensure the outside of the bags or containers are wet wiped and/or HEPA vacuumed before being passed into the waste decontamination enclosure system for double-bagging. Utilize watertight carts for transportation of waste bags and containers outside the work area.
- I. Subsequent to completion of gross abatement and after all accumulations of asbestos waste materials have been containerized, implement the following decontamination procedures.
  - 1. All bagged asbestos waste and unnecessary equipment must be decontaminated and removed from the work area.
  - 2. All surfaces in the work area must be wet cleaned. A wet-purpose shop vacuum may be used to pick up excess liquid, and must be decontaminated prior to removal from the work area.
  - 3. The Asbestos Abatement Project Monitor will conduct a visual assessment of the work area for cleanliness and completion of abatement.
  - 4. Apply a thin coat of encapsulant to all surfaces in the work area that were not the subject of removal. In no event is encapsulant be applied to any surface that was the subject of removal prior to obtaining satisfactory air monitoring results.
  - 5. After the encapsulant has dried, aggressive final clearance air sampling will be conducted by the Asbestos Abatement Project Monitor.
  - 6. Upon receipt of satisfactory final clearance air sampling results, collapse the tent into itself, place in suitable disposal bags, and transport to the waste decontamination enclosure. Remove isolation and critical barriers.

### **3.16 GLOVEBAG REMOVAL (IF APPLICABLE)**

- A. In addition to conformance with applicable regulations and variances, glovebag removals are only permitted to be conducted within tent enclosures complying with these specifications. Conduct removal and disposal in conformance with all regulatory conditions.
- B. Restrict access to the immediate area where tent/glovebag removal procedures are taking place using barrier tape and/or construction barriers, and post caution signs.
- C. Pre-clean the work area. Seal all objects and equipment that will remain in the restricted area during abatement, utilizing 2 layers of polyethylene sheeting and tape.
- D. Utilize commercially available glovebags of at least 6 mil thickness. Use shall be in accordance with the manufacturer's instructions and the following minimum requirements.
  - 1. Cut the sides of the glovebag to fit the size of pipe being removed. Insert tools into the attached tool pocket.
  - 2. Place the glovebag around the pipe, and fold and seal the open edges with staples and duct tape. Ensure the glovebag is also sealed at the pipe to form a tight seal.
  - 3. Install openings in the glovebag for the wetting tube and HEPA vacuum hose. Seal the opening to form a tight seal.
  - 4. Conduct smoke testing for all glovebags, with verification by the Asbestos Abatement Project Monitor before removal operations commence. Glovebags that do not pass the smoke test will be required to be resealed and retested.
  - 5. Commence removal after first wetting the materials to be removed. Ensure ACM is continuously wetted. After removal of the ACM, scrub or brush the piping so that no visible ACM remains. Encapsulate any open ends of pipe insulation to remain.
  - 6. After the piping is cleaned, wash down the inside of the glovebag and remove the wetting tube. Collapse the glovebag using the HEPA vacuum. With the ACM at the bottom of the bag, twist and seal with the tape.
  - 7. Place a disposal bag around the glovebag, and detach from the pipe. Seal the disposal bag and transport to the decontamination enclosure.

### **3.17 RESTORATION OF FACILITIES**

- A. Remove temporary utilities upon completion of abatement activities and notification of compliance with clearance criteria.
- B. Disconnect all temporary power, remove power lockouts, and restore power. Remove all temporary plumbing.

C. Restore area designated for these facilities to its original condition or better.

### **3.18 DISPOSAL OF ASBESTOS WASTE**

- A. Store, transport, and dispose of all asbestos waste in accordance with the following regulations, at a minimum:
1. 6 NYCRR Parts 360 and 364
  2. 40 CFR 61 - NESHAPS
  3. USEPA Asbestos Waste Management Guidance EPA/530-SW85
  4. 12 NYCRR 56, Section 10
- B. The following conditions apply for transportation of waste and the selected disposal site.
1. Hauler and disposal site are subject to pre-approval by the Owner or Owner's designated representative.
  2. Provide 24-hour notification to Owner, Project Monitor, and Resident Project Representative prior to removing any waste from the site. Remove waste from the site only during normal working hours, unless otherwise specified. No waste is to be taken from the site, unless the Asbestos Abatement Contractor and Asbestos Abatement Project Monitor authorizes the release of the waste, as described herein.
  3. Coordinate with the Hauler to provide the estimated date and time of arrival at the disposal site.
  4. Upon arrival at the project site, the hauler must possess and present to the Asbestos Abatement Project Monitor a valid NYSDEC Part 364 Asbestos Hauler's Permit.
  5. Coordinate with the Hauler to inspect material in the transport container prior to the Hauler taking possession and signing the asbestos waste manifests.
  6. Unless specifically approved by the Owner or Owner's designated representative, do not permit any off-site transfers of the waste or allow the waste to be transported or combined with any other off-site asbestos material. The hauler must travel directly to the disposal site, as identified on the notifications, with no unauthorized stops.
- C. The following conditions apply to waste storage containers:
1. Ensure that all waste containers are fully enclosed and lockable (i.e., enclosed dumpster, trailer, etc.). No open containers will be permitted on-site (i.e., open dumpster with canvas cover, etc.), unless specifically permitted by an applicable or site-specific variance.
  2. Verify that the truck tags (license plates) match that listed on the 6 NYCRR Part 364 permit.
  3. Plasticize and seal the container with a minimum of 2 layers of polyethylene sheeting on the sides and floor. Once on site, keep the waste container locked at all times, except during load out. Do not use the waste container for storage of equipment or supplies.
  4. While on-site, label the container with USEPA danger signage in accordance with Paragraph 2.3(D).
  5. Stencil the NYSDEC Asbestos Hauler's Permit number on both sides and the back of the container.
  6. Do not permit the container to be loaded unless it is properly plasticized, has the appropriate danger signage affixed, and has the permit number appropriately stenciled on the container.
- D. The following conditions apply to the Owner's and Hauler's asbestos waste manifests:
1. Utilize an asbestos waste manifest in conjunction with the asbestos hauler's manifest.
  2. Verify the manifests have the appropriate signatures prior to any waste being removed from the site.
  3. Retain copies of the completed hauler's manifest.
  4. Coordinate with the disposal facility to ensure return of the original hauler's manifest after waste is disposed of.
  5. Forward copies of hauler's manifest to the Abatement Project Monitor within 14 calendar days of the waste container being removed from the site.
  6. Utilize waste disposal logs. Maintain this log on-site at all times. Submit originals of all waste disposal manifests, seals, and disposal logs to the Owner with the final close-out documentation.

**END OF SECTION**

**SECTION 02 8313  
LEAD HAZARD CONTROL ACTIVITIES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. The Contractor, shall furnish all labor, materials, facilities, equipment, installation services, employee training, notifications, permits, licenses, certifications, and agreements necessary to perform the Specified Work. Work shall be performed in accordance with the Contract Documents, the latest regulations from the Occupational Safety and Health Administration (OSHA), the U.S. Environmental Protection Agency (EPA), the State of New York, and all other Applicable Federal, state and Local agencies. Whenever the Requirements of the above references conflict or overlap, the most stringent provision shall apply.
- B. Contractor:
  - 1. The Contractor as well as the workers shall have Lead Awareness training prior to Commencement of the Work.
  - 2. The Contractor must be trained in accordance with OSHA Regulations 29 CRF 1926.62 and 1919.120.

**1.02 REFERENCES**

- A. The publications listed below form a part of this Specification to the extent referenced. The publications are referred to in the text by basic designation only.
  - 1. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI):
    - a. ANSI.Z89.1(1969)(1986) Personnel Protection - Protective Head wear for Industrial Workers - Requirements
  - 2. CODE OF FEDERAL REGULATIONS (CFR):
    - a. 29 CFR 1910.134 Respiratory Protection Standard
    - b. 29 CFR 1910.146 Permit-Required Confined Spaces
    - c. 29 CFR 1926.20 General Safety and Health Provisions
    - d. 29 CFR 1926.57 Ventilation
    - e. 29 CFR 1926.59 Hazard Communication Program
    - f. 29 CFR 1926.62 Lead Exposure in Construction
    - g. 40 CFR 50.6 National Primary and Secondary Ambient Air Quality Standards for Particulate Matter
    - h. 40 CFR 260 Hazardous Waste Management System: General
    - i. 40 CFR 261 Identification and Listing of Hazardous Waste
    - j. 40 CFR 262 Standards Applicable to Generators of Hazardous Waste
    - k. 40 CFR 263 Standards Applicable to Transporters of Hazardous Waste
    - l. 40 CFR 264 Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
    - m. 40 CFR 265 Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
    - n. 40 CFR 268 Land Disposal Restrictions
  - 3. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA):
    - a. NFPA 701 Small Scale Fire Test for Flame Resistant Textiles and Films
  - 4. NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH):
    - a. Publication No. 87-108 Respiratory Decision Logic
    - b. NIOSH/OSHA Booklet 3142 Lead in Construction
  - 5. U.S. DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA):
    - a. PUB 3126 Working with Lead in the Construction Industry
  - 6. U.S. Department of Housing and Urban Development (HUD): Guidelines for evaluation and control of Lead based paint hazards: Title Ten of Housing and Community Act of 1992.

### 1.03 RELATED SECTIONS

- A. Section 01 3529.10 Life Safety Requirements - During School Construction
- B. Section 02 2600 - Asbestos, Lead and PCB Assessment
- C. Section 02 8213 - Asbestos Abatement
- D. Section 02 8433 - Removal of PCB Containing Caulking

### 1.04 SCOPE OF WORK

- A. Disposal of Objects and Debris:
  - 1. The contractor shall remove and dispose of all materials, equipment and debris associated with or found in the work area including, but not limited to the following:
    - a. Painted concrete block and other wall components (painted plaster, gypsum board, and wood components, etc.)
    - b. Ceramic Tile finishes
    - c. Painted structural steel (columns, lintels, beams),
- B. Clearance Sampling:
  - 1. Clearance sampling shall be conducted by an independent environmental consultant.
- C. Waste Disposal:
  - 1. Contractor shall provide for the, transportation, and disposal of all waste generated during the project. TCLP waste characterization testing shall be performed by the Contractor on various waste stream components included in this project.
- D. Utilities:
  - 1. Electrical power and water necessary for completion of the project shall be provided by the Owner. Contractor is responsible for providing all temporary connections and shall be responsible for any damage caused to utility systems from his work or actions.
- E. OSHA Standards - Lead:
  - 1. Contractor shall comply with the OSHA construction standard for lead 29 CFR 1926.62. This regulation includes, but is not limited to requirements for the following:
    - a. Exposure assessment
    - b. Protection of employees during exposure assessment
    - c. Preparation and maintenance of a written compliance program
    - d. Hygiene facilities including temporary shower
    - e. Housekeeping
    - f. Employee Training
    - g. Hazard Communication
    - h. Medical Surveillance
    - i. Biological Monitoring
    - j. Record Keeping

### 1.05 SUBMITTALS

- A. Submittals Prior to Commencement of Lead Hazard Control Work submit the entire Submittal as a package at one time:
  - 1. Work Plan:
    - a. The Work Plan shall include, but not be limited to, the location, size, and details of Lead Dust Control Work Areas, containment, sequencing of lead containing material handling, work procedures, types of equipment, crew size, and emergency procedures for fire and medical emergencies.
  - 2. Training Documentation.
  - 3. Training:
    - a. Employees conducting Lead Hazard Control Work shall be trained in Accordance with the Requirements of 29 CFR 1926.62 and with HUD Guidelines.
    - b. The Contractor must have a Competent Person on Site at all times.
    - c. Contractor shall submit "OSHA 10" documentation for all workers.



- d. All workers shall have successfully completed the Lead Safety for Renovation, Repair and Painting Course in Accordance with 40 CFR 745.225 and TSCA Section 406B.
- e. The persons removing lead containing/coated material and their Supervisors shall be personally experienced in this type of Work and shall have been employed by a company with a minimum of one (1) year experience in this type of Work.
- 4. Operation and Maintenance Data: Submit air filtration unit operation and maintenance data and manufacturer's catalog sheets for the HEPA filter.
  - a. Provide an affidavit stating that the HEPA filters to be used for this Project are new and unused.
- 5. Material Safety Data Sheets:
  - a. Material Safety Data Sheets (OSHA Form 174 or equivalent) and manufacturer's information for all chemicals and materials to be used.
- B. Close out Submittals:
  - 1. At the Completion of the Work the Contractor shall provide a Record Drawing indicating the quantities and location of the lead containing material removal. This Record Drawing shall be provided to the Owner as part of the Closeout Documentation.
  - 2. Assessment Report compiled by a testing lab certifying that the Work Area has lead concentrations below the levels Specified under the cleaning criteria.
  - 3. Disposal Site Receipts: Copy of Waste Shipment Record and Disposal Site Receipt showing that the lead-containing materials have been properly disposed.

### **1.06 LEAD HAZARDS**

- A. Exposure:
  - 1. Lead Based Paint Removal will expose workers to lead. These operations may release lead into the air or onto surrounding surfaces. Only the Contractor can control and reduce the potential for exposure.
- B. Hazards:
  - 1. Lead is a toxic substance that can enter the body by breathing or swallowing lead dusts, fumes, or mists. If food, cigarettes, or the worker's hands have lead on them, lead may be ingested or inhaled. Once in the body, lead enters the bloodstream and may be carried to all parts of the body. The body can eliminate some of this lead, but if there is continued lead exposure, the body absorbs and stores more lead than it can eliminate. This stored lead may cause irreversible damage to cells, organs, and whole body systems. After exposure stops it takes months or even years for all lead to be removed from the body.
- C. Symptoms:
  - 1. Exposure to lead may affect each person differently. Even before symptoms appear, lead may cause unseen injury to the body. During early stages of lead poisoning, mild symptoms may be overlooked as everyday medical complaints, including:
    - a. Loss of appetite
    - b. Joint and muscle aches
    - c. Trouble sleeping
    - d. Metallic taste
    - e. Irritability
    - f. Decreased sex drive
    - g. Fatigue
    - h. Lack of concentration

### **1.07 POSTING AND RECORD MAINTENANCE REQUIREMENTS**

- A. The following items shall be conspicuously displayed proximate to but outside Lead Hazard Control Work Areas. The Contractor shall assure that the Posted Regulations are not altered, defaced, or covered by other materials.
- B. Exit Routes:
  - 1. Emergency exit procedures and routes.
- C. Emergency Phone Numbers:

1. A list indicating the telephone numbers and locations of the local hospital and/or emergency squad, the local fire department, the contractor, and the environmental consultant.
- D. Lead Danger Signs:
1. The contractor shall post Lead Danger Signs in Accordance with OSHA 29 CFR 1926.62(m). Signs shall be posted at potential entrances to the Work Areas, and at all lead waste storage containers.
- E. Warning Signs:
1. Warning signs shall be in English and the language of any workers On-Site who do not speak English, and be of sufficient size to be clearly legible and display the following:
    - a. WARNING:
    - b. LEAD WORK AREA
    - c. POISON
    - d. NO SMOKING OR EATING
    - e. AUTHORIZED PERSONNEL ONLY
    - f. PROTECTIVE CLOTHING IS REQUIRED IN THIS AREA
- F. Items Available On-site:
1. The Contractor shall maintain the following items on-site and available for review by all employees and authorized visitors:
    - a. Codes, Standards, and Publications: Copies of Applicable Codes, Standards and Publications.
    - b. Material Safety Data Sheets (MSDS) for all chemicals used during the Project.
    - c. Compliance Programs: A copy of the Contractor's written lead compliance, respiratory protection, confined space entry and hazard communication programs.

#### **1.08 WORKER PROTECTION REQUIREMENTS**

- A. In addition to the hazards associated with lead exposure as addressed by this Specification, Applicable Regulations, and Referenced Publications, other health and safety hazards will be encountered during the Work. The Contractor shall be responsible for recognizing such hazards and shall be responsible for the health and safety of Contractor Employees at all times. It shall be the Contractor's responsibility to comply with all Applicable Health and Safety Regulations.
- B. Protective Equipment
1. The Contractor shall be responsible to determine and provide the appropriate level of personal protective equipment in Accordance with Applicable Regulations and Standards necessary to protect the Contractor's Employees from all hazards present.
    - a. Respiratory Protection:
      - 1) All individuals who may be exposed to lead during handling of lead-containing or contaminated materials shall wear respiratory protection appropriate for the degree of exposure.
      - 2) No worker shall be exposed to airborne lead levels greater than 50 micrograms per cubic meter as determined by the protection factor of the respirator worn and employee exposure monitoring to be conducted by the Contractor.
      - 3) The Contractor's employees shall wear ½ face respirators with HEPA cartridges during all hazard control, cleanup and encapsulation Work in Areas when the OSHA PEL is exceeded.
      - 4) Workers must be trained per EPA, have medical clearance and must have recently received pulmonary function test (PFT) and respirator fit tested by a trained professional.
        - (a) A personal air sampling program shall be in place as required by OSHA.
        - (b) The use of respirators must also follow a complete respiratory protection program as specified by OSHA.
    - b. Protective Clothing:
      - 1) Protective clothing shall be provided by the contractor for all employees and authorized visitors and shall be worn inside the Work Areas by all individuals who may be exposed to lead. Protective clothing shall meet the following Specifications:

- (a) The Contractor shall provide disposable clothing including head, hand, foot, and full-body protection to all employees and authorized visitors entering the Work Enclosure. The Contractor shall have available at all times sufficient quantities and adequate sizes for all workers and authorized visitors.
  - (b) Hard hats, protective eyewear, gloves, rubber boots and/other non-skid footwear shall be provided by the Contractor as required for workers and authorized visitors. Safety shoes and hard hats shall be in accordance with ANSI Z89.1 (1969) and ANSI Z41.1 (1967), respectively.
  - (c) Contaminated clothing shall be sealed in impermeable bags and the bags shall be appropriately labeled and disposed of as Lead Waste Material.
  - (d) Protective clothing shall not be worn in lieu of street clothing outside the Work Area.
  - (e) Visitor Clothing: The Contractor shall provide authorized visitors with suitable protective clothing, gloves, headgear, eye protection, and footwear as described herein, whenever they enter the Work Area. These materials shall be provided free of charge.
- 2) Protective clothing shall be worn in all Work Areas at all times.
  - 3) Change into work clothing and shoe covers in the clean section of designated changing areas.
  - 4) Store any clothing not worn under protective clothing in designated changing area.
- C. Exiting the Work Area: HEPA vacuum heavily contaminated protective work clothing while it is still being worn. Do not remove any protective clothing which would result in uncontrolled dispersal of lead/lead duct into the air.
- 1. Remove shoe covers.
  - 2. Remove protective clothing and gear in the "Dirty" area of the designated changing area. Carefully roll down protective coveralls. Place coveralls and shoe covers in disposal container.
  - 3. If respirators are used, remove respirator last.
  - 4. Wash hands and face thoroughly, twice.
  - 5. If showers are available and as necessary shower and wash hair.
  - 6. The workers shall take every precaution to minimize the potential for taking home lead dust on their clothes and belongings.

## 1.09 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with the Referenced Standards.
- B. Pre-Work Conference: Before the Work of this Section is scheduled to commence, a conference will be held by the Environmental Consultant at the Site with the Architect, Owner contractor and the lead handling subcontractor (if any) for the purpose of reviewing the Contract Documents, discussing requirements for the Work, and reviewing the Work procedures.
  - 1. Detailed Lead-Containing Material Removal Work Plan: Before the physical Work begins, review the detailed Lead-Containing Material Removal Work Plan.
- C. Provide a logbook throughout the entire term of the Project. All persons who enter the regulated Lead Dust Control Work Area or containment shall sign the logbook. Document any intrusion or incident in the log book.

## 1.10 FIRE PROTECTION, EMERGENCY EGRESS AND SECURITY

- A. Establish emergency and fire exits from the Lead Dust Control Work Area containment. Provide first aid kits and two full sets of protective clothing and respirators for use by qualified emergency personnel outside of the Work Area.

## PART 2 PRODUCTS

### 2.01 MATERIALS AND EQUIPMENT

- A. All materials shall be delivered in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name.
- B. House Keeping of Work Site

1. The Contractor shall keep all surfaces as free as practicable from accumulations of lead dust resulting from construction activities.
2. The use of compressed air to clean surfaces is strictly prohibited. Dry or wet sweeping, shoveling or brushing shall not be used for clean-up.
3. Vacuum all areas at the end of each day and when removal/enclosure task is complete.
  - a. Vacuum shall be high-efficiency particulate air filter (HEPA).
  - b. Vacuum shall be emptied in such a manner to minimize re-entry of lead into the Work Space or previously cleaned areas.
4. Following the Completion of all Required Work for the Area, the Contractor shall thoroughly clean each area using the following:
  - a. HEPA vacuum
  - b. Wet mop
  - c. HEPA vacuum
  - d. Particular attention shall be given to the exit way. Exit way cleaning shall include the floors and bottom 2 feet of the walls.

## **2.02 TOOLS AND EQUIPMENT**

- A. All tools and equipment used during the course of the Project shall be free of lead contamination, in good condition, and operational when delivered to the Site, ready for installation and use. The Contractor is responsible for proper maintenance of equipment used during the course of this Project.
- B. Tools and Equipment:
  1. All tools and equipment delivered on Site and outside of Lead Work Areas shall be thoroughly clean and free of visible dust and debris.
  2. Respirators:
    - a. Type: Approved by the Mine Safety and Health Administration (MSHA), Department of Labor, or the National Institute for Occupational Safety and Health (NIOSH), Department of Health and Human Services.
  3. Personal Protective Clothing and Equipment:
    - a. When required by the detailed Work Plan, workers must wear protective suits, protective gloves, eye protection and a minimum of half-face respirator with new HEPA filter cartridge for all Projects. Respiratory protection shall be in Accordance with OSHA regulation 1910.134 and ANSI Z88.2.
    - b. See paragraph 1.07 for additional information.
  4. Vacuum Cleaners and Air Filtration Devices:
    - a. Provide sufficient number of HEPA-filtered vacuum cleaners. Vacuum equipment shall comply with Underwriters Laboratories UL 586 specifications for High Efficiency, Particulate, Air Filter Units.
    - b. All air filtration devices shall utilize high efficiency particulate absolute (HEPA) filtration systems.
  5. Replacement Filters:
    - a. One (1) replacement filter bag per individual unit and one (1) replacement HEPA filter per 2 to 4 units shall be stored On-Site. A sufficient number of vacuum units to assure steady, uninterrupted progress of Work shall also be maintained at the Work Site.
  6. Spare Vacuum:
    - a. At least one (1) spare HEPA-equipped vacuum shall be On-Site for emergency clean-up at all times.
  7. Power Tools:
    - a. All power tools used in contact with lead-containing or contaminated materials shall be equipped with HEPA-filtered local exhaust ventilation.
  8. Wastewater Filtration:
    - a. Wastewater filtering system shall be a series of filters with decreasing rated pore size ending with a 5-micron filter(s). Filter media shall be of the disposable cartridge type and will be disposed of as Lead Waste.
  9. Ladders and Scaffolding:

- a. The Contractor shall make available to employees and authorized visitors, ladders and/or scaffolds of sufficient dimension and quantity so that all work surfaces can be easily and safely reached. All scaffold joints and ends shall be sealed with tape to prevent incursion of lead. Scaffolds and ladders shall comply with all applicable safety codes.
- 10. Plastic Sheeting:
  - a. Type: Minimum 6 mil., clear, fire retardant polyethylene sheets.
  - b. Floor Protective Layer: Minimum 10 mil., reinforced polyethylene sheets.
- 11. Disposal Bags:
  - a. Type: Minimum 6 mil thick, clear polyethylene bags with pre-printed Caution Label. Properly containerize/drum prior to disposal.

## **PART 3 EXECUTION**

### **3.01 UTILITIES**

- A. Electrical Power:
  - 1. Provide temporary GFI protected power and lighting for the Hazard Control Work, and ensure safe installation of temporary sources and equipment per Applicable Electrical Code Requirements. Provide waterproof safety lighting and incorporate ground fault interrupter circuits at power sources of all electrical equipment. All electrical power supply and use shall be in Accordance with NYS ICR-56, section 56-8.1.
  - 2. All electrical equipment shall be in Compliance with the National Electric Code, Article 305 - Temporary Wiring.
- B. Water:
  - 1. Water service in the building will be made available by the Owner. The Contractor shall secure and maintain all hoses and connections in a leak free state at all times. Water for each Work Area must be brought in from outside the Area.
- C. Hot Water Heaters:
  - 1. The Contractor shall be responsible for providing temporary hot water heaters during the Project sufficient to provide hot water service to the personal decontamination chamber upon demand if hot water is not available from the building.
- D. HVAC System:
  - 1. HVAC systems shall be shut down at the start of Hazard Control Work. The Hazard Control Contractor shall provide the Project Architect and the Owner with 72-hour written advance notice when an HVAC system shutdown is needed. The Owner will shut down the HVAC system.

### **3.02 DECONTAMINATION ENCLOSURE SYSTEMS**

- A. Decontamination enclosure systems are required for all Work Areas and Work Activities. Decontamination systems shall be constructed prior to Work Area Preparation Activities and shall Comply with the Requirements of NYS ICR-56, section 56.9.
- B. Rooms and Configuration:
  - 1. The personal decontamination enclosure system shall consist of a clean room, a shower room, and an equipment room, in series, separated from each other and from the Work Area by the construction of airlocks.
- C. Showers:
  - 1. There shall be one (1) shower per six (6) full-shift hazard control persons calculated on the basis of the largest shift.
- D. Enclosure Security:
  - 1. When the personal decontamination enclosure system is situated near an area of public access, it shall be fully framed, sheathed for safety and constructed to prevent unauthorized entry.
  - 2. The chambers shall be constructed of metal, wood or plastic framing with two (2) independent layers of opaque, six mil flame-retardant polyethylene sheeting.
  - 3. Chamber wall sheathing shall be a minimum of 3/8" thickness.
  - 4. Chamber floor sheeting shall be of at least two (2) layers of six mil reinforced polyethylene and shall extend up the walls a minimum of 12".

5. Access between chambers shall be through a curtained doorway constructed by placing three (3) independent layers of polyethylene sheets overlapping at least three (3) feet over an existing or temporarily framed doorway, securing each along the top of the doorway, securing the vertical edge of one (1) sheet along one (1) vertical side of the doorway, and securing the vertical edge of the other sheet along the opposite vertical side of the doorway. Curtained doorways shall be weighted at the base so as to limit the ingress of air into the Work Area.
  6. All chambers must be kept in clean/sanitary condition at all times. Accumulation of used materials, debris, and other non-sanitary conditions will not be permitted.
- E. Clean Room:
1. The clean room shall be sized to accommodate all authorized persons. Benches, lockers and hooks shall be provided for street clothes. Shelves for storing respirators shall also be provided. Clean clothing, replacement filters for respirators, towels and other necessary items shall be provided. The clean room shall not be used for the storage of tools, equipment or materials. It shall not be used for office space. A lockable door shall be provided to permit access to the clean room from outside the Work Area or enclosure. It shall be used to secure the Work Area and decontamination enclosure during off-shift hours.
- F. Shower Room:
1. The shower room shall contain one or more showers. Each shower head shall be supplied with hot and cold water adjustable at the tap. The shower enclosure shall be constructed to ensure against leakage of any kind. Uncontaminated soap, shampoo and disposable towels shall be available at all times. Shower water shall be drained, collected and filtered through a system with at least 5.0 micron particle size collection capability. A filtration system containing a series of at least two (2) filters with progressively smaller pore sizes shall be used to avoid rapid clogging of the filtration system by large particles. Filtered wastewater shall be discharged in Accordance with Applicable Codes. Contaminated filters shall be disposed of as Lead Waste.
- G. Equipment Room:
1. The equipment room shall be used for the storage of equipment and tools after decontamination using a HEPA filtered vacuum and/or wet cleaning. A one (1) day supply of replacement filters, in sealed containers, for HEPA vacuums and negative pressure ventilation equipment, extra tools, containers of surfactant and other material and equipment that may be required during the Hazard Control Project may also be stored here. A drum lined with a labeled, at least six mil plastic bag for collection of clothing shall be located in this room. Contaminated footwear and work clothes shall be stored in this Area.

### **3.03 EMERGENCY EXITS**

- A. Maintain emergency and fire exits from the Work Areas. A diagram of all emergency and fire exits must be prepared, and displayed in a conspicuous location in the clean room.

### **3.04 LEAD-CONTAINING/COATED MATERIAL HANDLING AND DISPOSAL**

- A. Handle and dispose of lead-containing materials in Accordance with OSHA 1926.62, HUD: Guidelines for evaluation and control of Lead Based Paint Hazards and the Approved Lead-Containing Material Work Plan. Use procedures and equipment required to limit occupational and environmental exposure to lead when material containing or coated with lead containing paint is handled and disposed of in Accordance with Referenced Standards.

### **3.05 WORK REVIEWS AND ACCEPTANCE**

- A. Prior to the start of Lead Hazard Control, the Environmental Consultant will review the Contractor's containment system, decontamination facilities and equipment for compliance with the Contract Documents. If the consultant finds the containment system, decontamination facilities, and equipment to be satisfactory, the Contractor may proceed with Hazard Control Work. The Contractor shall correct any deficiencies noted by the Consultant before proceeding with Hazard Control.
- B. Pre-Work Wipe Testing:
1. Testing: The Owner will employ the services of an independent Environmental Consultant to perform the pre-work testing within the Lead Dust Control Work Area and the Areas adjacent to the Lead Dust Control Work Area.

2. The Environmental Consultant shall use a testing lab will be New York State Department of Health, Environmental Laboratory Accreditation Program (NYS ELAP).
- C. Post-work Wipe Testing
1. Testing: The Owner will employ the services of an independent Environmental Consultant to perform the pre-work testing within the Lead Dust Control Work Area and the Areas adjacent to the Lead Dust Control Work Area.
  2. The Environmental Consultant shall use a testing lab will be New York State Department of Health, Environmental Laboratory Accreditation Program (NYS ELAP).

### **3.06 WASTE MANAGEMENT**

- A. Regulations:
1. All waste shall be accumulated, handled, tested, packaged, documented, loaded, transported, treated and disposed of in Accordance with all Applicable Federal, State, and Local Laws, Rules/Regulations, and Codes.
- B. Waste Receptacles:
1. Contractor is responsible for providing all waste receptacles required for disposal. All waste including construction and demolition (C&D) debris, temporarily stored on Site, shall be secured to prevent against unauthorized entry and vandalism. Label waste containers with dates that the material was stored.
- C. NYSDEC - Hazardous Waste:
1. For all hazardous waste generated, the Contractor shall complete a NYSDEC Uniform Hazardous Waste Manifest form.
- D. NYCRR:
1. Transporters of hazardous waste must comply with all provisions of 6 NYCRR Part 364 ("Waste Transporter Permits") and be permitted under the Provisions of that Regulation to transport hazardous waste in New York State. A transporter must possess an EPA identification number for the transportation of a hazardous waste as defined in 6 NYCRR 370.2 (b).
- E. Final Manifest:
1. Final manifest and receipts must be provided to the Owner within forty five (45) days of removal of waste from the Site. A copy shall be forwarded to the Architect/Engineer.

### **3.07 WASTE TRANSPORTATION**

- A. The Contractor's waste disposal subcontractor providing waste transportation services shall possess a valid Waste Hauler's permit issued pursuant to the New York State Department of Environmental Conservation (NYSDEC) regulations, 6 NYCRR Part 364. In addition, if the waste is to be transported and disposed of out of New York State, permits for those states through which the waste will be transported and for where it will be disposed may be required. It is the responsibility of the waste disposal subcontractor to determine which permits are required and to provide such permits for review and approval by the Environmental Consultant.
- B. NYSDOT:
1. Packaging and transporting of all waste shall be in Accordance with the Applicable Sections of the Department of Transportation regulations.

### **3.08 CERTIFICATION OF LEAD HAZARD CONTROL WORK**

- A. The Contractor's On-Site Supervisor shall certify in writing to the Project Architect, that all Lead Hazard Control Work and Waste Disposal has been completed in Accordance with this Specification and all Applicable Federal and State Regulations.
- B. The Owner will employ the services of an Environmental Consultant to perform clearance testing.
1. Prior to removal of any isolation barrier, the Environmental Consultant will provide a written Affidavit and a Final Assessment Report from the lab stating that the tests conform to all Standards set forth by all Authorities having Jurisdiction, mentioned in the References.
  2. The Environmental Consultant will schedule a walk-through inspection with the Architect, Contractor and obtain his written Approval.



### **3.09 CLEARANCE**

- A. Once it is determined by the Environmental Consultant that the Work is Complete, clearance sampling will be taken:
  - 1. Surfaces within the Lead Dust Control Work Area: In each Area where the lead containing/coated materials have been disturbed, compare the Post Work Wipe Sample Values with the Pre-Work Wipe Sample Values. If any of the Sample Values exceed the Pre-Work Values, clean again and schedule retesting until the lead levels are equal to or less than the Pre-Work Values or less than the HUD guidelines listed below. Any other surfaces inside the Lead Dust Control Work Area that are not listed below shall be cleaned to the Pre-Work Values:
    - a. Floors: 40 micrograms of lead per square foot.
    - b. Window Sills: 250 micrograms of lead per square foot.
    - c. Window Troughs: 400 micrograms of lead per square foot.
  - 2. Areas Adjacent to the Lead Dust Control Work Area: In each Area where the Work has been performed, compare the Post Work Wipe Sample Values with the Pre-Work Wipe Sample Values. If any of the sample values exceed the Pre-Work Values, the Area has been contaminated by the Work and cleaning is mandatory.
    - a. Clean all affected surfaces and schedule retesting. If results still exceed Pre-Work Wipe Sample Values, clean again and schedule retesting until the following criteria is met or until the lead dust values are equal to or lower than the Pre-Work Wipe Sample Values. Any affected surfaces that are not listed below shall be cleaned to Pre-Work Levels.
      - 1) Floors: 40 micrograms of lead per square foot.
      - 2) Window Sills: 250 micrograms of lead per square foot.
      - 3) Window Troughs: 400 micrograms of lead per square foot.
  - 3. Re-sampling: If the clearance sampling results fail to achieve the clearance criteria, re-sampling of the area shall be required. The Contractor shall complete re-sampling following the re-cleaning of the Area by the Contractor. Re-cleaning and re-sampling shall be at no additional cost to the Owner and shall be the responsibility of the Contractor.

### **3.10 PRE-DISPOSAL TESTING**

- A. Prior to disposal, the Contractor will employ the services of an independent testing lab to perform testing of the removed materials for toxicity in accordance with EPA Method 1311, Toxicity Characteristic Leaching Procedure (TCLP).
  - 1. Test results indicating a value greater than 5 ppm lead or 5mg/L classifies the removed material as Hazardous Waste.

### **3.11 DISPOSAL OF LEAD-CONTAINING/COATED MATERIAL AND RELATED DEBRIS**

- A. Transport and dispose of lead-containing material classified as Hazardous Waste in Accordance with the Standards Referenced in Part 1 of this Section.
- B. Transport and dispose of lead-containing material classified as Non-Hazardous Waste in Accordance with the Standards Referenced in Part 1 of this Section.

### **3.12 RESTORATION**

- A. Remove temporary decontamination facilities and restore Area to its original condition or better.
- B. Where existing construction is damaged or contaminated during the course of performing this Work and no additional reconstruction is scheduled, restore Area to its condition or better.

**SECTION 02 8433  
REMOVAL OF PCB CONTAINING CAULKING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. This section specifies the procedures for removal of existing polychlorinated biphenyls (PCB) containing caulking materials, and disposal of removed materials.
- B. Disturbance or dislocation of polychlorinated biphenyls (PCB) containing caulking materials may cause a health hazard to work persons and building occupants.
  - 1. Contractor shall notify all of his workers, supervisory personnel, subcontractors and consultants who will be at job site of the seriousness of the hazard and of proper work procedures.
- C. Where in the performance of the work, workers, supervisory personnel, subcontractors, or consultants may encounter, disturb or otherwise function in the immediate vicinity of polychlorinated biphenyls (PCB) containing caulking materials, appropriate, continuous measures as necessary to protect all building occupants from the hazard of exposure shall be taken.
  - 1. Such measures shall include the procedures and methods described herein, regulations of the U.S. Occupational Safety & Health Administration (OSHA), U.S. Environmental Protection Agency (EPA), the New York State Department of Labor, and the New York State Department of Environmental Conservation.
- D. The Contractor shall be aware of all conditions of the Project and is responsible for verifying quantities and locations of all Work to be performed. Failure to do so shall not relieve the Contractor of its obligation to furnish all labor and materials necessary to perform the Work.
- E. Working hours shall be as required and approved by the Owner. PCB material removal activities including, but not limited to, work area preparation, gross removal activities, cleaning activities, waste removal, etc. may need to be performed during 'off-hours' (including nights and weekends). In addition, multiple mobilizations may be required to perform the work identified in this project. The Contractor shall coordinate and schedule all Work with the facility and Owner's representative

**1.02 RELATED REQUIREMENTS**

- A. Section 01 1000 - Summary - Multi-Contract.
- B. Section 01 3529.10 - Life Safety Requirements During School Construction.
- C. Section 01 4510 - Asbestos Removal Air & Project Monitoring and Control.
- D. Section 02 2600 - Asbestos, Lead, and PCB Assessment.

**1.03 ABBREVIATIONS AND ACRONYMS**

- A. ASTM: American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103
- B. CFR: Code of Federal Regulations, Government Printing Office, Washington, DC 2040
- C. DOT: New York State Department of Transportation, Main Office, 50 Wolf Road, Albany, NY 1223.
- D. NIOSH: National Institute for Occupational Safety and Health, Building J.N.E. Room 3007, Atlanta, GA 30333
- E. OSHA: Occupational Safety and Health Administration, 200 Constitution Avenue, Washington, DC 20210.
- F. SED - New York State Education Department - Office of Facilities Planning, 89 Washington Avenue, Education Building Annex, Albany, New York 12210.
- G. USEPA: United States Environmental Protection Agency, 401 M Street SW, Washington, DC 20460

**1.04 DEFINITIONS**

- A. Authorized Personnel: Owner, Architect and Construction Manager, Project Monitor, and all other personnel who are authorized officials of any regulating agency, be it State, Lo-cal, Federal or Private entity who possess legal authority for enforcement or in-spection of the work.

- B. Containment: The enclosure within the building which establishes a contaminated area and surrounds the location where hazardous material remediation is taking place and establishes a Control Work Area.
- C. Clearance Criteria: A Visual Inspection of all removal surfaces, performed by the Asbestos Project Monitor employed by the Owner, conforming to all standards set forth by all authorities having jurisdiction, mentioned in the references.
- D. Fixed Object: Mechanical equipment, electrical equipment, fire detection systems, alarms, and all other fixed equipment, fixtures or other items which cannot be removed from the work area.
- E. HEPA: High Efficiency Particulate Absolute filtration efficiency of 99.97 percent down to 0.3 microns. Filtration provided on specialized vacuums and air filtration devices to trap particles.
- F. PCB Solid Hazardous Waste: Materials containing one or more PCB compounds totaling 50 parts per million (ppm) or greater

#### **1.05 REFERENCE STANDARDS**

- A. TSCA (Toxic Substances Control Act)
- B. CERCLA (Federal "Superfund")
- C. New York State Department of Environmental Conservation (DEC) 6NYCRR:
  - 1. Part 360 Solid Waste Management Facilities.
  - 2. Part 364 Waste Transporter Permit
  - 3. Part 370 Hazardous Waste Management System-General
  - 4. Part 371 Identification and Listing of Hazardous Wastes
  - 5. Part 372 Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities.
  - 6. Part 373 Hazardous Waste Management Facilities.
- D. OSHA (Occupational Safety and Health Administration) CFR Title 29.
  - 1. 29 CFR 1910.1200, "Hazard Communication" (OSHA)
  - 2. 29 CFR 1910.134, "Respiratory Protection" (OSHA)
  - 3. 29 CFR 1910.145, "Specification for Accident Prevention Signs and Tags" (OSHA)
  - 4. 29 CFR 1926, "Construction Industry" (OSHA)
  - 5. 29 CFR 1926.500 "Guardrails, Handrails and Covers" (OSHA)
  - 6. 49 CFR 171-173, Transportation Standards (DOT)
- E. EPA (Environmental Protection Agency)
- F. CDC (Center for Disease Control): Air Pollution and Respiratory Health

#### **1.06 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data: Catalog sheets, specifications, and application instructions for any removal products.
- C. Pre-Work Submittals: Within 7 days prior to the pre-construction conference, the Contractor shall submit the documents listed below, with 1 copy going directly to the Project Monitor for review and approval prior to the commencement of PCB caulking removal activities:
  - 1. Progress Schedule:
    - a. Show the complete sequence of abatement activities and the sequencing of Work within each building or building section.
    - b. Show the dates for the beginning and completion of each major element of Work including substantial completion dates for each Work Area, building, or phase.
  - 2. Abatement Work Plan: Provide plans that clearly indicate the following:
    - a. All Work Areas/containments numbered sequentially.
    - b. Entrances and exits to the Work Areas/containments.
    - c. Type of abatement activity/technique for each Work Area/containment.
    - d. Proposed location and construction of storage facilities and field office.
  - 3. Disposal Site/Landfill Permit from applicable regulatory agency.
  - 4. Letter identifying the presence of PCB bulk product waste, with Acknowledgement by the landfill.

5. NYS Department of Environmental Conservation Waste Transporter Permit.
6. On-Site Submittals: Submittals, documentation, and postings required to be maintained on-site during abatement activities.
7. Project Close-out Submittals: Within 30 days after project completion, the Contractor shall submit 1 copy of the closeout-out submittals listed below to the Architect and 1 copy to the environmental consultant for review and approval prior to the Contractors final payment. Once the Architect and the Project Monitor approves the close-out submittal, the contractor shall provide three approved sets of the documents (double-sided and bound) to the Architect and Construction Manager who will provide the Owner with one copy of the approved closeout submittals.
  - a. Copy of all waste disposal manifests and disposal logs. Original waste manifests shall be sent with the closeout submittal.
  - b. Daily progress log.
  - c. Copy of Contractor's Acknowledgment Statement Forms. Original notarized statement shall be sent with the closeout submittals.
  - d. Disposal Site/Landfill Permit from applicable regulatory agency.
  - e. Copy of PCB notification with acknowledgement from the disposal facility/landfill, if applicable.

### **1.07 PROJECT MONITORING**

- A. The Owner shall engage the services of a Project Monitor who shall serve as the Owner's Representative in regard to the performance of the PCB caulking removal. Project and provide direction as required throughout the entire PCB caulking removal period.
- B. The Contractor is required to ensure cooperation of its personnel with the Project Monitor for the sampling and Project monitoring functions described in this section. The Contractor shall comply with all direction given by the Project Monitor during the course of the Project.
- C. The Project Monitor shall provide the following administrative services:
  1. Review and approve or disapprove all submittals, shop drawings, schedules, and samples.
  2. Assure that all notifications to governmental agencies or landfills by the Contractor are submitted in a timely manner and are correct in content.
  3. Review and approve the Contractor's compliance testing laboratory.
- D. The Project Monitor shall staff the Project with a trained and certified person(s) to act on the Owner's behalf at the job site. This individual shall be designated as the Abatement Project Monitor (APM).
  1. The APM shall be on-site at all times the Contractor is on-site. The Contractor shall not be permitted to conduct any Work unless the APM is on-site (except for inspection and planning purposes during non-working days).
  2. The APM shall have the authority to direct the actions of the Contractor verbally and in writing to ensure compliance with the Project documents and all regulations. The APM shall have the authority to Stop Work when gross Work practice deficiencies or unsafe practices are observed.
    - a. Such Stop Work order shall be effective immediately and remain in effect until corrective measures have been taken and the situation has been corrected.
  3. Standby time required to resolve the situation shall be at the Contractor's expense.
- E. The APM shall provide the following services:
  1. Inspection of the Contractor's Work, practices, and procedures, including temporary protection requirements, for compliance with all regulations and Project specifications.
  2. Monitor the progress of the Contractor's Work, and report any deviations from the schedule to the Owner.
  3. Monitor, verify, and document all waste load-out operations.
  4. The APM shall maintain a log on site that documents all project related and Consultant and Contractor actions, activities, and occurrences.
  5. The APM shall take air, swipe, wipe, or bulk samples upon the Owner's request.
- F. The following inspections shall be conducted by the APM. Additional inspections shall be conducted as required by Project conditions. Progression from one phase of Work to the next by the Contractor is only permitted with the written approval of the APM.

- G. Pre-Construction Inspection: The purpose of this inspection is to verify the existing conditions of the Work Areas and to document these conditions.
1. Pre-Commencement Inspection: This inspection shall take place only after the Work Area is fully prepped for removal.
  2. Work Inspections: The purpose of this inspection is to monitor the Work practices and procedures employed on the Project and to monitor the continued integrity of the containment system. Inspections within the removal areas shall be conducted by the APM during all preparation, removal, and cleaning activities at least twice every Work shift. Additional inspections shall be conducted as warranted.
  3. Visual Clearance Inspection: The purpose of this inspection is to verify that: all materials in the scope of work have been properly removed; no visible PCB material debris/residue remains.
  4. Punch List Inspection: The purpose of this inspection is to verify the Contractor's certification that all Work has been completed as contracted and the existing condition of the area prior to its release to the Owner.
- H. The Owner may, at his discretion, choose to conduct air sampling. If air samples collected during abatement indicate any airborne PCB concentration(s) above the OSHA PEL of 0.5 mg/m<sup>3</sup> or EPA recommended thresholds, work shall be stopped immediately and Work methods shall be altered to reduce the airborne PCB concentration(s).

### **1.08 QUALITY ASSURANCE**

- A. The Contractor shall designate a full-time Project Supervisor who shall meet the following qualifications:
1. The Project Supervisor shall be trained in PCB removal and hazardous waste management in NYS, via a 40-hour HAZWOPER/Supervisor training course.
  2. The Project Supervisor shall have a minimum of one year experience as a supervisor.
  3. The Project Supervisor must be able to read and write English fluently, as well as communicate in the primary language of the Workers.
- B. If the Project Supervisor is not on-site at any time whatsoever, all Work shall be stopped. The Project Supervisor shall remain on-site until the Project is complete. The Project Supervisor cannot be removed from the Project without the written consent of the Owner and the Environmental Consultant. The Project Supervisor shall be removed from the Project if so requested by the Owner.
- C. The Project Supervisor shall maintain a bound Daily Project Log that includes the Waste Disposal Log.
- D. The Project Supervisor shall be responsible for the performance of the Work and shall represent the Contractor in all respects at the Project site. The Supervisor shall be the primary point of contact for the Project Monitor.
- E. Training:
1. As required by applicable regulations, prior to assignment to PCB Work instruct each employee with regard to the hazards of PCB, safety and health precautions, and the use and requirements of protective clothing and equipment.
  2. Employees managing Hazardous Waste as described herein must also meet the Personnel training requirements in section 6 NYCRR 373-3.2
  3. Employees managing Hazardous Waste as described herein must also meet the Personnel training requirements in section 6 NYCRR 373-3.2

### **1.09 TEMPORARY UTILITIES**

- A. Where available, obtain power from Owner's existing system. Otherwise provide power from other sources (i.e. generator).
1. Provide temporary wiring and "weatherproof" receptacles in sufficient quantity and location to serve all HEPA equipment and tools.
  2. Provide wiring and receptacles as required by the Environmental Consultant for air sampling equipment.
- B. Provide temporary lighting for all Work Areas.
1. The entire Work Area shall be kept illuminated at all times.

2. Provide lighting as required by the Project Monitor for the purposes of performing required inspections.
- C. Utilize domestic water service, if available, from Owner's existing system.
- D. See Section 01 4000 - Quality Requirements for additional requirements.

#### **1.10 DELIVERY, STORAGE, AND HANDLING**

#### **1.11 DELIVER ALL MATERIALS TO THE JOB SITE IN ORIGINAL PACKAGES WITH CONTAINERS BEARING MANUFACTURER'S NAME AND LABEL.**

- A. Deliver all materials to the job site in original packages with containers bearing manufacturer's name and label.
- B. Store all materials at the job site in a suitable and designated area.
  1. Store materials subject to deterioration or damage away from wet or damp surfaces and under cover.
  2. Protect materials from unintended contamination and theft.
  3. Storage areas shall be kept clean and organized.
- C. Remove damaged or deteriorated materials from the job site. Materials contaminated with PCB shall be disposed of as PCB material as specified herein.

#### **1.12 PERMITS, COMPLIANCE AND PROJECT POSTING,**

- A. The Contractor shall assume full responsibility and liability for compliance with all applicable Federal, State, and local laws, rules, and regulations pertaining to Work practices, protection of Workers, authorized visitors to the site, persons, and property adjacent to the Work.
- B. Perform PCB related Work in accordance with DEC Hazardous Waste Regulations (6 NYCRR 370-374, i.e. Hazardous Waste Rules), 40 CFR 761, and 29 CFR 1926, as specified herein. Where more stringent requirements are specified, adhere to the more stringent requirements.
- C. The Contractor must maintain current licenses or registrations pursuant to DEC and EPA regulations for all Work related to this Project, including the removal, handling, transport, and disposal of hazardous and industrial waste.
- D. The Contractor shall be prepared to obtain an EPA ID number on behalf of the Owner.
- E. Posting of regulations: Display the following documents in the clean changing area, in public view, for the full duration of the work:
  1. Instructions for removing injured persons from work area.
  2. Post emergency action plan at the work site. This plan shall also include telephone numbers for hospital, doctor and Fire Company.

### **PART 2 PRODUCTS**

#### **2.01 PROTECTIVE CLOTHING**

- A. Workers must wear protective suits, protective gloves, eye protection and a minimum of half-face respirator with HEPA filter cartridge for all projects. Respiratory protection shall be in accordance with OSHA regulation 1910.134 and ANSI Z88.2.
- B. Provide personnel utilized during the Project with disposable protective whole body clothing, head coverings, and foot coverings. Provide disposable plastic or rubber gloves, suitable to prevent PCB skin contact, to protect hands.
  1. Respirators:
    - a. Type: Approved by the Mine Safety and Health Administration (MSHA), Department of Labor, or the National Institute for Occupational Safety and Health (NIOSH), Department of Health and Human Services.
- C. Provide sufficient quantities of protective clothing to assure a minimum of four (4) complete disposable outfits per day for each individual performing abatement Work.
- D. Eye protection and hard hats shall be provided and made available for all personnel entering any Work Area.

- E. Authorized visitors shall be provided with suitable protective clothing, headgear, eye protection, and footwear whenever they enter the Work Area.
- F. Workers must be trained as per OSHA and EPA requirements, have medical clearance and must have recently received pulmonary function test (PFT) and respirator fit tested by a trained professional.
  - 1. A personal air sampling program shall be in place as required by OSHA.
  - 2. The use of respirators must also follow a complete respiratory protection program as specified by OSHA.

**2.02 MATERIALS & EQUIPMENT**

- A. Vacuum Cleaners:
  - 1. Type: Vacuums equipped with HEPA filters
- B. Plastic Sheets:
  - 1. Type: Minimum 6 mil., opaque, fire retardant polyethylene sheets.
  - 2. Floor Protective Layer: Minimum 10 mil., reinforced polyethylene sheets.
- C. General Equipment:
  - 1. A sufficient supply of disposable mops, rags, and sponges for work area decontamination shall be available.
  - 2. A sufficient supply of scaffolding, ladders, lifts, and hand tools, (e.g., scrapers, wire cutters, brushes, utility knives, wire saws, etc.) shall be provided as needed.
  - 3. All dry vacuuming performed under this contract shall be performed with High Efficiency Particulate Air (HEPA) filter equipped industrial vacuums conforming to ANSI Z9.2.
  - 4. Any power tools used to drill, cut into, or otherwise disturb PCB material shall be manufacturer equipped with HEPA filtered local exhaust ventilation.

**2.03 SIGNS AND LABELS, CONTAINERS**

- A. Provide warning signs and barrier tapes at all approaches to PCB Work Areas. Locate signs at such distance that personnel may read the sign and take the necessary protective steps required before entering the area.
- B. Provide the appropriate “Large PCB Marking” or “Small PCB Marking” (ML or MS per 40 CFR 761) as shown below, of sufficient size to be clearly legible, for display on waste containers (bags, boxes, rolloffs or drums) which will be used to contain or transport PCB contaminated material, in accordance with 40 CFR 761. In addition, U.S. Department of Transportation (DOT) 49 CFR Parts 171 and 172 requires the name and UN number of the material to be on the bags or drums, and, if shipped in bulk (rolloffs, Gaylord boxes, etc) the bulk container must also be labeled: Polychlorinated biphenyl, solid mixture UN 3432.
- C. The PCB materials are also NYS Hazardous Waste, and must have a label stating the following on each container :
  - 1. **HAZARDOUS WASTE**--Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority, or the U.S. Environmental Protection Agency.
  - 2. Generator's Name and Address \_\_\_\_\_
  - 3. Generator's EPA Identification Number \_\_\_\_\_
  - 4. Manifest Tracking Number \_\_\_\_\_
- D. Provide 6 mil plastic disposal bags with PCB caution labels.
  - 1. The “Small PCB Label” (MS per 40 CFR 761) may be used as shown above. Bags shall also be labeled with U.S. DOT required markings per 49 CFR 172, Polychlorinated biphenyl, solid mixture UN 3432.
  - 2. Labeled PCB waste containers or bags shall not be used for non-PCB waste or trash. Any material placed in labeled containers or bags, whether turned inside out or not shall be handled and disposed of as PCB waste



## **2.04 SHIPPING CONTAINERS AND PACKAGING**

- A. Provide packaging in accordance with 49 CFR 173 Packaging Group 9, such as 30 or 55 gallon capacity fiber, plastic, or metal drums, Gaylord Boxes or other Intermediate Bulk Containers (IBCs), or non-siftable bulk containers, capable of being sealed air and water tight if PCB waste has the potential to damage or puncture disposal bags. Affix PCB caution labels on lids of drums, and opposite sides of drums or bulk containers, as well as the ends of bulk containers.

## **PART 3 EXECUTION**

### **3.01 WORK AREA PREPARATION**

- A. Notify the Construction Manager and Owner a minimum of 5 working days prior to the start of PCB Caulk removal work.
- B. PCB caution signs shall be posted at all approaches to the PCB Work Area. Post all emergency exits as emergency exits only on the Work Area side, post with PCB caution signs on the non-Work Area side. Provide all non-Work Area stairs and corridors accessible to the PCB Work Area with warning tapes at the base of stairs and beginning of corridors. Warning tapes shall be in addition to caution signs.
- C. Access to areas of work shall be regulated to prevent unauthorized visitors.
- D. Personal/Equipment Decontamination Room or Area. An existing room or area that is adjacent to the work area shall be used for the decontamination of personnel and equipment. The room or area shall be covered by an impermeable dropcloth on the floor or horizontal working surface. The room or area must be of sufficient size to accommodate cleaning of equipment and removing personal protective equipment. Work clothing must be cleaned with a HEPA vacuum before it is removed. All equipment and surfaces of waste containers must be cleaned prior to removing them from the decontamination room or area. All personnel must enter and exit the PCB work area through the decontamination room or area.
- E. Work Area Preparation For Exterior Removal:
  - 1. All ground surfaces exterior to the work area shall have two layers of 6 mil fire retardant plastic sheeting, attached to the building face and laid down on the surface below the exterior abatement work area, at least 10 feet wide or to the furthest point of gravity fall for dislodged debris by methods used, whichever is further. For work at the second story and above, extend 6 mil fire retardant plastic sheeting as necessary. For work above third story, by sidewalk, street, or property boundary, scaffolding sides shall be covered in 6-mil fire retardant plastic sheeting.
  - 2. All operable windows within the work area and 25 ft. from all sides of the work area shall be closed.
  - 3. In the work area, isolate all HVAC equipment intakes by temporarily shutting down units during removals and installing plastic sheeting over the opening.
- F. Work Area Preparation For Interior Removal:
  - 1. Isolate all HVAC equipment, including installing plastic sheeting on all air returns and exhausts. Turn off all HVAC systems serving work area when feasible.
  - 2. All floor areas adjacent to the work area shall have a layer of 6 mil fire retardant plastic sheeting, attached to the interior wall and laid down on the surfaces below the abatement work area, at least 5 feet wide or to the furthest point of gravity fall for dislodged debris by methods used, whichever is further.
  - 3. All movable objects shall be removed from the immediate work area. All non-movable objects shall be covered with one layer of 6 mil fire retardant plastic sheeting and sealed at the edges.
  - 4. All operable windows within the work area shall be closed.
  - 5. Temporary dust barriers consisting of a minimum of 6-mil fire-retardant plastic sheeting shall be at installed at hallways, corridors, doorways, and other openings to the work area not used for passage during removals) to establish work area containment enclosure.
  - 6. A 6-mil fire retardant plastic sheeting overlapping curtained doorway shall be installed at the entrance to the work area.
  - 7. For all work areas with use of electromechanical tools for PCB removals, HEPA filtered negative air ventilation units must be installed in work area and operate continuously during removal operations to establish negative pressure. A minimum of 4 air changes per hour must be maintained within work area during removals and cleanings until work area clearance is obtained from the APM.

### **3.02 DAILY PROJECT LOG**

- A. Provide a Daily Project Log. The log shall contain on title page the Project name, name, address and phone number of Owner; name, address and phone number of Environmental Consultant; name, address and phone number of Abatement Contractor; emergency numbers including, but not limited to local Fire/Rescue department.
- B. All entries into the log shall be made in non-washable, permanent ink and such pen shall be strung to or otherwise attached to the log to prevent removal from the log-in area. Under no circumstances shall pencil entries be permitted.
- C. The Project Supervisor shall document all Work performed daily and note all inspections.

### **3.03 REMOVAL OF PCB MATERIALS - GENERAL**

- A. PCB-containing materials shall be removed in accordance with the Contract Documents and the approved PCB Work Plan.
- B. Non-PCB items remaining such as windows, doors, masonry, and all other building construction and components from which PCB materials are removed shall be decontaminated by physical or chemical means (such as stripper) such that no visible residue remains. The removal of the PCB materials may require the use of scrapers, solvents, mastic removal chemicals, or other methods/procedures to ensure complete removal.
- C. Use tools that generate the least amount of dust and will still complete the PCB caulk removal. See current EPA regulations and recommendations regarding tools and protective measures to be used for PCB caulk removals.
- D. Grinding electromechanical tools (e.g. angle grinders, masonry groove cutters, circular saws, and slot mills, etc.) are not allowed to be used for exterior open-air PCB caulk removals.
- E. For exterior removals, take appropriate precautions (e.g. install windscreens) to prevent dust and debris from migrating due to windy conditions.
- F. Remove accessible caulk that could be disturbed before cutting building components, such as window frames.
- G. All removed PCB material shall be placed into 6 mil plastic disposal bags or other suitable container upon detachment from the substrate. Large components with PCB material or PCB residue shall be wrapped in one layer of 6 mil plastic sheeting. Sharp components likely to tear disposal bags shall be placed in fiber drums or boxes and then wrapped with sheeting.
- H. Power or pressure washers are not permitted for PCB removal or clean-up procedures
- I. All construction and demolition debris determined by the Environmental Consultant to be contaminated with PCB shall be handled and disposed of as PCB waste. If non-porous (e.g. metal) removed components previously in contact with non-liquid PCBs are to be cleaned and decontaminated prior to disposal as non-PCB waste, the requirements of 40 CFR 761 Subpart D shall be met, including cleaning to Visual Standard No. 2, Near-White Blast Cleaned Surface Finish of the National Association of Corrosion Engineers (NACE). The project monitor shall verify compliance with Standard No. 2, by visually inspecting all cleaned removed components. The Contractor shall note that a near-white metal blast cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dust, dirt, mill scale, rust, coating, oxides, corrosion products, and other foreign matter.
- J. All PCB waste must be located at or near the point of generation, under the control of the Project Supervisor. Up to 55 gallons may be stored at the point of generation for an indefinite period, but any more than 55 gallons must be moved within 3 days to a Container storage area (CSA) as specified in 6 NYCRR Section 372.2 "Standards Applicable to Generators of Hazardous Waste", or off site. Waste may be stored at the CSA for 90 days, during which labeling, inspections, and other requirements must be met as described in 6 NYCRR Section 372.2, Section 373-3.1(d) and Subpart 373-3.
- K. The CSA and personnel managing it must also meet the following requirements of 6 NYCRR 373:
  - 1. Preparedness and Prevention provisions of Section 373-3.3
  - 2. Secondary containment requirements of 373-2.9(f)(1)
  - 3. Personnel training in section 373-3.2

4. Contingency plans and emergency procedures in section 373-3.4 subparagraph 376.1(g)(1)(v)
  5. The containers must be dated when placed in storage, and accumulation times must be observed
  6. The total amount of hazardous waste stored in the storage area at one time is 13,200 lb.
  7. A label or sign stating "Hazardous Waste" must identify all areas and containers used to accumulate hazardous waste
- L. Closure of the CSA. If an EPA ID number and CSA were created specifically for the PCB removal work, once the removal work is complete the Contractor shall immediately close out the CSA, notify the DEC/EPA that the hazardous waste activity has concluded, and that the storage area is to be closed per 373-3.7(b) and (e).
  - M. The Contractor is required to provide temporary protection of the building (i.e. roof, window openings, construction joints, etc.) at the end of each Work shift so as to maintain the building in a watertight condition.
  - N. Personal protective equipment, including respirators, shall be utilized and worn during all removal operations until the Work Area is cleared by the APM.
  - O. Following completion of gross abatement and after all accumulations of PCB waste materials have been containerized, the decontamination procedures in Section 3.04 shall be followed.
  - P. Finishes damaged by PCB abatement activities shall be restored prior to final payment. Finishes unable to be restored shall be replaced under this Contract.
  - Q. Dry sweeping and any other methods that raise dust shall be prohibited.

### **3.04 EQUIPMENT AND AREA DECONTAMINATION**

- A. When removal of PCB materials is completed, the decontamination process shall consist of vacuuming (with a HEPA filter), wet wiping/mopping and a repeated vacuuming (with a HEPA filter) of the entire work area. All surfaces in and around the work area must be free of dust generated during the work.
- B. Decontaminate all tools and equipment before removal from the work area.
- C. If dust or debris has migrated to areas of the building other than the immediate work area, those areas shall be incorporated into the work area and thoroughly decontaminated to ensure all visible dust generated by the activity is eliminated.
- D. Uncontaminated dust barriers and other protective sheeting shall be placed in disposable construction bags and disposed of as normal trash.
- E. Visually inspect the area for any remaining dust or debris. Vacuum (with HEPA filter) and wet wipe until space is clean. Dispose of vacuum contents as PCB waste.
- F. Upon completion of decontamination and removing temporary dust barriers, a final inspection shall be performed by the Contractor and Abatement Project Monitor. As a result of any visual inspection by the Abatement Project Monitor, the Contractor will clean or reclean the affected areas at no additional expense to the Owner.

### **3.05 DISPOSAL OF PCB WASTE**

- A. Transportation and Disposal Site:
  1. The Contractor's Hauler and Disposal Site shall be approved by the Owner. For any permitted out-of-state landfill not specifically authorized for disposal of PCBs, written notice must be provided 15 days prior to the first shipment of the same waste stream that the waste may contain PCBs greater than 50ppm, in accordance with 40 CFR 761.62. The letter shall be acknowledged via a disposal facility representative's signature, printed name and title. If the facility is permitted to accept PCB waste, no letter is required. Note: For disposal within New York State, facilities must be specifically permitted to accept PCB waste.
  2. The Contractor shall give twenty-four (24) hour notification prior to removing any waste from the site. Waste shall be removed from the site only during normal working hours unless otherwise specified. No waste may be taken from the site unless the Contractor and Environmental Consultant are present and the Environmental Consultant authorizes the release of the waste as described herein.

3. All waste generated as part of the PCB project shall be removed from the site within ten (10) calendar days after successful completion of all PCB abatement work.
4. Upon arrival at the Project Site, the Hauler must possess and present to the Environmental Consultant a valid New York State Department of Environmental Conservation Part 364 Waste Hauler's Permit. The Environmental Consultant may verify the authenticity of the hauler's permit with the proper authority.
5. The Hauler, with the Contractor and the Environmental Consultant, shall inspect all material in the transport container prior to taking possession and signing the Hazardous Waste Manifests

**B. Waste Storage Containers**

1. All waste containers shall be fully enclosed and lockable (i.e. enclosed dumpster, trailer, etc.).
2. The Environmental Consultant shall verify that the waste storage container and/or truck tags (license plates) match that listed on the New York State Department of Environmental Conservation Part 364 permit. Any container not listed on the permit shall be removed from the site immediately.
3. The container shall be plasticized and sealed with one layer of 6 mil plastic. Once on site, it shall be kept locked at all times, except during load out. The waste container shall not be used for storage of equipment or contractor supplies.
4. While on-site, the container shall be labeled with PCB Warning Labels and DEC Hazardous Waste Labels as specified in Section 2.02.
5. The New York State Department of Environmental Conservation Waste Hauler's Permit number shall be stenciled on both sides and back of the container.
6. The container is not permitted to be loaded unless it is properly plasticized, has the appropriate danger signage affixed, and has the permit number appropriately stenciled on the container.
7. The Owner may initiate random checks at the Disposal Site to insure that the procedures outlined herein are complied with.

**3.06 HAZARDOUS WASTE MANIFESTS**

- A. New York State Uniform Hazardous Waste Manifest shall be utilized solely as the waste Manifest for transportation. A hauler billing form or bill of lading may be used if the hauler needs an independent record, but shall not be used as a shipping document.
- B. The Manifest shall be completed by the Contractor and verified by the Environmental Consultant that all the information and amounts are accurate and the proper signatures are in place.
- C. The Manifest shall have the appropriate signatures of the Owner's Representative (the Generator) and the Hauler representative prior to any waste being removed from the site.
- D. Copies of the completed Manifest shall be retained by the Environmental Consultant and shall remain on site for inspection.
- E. Upon arrival at the Disposal Site, the Manifest shall be signed by the Disposal Facility operator to certify receipt of PCB materials covered by the manifest.
- F. The Disposal Facility operator shall return the original Manifest to the Owner's Representative (the Generator) as required by the DEC in 6 NYCRR 372 within 45 days. The Environmental Consultant must call the facility to investigate if not returned within 35 days, and call the DEC and file an Exception report if not returned within 45 days.
- G. The Contractor shall utilize the Waste Disposal Log provided by the Owner. This log shall be maintained by the Project Supervisor and shall be kept on site at all times. (See Appendix A.)
- H. The Contractor must also submit reports and records per the requirements of 6 NYCRR 372.2

**3.07 RESTORATION**

- A. Remove temporary decontamination facilities and restore area designated for these facilities to its original condition or better.
- B. Where existing construction is damaged or contaminated, restore work to its original condition or better.

**3.08 CLOSEOUT ACTIVITIES**

- A. See Section 01 7800 - Closeout Submittals for additional submittals.

**END OF SECTION**

**SECTION 03 0100  
MAINTENANCE OF CONCRETE**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Cleaning of existing concrete surfaces.
- B. Resurfacing of concrete surfaces having spalled areas and other damage.
- C. Repair of deteriorated concrete.
- D. Repair of internal concrete reinforcement.
- E. Scope of Work: As indicated on drawings.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 3000 - Cast-in-Place Concrete: Finishing of concrete surface to tolerance; floating, troweling, and similar operations; curing.

**1.03 REFERENCE STANDARDS**

- A. ASTM C928/C928M - Standard Specification for Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repairs.
- B. ASTM C1059/C1059M - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete.
- C. ICRI 310.2R - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Indicate product standards, physical and chemical characteristics, technical specifications, limitations, maintenance instructions, and general recommendations regarding each material.

**1.05 DELIVERY, STORAGE, AND HANDLING**

- A. Comply with manufacturers' instructions for storage, shelf life limitations, and handling of products.

**PART 2 PRODUCTS**

**2.01 CLEANING MATERIALS**

- A. Detergent: Non-ionic detergent.

**2.02 CEMENTITIOUS PATCHING AND REPAIR MATERIALS**

- A. Manufacturers:
  - 1. ARDEX Engineered Cements: [www.ardexamericas.com/#sle](http://www.ardexamericas.com/#sle).
  - 2. Master Builders Solutions: [www.master-builders-solutions.com/en-us/#sle](http://www.master-builders-solutions.com/en-us/#sle).
  - 3. The QUIKRETE Companies: [www.quikrete.com/#sle](http://www.quikrete.com/#sle).
  - 4. SpecChem, LLC: [www.specchemllc.com/#sle](http://www.specchemllc.com/#sle).
  - 5. W. R. Meadows, Inc: [www.wrmeadows.com/#sle](http://www.wrmeadows.com/#sle).
  - 6. Substitutions: See Section 01 6000 - Product Requirements.
- B. Cementitious Repair Mortar, Trowel Grade: One- or two-component, factory-mixed, polymer-modified cementitious mortar.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verify that surfaces are ready to receive work.
- B. Beginning of installation means acceptance of substrate.

**3.02 CLEANING EXISTING CONCRETE**

- A. Clean concrete surfaces of dirt or other contamination using the gentlest method that is effective.

1. Try the gentlest method first, then, if not clean enough, use a less gentle method taking care to watch for impending damage.
  2. Clean out cracks and voids using same methods.
- B. The following are acceptable cleaning methods, in order from gentlest to less gentle:
1. Water washing using low-pressure, maximum of 100 psi, and, if necessary, brushes with natural or synthetic bristles.
  2. Increasing the water washing pressure to maximum of 400 psi.
  3. Adding detergent to washing water; with final water rinse to remove residual detergent.
  4. Steam-generated low-pressure hot-water washing.

### **3.03 CONCRETE STRUCTURAL MEMBER REPAIR**

- A. Remove broken and soft concrete at least 1/4 inch deep.
- B. Remove corrosion from steel and clean mechanically.
- C. Follow repair product manufacturer's written installation instructions.

### **3.04 CONCRETE SURFACE REPAIR USING CEMENTITIOUS MATERIALS**

- A. Clean concrete surfaces, cracks, and joints of dirt, laitance, corrosion, and other contamination using method(s) specified above and allow to dry.
- B. Apply coating of bonding agent to entire concrete surface to be repaired.
- C. Fill voids with cementitious mortar flush with surface.
- D. Apply repair mortar by steel trowel to a minimum thickness of 1/4 inch over entire surface, terminating at a vertical change in plane on all sides.
- E. Trowel finish to match adjacent concrete surfaces.

### **3.05 FIELD QUALITY CONTROL**

- A. See Section 01 4000 - Quality Requirements for additional requirements.

**END OF SECTION**

**SECTION 03 0130.75  
CONCRETE REPAIR**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Preparation of concrete and application of repair materials of interior and/or exterior vertical and overhead surfaces with a hand applied, set-accelerated portland cement, repair mortar.

**1.02 REFERENCE STANDARDS**

- A. ASTM C 33 - Standard Specification for Concrete Aggregates.
- B. ASTM C 109 - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars.
- C. ASTM C 293 - Standard Test Method for Flexural Strength of Concrete.
- D. ASTM C 404 - Standard Specification for Aggregates for Masonry Grout.
- E. ASTM C 496 - Standard Test Method for Splitting Tensile Strength of Concrete Specimens.
- F. ASTM C 882 - Standard Test Method for Bond Strength of Epoxy-Resin Systems Used with Concrete.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Indicate product standards, physical and chemical characteristics, technical specifications, limitations, maintenance instructions, and general recommendations regarding each material.
- C. Manufacturer's Certificate: Certify that specified products meet or exceed specified requirements.

**1.04 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than five (5) years of documented experience.
- B. Contractor qualifications: Contractor shall be a qualified in the field of concrete repair and protection with a successful track record of five (5) years or more. Contractor shall maintain qualified personnel who have received product training by a manufacturer's representative.
- C. Install materials in accordance with all safety and weather conditions required by manufacturer or as modified by Applicable Rules and Regulations of Local, State and Federal Authorities Having Jurisdiction. Consult Material Safety Data Sheets for complete handling recommendations.

**1.05 MOCK-UP**

- A. Locate as directed by Owner's Representative.
- B. Mock-up may remain as part of the Work.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Comply with manufacturers' instructions for storage, shelf life limitations, and handling.
- B. All materials must be delivered in original, unopened containers with the manufacturer's name, labels, product identification, and batch numbers. Damaged material must be removed from the Site immediately.
- C. Store all materials off the ground and protect from rain, freezing or excessive heat until ready for use.

**1.07 JOB CONDITIONS**

- A. Environmental Conditions: Do not apply material if it is raining or snowing or if such conditions appear to be imminent. Minimum application temperature 40 degrees F or above. Minimum temperature of 40 degrees F shall be maintained 24 hours after completion of Work, or as otherwise recommended by manufacturer.
- B. Protection: Precautions should be taken to avoid damage to any surface near the work zone due to mixing and handling of the specified material.



## 1.08 WARRANTY

- A. Provide a written warranty from the manufacturer against defects of materials for a period of one (1) year, beginning with Date of Substantial Completion of the Project.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS

- A. Cementitious Patching Material:
  - 1. Conproco; Product Conpro Set: [www.conproco.com](http://www.conproco.com).
  - 2. Or Approved Equal.
  - 3. Substitutions: See Section 01 6000 - Product Requirements.
- B. Primer:
  - 1. Conproco; Product ECB: [www.conproco.com](http://www.conproco.com).
  - 2. Or Approved Equal .
  - 3. Substitutions: See Section 01 6000 - Product Requirements.

### 2.02 PATCHING MATERIALS

- A. Cementitious Repair Mortar: Conproco Set by Conproco; Trowel applied, single component, polymer modified cementitious repair mortar with ECB-Tech corrosion protection.
  - 1. The repair mortar shall be a blend of selected portland cements, specially graded aggregates, admixtures for controlling setting time, water reducers for workability, and an organic accelerator.
  - 2. The materials shall be non-combustible, either before or after cure.
  - 3. The materials shall be supplied in a factory-proportioned unit.
  - 4. The portland cement mortar must be placeable from ¼-in. to 1 ½-in in depth per lift for vertical applications and ¼-in to 1 ½-in in depth per lift for overhead applications.
- B. Performance Criteria:
  - 1. Compressive Strength: (ASTM C-109-modified)
    - a. 7 days: 3210 psi min.
    - b. 14 days: 6500 psi min.
    - c. 28 days: 6525 psi min.
  - 2. Flexural Strength at 28 days: 9300 psi
  - 3. Splitting Tensile Strength at 28 days: 600 psi
  - 4. The portland cement mortar shall not produce a vapor barrier.
- C. Sand: ASTM C 33 or ASTM C 404; uniformly graded, clean.
- D. Water: Clean and potable.

### 2.03 ACCESSORIES

- A. Primer: ECB by Conproco; A water based, single component, anti-corrosion coating and long open time bonding primer.
  - 1. No additives of any kind shall be added to any of the products, except for small amounts of clean, potable water as directed on package labels. Stir or mechanically mix using a low speed drill (400 - 600 rpm) until homogeneous.
  - 2. Performance Criteria:
    - a. Direct Tensile Strength (ACI 503R): 300 psi.
    - b. Slant Shear Bond Strength (ASTM C882): 900 psi.

### 2.04 MIXING CEMENTITIOUS MATERIALS

- A. Mix cementitious mortar and grout in accordance with manufacturer's instructions for purpose intended.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that surfaces are ready to receive work.
- B. Beginning of installation means acceptance of substrate.

### **3.02 PREPARATION**

- A. Rake out cracks and remove all deteriorated, chipped, and spalled concrete, dirt, oil, grease, and all bond-inhibiting material from surface. Be sure repair area is not less than 1/4" in depth. Preparation work should be done by scabbler or other appropriate mechanical means to obtain an exposed aggregate surface with a minimum surface profile of +/- 1/8" (CSP-6).
- B. Saturate surface with clean water. Should be saturated surface dry with no standing water during application.
- C. Priming: Apply primer to prepared substrate with a brush or spray application to 7 mils wet. Primer shall be compatible with patching material.
  - 1. Reapply primer to concrete if substrate is not covered with repair material within 5 days

### **3.03 APPLICATION - CEMENTITIOUS MORTAR**

- A. Prime the prepared substrate including all edges with a slurry coat of the repair mortar. Work the slurry into the substrate to ensure intimate contact and establish bond. The repair material must be applied while slurry is wet. If slurry dries, remove and recoat.
- B. Mortar must be scrubbed into the substrate, filling all pores and voids. Force material against edge of repair, working toward center. After filling repair, consolidate, then screed. Material may be applied in multiple lifts. The thickness of each lift shall not be less than 1/4" minimum and no greater than 1-1/2".
- C. Where multiple lifts are required score top surface of each lift to produce a roughened surface for next lift.
- D. Moist cure with wet burlap and polyethylene, a fine mist of water or water based compatible curing compound.

**END OF SECTION**

**SECTION 03 1000  
CONCRETE FORMING AND ACCESSORIES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Formwork for cast-in-place concrete, with shoring, bracing and anchorage.
- B. Form accessories.
- C. Form stripping.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 2000 - Concrete Reinforcing.
- B. Section 03 3000 - Cast-in-Place Concrete.

**1.03 REFERENCE STANDARDS**

- A. ACI 117 - Specifications for Tolerances for Concrete Construction and Materials.
- B. ACI 301 - Specifications for Structural Concrete.
- C. ACI 318 - Building Code Requirements for Structural Concrete and Commentary.
- D. ACI 347R - Guide to Formwork for Concrete.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate pertinent dimensions, materials, bracing, and arrangement of joints and ties.

**PART 2 PRODUCTS**

**2.01 FORMWORK - GENERAL**

- A. Provide concrete forms, accessories, shoring, and bracing as required to accomplish cast-in-place concrete work.
- B. Design and construct concrete that complies with design with respect to shape, lines, and dimensions.

**2.02 WOOD FORM MATERIALS**

- A. Form Materials: At the discretion of the Contractor.

**2.03 FORMWORK ACCESSORIES**

- A. Form Ties: Removable type, galvanized metal, fixed length, cone type, with waterproofing washer, 1 inch back break dimension, free of defects that could leave holes larger than 1 inch in concrete surface.
- B. Form Release Agent: Capable of releasing forms from hardened concrete without staining or discoloring concrete or forming bugholes and other surface defects, compatible with concrete and form materials, and not requiring removal for satisfactory bonding of coatings to be applied.
  - 1. Composition: Colorless, reactive, water-based compound.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verify lines, levels and centers before proceeding with formwork. Ensure that dimensions agree with drawings.

**3.02 ERECTION - FORMWORK**

- A. Erect formwork, shoring and bracing to achieve design requirements, in accordance with requirements of ACI 301.
- B. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to overstressing by construction loads.
- C. Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.
- D. Align joints and make watertight. Keep form joints to a minimum.

### **3.03 APPLICATION - FORM RELEASE AGENT**

- A. Apply form release agent on formwork in accordance with manufacturer's recommendations.
- B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.
- C. Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings that are affected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

### **3.04 FORM CLEANING**

- A. Clean forms as erection proceeds, to remove foreign matter within forms.
- B. Clean formed cavities of debris prior to placing concrete.
  - 1. Flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.
  - 2. During cold weather, remove ice and snow from within forms. Do not use de-icing salts. Do not use water to clean out forms, unless formwork and concrete construction proceed within heated enclosure. Use compressed air or other means to remove foreign matter.

### **3.05 FORMWORK TOLERANCES**

- A. Construct formwork to maintain tolerances required by ACI 117, unless otherwise indicated.

### **3.06 FIELD QUALITY CONTROL**

- A. An independent testing agency will perform field quality control tests, as specified in Section 01 4000 - Quality Requirements.
- B. Do not reuse wood formwork more than 2 times for concrete surfaces to be exposed to view. Do not patch formwork.

### **3.07 FORM REMOVAL**

- A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.
- B. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.
- C. Store removed forms to prevent damage to form materials or to fresh concrete. Discard damaged forms.

**END OF SECTION**

**SECTION 03 2000  
CONCRETE REINFORCING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Reinforcing steel for cast-in-place concrete.
- B. Supports and accessories for steel reinforcement.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 1000 - Concrete Forming and Accessories.
- B. Section 03 3000 - Cast-in-Place Concrete.
- C. Section 04 2000 - Unit Masonry: Reinforcement for masonry.

**1.03 REFERENCE STANDARDS**

- A. ACI 301 - Specifications for Structural Concrete.
- B. ACI 302.1R - Guide to Concrete Floor and Slab Construction.
- C. ACI 318 - Building Code Requirements for Structural Concrete and Commentary.
- D. ACI SP-66 - ACI Detailing Manual.
- E. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
- F. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.
- G. CRSI (DA4) - Manual of Standard Practice.
- H. CRSI (P1) - Placing Reinforcing Bars, 10th Edition.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Comply with requirements of ACI SP-66. Include bar schedules, shapes of bent bars, spacing of bars, and location of splices.
  - 1. Prepare shop drawings under seal of a Professional Structural Engineer experienced in design of work of this type and licensed in the State in which the Project is located.
- C. Manufacturer's Certificate: Certify that reinforcing steel and accessories supplied for this project meet or exceed specified requirements.
- D. Reports: Submit certified copies of mill test report of reinforcement materials analysis.

**1.05 QUALITY ASSURANCE**

- A. Perform work of this section in accordance with ACI 301, ACI 318 and CRSI (DA4)
  - 1. Maintain one copy of each document on project site.
- B. Delivery: Deliver reinforcement to the project site bundled, tagged and marked. Use metal tags indicating bar size, lengths and other information corresponding to marking shown on placement diagrams.
- C. Storage: Store reinforcement at the Job Site in a manner to prevent damage and accumulation of dirt and excessive rust.

**PART 2 PRODUCTS**

**2.01 REINFORCEMENT**

- A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi).
  - 1. Deformed billet-steel bars.
  - 2. Unfinished.
- B. Steel Welded Wire Reinforcement (WWR): Deformed type; ASTM A1064/A1064M.
  - 1. Form: Flat Sheets.

- C. Reinforcement Accessories:
  - 1. Tie Wire: Annealed, minimum 16 gauge, 0.0508 inch.
  - 2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.

## **2.02 FABRICATION**

- A. Fabricate concrete reinforcing in accordance with CRSI (DA4) - Manual of Standard Practice and ACI 318. In the case of fabrication errors, do not re-bend or straighten reinforcement in a manner that will injure or weaken the material.
- B. Unacceptable materials: Reinforcement with any of the following defects will not be permitted in the work:
  - 1. Bar lengths, depths, and bends exceeding specified fabrication tolerances.
  - 2. Bends or kinks not indicated on the Drawings or on the final Shop Drawings.
  - 3. Bars with reduced cross-section due to excessive rusting or other causes.
- C. Locate reinforcing splices not indicated on drawings at point of minimum stress.
  - 1. Review locations of splices with Architect.

## **PART 3 EXECUTION**

### **3.01 PLACEMENT**

- A. Place, support and secure reinforcement against displacement. Do not deviate from required position.
- B. Do not displace or damage vapor barrier.
- C. Accommodate placement of formed openings.
- D. Maintain concrete cover around reinforcing as follows:
  - 1. Walls (exposed to weather or backfill): 3 inch.
  - 2. Slabs on Fill: 3/4 inch.
- E. Comply with applicable code for concrete cover over reinforcement.
- F. Welded wire mesh in slabs to be supported in upper third of slab.

### **3.02 FIELD QUALITY CONTROL**

- A. The Owner's independent testing agency, as specified in Section 01 4000 - Quality Requirements, will inspect installed reinforcement for compliance with contract documents before concrete placement.

**END OF SECTION**

**SECTION 03 3000  
CAST-IN-PLACE CONCRETE**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Floors and Slabs on Grade.
- B. Concrete; Exterior Stairs and Ramps
- C. Joint devices associated with concrete work.
- D. Miscellaneous concrete elements, including equipment pads, equipment pits, light pole bases, flagpole bases, thrust blocks and manholes.
- E. Concrete curing.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 1000 - Concrete Forming and Accessories: Forms and accessories for formwork.
- B. Section 03 2000 - Concrete Reinforcing.
- C. Section 07 9200 - Joint Sealants: Products and installation for sealants and joint fillers for saw cut joints and isolation joints in slabs.

**1.03 REFERENCE STANDARDS**

- A. ACI 117 - Specifications for Tolerances for Concrete Construction and Materials.
- B. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete.
- C. ACI 301 - Specifications for Structural Concrete.
- D. ACI 302.1R - Guide to Concrete Floor and Slab Construction.
- E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete.
- F. ACI 305R - Guide to Hot Weather Concreting.
- G. ACI 306R - Guide to Cold Weather Concreting.
- H. ACI 308R - Guide to External Curing of Concrete.
- I. ACI 318 - Building Code Requirements for Structural Concrete and Commentary.
- J. ACI 347R - Guide to Formwork for Concrete.
- K. ACI 614-59 - Recommended Practice for Measuring, Mixing, and Placing Concrete Recommended Practice for Measuring, Mixing, and Placing Concrete Recommended Practice for Measuring, Mixing, and Placing Concrete Recommended Practice for Measuring, Mixing, and Placing Concrete..
- L. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
- M. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.
- N. ASTM C33/C33M - Standard Specification for Concrete Aggregates.
- O. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
- P. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete.
- Q. ASTM C150/C150M - Standard Specification for Portland Cement.
- R. ASTM C171 - Standard Specification for Sheet Materials for Curing Concrete.
- S. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
- T. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete.
- U. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
- V. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete.



- W. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
- X. ASTM C685/C685M - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing.
- Y. ASTM C1059/C1059M - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete.
- Z. ASTM C1315 - Standard Specification for Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete.
- AA. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete.
- BB. ASTM D994/D994M - Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type).
- CC. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
- DD. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs.

#### **1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.
  - 1. For curing compounds, provide data on method of removal in the event of incompatibility with floor covering adhesives.
- C. Mix Design: Submit proposed concrete mix design.
  - 1. Indicate proposed mix design complies with requirements of ACI 301, Section 4 - Concrete Mixtures.
  - 2. Indicate proposed mix design complies with requirements of ACI 318, Chapter 5 - Concrete Quality, Mixing and Placing.
  - 3. Indicate proposed mix design complies with fiber reinforcing manufacturer's written recommendations.
  - 4. Provide laboratory test results which demonstrate proposed mix designs meet Project Specified twenty eight (28) day compressive strengths.
- D. Test Reports: Submit report for each test or series of tests specified.
  - 1. All test and certifications shall be within a twelve (12) month period of the Project start date.
- E. Manufacturer's Installation Instructions: For concrete accessories, indicate installation procedures and interface required with adjacent construction.
- F. Project Record Documents: Accurately record actual locations of embedded utilities and components that will be concealed from view upon completion of concrete work.

#### **1.05 QUALITY ASSURANCE**

- A. Perform work of this section in accordance with ACI 301, ACI 302.1R and ACI 318.
  - 1. Maintain one copy of each document on site.
- B. Follow recommendations of ACI 305R when concreting during hot weather.
- C. Follow recommendations of ACI 306R when concreting during cold weather.

#### **1.06 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.
- B. Moisture Emission-Reducing Curing and Sealing Compound, Membrane-Forming: Provide warranty to cover cost of flooring delamination failures for 10 years.
  - 1. Include cost of repair or removal of failed flooring, remediation with a moisture vapor impermeable surface coating, and replacement of flooring with comparable flooring system.

## **PART 2 PRODUCTS**

### **2.01 FORMWORK**

- A. Comply with requirements of Section 03 1000.

### **2.02 REINFORCEMENT MATERIALS**

- A. Comply with requirements of Section 03 2000.

### **2.03 CONCRETE MATERIALS**

- A. Cement: ASTM C150/C150M, Type I - Normal Portland type.
  - 1. Acquire cement for entire project from same source.
- B. Fine and Coarse Aggregates: ASTM C33/C33M.
  - 1. Acquire aggregates for entire project from same source.
  - 2. Course aggregates shall be strong, clean crushed limestone complying with ASTM C33, size No. 67 provided from one (1) source.
  - 3. The maximum aggregate size shall not be larger than 1/5 of the narrowest dimension between sides of forms, 1/3 of the depth of slabs, not 3/4 of minimum clear spacing between individual reinforcing bars or bundles of bars.
  - 4. Sand: Clean sharp, natural sand, graded in accordance with ASTM C33.
- C. Fly Ash: ASTM C618, Class C or F.
- D. Water: ASTM C1602/C1602M; clean, potable, not detrimental to concrete and free from injurious amounts of foreign matter
- E. Structural Fiber Reinforcement (For exterior sidewalks, curbs and flatwork): ASTM C1116/C1116M.
  - 1. Fiber Type: Alkali-resistant Polypropylene.
  - 2. Fiber Length: 0.75 inch, nominal.
  - 3. Manufacturers:
    - a. Fibermesh; Fibermesh 650: [www.fibermesh.com/#sle](http://www.fibermesh.com/#sle).
    - b. Forta Corporation; FORTA-FERRO: [www.forta-ferro.com/#sle](http://www.forta-ferro.com/#sle).
    - c. Substitutions: See Section 01 6000 - Product Requirements.

### **2.04 ADMIXTURES**

- A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.
- B. Air Entrainment Admixture: ASTM C260/C260M.
- C. High Range Water Reducing and Retarding Admixture: ASTM C494/C494M Type G.
- D. Accelerating Admixture: ASTM C494/C494M Type C.
- E. Retarding Admixture: ASTM C494/C494M Type B.

### **2.05 ACCESSORY MATERIALS**

- A. Underslab Vapor Retarder:
  - 1. Sheet Material: ASTM E1745, Class A; stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. Single ply polyethylene is prohibited.
    - a. Permeance of less than 0.006 perms [grains/(ft<sup>2</sup> \* hr \* in. Hg)] per ASTM F 1249 or ASTM E 96.
    - b. Puncture Resistance not less than 3,000 grams per ASTM D 1709, Method B.
  - 2. Accessory Products: Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations.
  - 3. Manufacturers:
    - a. ISI Building Products; Viper VaporCheck II 15-mil (Class A): [www.isibp.com/#sle](http://www.isibp.com/#sle).
    - b. Stego Industries, LLC; Stego Wrap Vapor Barrier (15 mil): [www.stegoindustries.com/#sle](http://www.stegoindustries.com/#sle).
    - c. Substitutions: See Section 01 6000 - Product Requirements.
- B. Non-Shrink Cementitious Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.
  - 1. Grout: Comply with ASTM C1107/C1107M.
  - 2. Minimum Compressive Strength at 48 Hours, ASTM C109/C109M: 2,000 pounds per square inch.

3. Minimum Compressive Strength at 28 Days, ASTM C109/C109M: 7,000 pounds per square inch.
4. Low-Slump, Dry Pack Products:
  - a. Five Star Products, Inc; Five Star Grout: [www.fivestarprouducts.com/#sle](http://www.fivestarprouducts.com/#sle).
  - b. SpecChem, LLC; SC Multipurpose Grout: [www.specchemllc.com/#sle](http://www.specchemllc.com/#sle).
  - c. Substitutions: See Section 01 6000 - Product Requirements.

## **2.06 BONDING AND JOINTING PRODUCTS**

- A. Latex Bonding Agent: Non-redispersable acrylic latex, complying with ASTM C1059/C1059M, Type II.
  1. Manufacturers:
    - a. Euclid Chemical Company; AKKRO-7T: [www.euclidchemical.com/#sle](http://www.euclidchemical.com/#sle).
    - b. Kaufman Products Inc; SureBond: [www.kaufmanproducts.net/#sle](http://www.kaufmanproducts.net/#sle).
    - c. W. R. Meadows, Inc; ACRY-LOK-: [www.wrmeadows.com/#sle](http://www.wrmeadows.com/#sle).
    - d. Substitutions: See Section 01 6000 - Product Requirements.
- B. Acrylic Bonding and Modifying Admixture: Acrylic Polymer emulsion to enhance the adhesion of portland cement mortars, plasters, stucco and concrete mixes.
  1. Manufacturers:
    - a. Master Builders Solutions; MasterEmaco A660.
    - b. SpecChem, LLC; Strong Bond.
    - c. W.R. Meadows, Inc.; Acryl-Lok
    - d. Substitutions: See Section 01 6000 - Product Requirements.
- C. Slab Isolation Joint Filler: 1/2 inch thick, height equal to slab thickness, with removable top section that will form 1/2 inch deep sealant pocket after removal.
  1. Material: ASTM D1751, cellulose fiber.
    - a. Thickness: Minimum 1/2 inch, unless otherwise indicated.
    - b. Depth: As indicated on the Contract Drawings.
    - c. Profile: Tongue and groove.
    - d. Comply with the following:
      - 1) AASHTO M 213.
      - 2) FAA Spec Item P-610-2.7.
      - 3) COE CRD-C 508.
      - 4) Resilience: When compressed to half of original thickness, recover to a minimum of 70% of original thickness.
  2. Manufacturers:
    - a. W. R. Meadows, Inc; Fiber Expansion Joint Filler with Snap-Cap: [www.wrmeadows.com/#sle](http://www.wrmeadows.com/#sle).
    - b. Substitutions: See Section 01 6000 - Product Requirements.
- D. Slab Construction Joint Devices: Combination keyed joint form and screed, galvanized steel, with rectangular or round knockout holes for conduit or rebar to pass through joint form at 6 inches on center; ribbed steel stakes for setting.

## **2.07 CURING MATERIALS**

- A. Evaporation Reducer: Liquid thin-film-forming compound that reduces rapid moisture loss caused by high temperature, low humidity, and high winds; intended for application immediately after concrete placement.
  1. Manufacturers:
    - a. Euclid Chemical Company ; EUCOBAR: [www.euclidchemical.com/#sle](http://www.euclidchemical.com/#sle).
    - b. Kaufman Products Inc; VaporAid: [www.kaufmanproducts.net/#sle](http://www.kaufmanproducts.net/#sle).
    - c. Master Builders (BASF) MasterKure ER 50.
    - d. Substitutions: See Section 01 6000 - Product Requirements.
- B. Curing and Sealing Compound, Moisture Emission-Reducing, Membrane-Forming: Liquid, membrane-forming, clear sealer, for application to newly-placed concrete; capable of providing adequate bond for flooring adhesives, initially and over the long term; with sufficient moisture vapor impermeability to prevent deterioration of flooring adhesives due to moisture emission.
  1. Use this product to cure and seal all slabs to receive adhesively applied flooring or roofing.

2. Comply with ASTM C309 and ASTM C1315 Type I Class A.
3. VOC Content: Less than 100 g/L.
4. Manufacturers:
  - a. Floor Seal Technology, Inc; VaporSeal 309 System: [www.floorseal.com/#sle](http://www.floorseal.com/#sle).
  - b. Nox-Crete Inc; Cure & Seal 1200E: [www.nox-crete.com/#sle](http://www.nox-crete.com/#sle).
  - c. Master Builders Solutions; MasterKure CC180 WB (formerly Kure-n-Seal)..
  - d. Substitutions: See Section 01 6000 - Product Requirements.
- C. Moisture-Retaining Sheet: ASTM C171.
  1. Polyethylene film, clear, minimum nominal thickness of 4 mil, 0.004 inch.
  2. White-burlap-polyethylene sheet, weighing not less than 3.8 ounces per square yard.
- D. Water: Potable, not detrimental to concrete.

**2.08 CONCRETE MIX DESIGN**

- A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
- B. Water Cement Ratios:
  1. Sidewalks and exterior pads: 0.45 max.
  2. Interior slabs and pads: 0.45 max.
  3. All other concrete: 0.52 max.
- C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.
- D. Fiber Reinforcement: Add to mix at rate of 1.5 pounds per cubic yard, or as recommended by manufacturer for specific project conditions. Used in exterior sidewalks, curb and other flatwork.
- E. Normal Weight Concrete:
  1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days:
    - a. Vertical above grade concrete surfaces: 4,000 psi.
    - b. Other Concrete requirements:

Class	Locations	28-day strength	Max. Slump
1	Interior Slabs On Grade	4,000 psi	5 inches
2	Not Used	4,000 psi	5 inches
3	Exterior walks & Pads	5,000 psi	3 inches
4	Exterior Stairs and Landings	5,000 psi	5 inches
5	Not Used	5000 psi	4 inches

2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight. Complying with ASTM C618
3. Total Air Content: (Interior Concrete Slabs): 3 percent, determined in accordance with ASTM C173/C173M.
4. Total Air Content: (Exterior Concrete Slabs/Flatwork exposed to weather): 6 percent, determined in accordance with ASTM C173/C173M. Provide mix design with air-entraining agent
5. Maximum Aggregate Size: 1/2 inch.

**2.09 MIXING**

- A. On Project Site: Mix in drum type batch mixer, complying with ASTM C685/C685M. Mix each batch not less than 1-1/2 minutes and not more than 5 minutes.
  1. Fiber Reinforcement: Batch and mix as recommended by manufacturer for specific project conditions.
- B. Transit/Ready Mixers: Comply with ASTM C94/C94M.
  1. The concrete shall be mixed in an approved truck drum mixer.
    - a. The truck mixer shall be equipped with a tank for carrying the mixing water, and the water shall be added to the tank at the proportioning plant.

- b. Water added to the mixer shall be measured to the nearest gallon by use of a water meter.
  - c. The mixing equipment shall be capable of combining the aggregate, cement and water within the specified time in a thoroughly mixed uniform mass, and be capable of discharging the mixture without segregation of the ingredients.
2. Any drum mixers suspected of not producing uniform mixes shall be tested for uniformity as outlined in ASTM C94.
- a. Slump variation in excess of one inch or air content variation in excess of 1% shall be cause for rejection of the truck drum mixer for use on this project.
  - b. Trucks rejected may be retested at less than rated capacity and if found acceptable may be utilized on the project at the reduced capacity upon approval of the Structural Engineer.
3. A written delivery slip or ticket, prepared and signed by the licensed weighmaster will be made out at the proportioning plant for each truck drum mixer.
- a. The delivery slip is to be given to Architect, Engineer, and Resident Project Representative as soon as the truck arrives at the job site.
  - b. The contractor is to provide a copy of below listed information directly to the Architect, Engineer, and Resident Project Representative at not less than weekly intervals. Each slip to contain the following:
    - 1) Date and truck number; ticket number; Mix designation of concrete; Cubic yards of concrete; cement brand; type and weight in pounds.
    - 2) Weight in pounds of fine aggregate (sand).
    - 3) Weight in pounds of #1 aggregate (stone).
    - 4) Weight in pounds of #2 aggregate.
    - 5) Weight in pounds of other aggregate, if required.
    - 6) Air Entraining agent, brand, and weight in pounds and ounces.
    - 7) Other admixtures, brand and weight in pounds and ounces.
    - 8) Water in gallons stored in attached tank; Water in gallons, actually used (by the driver).
    - 9) Time of loading; and Time of delivery of material to the job site (by truck driver).
  - c. Any truck drum mixer delivering concrete to the job site, which is not accompanied by a delivery slip showing the above information, will be rejected and such truck is to immediately depart from the job site.
  - d. If the concrete is not poured within one hour after the addition of the water, or if the concrete has become partially set, the concrete will be subject to review for temperature and consistency. If mix has developed signs of advanced hydration, load may be rejected. Mixing shall be in accordance with the recommendations of ACI 614-59.
  - e. **The mix shall be delivered to the project site when still dry.**
    - 1) Any materials which have had water added before or during the delivery to the job site will be rejected. The mixers may be started and the correct volume of water shall be measured and added only after receiving permission from the Architect, Engineer, and Resident Project Representative.
    - 2) Mixing will continue for minimum of 70 revolutions at rated speed.
    - 3) If at any time additional water is added, mix 20 revolutions after such water is in the drum.
    - 4) Total mixing shall not exceed 150 revolutions at rated speed.
    - 5) If the concrete is not poured within one hour after the addition of the water, or if the concrete has become partially set, the concrete will be rejected and shall be disposed of off the job site. Mixing shall be in accordance with the recommendations of ACI 614-59.
- C. Adding Water: If concrete arrives on-site with slump less than suitable for placement, do not add water that exceeds the maximum water-cement ratio or exceeds the maximum permissible slump.
- D. Proportion concrete mixtures to maintain designated colors and uniformity of color. Use the same material and proportions throughout the project. Avoid changes in quantity of cementitious materials per unit volume of concrete. Use only one type and one (1) brand of cement from one (1) mill, only one (1) source and one (1) nominal maximum size of coarse aggregate, only (1) one source of fine aggregate, and only one (1) placing consistency.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify lines, levels, and dimensions before proceeding with work of this section.
- B. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to the proper and timely completion of the Work. Do not proceed until unsatisfactory conditions have been corrected.

### **3.02 PREPARATION**

- A. Verify that forms are clean and free of rust before applying release agent.
- B. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.
- C. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning and applying bonding agent in accordance with bonding agent manufacturer's instructions.
  - 1. Use latex bonding agent only for non-load-bearing applications.
- D. Where new concrete with integral waterproofing is to be bonded to previously placed concrete, prepare surfaces to be treated in accordance with waterproofing manufacturer's instructions. Saturate cold joint surface with clean water, and remove excess water before application of coat of waterproofing admixture slurry. Apply slurry coat uniformly with semi-stiff bristle brush at rate recommended by waterproofing manufacturer.
- E. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.
- F. Interior Slabs on Grade: Install vapor retarder under interior slabs on grade. Comply with ASTM E1643. Lap joints minimum 6 inches. Seal joints, seams and penetrations watertight with manufacturer's recommended products and follow manufacturer's written instructions. Repair damaged vapor retarder before covering.
  - 1. Vapor Retarder Over Granular Fill: Install compactible granular fill before placing vapor retarder as indicated on drawings. Do not use sand.
- G. Confirm slab classifications, finish and flatness and levelness requirements.

### **3.03 PLACING CONCRETE**

- A. Place concrete in accordance with ACI 304R.
- B. Place concrete for floor slabs in accordance with ACI 302.1R.
- C. Notify Architect not less than 24 hours prior to commencement of placement operations.
- D. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
- E. Ensure reinforcement, inserts, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.
- F. Place concrete continuously without construction (cold) joints wherever possible; where construction joints are necessary, before next placement prepare joint surface by removing laitance and exposing the sand and sound surface mortar, by sandblasting or high-pressure water jetting.
- G. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

### **3.04 MISCELLANEOUS CONCRETE ITEMS**

- A. Above floor slab, leave an open joint as indicated and fill with backing rod and sealant.
- B. Filling In: Fill in holes and openings left in concrete structures for the passage of Work of other Trades, unless otherwise directed, after Work of other Trades is in place. Mix, place, and cure concrete as herein specified to blend with in-place construction. Provide all other miscellaneous concrete filling to complete the Work.

- C. Equipment Bases and Foundations: Provide machine bases, equipment bases and foundations as shown on the Drawings or required for the machine/equipment actually furnished( Coordinate size, location and anchoring with other Trades. Set anchor bolts for machines and equipment to template, at correct elevations, complying with certified diagrams or templates of the manufacturer furnishing the machines and equipment.
- D. Provide isolation joints surrounding bases where indicated or required. Fill joints with joint filler and sealant in accordance with the provisions of Section 07 9200 Joint Sealants.

### **3.05 CONCRETE CONVEYING**

- A. Handle concrete from the point of delivery and transfer to the concrete conveying equipment, and to the locations of final deposit, as rapidly as practicable and in methods which will prevent segregation and loss of concrete mix materials.
- B. Provide runways for wheeled concrete conveying equipment from the concrete delivery point to the locations of final deposit.
- C. Keep interior surfaces of conveying equipment, including chutes and tremies, free from hardened concrete, debris, water and other deleterious materials.
- D. Pumps may be used only if they can pump the mix designed. Do not add fine aggregate or water to the mix to satisfy needs of a pumping device.
- E. Use chutes or tremies for placing concrete where a drop of more than 72" is required. Where the free drop through tremies exceed 18'-0", use flow checking devices.

### **3.06 SLAB JOINTING**

- A. Locate joints as indicated on drawings.
  - 1. If control joints are not located on drawings, provide control joints in slabs to form panels or patterns at a maximum of 20 feet square with joints following column lines or structural features which promote cracking. Joint layout to be confirmed with Engineer.
  - 2. In hot weather, control joints shall be cut within 4 hours following slab finishing
  - 3. In cold weather, control joints shall be cut within 12 hours following slab finishing.
- B. Anchor joint fillers and devices to prevent movement during concrete placement.
- C. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.
  - 1. Install wherever necessary to separate slab from other building members, including columns, walls, equipment foundations, footings, stairs, manholes, sumps, and drains.
- D. Construction Joints: Where not otherwise indicated, use metal combination screed and key form, with removable top section for joint sealant.
- E. Prepare previously placed concrete by cleaning with sandblasting and apply bonding agent in accordance with the manufacturer's instructions.
- F. Seal concrete isolation joints in accordance with Section 07 9200 Joint Sealants.

### **3.07 JOINTS OTHER THAN SLAB JOINTS**

- A. If construction joints necessary for the progress of the Work are not shown on the Drawings, show them in complete detail on the Shop Drawings.
- B. Provide keyways at least 1-1/2 inches deep in all construction joints in walls, slabs, and between footings and walls.
- C. Place construction joints perpendicular to the main reinforcement.

### **3.08 COLD WEATHER PLACEMENT**

- A. Concrete work in cold weather placing shall comply with ACI 306R to protect all concrete work from physical damage and reduced strength which would be caused by frost, freezing actions or low temperatures.



- B. The Architect, Engineer, and Resident Project Representative may prohibit the placing of concrete at any time when atmospheric conditions are unsuitable. If permitted, concrete delivered when the surrounding air temperature is 40 degrees F or lower shall have a minimum temperature, as placed, of 55 degrees F, and a maximum temperature, as placed, of 75 degrees F.
- C. All aggregate and water shall be preheated, and all reinforcement, forms, and ground with which the concrete is to come in contact shall be defrosted by an approved method. No concrete shall be placed on frozen ground.
- D. Precautions shall be taken to avoid the possibility of flash set, if aggregate or water is required to be heated to a temperature in excess of 100 degrees F, in order to meet concrete temperature requirements. The requirements of MIXING METHODS, Ready Mixed Concrete, with respect to delivering the concrete mix to the job site while still dry, may be waived upon written request to the Engineer under these conditions.
- E. Unless otherwise ordered by the Engineer, suitable means shall be provided for maintaining the deposited concrete at a temperature of at least 70 degrees F for seventy-two (72) hours after placing, or at least 50 degrees F for five (5) days after placing. The concrete shall be kept above freezing until 28-day strength is met.
- F. The methods of protecting the concrete shall be approved by the Engineer and shall be such as will prevent local drying. Equipment and materials approved for this purpose shall be on the site in sufficient quantity before the work begins. The Contractor shall assist the Engineer by providing holes in the forms and the concrete in which thermometers can be placed to determine the adequacy of heating and protection. All such thermometers shall be furnished by the Contractor in quantity and type which the Engineer directs. The addition of chemicals to the concrete to prevent freezing will not be permitted.

### **3.09 HOT WEATHER PLACEMENT**

- A. Concrete work in hot weather placing shall comply with ACI 301 and ACI 305R to protect all concrete work from physical damage and reduced strength which would be caused by overheating of concrete.
- B. When air temperatures exceed 85 degrees F, or when extremely dry conditions exist even at lower temperatures, particularly if accompanied by high winds, the Contractor and his concrete supplier shall exercise special and precautionary measures in preparing, delivering, placing, finishing, curing and protecting the concrete mix.
- C. The Contractor shall consult with the Engineer regarding such measures prior to each day's pouring operation, and the Engineer reserves the right to modify the proposed measures consistent with the requirements of this section of the specifications. All necessary materials and equipment shall be on hand and in position prior to each pouring operation.
- D. The temperatures of the concrete mix when placed shall not exceed 80 degrees F. Temperature of mixing water and aggregates shall be carefully controlled and monitored at the supplier's plant, with haul distance to the Job Site being taken into account. Stockpiled aggregates shall, if necessary, be shaded from the sun and sprinkled intermittently with water. If ice is used in the mixing water for cooling purposes, it must be entirely melted prior to addition of the water to the dry mix.
- E. Delivery schedules shall be carefully planned in advance so that concrete is placed as soon as it arrives at the pouring locations, allowance being made for mixing time as specified elsewhere.
- F. The Contractor shall arrange for an ample work force to be on hand to accomplish transporting, placing, vibrating, finishing, and covering of the fresh concrete as rapidly as possible.
  - 1. Preparatory Work at the Job Site shall include thorough wetting of all forms, reinforcing steel, and in the case of slab pours on ground or sub-grade, spraying the ground surface on the preceding evening and again just prior to pouring.
  - 2. No standing puddles of water shall be permitted in those areas which are to receive the concrete.
- G. Extra care in placing and finishing techniques shall be utilized to avoid formation of cold joints and plastic shrinkage cracking.
  - 1. When ordered by the Engineer temporary sun shades and/or windbreaks shall be erected to guard against such developments, including generous use of wet burlap coverings and fog sprays to prevent drying out of the exposed concrete surfaces.

- H. Immediately after screeding, horizontal surfaces shall receive an application of dissipating evaporation reducing compound as specified herein. Apply in accordance with manufacturer's instructions.
- I. Final Finish Work shall begin as soon as the mix has stiffened sufficiently to support the workmen.
- J. Curing and protection of the concrete shall begin immediately after completion of the finishing operation.
  - 1. Continuous moist curing is mandatory for at least the first 24 hours.
  - 2. Wood forms shall be intermittently sprayed with water while still in place, and all exposed concrete surfaces shall be kept moist by fine spray techniques.
  - 3. Wet burlap coverings may be used if the finished surface is not marred or blemished during contact with the coverings. Burlap must be kept wet by continuous sprinkling with water.
- K. At the end of the initial 24 hour period, curing and protection of the concrete shall continue for at least four (4) additional days using one (1) of the following techniques:
  - 1. Moist curing procedure utilized during the initial 24-hour period shall be continued.
  - 2. Curing paper or heat-reflecting plastic sheet coverings of all exposed concrete surfaces shall be installed. Such coverings shall be installed while the surface is still damp and shall be secured against action and escape of moisture.
  - 3. Approved chlorinated rubber based pigmented curing compounds shall be applied to expose concrete surfaces, provided that the compound will not jeopardize subsequent appearance, painting or other treatment of the surface. Surface shall be damp or prewetted prior to application of the compound, consistent with the manufacturer's instructions. Compound itself shall be applied in strict accordance with the manufacturer's instructions, and shall meet ASTM Specifications C309.

### **3.10 CONSOLIDATION**

- A. General:
  - 1. Consolidate all concrete in accordance with provisions of ACI 309.
  - 2. Consolidate each layer of concrete immediately after placing, by use of internal concrete vibrators supplemented by hand-spading, rodding, or tamping.
  - 3. Do not use vibrators to transport concrete inside the forms.
  - 4. During all phases of operation, maintain a frequency of not less than 10,000 vibrations per minute per internal vibrator.
  - 5. Do not vibrate forms or reinforcement.
  - 6. Do not allow vibrators to contact formwork for exposed concrete surfaces. Where a smooth-rubbed or similar finish is specified, work the coarse aggregate back from the forms by spading or form vibration, leaving a full surface of mortar but avoiding surface voids.
- B. Equipment:
  - 1. Provide adequate number of units and power source at all times. Maintain spare units on hand to ensure adequacy.
  - 2. If, in the opinion of the Engineer, the equipment being used is not adequate to accomplish proper consolidation, the Engineer may order delay in further placement of concrete until such equipment is available for use at the location of placement of concrete.
- C. Procedures:
  - 1. Limit duration of vibration to time necessary to produce satisfactory consolidation without causing segregation of aggregates.
  - 2. Insert the vibrator so as to penetrate the lift to immediately below that one (1) being placed, and manipulate to blend the two (2) lifts.
  - 3. Do not insert the vibrator into lower courses which have begun to set.
  - 4. Use the vibrator to melt down the concrete as it is being placed and use the vibrator to consolidate the mass of concrete.
  - 5. In the case of wall construction, assign at least one (1) vibrator and vibrator-operator to melting down the mix; and assign at least one (1) other vibrator and vibrator-operator to consolidating the mass of concrete.
  - 6. Spacing between insertions of the vibrator which is unused to consolidate phase be more than 18 inches apart.

### 3.11 CONCRETE FINISHING

- A. Repair surface defects, including tie holes, immediately after removing formwork.
- B. Unexposed Form Finish: Rub down or chip off fins or other raised areas 1/4 inch or more in height.
- C. Rough Form Finish:
  - 1. Provide as-cast rough form finish to formed concrete surfaces that are to be concealed in the Finish Work or by any other construction.
  - 2. Standard rough form finish shall be the concrete surface having the texture imparted by the form facing material used, with tie holes and defective areas repaired and patched, and all fins and other projections exceeding 1/4 inch in height rubbed down or chipped off.
- D. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Provide finish as follows:
  - 1. Produce smooth form finish by selecting form material to impart a smooth, hard, uniform texture and arranging them orderly and symmetrically with a minimum of seams. Place smooth form material on finish side of form face to implement acceptable/approved intent of finish appearance. Submit plan to Engineer for approval of method and verification of conformance requirement.
  - 2. Smooth Rubbed Finish: Wet concrete and rub with carborundum brick or other abrasive, not more than 24 hours after form removal. Apply surface coating of silica sand and Portland cement to achieve uniform smooth texture. Water with water-based acrylic bonding and modifying admixture.
  - 3. Repair and patch defective areas with all fins and other projections completely removed and smoothed.
  - 4. Related unformed surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces occurring adjacent to formed surfaces, strike off smooth and finish with a smooth troweled finish.
  - 5. Prevent damage to concrete from formwork removal. Do not pry against face of concrete. Use only wooden wedges to separate forms from concrete.
  - 6. Where, as-cast finishes are specified, the total area requiring repair shall not exceed 2 square feet in each 1,000 square foot of as-cast surface. This is in addition to tie-hole patches.
    - a. Repairs in as-cast architectural concrete shall match color and texture of surrounding surfaces.
- E. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
  - 1. Surfaces to Receive Thick Floor Coverings: "Wood float" as described in ACI 302.1R; thick floor coverings include quarry tile, ceramic tile, and Portland cement terrazzo with full bed setting system.
  - 2. Surfaces to Receive Thin Floor Coverings: "Steel trowel" as described in ACI 302.1R; thin floor coverings include carpeting, resilient flooring, seamless flooring, resinous matrix terrazzo, thin set quarry tile, and thin set ceramic tile.
  - 3. Other Surfaces to Be Left Exposed: Steel Trowel as described in ACI 302.1R, minimizing burnish marks and other appearance defects.
    - a. Apply trowel finish to monolithic slab surfaces that are to be exposed to view, unless otherwise shown and to slab surfaces that are to be covered with paint, or other thin-film finish coating system.
  - 4. Exterior Surfaces to be Left Exposed (concrete pads, walks, steps, ramps and platforms): Non-slip Broom finish.
    - a. Immediately after trowel finishing, slightly roughen the concrete surface by brooming in the direction perpendicular to the main traffic route. Use a fiberbristle broom.
    - b. Coordinate the required finish with the Engineer prior to application.
- F. In areas with floor drains, maintain floor elevation at walls; pitch surfaces uniformly to drains at 1:100 nominal.

### 3.12 CONCRETE SIDEWALKS

- A. Expansion Joints: Expansion joints shall be of the pre-molded type and not less than 1/2 inch thick. The joint filler shall consist of cane or other long fibers of cellular nature, uniformly impregnated with asphalt. The asphalt content shall be between 35 percent and 50 percent by weight.
- B. After sidewalk has cured, cut down expansion joints 1/2 inch below the surface of sidewalk. Apply sealant per Section 07 9200 Joint Sealants.

- C. Mixing Concrete: All concrete shall be machine mixed or transit mixed. Transit mixing shall conform to the requirements for transit mixed concrete as described in Serial Designation C94-48 of the American Society of Testing Materials, or later revision thereof.
- D. Mixing shall not be started sooner than 3 minutes before the concrete is to be poured. Transit mixed concrete shall not be mixed while traveling.
- E. Mixing shall be continued at least one minute after all materials are in the drum, at a speed between 12 and 18 revolutions per minute. The volume per batch shall not exceed the manufacturers rated capacity of the mixer.
- F. Placing Concrete: Before pouring, all hardened concrete and other foreign materials shall be removed from the space between the forms. All forms, unless oiled, shall be thoroughly wetted. The subgrade shall also be thoroughly wetted.
- G. Concrete shall be conveyed from the mixer to the forms as rapidly as possible and by such methods which will prevent the separation or loss of ingredients. If conveyed by chuting, the angle of the chute with the horizontal shall be such as to allow the concrete to flow without separation. The end of the chute shall be as close as possible to the point of deposit.
- H. Concrete shall be placed in the forms as near to the final position as possible in order to avoid rehandling.
- I. Forming: Forms for concrete sidewalks shall be set to the line and grade shown on the Drawings or as established by the Engineer. Forms shall be set so as the finished slab shall pitch toward the street 1/4 inch per 1 foot of sidewalk width or as indicated on the Drawings.
- J. In general, walks shall be 4 inches thick, unless otherwise indicated on the drawings. The entire thickness shall be made in one (1) monolithic pour.
- K. The type of form used, whether metal or wood, shall be of proper dimensions to provide the required depth for the full width of the slab.
- L. Wood forms shall be of sound lumber, free from knot holes, loose knots or other defects. Dressed 2 inches x 4 inches will not be allowed. Full dimensions must be maintained.
  - 1. Forms shall be properly anchored and braced to prevent any movement or bowing of the forms during pouring.
  - 2. Expansion joints of the type previously specified shall be placed along all curbs or structures, and transversely across the slab at each property line as determined by the Engineer. Joints shall extend for the full depth of the slab.
- M. Dividers shall be placed so as to produce a transverse joint for the full depth of the slab at intervals of four (4) times the sidewalk width, up to 7 feet or as directed by the Engineer. Dividers shall be of the same material as the side forms and shall produce a smooth surface for the full depth of the slab. Dividers are not to be removed until the concrete has hardened.
  - 1. After the dividers have been removed and before the next adjoining section of walk is poured, one (1) thickness of tar paper shall be placed between the finished slab and the new poured concrete.
  - 2. In addition, transverse control joints shall be scored on the surface of the walk at 4 foot intervals for 4 foot wide walks and at 5 foot intervals for 5 foot wide walks and so on, up to 7 feet in width. Sidewalk of greater than 7 feet width shall be scored so no blocks less than 4 feet x 4 feet and greater than 7 feet x 7 feet. Scoring shall be done with an approved edging tool of 1/4 inch radius.
- N. Surface Finish: The surface of concrete sidewalks shall have a wood float or light broom finish. Care shall be taken that the surface is not over floated. All edges and joints shall be finished with an approved edging tool of 1/4 inch radius.
- O. Curing: Immediately after finishing, the concrete shall be protected from fast drying by covering with heavy paper and straw or burlap. The covering should be kept damp and remain in place for at least 7 days.
- P. Subgrading: Subgrading work shall be performed as specified under Sections 31 2316 - Excavating, 31 2323 - Fill, and 31 2200 - Grading. Finish grading and performed seeding shall be as specified under Section 31 2200 - Grading.

### **3.13 CONCRETE CURB**

- A. Concrete curb shall be conventionally formed or slip formed to the size and shape shown on the Detail Sheets.
- B. Conventionally Formed Curb:
  - 1. Casting Segments: Curb shall be cast in segments having a uniform length of approximately 20 feet.
  - 2. Segments shall be separated by construction joints with provisions made at each joint for 1/4 inch expansion. When the curb is constructed next to cement concrete pavement, the construction joint adjacent to the end of pavement slab shall line up with the pavement joint.
  - 3. Expansion Joints: Expansion joints 3/4 inch in width shall be formed with "Premolded Bituminous Joint Filler, "N.Y.S.D.O.T. Standard Specification, Section 705-07, placed at 20 foot intervals or as shown on the plans.
  - 4. The filler material shall be cut to conform to the cross section of the curb. When curb is cast adjacent to cement concrete pavement constructed with expansion joints, expansion joints in the curb shall be located at expansion joints in the pavement.
- C. Forms shall be steel or wood, straight, free from warp, and of such construction that there will be no interference to inspection for grade or alignment. All forms shall extend for the full curb depth and shall be braced and secured adequately so that no displacement from alignment will occur during placing of concrete.
- D. Concrete Placing and Vibrating: Concrete shall be placed in the forms in accordance with the applicable requirements and shall be compacted with an approved, immersion type mechanical vibrator. The vibrator shall be of the size and weight capable of thoroughly vibrating the entire mass without damaging or maligning the forms and shall be approved by the Engineer. Forms shall be left in place for 24 hours or until the concrete has sufficiently hardened, as determined by the Engineer, so that they can be removed without injury to the curb or curb and gutter. Upon removal of the forms, the exposed faces of the curb or curb and gutter shall be immediately rubbed to uniform surface. Rubbing shall be accomplished by competent finishers. No plastering will be permitted.
- E. Concrete Curing: Curing of the curb or curb and gutter shall comply with the requirements of N.Y.S.D.O.T. Standard Specification, Section 502-3.10, Curing. Minimum curing periods for the various types of curing materials used shall comply with the requirements of Table 502-2.
- F. Protection: The Contractor shall keep the curb or curb and gutter clean, aligned, and protected from damage until final acceptance of the Work. Any curb or curb and gutter damaged prior to the final acceptance of the Work shall be repaired or replaced at the Contractor's expense.

### **3.14 CURING AND PROTECTION**

- A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
- C. Surfaces Not in Contact with Forms:
  - 1. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
  - 2. Final Curing: Begin after initial curing but before surface is dry.

### **3.15 FIELD QUALITY CONTROL**

- A. An independent testing agency will perform field quality control tests, as specified in Section 01 4000 - Quality Requirements.
- B. Provide free access to concrete operations at project site and cooperate with appointed firm.
- C. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.
- D. Tests of concrete and concrete materials may be performed at any time to ensure compliance with specified requirements.

- E. Compressive Strength Tests: ASTM C39/C39M, for each test, mold and cure three concrete test cylinders. Obtain test samples for every 50 cubic yards or less of each class of concrete placed.
- F. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.
- G. Perform one slump test for each set of test cylinders taken, following procedures of ASTM C143/C143M.
- H. Slab Testing: Cooperate with manufacturer of specified moisture vapor reducing admixture (MVRA) to allow access for sampling and testing concrete for compliance with warranty requirements.

### **3.16 DEFECTIVE CONCRETE**

- A. Test Results: The testing agency shall report test results in writing to Engineer and Contractor within 24 hours of test.
- B. Defective Concrete: Concrete not complying with required lines, details, dimensions, tolerances or specified requirements.
- C. Repair or replacement of defective concrete will be determined by the Engineer. The cost of additional testing shall be borne by Contractor when defective concrete is identified.
- D. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Engineer for each individual area.
- E. General: Reinforce or replace Deficient Work as directed by the Engineer and at no additional cost to the Owner.
- F. Patching: Repair defective areas and fill form-tie holes and similar defects in accordance with Chapter 9 of ACI 301. Where, in the opinion of the Engineer surface defects such as honeycomb occur, repair the defective areas as directed by the Engineer.

### **3.17 PROTECTION**

- A. Do not permit traffic over unprotected concrete floor surface until fully cured.

**END OF SECTION**

**SECTION 03 5400  
CAST UNDERLAYMENT**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Liquid-applied self-leveling floor underlayment.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 7000 - Execution and Closeout Requirements: Alteration project procedures; selective demolition for remodeling.
- B. Section 09 0561 - Common Work Results for Flooring Preparation.

**1.03 REFERENCE STANDARDS**

- A. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or (50-mm) Cube Specimens).
- B. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete.
- C. ASTM C348 - Standard Test Method for Flexural Strength of Hydraulic-Cement Mortars.
- D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- E. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
- F. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
- G. RFCI (RWP) - Recommended Work Practices for Removal of Resilient Floor Coverings.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's data sheets documenting physical characteristics and product limitations of underlayment materials. Include information on surface preparation, environmental limitations, and installation instructions.
- C. Certificate: Certify that products meet or exceed specified requirements.
- D. Manufacturer's Instructions.
- E. Installer Qualifications: Provide a list of similar cast underlayment projects installed within the previous ten (10) years with contact information and resumes of key project personnel detailing relevant experience.

**1.05 QUALITY ASSURANCE**

- A. Installer Qualifications: Company specializing in performing the work of this section, and approved by manufacturer.
  - 1. Installer Qualifications: A company certified in writing by the cast underlayment manufacturer, having skilled mechanics with not fewer than three (3) years of satisfactory experience in installation of cast underlayment of the type Specified in this Section.
- B. Material Container Labels: Material containers shall bear the manufacturer's label indicating manufacturer's name, trade name of product, lot number, self life of product, and mix ratio (if applicable).

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver materials to the site in original, sealed containers. Do not deliver materials which have exceeded shelf life limitation set forth by the manufacturer.
- B. Store products in manufacturer's unopened packaging until ready for installation.
- C. Keep dry and protect from direct sun exposure, freezing, and ambient temperature greater than 105 degrees F.



## 1.07 FIELD CONDITIONS

- A. Do not install underlayment until floor penetrations and peripheral work are complete.
  - 1. Do not install underlayment until certified manufacturer's representative has reviewed and approved all subsurface preparation.
- B. Maintain minimum ambient temperatures of 70 degrees F 24 hours before, during and 72 hours after installation of underlayment.
  - 1. Comply with the product manufacturer's printed limitations and instructions.
- C. During the curing process, ventilate spaces to remove excess moisture in accordance with manufacturer's recommendations.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS

- A. Cementitious Underlayment:
  - 1. ARDEX Engineered Cements; ARDEX V 1200 with ARDEX P51 Primer: [www.ardexamericas.com/#sle](http://www.ardexamericas.com/#sle).
  - 2. LATICRETE International, Inc; NXT Level Flow: [www.laticrete.com/#sle](http://www.laticrete.com/#sle).
  - 3. Maxxon Corporation; Maxxon Commercial Level EZ: [www.maxxon.com/#sle](http://www.maxxon.com/#sle).

### 2.02 MATERIALS

- A. Cementitious Underlayment: Blended cement mix, that when mixed with water in accordance with manufacturer's directions will produce self-leveling underlayment with the following properties:
  - 1. Compressive Strength: Minimum 4000 pounds per square inch after 28 days, tested per ASTM C109/C109M.
  - 2. Flexural Strength: Minimum 1000 psi after 28 days, tested per ASTM C348.
  - 3. Density: 125 pounds per cubic foot, nominal.
  - 4. VOC: 0
  - 5. Final Set Time: 1-1/2 to 2 hours, maximum.
  - 6. Thickness: Capable of thicknesses from feather edge to maximum 3-1/2 inch.
  - 7. Surface Burning Characteristics: Flame spread/Smoke developed index of 0/0 in accordance with ASTM E84.
- B. Water: ASTM C1602/C1602M; clean, potable, sufficiently cool (not warmer than manufacturer's recommendations) and not detrimental to underlayment mix materials.
- C. Primer: Manufacturer's recommended type for application of existing substrates to be covered.
- D. Joint and Crack Filler: Latex-based filler, as recommended by manufacturer.

### 2.03 MIXING

- A. Site mix materials in accordance with manufacturer's instructions.
- B. Mix to self-leveling consistency without over-watering.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that substrate surfaces are clean, dry, unfrozen, do not contain petroleum by products, or other compounds detrimental to underlayment material bond to substrate.
- B. Examine substrates and conditions under which materials will be installed. Do not proceed with installation until unsatisfactory conditions are corrected.
- C. Coordinate installation with adjacent work to ensure proper sequence of construction. Protect adjacent areas from contact due to mixing and handling of materials.

### 3.02 PREPARATION

- A. Concrete: Mechanically prepare steel troweled concrete to create a textured surface necessary to achieve the best bond; acceptable methods include bead blasting and scarifying. Do not use acid etching.

1. Prior to proceeding refer to ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring. All concrete subfloors must be sound, solid, clean, and free of all oil, grease, dirt, certain curing compounds and any contaminant that might act as a bond breaker before priming.
  2. Substrates shall be inspected in accordance with ASTM F2170 and corrected for moisture or any other conditions that could affect the performance of the underlayment or the finished floor covering.
- B. Crack and Joint Preparation
1. Moving Joints and Moving Cracks – Honor all moving joints and moving cracks up through the underlayment. Provide manufacturer's recommended flexible sealing compound at movement joints.
  2. Saw Cuts, Control Joints and Dormant Cracks – Fill all dormant joints and dormant cracks with manufacturer's crack and joint repair product that is compatible with the cast underlayment.
- C. Adhesive residues on concrete must first be tested to make certain they are not water soluble. Water-soluble adhesives must be completely mechanically removed down to clean concrete. Non-water-soluble adhesives should be prepared to a thin, well-bonded residue using the wet-scraping technique as recommended by the Resilient Floor Covering Institute RFCI (RWP). The prepared residue should appear as nothing more than a transparent stain on the concrete after scraping.
- D. Other Non-Porous Substrates: The substrate must be clean and free of all waxes, sealers, dust, dirt, debris and any other contaminant that may act as a bond breaker. Clean by methods approved by manufacturer.
- E. Remove substrate surface irregularities. Fill voids and deck joints with filler. Finish smooth.
- F. Vacuum clean surfaces.
- G. Prime substrate in accordance with manufacturer's instructions. Allow to dry.
- H. Close floor openings.

### **3.03 APPLICATION**

- A. Install underlayment in accordance with manufacturer's instructions.
- B. Pump or pour material onto substrate. Do not retemper or add water.
  1. Pump, move, and screed while the material is still highly flowable.
  2. Be careful not to create cold joints.
  3. Wear spiked shoes while working in the wet material to avoid leaving marks.
- C. Place to indicated thickness, with top surface level to 1/8 inch in 10 ft.
- D. Place before partition installation.
- E. If a fine, feathered edge is desired, steel trowel the edge after initial set, but before it is completely hard.

### **3.04 CURING**

- A. Once underlayment starts to set, prohibit foot traffic until final set has been reached.
- B. Air cure in accordance with manufacturer's instructions.

### **3.05 FIELD QUALITY CONTROL**

- A. Where specified, field sampling of the underlayment is to be done by taking an entire unopened bag of the product being installed to an independent testing facility to perform compressive strength testing in accordance with ASTM C 109/modified: air-cure only

### **3.06 CLEANING**

- A. Clean up spatters and droppings from all surfaces impacted by the cast underlayment installation process.

### **3.07 PROTECTION**

- A. Protect against direct sunlight, heat, and wind; prevent rapid drying to avoid shrinkage and cracking.
- B. Prior to the installation of the finish flooring, the surface of the underlayment is to be protected by the General Contractor from abuse by other trades by the use of plywood, Masonite or other suitable protection course.

C. Do not permit traffic over unprotected floor underlayment surfaces.

**END OF SECTION**

**SECTION 04 0100  
MAINTENANCE OF MASONRY**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Water cleaning of brick surfaces.
- B. Replacement of damaged brick units.
- C. Repointing mortar joints.
- D. Repair of damaged masonry.

**1.02 RELATED REQUIREMENTS**

- A. Section 04 0511 - Masonry Mortaring and Grouting.
- B. Section 04 2000 - Unit Masonry: Brick masonry units.

**1.03 PRICE AND PAYMENT PROCEDURES**

- A. See Section 01 2200 - Unit Prices, for additional unit price requirements.

**1.04 REFERENCE STANDARDS**

- A. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures.
- B. The Brick Industry Association - Brick Brief: Repointing (Tuckpointing) Brick Masonry.

**1.05 ADMINISTRATIVE REQUIREMENTS**

- A. Preinstallation Meeting: Convene one week prior to commencing work of this section.
  - 1. Require attendance of parties directly affecting work of this section.
  - 2. Review conditions of installation, installation procedures, and coordination with related work.
- B. Scheduling:
  - 1. Perform cleaning and washing of masonry between the hours of 7 am to 7 pm only.

**1.06 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on cleaning compounds.
- C. Samples: Submit four samples of face brick units to illustrate matching color, texture and extremes of color range.

**1.07 QUALITY ASSURANCE - MASONRY WORK**

- A. Comply with provisions of TMS 402/602, except where exceeded by requirements of Contract Documents.
  - 1. Maintain one copy of each document on project site.
- B. Restorer: Company specializing in masonry restoration with minimum ten years of documented experience.

**1.08 MOCK-UPS**

- A. See Section 01 4000 - Quality Requirements for additional requirements.
- B. Restore and repoint an existing masonry wall area sized 8 feet long by 6 feet high; include in mock-up area instances of mortar, accessories, wall openings, and flashings.
- C. Clean a 10 ft by 10 ft panel of wall to determine extent of cleaning.
  - 1. Repeat, using different cleaning methods for up to three different panels.
- D. Locate where directed.
- E. Acceptable panel and procedures employed will become the standard for work of this section.
- F. Mock-up may remain as part of the Work.

## **1.09 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver masonry neatly stacked and tied on pallets. Store clear of ground with adequate waterproof covering.

## **1.10 FIELD CONDITIONS - MASONRY WORK**

- A. Cold and Hot Weather Requirements: Comply with requirements of TMS 402/602 or applicable building code, whichever is more stringent.

## **1.11 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

## **PART 2 PRODUCTS**

### **2.01 CLEANING MATERIALS**

- A. Cleaning Agent: Detergent type.

### **2.02 REPOINTING MORTAR MATERIALS**

- A. Comply with requirements of Section 04 0511 and described below.
- B. The repointing mortar shall match the original in color, grain size, and texture. The compressive strength of the repointing mortar shall be equal or less than the compressive strength of the original mortar and surrounding brick. The replacement mortar shall contain approximately the same ingredient proportions of the original mortar.
- C. All replacement mortar ingredients and mortar formulations will be established from test data gathered from the original materials sampled from site. The Contractor is to collect samples for testing and analysis and provide report to Architect and Owner.
- D. The Contractor is to supply a ready mix mortar sample sufficient in size to complete a mock-up sample at the site. The ready mix mortar sample is to be based on the testing analysis of the existing mortar.
- E. Mixing of individual mortar ingredients at the construction site will not be permitted.
- F. Repointing mortars shall be pre blended in single containers in a factory-controlled environment. All ingredients will be converted from volume measurements to weight measurements to ensure quality production of the mortar.
- G. All containers shall be marked including manufacturing date and batch number. Manufacture is required to maintain production-sampling procedures for each batch for quality control purposes. Manufacturer to provide samples of proposed materials for mock up panels at the site. All pre blended products are to meet applicable ASTM standards and project specification requirements.

### **2.03 MASONRY RESTORATION AND CLEANING**

- A. Masonry Cleaners shall be in accordance with the Department of the Interior National Park Service Cultural Resources Preservation Brief 1, "The Cleaning and Waterproof Coating of Masonry Buildings", and Preservation Brief 6 "Dangers of Abrasive Cleaning to Historic Buildings", and in compliance with the guidelines set forth by the Secretary of the Interior's Standards for Rehabilitation.
- B. Cleaning baseline procedure: Hot water wash at low psi. If hot water wash proves to be insufficient, see item "J" for acceptable manufacturers of alternate cleaning products. Pressure to be measured at the gun or as closely to it as possible. 200-300 psi may be satisfactory; 400-800 psi (field test psi ranges) are more typical. A bristle brush may be used to supplement the water wash as long as it does not remove or damage the brick or limestone surfaces.
  - 1. Nozzle size and configuration: Stainless steel flat tip with 25-50 degree wide spray. Distance from nozzle orifice and the surface being cleaned shall be evaluated and tested during the mock-up phase.
- C. Algae growth (if present): Treat areas of algae/moss growth with an anti-fungal agent prior to masonry cleaning.
- D. Sample cleaning area: An initial test-cleaning sample with hot water at low psi is requested to evaluate this methods effectiveness and establish a baseline for cleaning techniques. Work with architect to determine locations of cleaning test panels (1'x1').

- E. All cleaning techniques should use the gentlest means possible to avoid etching, staining, bleaching, or masonry damage.
- F. The goal of the masonry cleaning is not to remove 100% of surface soiling but to generally enhance the stone by removing sufficient particulate caused by pollution. Architect will establish parameters on-site for acceptable levels of cleaning.
- G. Heavily soiled areas (carbon and sulfates): The undersides of limestone sills, ornament, belt courses, etc., may require alternate cleaning methods or additional applications of cleaner to achieve successful results.
  - 1. Brick Cleaner: Environestore 100 by Diedrich Technologies, Inc.
  - 2. Other manufacturers products will be considered.
- H. Dwell times: For all cleaning methods, testing and implementation, dwell times shall be closely watched and adhered to in an effort to avoid damaging the masonry (etching the surface).
- I. Properly protect all adjacent wall surfaces, roofs, clock faces, windows, doors, glass adjacent plant material, etc., from overspray.
- J. Cleaning via sand blasting will not be permitted.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that surfaces to be cleaned and restored are ready for work of this section.
- B. Verify that substrates are acceptable for product installation; do not begin until substrates meet manufacturer's requirements.
- C. Do not begin until test panels have been approved by Architect and Owner.
- D. Replacement of masonry units to be confirmed by Project Architect prior to execution.

#### **3.02 PREPARATION**

- A. Protect surrounding elements from damage or disfiguration due to restoration procedures.
- B. Carefully remove and store removable items located in areas to be restored, including fixtures, fittings, finish hardware, and accessories; reinstall upon completion.
- C. Separate areas to be protected from restoration areas using means adequate to prevent damage.
- D. Cover existing landscaping with tarpaulins or similar covers.
- E. Mask immediately adjacent surfaces with material that will withstand cleaning and restoration procedures.
- F. Close off adjacent occupied areas with dust proof and weatherproof partitions.
- G. Protect roof membrane and flashings from damage.
- H. When using cleaning methods that involve water or other liquids, install drainage devices to prevent runoff over adjacent surfaces unless those surfaces are impervious to damage from runoff.
- I. Do not allow cleaning runoff to drain into sanitary or storm sewers.

#### **3.03 REBUILDING**

- A. Cut out damaged and deteriorated masonry with care in a manner to prevent damage to any adjacent remaining materials.
- B. Shore or support structure in advance of cutting out units to maintain stability of remaining materials. Cut away loose or unsound adjoining masonry and mortar to provide firm and solid bearing for new work. Cut out full units from joint to joint and in a manner to permit the replacement of full size units.
- C. Ensure that anchors, ties, and reinforcing are correctly located and built in.
- D. Install built in masonry work to match and align with existing, with joints and coursing true and level, faces plumb and in line. Build in all openings, accessories and fittings.
- E. Re-use masonry to the fullest extent possible. Integrate new replacement masonry in concealed areas or shielded from public view.

- F. Build new masonry to the full thickness as shown on drawings. Key brick or stone into existing structure wherever possible providing mortar as required.

### 3.04 REPOINTING

- A. Perform repointing prior to cleaning masonry surfaces.
- B. Leave one intact and serviceable example of original mortar on the building; location and size to be determined with Architect.
- C. All joints (unless otherwise noted) shall be raked back to sound, solid, back up material. All raking out should leave a clean, square face at the back of the joint to provide for maximum contact of pointing mortar with the masonry back up mortar. Shallow or feather edging shall not be permitted.
- D. Existing mortar joints shall be raked out a minimum depth of 2.5 times the height of the existing mortar joints, however, so as not to compromise the structural stability of the wall, the joint should not be raked out more than half the width of the masonry unit.
  - 1. Examples:
    - a. 1/16" Mortar joint needs to be cut out to a depth of 3/16" minimum
    - b. 1/8" Mortar joint needs to be cut out to a depth of 5/16" minimum
    - c. 1/4" Mortar joint needs to be cut out to a depth of 5/8" minimum
    - d. 1/2" Mortar joint needs to be cut out to a depth of 1-1/4" minimum
    - e. 3/4" Mortar joint needs to be cut out to a depth of 1-7/8" minimum
    - f. 1" Mortar joint needs to be cut out to a depth of 2-1/2" minimum
- E. Utilize hand tools and power tools only after test cuts determine no damage to masonry units results and upon approval by the Architect.
  - 1. Vertical joints (head joints) **shall not** be raked out using rotary power saws.
  - 2. All vertical head joints must be removed by hand in stonework unless a demonstration can be made that rotary use can be implemented without over cutting the joint, i.e. "over running."
  - 3. Vertical joints exceeding 6" in height may be approved for cutting with rotary power saws pending a successful demonstration to the Architect.
- F. Do not damage existing masonry units.
- G. Existing horizontal mortar joints (bed joints) that are filled with a hard Portland mortar may be raked out using a diamond blade that is narrower than the joint width. The middle one-third of the mortar joint may be cut using a rotary power saw. The remaining mortar shall be removed from the masonry joints by hand using masonry chisels or pneumatic carving tools powered by air.
- H. Contractor shall not widen the existing masonry joints. The surrounding masonry edges shall not be spalled or chipped in the process of mortar removal. Damage to surrounding stone resulting from rotary blade over running shall not be permitted. Contractor shall replace all brick or stone damaged during mortar removal with replacement units that match the original exactly.
- I. Brush, vacuum, blow out, or flush joints with water to remove dirt and loose debris, working from top to bottom of wall.
- J. Maintain a water sprayer on site at all times during the repointing process.
- K. Walls should be pre-soaked with water 10 minutes prior to pointing.
- L. Rinse masonry joint with water to remove dust and mortar particles. Time the rinsing application so that at the time of pointing excess water has evaporated or run off. Joint surfaces should be damp but free from standing water.
- M. Mortar shall be mixed according to manufacturer recommendations. The mortar material shall resemble the consistency of brown sugar during installation. This drier consistency enables the material to be tightly packed into the joint and allows for cleaner work and prevents (minimizes) shrinkage cracks as the mortar cures.
- N. Joints should be pointed in layers or "lifts" where the joints are deeper than one and one-quarter inch (1-1/4 inch or 9mm). Apply in layers not greater than 1/2 the depth but not more than 1-1/4 inch or until a uniform depth is formed. Compact each layer thoroughly and allow it to become thumbprint hard before applying the next layer.

1. Lift Examples:
  - a. 3/16" joint depth (1/16" joint existing) point in one lift.
  - b. 5/16" joint depth (1/8" joint existing) point in one lift.
  - c. 5/8" joint depth (1/4" joint existing) point in one lift.
  - d. 5/16" joint depth (3/8" joint existing) point in one lift.
  - e. 1-1/4" joint depth (1/2" joint existing) point in one lift
  - f. 1-7/8" joint depth (3/4" joint existing) point in two lifts approx.-1" each.
  - g. 2-1/2" joint depth (1" joint existing) point in three lifts approx.+3/4" each.
  - h. over 2-3/4 joint depth- point in lifts of no more than 1-1/4" (each)
- O. When mortar is thumbprint hard the joints shall be finished to match the original historic joint profile.
  1. Limestone: Raked joint to match existing.
  2. Brick: Raked joint to match existing.
  3. Confirm with Architect once scaffold is erect and direct inspection of protected areas is possible.
- P. Keep mortar from drying out to quickly. Protection from direct sun, high winds for the first 72 hours after installation. Thoroughly soak the wall after the mortar has set and the finish joint profile is complete. Water soaking the wall is to be carried out nine (9) separate times allowing the wall to dry out between applications. Protect freshly pointed areas with plastic sheeting for the first 24 hours after installation.
- Q. Acceptable curing methods include covering the repointed wall with plastic sheeting, periodic hand misting, and periodic mist spraying using a system of pipes, mist heads, and timers.
- R. Adjust curing methods to ensure that the pointing mortar is damp without eroding the surface of the mortar.

### **3.05 REPAIR OF MASONRY**

- A. Removing metal anchors and filling holes.
- B. Repair, patch and fill cracks, voids, defects, and damaged areas to satisfaction of the Architect; allow repair materials to cure completely.

### **3.06 CLEANING EXISTING MASONRY**

- A. Clean only the areas specified in the exterior elevation drawings which are part of the work.
- B. Clean all exposed surfaces of masonry using materials specified, so that resulting surfaces have a uniform appearance.
- C. Capture, store, and dispose of all cleaning products, overspray, wash, and after wash as per EPA and local government standards.

### **3.07 CLEANING NEW MASONRY**

- A. Verify mortar is fully set and cured.
- B. Clean surfaces and remove large particles with wood scrapers, brass or nylon wire brushes.
- C. Capture, store, and dispose of all cleaning products, overspray, wash, and after wash as per EPA and local government standards.

### **3.08 RESTORATION CLEANING**

- A. Clean surfaces and remove large particles with wood scrapers or non-ferrous wire brush.
- B. Spray coat masonry with restoration cleaner, mixed into solution in accordance with manufacturer's instructions.
- C. Provide a second application if required to match mock-up area.
- D. Allow sufficient time for solution to remain on masonry and agitate with soft fiber brush or sponge.
- E. Rinse from the bottom up with potable water applied at 400 psi and at a rate of 4 gal/min.
- F. Capture, store, and dispose of all cleaning products, overspray, wash, and after wash as per EPA and local government standards.

### **3.09 AGING**

- A. Rub in new masonry work to match, as close as possible, adjacent original work.



1. Use carbon black in small amounts, rubbing in well with burlap rags.
- B. After each application, dust off surplus and wash down with low pressure hose. Allow surface to dry before proceeding with succeeding applications.
- C. Continue process until acceptance.

### **3.10 CLEANING**

- A. Immediately remove stains, efflorescence, or other excess resulting from the work of this section.
- B. Remove excess mortar, smears, and droppings as work proceeds and upon completion.
- C. Clean surrounding surfaces.

**END OF SECTION**

**SECTION 04 0511  
MASONRY MORTARING AND GROUTING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Mortar for masonry.
- B. Grout for masonry.

**1.02 RELATED REQUIREMENTS**

- A. Section 04 0100 - Maintenance of Masonry: Bedding and pointing mortar for masonry restoration work.

**1.03 REFERENCE STANDARDS**

- A. ASTM C91/C91M - Standard Specification for Masonry Cement.
- B. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete.
- C. ASTM C270 - Standard Specification for Mortar for Unit Masonry.
- D. ASTM C404 - Standard Specification for Aggregates for Masonry Grout.
- E. ASTM C476 - Standard Specification for Grout for Masonry.
- F. ASTM C780 - Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry.
- G. ASTM C1019 - Standard Test Method for Sampling and Testing Grout for Masonry.
- H. ASTM C1072 - Standard Test Methods for Measurement of Masonry Flexural Bond Strength.
- I. ASTM C1314 - Standard Test Method for Compressive Strength of Masonry Prisms.
- J. ASTM C1714/C1714M - Standard Specification for Preblended Dry Mortar Mix for Unit Masonry.
- K. ASTM E514/E514M - Standard Test Method for Water Penetration and Leakage Through Masonry.
- L. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Include design mix and indicate whether the Proportion or Property specification of ASTM C270 is to be used. Also include required environmental conditions and admixture limitations.
- C. Samples: Submit two samples of mortar, illustrating mortar color and color range.
- D. Reports: Submit reports on mortar indicating compliance of mortar to property requirements of ASTM C270 and test and evaluation reports per ASTM C780.
- E. Reports: Submit reports on grout indicating compliance of component grout materials to requirements of ASTM C476 and test and evaluation reports to requirements of ASTM C1019.
- F. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- G. Manufacturer's Installation Instructions: Submit packaged dry mortar manufacturer's installation instructions.

**1.05 QUALITY ASSURANCE**

- A. Comply with provisions of TMS 402/602, except where exceeded by requirements of Contract Documents.
  - 1. Maintain one copy of each document on project site.

**1.06 PRECONSTRUCTION TESTING**

- A. Testing will be conducted by an independent test agency, in accordance with provisions of Section 01 4000 - Quality Requirements.
- B. Mortar Mixes: Test mortars prebatched by weight in accordance with ASTM C780 recommendations for preconstruction testing.

1. Test results will be used to establish optimum mortar proportions and establish quality control values for construction testing.
- C. Grout Mixes: Test grout batches in accordance with ASTM C1019 procedures.
1. Test results will be used to establish optimum grout proportions and establish quality control values for construction testing.

### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Maintain packaged materials clean, dry, and protected against dampness, freezing, and foreign matter.

### **1.08 FIELD CONDITIONS**

- A. Cold and Hot Weather Requirements: Comply with requirements of TMS 402/602 or applicable building code, whichever is more stringent.

## **PART 2 PRODUCTS**

### **2.01 MORTAR AND GROUT APPLICATIONS**

- A. Mortar Mix Designs: ASTM C270, Property Specification.
1. Exterior Masonry Veneer: Type N.
  2. Exterior, Non-loadbearing Masonry: Type N.
  3. Exterior Repointing Mortar: Type N with maximum 2 percent ammonium stearate or calcium stearate per cement weight.
  4. Interior, Non-loadbearing Masonry: Type N.
- B. Grout Mix Designs:
1. Engineered Masonry: 3,000 psi strength at 28 days; 8-10 inches slump; provide premixed type in accordance with ASTM C 94/C 94M.
    - a. Fine grout for spaces with smallest horizontal dimension of 2 inches or less.
    - b. Coarse grout for spaces with smallest horizontal dimension greater than 2 inches.

### **2.02 MATERIALS**

- A. Packaged Dry Material for Mortar for Unit Masonry: Premixed Portland cement, hydrated lime, and sand; complying with ASTM C1714/C1714M and capable of producing mortar of the specified strength in accordance with ASTM C270 with the addition of water only.
1. Type: Type S.
  2. Color: Standard gray.
  3. Water repellent mortar for use with water repellent masonry units.
- B. Packaged Dry Material for Grout for Masonry: Premixed cementitious materials and dried aggregates; capable of producing grout of the specified strength in accordance with ASTM C476 with the addition of water only.
1. Type: Fine.
- C. Grout Aggregate: ASTM C404.
- D. Water: Clean and potable.
- E. Bonding Agent: Latex type.
- F. Integral Water Repellent Admixture: Polymeric liquid admixture added to mortar at the time of manufacture.
1. Performance of Mortar with Integral Water Repellent:
    - a. Water Permeance: When tested per ASTM E514/E514M and for a minimum of 72 hours:
      - 1) No water visible on back of wall above flashing at the end of 24 hours.
      - 2) No flow of water from flashing equal to or greater than 0.032 gallons per hour at the end of 24 hours.
      - 3) No more than 25 percent of wall area above flashing visibly damp at end of test.
    - b. Flexural Bond Strength: ASTM C1072; minimum 10 percent increase.
    - c. Compressive Strength: ASTM C1314; maximum 5 percent decrease.
  2. Use only in combination with masonry units produced with integral water repellent admixture.

### **2.03 MORTAR MIXING**

- A. Thoroughly mix mortar ingredients in accordance with ASTM C270 and in quantities needed for immediate use.
  - 1. Mix in accordance with manufacturer's instructions.
- B. Maintain sand uniformly damp immediately before the mixing process.
- C. Add admixtures in accordance with manufacturer's instructions; mix uniformly.
- D. Do not use anti-freeze compounds to lower the freezing point of mortar.
- E. If water is lost by evaporation, re-temper only within two hours of mixing in accordance with manufacturer's instructions.

### **2.04 GROUT MIXING**

- A. Mix grout in accordance with ASTM C94/C94M.
- B. Thoroughly mix grout ingredients in quantities needed for immediate use in accordance with ASTM C476 for fine and coarse grout.
- C. Add admixtures in accordance with manufacturer's instructions; mix uniformly.
- D. Do not use anti-freeze compounds to lower the freezing point of grout.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Apply bonding agent to existing concrete surfaces.
- B. Reference Section 04 0100 Maintenance of Masonry for additional information for preparation.
- C. Plug clean-out holes for grouted masonry with brick masonry units. Brace masonry to resist wet grout pressure.

### **3.02 INSTALLATION**

- A. Install mortar and grout to requirements of section(s) in which masonry is specified.
- B. Work grout into masonry cores and cavities to eliminate voids.
- C. Do not install grout in lifts greater than 12 inches without consolidating grout by rodding.
- D. Remove excess mortar from grout spaces.

### **3.03 GROUTING**

- A. Use either high-lift or low-lift grouting techniques, at Contractor's option, subject to other limitations of Contract Documents.
- B. Low-Lift Grouting:
  - 1. Limit height of pours to 12 inches.
  - 2. Limit height of masonry to 16 inches above each pour.
  - 3. Pour grout only after vertical reinforcing is in place; place horizontal reinforcing as grout is poured. Prevent displacement of bars as grout is poured.
  - 4. Place grout for each pour continuously and consolidate immediately; do not interrupt pours for more than 1-1/2 hours.
- C. High-Lift Grouting:
  - 1. Verify that horizontal and vertical reinforcement is in proper position and adequately secured before beginning pours.
  - 2. Hollow Masonry: Limit lifts to maximum 4 feet and pours to maximum height of 24 feet.
  - 3. Place grout for spanning elements in single, continuous pour.

### **3.04 FIELD QUALITY CONTROL**

- A. An independent testing agency will perform field tests, in accordance with provisions of Section 01 4000 - Quality Requirements.
- B. Test and evaluate mortar in accordance with ASTM C780 procedures.

C. Test and evaluate grout in accordance with ASTM C1019 procedures.

**END OF SECTION**

**SECTION 04 2000  
UNIT MASONRY**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Concrete block.
- B. Clay facing brick.
- C. Common brick.
- D. Reinforcement and anchorage.
- E. Flashings.
- F. Accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 04 0100 - Maintenance of Masonry.
- B. Section 04 0511 - Masonry Mortaring and Grouting.
- C. Section 05 5000 - Metal Fabrications: Loose steel lintels.
- D. Section 07 8400 - Firestopping: Firestopping at penetrations of fire-rated masonry and at top of fire-rated walls.
- E. Section 07 9200 - Joint Sealants: Sealing control and expansion joints.

**1.03 REFERENCE STANDARDS**

- A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- B. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
- C. ASTM A641/A641M - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
- D. ASTM A951/A951M - Standard Specification for Steel Wire for Masonry Joint Reinforcement.
- E. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.
- F. ASTM B370 - Standard Specification for Copper Sheet and Strip for Building Construction.
- G. ASTM C62 - Standard Specification for Building Brick (Solid Masonry Units Made From Clay or Shale).
- H. ASTM C67/C67M - Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile.
- I. ASTM C90 - Standard Specification for Loadbearing Concrete Masonry Units.
- J. ASTM C129 - Standard Specification for Nonloadbearing Concrete Masonry Units.
- K. ASTM C140/C140M - Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units.
- L. ASTM C216 - Standard Specification for Facing Brick (Solid Masonry Units Made From Clay or Shale).
- M. ASTM C780 - Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry.
- N. ASTM C1072 - Standard Test Methods for Measurement of Masonry Flexural Bond Strength.
- O. ASTM C1314 - Standard Test Method for Compressive Strength of Masonry Prisms.
- P. ASTM E514/E514M - Standard Test Method for Water Penetration and Leakage Through Masonry.
- Q. BIA Technical Notes No. 7 - Water Penetration Resistance – Design and Detailing.
- R. BIA Technical Notes No. 13 - Ceramic Glazed Brick Exterior Walls.
- S. BIA Technical Notes No. 28B - Brick Veneer/Steel Stud Walls.
- T. BIA Technical Notes No. 46 - Maintenance of Brick Masonry.

U. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures.

#### **1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data for masonry units, fabricated wire reinforcement, mortar, and masonry accessories.
- C. Shop Drawings: Indicate pertinent dimensions, materials, anchorage, size and type of fasteners, and accessories for brickwork support system.
- D. Samples: Submit four samples of decorative block and facing brick units to illustrate color, texture, and extremes of color range.
- E. Manufacturer's Certificate: Certify that water repellent admixture manufacturer has certified masonry unit manufacturer as an approved user of water repellent admixture in the manufacture of concrete block.

#### **1.05 QUALITY ASSURANCE**

- A. Comply with provisions of TMS 402/602, except where exceeded by requirements of Contract Documents.

#### **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

### **PART 2 PRODUCTS**

#### **2.01 CONCRETE MASONRY UNITS**

- A. Concrete Block: Comply with referenced standards and as follows:
  - 1. Size: Standard units with nominal face dimensions of 16 by 8 inches and nominal depth of 8 inches.
  - 2. Special Shapes: Provide non-standard blocks configured for corners.
    - a. Provide bullnose units for outside corners.
  - 3. Load-Bearing Units: ASTM C90, normal weight.
    - a. Hollow block, as indicated.
    - b. Pattern: Split Face for Dugouts.
  - 4. Non-Loadbearing Units: ASTM C129.
    - a. Hollow block, as indicated.
  - 5. Units with Integral Water Repellent: Concrete block units for the Dugouts to be provided n with polymeric liquid admixture added to concrete masonry units at the time of manufacture.
    - a. Performance of Units with Integral Water Repellent:
      - 1) Water Permeance: When tested per ASTM E514/E514M and for a minimum of 72 hours.
        - (a) No water visible on back of wall above flashing at the end of 24 hours.
        - (b) No flow of water from flashing equal to or greater than 0.032 gallons per hour at the end of 24 hours.
        - (c) No more than 25 percent of wall area above flashing visibly damp at end of test.
      - 2) Flexural Bond Strength: ASTM C1072; minimum 10 percent increase.
      - 3) Compressive Strength: ASTM C1314; maximum 5 percent decrease.
      - 4) Drying Shrinkage: ASTM C1148; maximum 5 percent increase in shrinkage.
    - b. Use only in combination with mortar that also has integral water repellent admixture.
    - c. Use water repellent admixtures for masonry units and mortar by a single manufacturer.

#### **2.02 BRICK UNITS**

- A. Facing Brick: ASTM C216, Type FBS Smooth, Grade SW.
  - 1. Nominal size: To match existing.
  - 2. Special shapes: Molded units as required by conditions indicated, unless standard units can be sawn to produce equivalent effect.
- B. Building (Common) Brick: ASTM C62, Grade SW; solid units.
  - 1. Nominal size: To match existing.

## **2.03 MORTAR AND GROUT MATERIALS**

- A. Mortar and Grout: As specified in Section 04 0511.

## **2.04 REINFORCEMENT AND ANCHORAGE**

- A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi), deformed billet bars; uncoated.
- B. Joint Reinforcement: Use ladder type joint reinforcement where vertical reinforcement is involved and truss type elsewhere, unless otherwise indicated.
- C. Single Wythe Joint Reinforcement: ASTM A951/A951M.
  - 1. Type: Truss or ladder.
  - 2. Material: ASTM A1064/A1064M steel wire, mill galvanized to ASTM A641/A641M Class 3.
  - 3. Size: 0.1483 inch side rods with 0.1483 inch cross rods; width as required to provide not less than 5/8 inch of mortar coverage on each exposure.
- D. Strap Anchors: Bent steel shapes, 1-1/2 inch width, 0.105 inch thick, 24 inch length, with 1-1/2 inch long, 90 degree bend at each end to form a U or Z shape or with cross pins, hot dip galvanized to ASTM A153/A153M Class B.
- E. Flexible Anchors: 2-piece anchors that permit differential movement between masonry and building frame, sized to provide not less than 5/8 inch of mortar coverage from masonry face.
- F. Masonry Veneer Anchors: 2-piece anchors that permit differential movement between masonry veneer and structural backup, hot dip galvanized to ASTM A 153/A 153M, Class B.
  - 1. Anchor plates: Not less than 0.075 inch thick, designed for fastening to structural backup through sheathing by two fasteners; provide design with legs that penetrate sheathing and insulation to provide positive anchorage.
  - 2. Wire ties: Manufacturer's standard shape, 0.1875 inch thick.
  - 3. Vertical adjustment: Not less than 3-1/2 inches.

## **2.05 FLASHINGS**

- A. Metal Flashing Materials:
  - 1. Copper Flashing: ASTM B370, 060 soft annealed; 20 oz/sq ft thick; natural finish.
- B. Combination Asphaltic Flashing Materials - Copper:
  - 1. Copper/Asphalt Flashing: 7 oz/sq ft copper sheet coated with elastic asphalt compound on both sides.
- C. Flashing Sealant/Adhesives: Silicone, polyurethane, or silyl-terminated polyether/polyurethane or other type required or recommended by flashing manufacturer; type capable of adhering to type of flashing used.
- D. Termination Bars: Stainless steel; compatible with membrane and adhesives.

## **2.06 ACCESSORIES**

- A. Joint Filler: Closed cell polyvinyl chloride; oversized 50 percent to joint width; self expanding; in maximum lengths available.
- B. Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that field conditions are acceptable and are ready to receive masonry.
- B. Verify that related items provided under other sections are properly sized and located.
- C. Verify that built-in items are in proper location, and ready for roughing into masonry work.

### **3.02 PREPARATION**

- A. Direct and coordinate placement of metal anchors supplied for installation under other sections.
- B. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.



### **3.03 COLD AND HOT WEATHER REQUIREMENTS**

- A. Comply with requirements of TMS 402/602 or applicable building code, whichever is more stringent.
- B. Maintain materials and surrounding air temperature to minimum 40 degrees F prior to, during, and 48 hours after completion of masonry work.

### **3.04 COURSING**

- A. Establish lines, levels, and coursing indicated. Protect from displacement.
- B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.
- C. Concrete Masonry Units:
  - 1. Bond: Running.
  - 2. Mortar Joints: Concave.
- D. Brick Units:
  - 1. Bond: Running.
  - 2. Coursing: Three units and three mortar joints to equal 8 inches.
  - 3. Mortar Joints: Concave.

### **3.05 PLACING AND BONDING**

- A. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.
- B. Lay hollow masonry units with face shell bedding on head and bed joints.
- C. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.
- D. Remove excess mortar and mortar smears as work progresses.
- E. Remove excess mortar with water repellent admixture promptly. Do not use acids, sandblasting or high pressure cleaning methods.
- F. Interlock intersections and external corners.
- G. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.
- H. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.
- I. Cut mortar joints flush where wall tile is scheduled or resilient base is scheduled.
- J. Isolate top joint of masonry partitions from horizontal structural framing members and slabs or decks with compressible joint filler.

### **3.06 WEEPS/CAVITY VENTS**

- A. Install weeps in veneer and cavity walls at 24 inches on center horizontally on top of through-wall flashing above shelf angles and lintels and at bottom of walls.

### **3.07 CAVITY MORTAR CONTROL**

- A. Do not permit mortar to drop or accumulate into cavity air space or to plug weep/cavity vents.
- B. For cavity walls, build inner wythe ahead of outer wythe to accommodate accessories.
- C. Install cavity mortar control panels continuously throughout full height of exterior masonry cavities during construction of exterior wythe, complying with manufacturer's installation instructions.

### **3.08 REINFORCEMENT AND ANCHORAGE - GENERAL, SINGLE WYTHE MASONRY, AND CAVITY WALL MASONRY**

- A. Place continuous joint reinforcement in first and second joint below top of walls.
- B. Embed longitudinal wires of joint reinforcement in mortar joint with at least 5/8 inch mortar cover on each side.
- C. Lap joint reinforcement ends minimum 6 inches.

- D. Fasten anchors to structural framing and embed in masonry joints as masonry is laid. Unless otherwise indicated on drawings or closer spacing is indicated under specific wall type, space anchors at maximum of 36 inches horizontally and 24 inches vertically.
- E. Embed ties and anchors in mortar joint and extend into masonry unit a minimum of 1-1/2 inches with at least 5/8 inch mortar cover to the outside face of the anchor.

### **3.09 REINFORCEMENT AND ANCHORAGE - MASONRY VENEER**

- A. Masonry Back-Up: Embed anchors to bond veneer at maximum 16 inches on center vertically and 36 inches on center horizontally. Place additional anchors at perimeter of openings and ends of panels, so maximum spacing of anchors is 8 inches on center.

### **3.10 MASONRY FLASHINGS**

- A. Whether or not specifically indicated, install masonry flashing to divert water to exterior at all locations where downward flow of water will be interrupted.
  - 1. Extend flashings full width at such interruptions and at least 6 inches, minimum, into adjacent masonry or turn up flashing ends at least 1 inch, minimum, to form watertight pan at non-masonry construction.
  - 2. Remove or cover protrusions or sharp edges that could puncture flashings.
  - 3. Seal lapped ends and penetrations of flashing before covering with mortar.
- B. Terminate flashing up 8 inches minimum on vertical surface of backing:
  - 1. Install vertical leg of flashing behind water-resistive barrier sheet over backing.
  - 2. Install vertical leg of flashing over fluid-applied or self-adhered air/vapor barriers over backing or per manufacturer's directions.
  - 3. Terminate vertical leg of flashing into bed joint in masonry or reglet in concrete.
  - 4. Anchor vertical leg of flashing into backing with a termination bar and sealant.
  - 5. Apply cap bead of sealant on top edge of self-adhered flashing.
- C. Install flashing in accordance with manufacturer's instructions and BIA Technical Notes No. 7.
- D. Lap end joints of flashings at least 6 inches, minimum, and seal watertight with flashing sealant/adhesive.

### **3.11 GROUTED COMPONENTS**

- A. Lap splices minimum 24 bar diameters.
- B. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch of dimensioned position.
- C. Place and consolidate grout fill without displacing reinforcing.
- D. At bearing locations, fill masonry cores with grout for a minimum 12 inches either side of opening.

### **3.12 CONTROL AND EXPANSION JOINTS**

- A. Do not continue horizontal joint reinforcement through control or expansion joints.
- B. Size control joints as indicated on drawings; if not indicated, 3/4 inch wide and deep.

### **3.13 BUILT-IN WORK**

- A. As work progresses, install built-in metal door frames and glazed frames and other items to be built into the work and furnished under other sections.
- B. Install built-in items plumb, level, and true to line.
- C. Bed anchors of metal door and glazed frames in adjacent mortar joints. Fill frame voids solid with grout.
  - 1. Fill adjacent masonry cores with grout minimum 12 inches from framed openings.

### **3.14 TOLERANCES**

- A. Install masonry within the site tolerances found in TMS 402/602.
- B. Maximum Variation From Unit to Adjacent Unit: 1/16 inch.
- C. Maximum Variation from Plane of Wall: 1/4 inch in 10 ft and 1/2 inch in 20 ft or more.
- D. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.

- E. Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft; 1/2 inch in 30 ft.
- F. Maximum Variation of Mortar Joint Thickness: Head joint, minus 1/8 inch, plus 1/4 inch.
- G. Maximum Variation from Cross Sectional Thickness of Walls: 1/4 inch.

### **3.15 CUTTING AND FITTING**

- A. Cut and fit for chases. Coordinate with other sections of work to provide correct size, shape, and location.
- B. Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

### **3.16 PARGING**

- A. Dampen masonry walls prior to parging.
- B. Scarify each parging coat to ensure full bond to subsequent coat.
- C. Parge masonry walls in two uniform coats of mortar to a total thickness of 3/4 inch.
- D. Steel trowel surface smooth and flat with a maximum surface variation of 1/8 inch per foot.
- E. Strike top edge of parging at 45 degrees.

### **3.17 FIELD QUALITY CONTROL**

- A. An independent testing agency will perform field quality control tests, as specified in Section 01 4000 - Quality Requirements.
- B. Clay Masonry Unit Tests: Test each variety of clay masonry in accordance with ASTM C67/C67M requirements, sampling 5 randomly chosen units for each 50,000 installed.
- C. Concrete Masonry Unit Tests: Test each variety of concrete unit masonry in accordance with ASTM C140/C140M for compliance with requirements of this specification.
- D. Mortar Tests: Test each type of mortar in accordance with ASTM C780, testing with same frequency as masonry samples.

### **3.18 CLEANING**

- A. Remove excess mortar and mortar droppings.
- B. Replace defective mortar. Match adjacent work.
- C. Clean soiled surfaces with cleaning solution.
- D. Use non-metallic tools in cleaning operations.

### **3.19 PROTECTION**

- A. Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

**END OF SECTION**

**SECTION 05 1200  
STRUCTURAL STEEL FRAMING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Structural steel framing members.
- B. Base plates.
- C. Grouting under base plates.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 4000 - Quality Requirements.
- B. Section 01 4533 - Special Inspections and Procedures.
- C. Section 05 5000 - Metal Fabrications: Steel fabrications affecting structural steel work.

**1.03 REFERENCE STANDARDS**

- A. New York State Reference Standards:
  - 1. 2020 Building Code of New York State.
  - 2. 2020 Existing Building Code of New York State.
  - 3. 2020 Fire Code of New York State.
- B. AISC (MAN) - Steel Construction Manual.
- C. AISC 303 - Code of Standard Practice for Steel Buildings and Bridges.
- D. AISC 360 - Specification for Structural Steel Buildings.
- E. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.
- F. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- G. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
- H. ASTM A563 - Standard Specification for Carbon and Alloy Steel Nuts.
- I. ASTM A572/A572M - Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel.
- J. ASTM A992/A992M - Standard Specification for Structural Steel Shapes.
- K. ASTM F3125/F3125M - Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength.
- L. ASTM F436/F436M - Standard Specification for Hardened Steel Washers Inch and Metric Dimensions.
- M. ASTM F1554 - Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength.
- N. AWS B2.1/B2.1M - Specification for Welding Procedure and Performance Qualification.
- O. AWS D1.1/D1.1M - Structural Welding Code - Steel.
- P. RCSC (HSBOLT) - Specification for Structural Joints Using High-Strength Bolts; Research Council on Structural Connections.
- Q. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer.
- R. SSPC-SP 3 - Power Tool Cleaning.
- S. UL (FRD) - Fire Resistance Directory.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings:

1. Indicate profiles, sizes, spacing, locations of structural members, openings, attachments, and fasteners.
  2. Connections not detailed.
  3. Indicate welded connections with AWS A2.4 welding symbols. Indicate net weld lengths.
- C. Manufacturer's Mill Certificate: Certify that products meet or exceed specified requirements.
- D. Mill Test Reports: Indicate structural strength, destructive test analysis and non-destructive test analysis.
- E. Welders' Qualification Statement: Welders' certificates in accordance with AWS B2.1/B2.1M and dated no more than 12 months before start of scheduled welding work.
- F. Structural steel connection calculations stamped by a Professional Engineer licensed in New York State.
- G. See Part 3 for additional information.

### **1.05 QUALITY ASSURANCE**

- A. Fabricate structural steel members in accordance with AISC (MAN) "Steel Construction Manual."
- B. Maintain one copy of each document on site.
- C. Fabricator: Company specializing in performing the work of this section with minimum ten years of documented experience.

### **1.06 SHOP QUALITY CONTROL/ASSURANCE**

- A. Steel fabricators shall satisfy a minimum of one of the following requirements:
- B. Posses a valid current AISC "Standard for Steel Building Structures" Certification. A copy of the certificate must be submitted for approval.
- C. Obtain a written waiver from the Code Enforcement Official having jurisdiction to waive the Special Inspection requirements for shop fabricated structural steel members and assemblies. The waiver must indicate that the steel fabricator has satisfied the requirements outlined in the New York State Department of State Division of Code Enforcement and Administration's Technical Bulletin 19 NYCRR 1221 - Building Code of New York State - Inspection of Fabricators. The waiver must be submitted for approval.
- D. Permit the Owner's Special Inspector to perform the inspections, verifications, and tests outlined in Specification Section 01 4000 with the exception of Section 01 4000-3.05-C-2. "Verify that the fabricator is registered and approved to perform such work without special inspection."
  1. A fabricator can be disqualified from performing the work if they are unable to demonstrate that they are qualified and capable of performing the required work.
  2. The cost of shop special inspections will be deducted from the General Contractor's contract amount.
  3. The steel fabricator is responsible for scheduling required inspections with the Owner's Special Inspector.
  4. All Special Inspections are to conform to the requirements outlined in Section 01 4000 Quality Requirements.

## **PART 2 PRODUCTS**

### **2.01 MATERIALS**

- A. Steel Angles and Plates: ASTM A36/A36M.
- B. Steel W Shapes and Tees: ASTM A992/A992M.
- C. Rolled Steel Structural Shapes: ASTM A992/A992M.
- D. Steel Shapes, Plates, Bars, and Channels: ASTM A572/A572M, Grade 50 (345) high-strength, columbium-vanadium steel.
- E. Cold-Formed Structural Tubing: ASTM A500/A500M, Grade B.
- F. High-Strength Structural Bolts, Nuts, and Washers: ASTM F3125/F3125M, Type 1, with matching compatible ASTM A563 or ASTM A563M nuts and ASTM F436/F436M washers.
- G. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.

- H. Grout: ASTM C1107/C1107M; Non-shrink; premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.
  - 1. Minimum Compressive Strength at 48 Hours: 2,000 pounds per square inch.
  - 2. Minimum Compressive Strength at 7 Days: 5000 pounds per square inch.
  - 3. Minimum Compressive Strength at 28 Days: 7500 pounds per square inch.
  - 4. Height Change, Plastic State; when tested according to ASTM C827/C827M:
    - a. Maximum: Plus 4 percent.
    - b. Minimum: Plus 1 percent.
  - 5. Manufacturers:
    - a. Five Star Products, Inc., High Performance Precision Non-Shrink Grout.
    - b. Sika Corporation, SikaGrout-328 High Performance Precision Non-Shrink Grout.
- I. Shop and Touch-Up Primer: Fabricator's standard, complying with VOC limitations of authorities having jurisdiction.
- J. Touch-Up Primer for Galvanized Surfaces: Fabricator's standard, complying with VOC limitations of authorities having jurisdiction.

## **2.02 FABRICATION**

- A. Shop fabricate to greatest extent possible.
- B. Fabricate items of structural steel in accordance with AISC Specifications and as indicated on the approved Shop Drawings.
- C. Develop required camber for members as indicated on the Contract Drawings.
- D. Properly mark and match-mark materials for field assembly and for identification as to location which intended. Fabricate for delivery sequence which will expedite erection and minimize field handling of materials

## **2.03 FINISH**

- A. Prepare structural component surfaces in accordance with SSPC-SP 3.
- B. Shop prime structural steel members. Do not prime surfaces that will be field welded or in contact with concrete.

## **2.04 SOURCE QUALITY CONTROL**

- A. Provide shop testing and analysis of structural steel.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that conditions are appropriate for erection of structural steel and that the work may properly proceed.

### **3.02 ERECTION**

- A. Erect structural steel in compliance with AISC 303.
- B. Allow for erection loads and provide sufficient temporary bracing to maintain structure in safe condition, plumb, and in true alignment until completion of erection and installation of permanent bracing.
- C. Field weld components and shear studs indicated on shop drawings.
- D. During welding or other hot work activities, fire watch by competent personnel is required.
  - 1. Coordinate hot work (welding) activities with Owners "hot work" permitting program in accordance with the Fire Code of New York State including but not limited to Chapters 11, 33 and 35.
  - 2. The Contractor shall provide a fire watch during and for a minimum of 30 minutes after the conclusion of the welding (hot work) operation.
  - 3. The fire watch is to include the entire area in which welding or other hot work operations are taking place.
  - 4. Personnel assigned to fire watch will have fire extinguishing equipment readily available and are to be trained in use of equipment.

5. Provide not less than one portable fire extinguisher (minimum rating 2-A:20B:C) readily accessible and be within 30 feet of the location where welding/hot work is being performed.
  6. Prior to welding or other hot work a complete area review and pre-hot check is required.
- E. Use carbon steel bolts only for temporary bracing during construction, unless otherwise specifically permitted on drawings. Install high-strength bolts in accordance with RCSC (HSBOLT) "Specification for Structural Joints Using High-Strength Bolts".
  - F. Do not field cut or alter structural members without approval of Architect or Engineer.
  - G. After erection, prime welds, abrasions, and surfaces not shop primed, except surfaces to be in contact with concrete.
  - H. Grout solidly between column plates and bearing surfaces, complying with manufacturer's instructions for nonshrink grout. Trowel grouted surfaces smooth, splaying neatly to 45 degrees.

### **3.03 ANCHOR BOLTS**

- A. Install anchor bolts and other connectors required for securing structural steel to foundations and other in place work.
- B. Furnish templates and other devices as needed for the presetting of bolts and other anchors to accurate locations.

### **3.04 SETTING BASE PLATES AND BEARING PLATES**

- A. Clean concrete and masonry bearing surfaces free from bond-reducing materials, and then roughen to improve bond to surface. Clean the bottom surface of base and bearing plates.
- B. Set loose and attached base plates and bearing plates for structural members in wedges or other adjusting devices. Leveling plates are not to be used.
- C. Pack grout solidly between bearing surfaces and bases or plates to ensure that no voids remain.
- D. Finish exposed surfaces, protect installed materials, and allow to cure in strict compliance with the manufacturer's instructions as approved by the Engineer.

### **3.05 TOLERANCES**

- A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch.

### **3.06 FIELD QUALITY CONTROL**

- A. An independent testing agency will perform field quality control tests, as specified in Section 01 4000 - Quality Requirements.

**END OF SECTION**

**SECTION 05 4000  
COLD-FORMED METAL FRAMING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Formed steel stud interior wall framing.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 1000 - Rough Carpentry: Wood blocking and miscellaneous framing.
- B. Section 07 9200 - Joint Sealants.

**1.03 REFERENCE STANDARDS**

- A. AISI S100 - North American Specification for the Design of Cold-Formed Steel Structural Members.
- B. AISI S240 - North American Standard for Cold-Formed Steel Structural Framing.
- C. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures.
- D. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- E. ASTM A780/A780M - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
- F. ASTM A1003/A1003M - Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members.
- G. AWS D1.3/D1.3M - Structural Welding Code - Sheet Steel.
- H. ICC (IBC) - International Building Code.
- I. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic").

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordinate with work of other sections that is to be installed in or adjacent to metal framing systems, including but not limited to structural anchors, cladding anchors, utilities, insulation, and firestopping.

**1.05 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide data on standard framing members; describe materials and finish, product criteria, limitations.
- C. Shop Drawings: Indicate component details, framed openings, bearing, anchorage, loading, welds, and type and location of fasteners, and accessories or items required of related work.
  - 1. Indicate stud layout.
  - 2. Describe method for securing studs to tracks and for bolted framing connections.
- D. Manufacturer's Installation Instructions: Indicate special procedures, conditions requiring special attention.

**1.06 QUALITY ASSURANCE**

- A. Designer Qualifications: Design framing system under direct supervision of a professional structural engineer experienced in designing this work and licensed in the State in which the Project is located.
- B. Manufacturer Qualifications: Company specializing in manufacturing the types of products specified in this section, and with minimum three years of documented experience.
- C. Welder Qualifications: Welding processes and welding operators qualified in accordance with AWS D1.1/D1.1M and AWS D1.3/D1.3M and dated no more than 12 months before start of scheduled welding work.
- D. Installer Qualifications: Company specializing in performing the work of this section with minimum three years documented experience and approved by manufacturer.



## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Structural Framing:
  - 1. ClarkDietrich
  - 2. Marino
  - 3. The Steel Network, Inc
  - 4. Substitutions: See Section 01 6000 - Product Requirements.
- B. Connectors:
  - 1. Same manufacturer as metal framing.

### **2.02 PERFORMANCE REQUIREMENTS**

- A. Design Requirements: Design cold-formed framing systems, components and connectors to withstand specified design loads in compliance with ICC (IBC), ASCE 7, AISI S100, and AISI S240.

### **2.03 MATERIALS**

- A. Steel Sheet: ASTM A1003/A1003M, subject to the ductility limitations indicated in AISI S240.

### **2.04 STRUCTURAL FRAMING COMPONENTS**

- A. Wall Studs and Track Sections: AISI S240; c-shaped studs and u-shaped track sections in stud-matching nominal width and compatible height.
- B. Studs and Track: ASTM C955; studs formed to channel, C- or Sigma-shaped with punched web; U-shaped track in matching nominal width and compatible height.
  - 1. Gauge: Framing components shall be formed from steel conforming to the minimum requirements of ASTM A653, CQ, Grade 33, Class 1, possessing a minimum yield of 33,000 psi. SSMA 600SXXX-54 studs are to be Grade 50 possessing a minimum yield of 50,000 psi.
    - a. Exterior Studs: SSMA XXXS162-54 (1-5/8 inch flange, 16 gauge).
    - b. Interior Load Bearing Studs including walls and partitions with cabinetry: SSMA XXXS162-33 (1-5/8 inch flange, 20 gauge). 20 gauge equivalent studs will not be accepted.
    - c. Interior Drywall Partition Studs (Non-Load Bearing with no cabinetry): SSMA XXXPDS125-19 (1-1/4" inch flange, 20 gauge).
  - 2. Stud Depth: Depth of studs shall be as indicated.
  - 3. Galvanized in accordance with ASTM A653/A653M, G90/Z275 coating.
- C. Jamb Studs: AISI S240; manufactured, engineered, c-shaped with wide flanges, designed to replace conventional double-stud framing at openings.
- D. Headers: AISI S240; manufactured, engineered one-member or two-member assemblies, with wide flanges, designed to replace conventional box or nested header framing at openings.
  - 1. Jamb Mounting Clips: Manufacturer's standard.
  - 2. Cripple Stud Clips: Manufacturer's standard.
- E. Joists: AISI S240; manufactured, engineered open-web steel joists.
  - 1. Base Metal: Structural Steel (SS), Grade 50/340, Class 1.
  - 2. Gauge and Depth: 14 gauge joist shall be formed from steel conforming to the minimum requirements of ASTM A 653, SQ, Grade 50, Class 1. Depth shall be as indicated on the Drawings.

### **2.05 MISCELLANEOUS CONNECTIONS**

- A. Self-Drilling, Self-Tapping Screws, Bolts, Nuts and Washers: Hot-dip galvanized per ASTM A153/A153M.
- B. Anchorage Devices: Powder actuated, Drilled expansion bolts, and anchor bolts.
- C. Welding: Comply with AWS D1.1/D1.1M.

### **2.06 ACCESSORIES**

- A. Bracing, Furring, Bridging: Formed sheet steel, thickness determined for conditions encountered; finish to match framing components.
- B. Steel Blocking/Backer Bars:

1. Provide 16 gauge steel straps, TSN NotchTrak NT, or ClarkDietrich Backer Bar anchored to the face of the metal studs for the mounting of:
  - a. Toilet Partitions and toilet room accessories.
  - b. Grab bars and railings
  - c. T.V. and Monitor brackets
  - d. Wall mounted door hardware.
  - e. Wall mounted cabinetry and Shelving
  - f. Plumbing fixtures
  - g. Other equipment to be mounted to metal stud walls and partitions.
  - h. Other wall mounted equipment imposing heavy loads on the metal stud walls and partitions as recommended by equipment manufacturer.
- C. Galvanizing Repair: Touch up bare steel with zinc-rich paint in compliance with ASTM A780/A780M.
- D. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20 Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that substrate surfaces are ready to receive work.
- B. Verify field measurements and adjust installation as required.

#### **3.02 INSTALLATION - GENERAL**

- A. Install structural members and connections in compliance with ASTM C1007.

#### **3.03 CONNECTIONS**

- A. Welds:
  1. Welds shall be of the type, size, and location shown in the Drawings and as approved in the Shop Drawings.
  2. Welded connections shall be performed in accordance with the American Welding Society (AWS) Specification for Welding Sheet Steel in Structures, D1.3.
  3. Welders, welding operations and welding procedures shall be qualified in accordance with AWS D1.3.
  4. Welds shall be cleaned and coated with rust inhibitive galvanizing paint.
- B. Screws:
  1. Screw shall be self-tapping type, size, and locations shall be as required for situation. Screws shall be DrillFlex Structural Fasteners as manufactured by Elco Industries, Inc., or equal.
  2. Screw penetration through joined materials shall not be less than three (3) exposed screw threads.
  3. Contractor shall refer to installation instructions published by the screw manufacturer and ASTM C 954 for minimum spacing and edge distance requirements and torque requirements.
- C. Concrete Anchors:
  1. Anchor Bolts, Epoxy Bolts, Screw Type Fasteners, and Powder Actuated Fasteners: Fasteners shall be type as indicated on the Drawings and approved by the Architect. Locations of fasteners shall be as indicated on the Drawings and recommended by the cold form metal framing manufacturer.

#### **3.04 INSTALLATION OF STUDS**

- A. Install wall studs plumb and level.
- B. Place studs at 16 inches on center; not more than 2 inches from abutting walls and at each side of openings. Connect studs to tracks using clip and tie method.
- C. Construct corners using minimum of three studs. Install double studs at wall openings, door and window jambs.
- D. Install intermediate studs above and below openings to align with wall stud spacing.
- E. Provide deflection allowance in stud track, directly below horizontal building framing at non-loadbearing framing.

- F. Attach cross studs to studs for attachment of fixtures anchored to walls.
- G. Install framing between studs for attachment of mechanical and electrical items, and to prevent stud rotation.

**3.05 TOLERANCES**

- A. Studs - Vertical Alignment (Plumbness): 1/960 of span or 1/8 inch in 10 ft, in accordance with ASTM C1007.
- B. Studs - Maximum Variation from True Position: 1/8 inch in accordance with ASTM C1007.
- C. Stud Spacing: 1/8 inch from the designated spacing, provided that the cumulative error does not exceed the requirements of the finishing materials in accordance with ASTM C1007.
- D. Maximum Variation from True Position: 1/4 inch.

**END OF SECTION**

**SECTION 05 5000  
METAL FABRICATIONS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Shop fabricated steel items.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 3000 - Cast-in-Place Concrete: Placement of metal fabrications in concrete.
- B. Section 04 2000 - Unit Masonry: Placement of metal fabrications in masonry.
- C. Section 05 5213 - Pipe and Tube Railings.
- D. Section 09 9000 - Painting and Coating.

**1.03 REFERENCE STANDARDS**

- A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.
- B. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
- C. ASTM A283/A283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates.
- D. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength.
- E. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
- F. ASTM A572/A572M - Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel.
- G. ASTM A992/A992M - Standard Specification for Structural Steel Shapes.
- H. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- I. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination.
- J. AWS B2.1/B2.1M - Specification for Welding Procedure and Performance Qualification.
- K. AWS D1.1/D1.1M - Structural Welding Code - Steel.
- L. AWS D1.2/D1.2M - Structural Welding Code - Aluminum.
- M. IAS AC172 - Accreditation Criteria for Fabricator Inspection Programs for Structural Steel.
- N. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer.
- O. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic").
- P. SSPC-SP 2 - Hand Tool Cleaning.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
  - 1. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.
- C. Welders' Qualification Statement: Welders' certificates in accordance with AWS B2.1/B2.1M and dated no more than 12 months before start of scheduled welding work.
- D. Fabricator's Qualification Statement: Provide documentation showing steel fabricator is accredited under IAS AC172.

## 1.05 QUALITY ASSURANCE

- A. Welder Qualifications: Welding processes and welding operators qualified in accordance with AWS D1.1/D1.1M and AWS D1.2/D1.2M and dated no more than 12 months before start of scheduled welding work.
- B. Fabricator Qualifications: A qualified steel fabricator that is accredited by IAS AC172.

## PART 2 PRODUCTS

### 2.01 MATERIALS - STEEL

- A. Steel Bars and Bar-Size Shapes: ASTM A36/A36M.
- B. Steel Sections:
  - 1. W shapes: ASTM A992/A992M.
  - 2. S, M, HP and C-channels: ASTM A572/A572M, grade 50.
  - 3. Angles: ASTM A36/A36M.
  - 4. General Plates: ASTM A36/A36M.
- C. Steel Tubing: ASTM A500/A500M Grade B cold-formed structural tubing, including round, square and rectangular shapes.
- D. Plates:
  - 1. ASTM A283/A283M, Grade C.
  - 2. Plates to be bent or cold form.
- E. Pipe: ASTM A53/A53M, Grade B Schedule 40, black and hot-dip galvanized finish, as indicated.
- F. Mechanical Fasteners: Same material as or compatible with materials being fastened; type consistent with design and specified quality level.
  - 1. Provide zinc-coated fasteners at exterior use location and where installed as part of an exterior wall construction.
- G. Bolts, Nuts, and Washers: ASTM A307, Grade A, plain.
- H. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.
- I. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.
  - 1. Primer selected shall be compatible with finish coats of paint. Coordinate selection of metal primer with actual finish paint provided by Contractor.
- J. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

### 2.02 FABRICATION

- A. Work to dimensions shown or accepted on the Shop Drawings using proven details of fabrication and support.
- B. Fit and shop assemble items in largest practical sections, for delivery to site.
- C. Fabricate items with joints tightly fitted and secured.
- D. Continuously seal joined members by intermittent welds and plastic filler.
- E. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- F. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
- G. Provide components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

### 2.03 FABRICATED ITEMS

- A. Bollards: Steel pipe, concrete filled, crowned cap, as detailed; galvanized finish.
- B. Lintels: As detailed; prime paint finish.

- C. Stair Nosing:
  - 1. Single component stair nosing with standard anchors.
  - 2. Aluminum: ASTM B221, alloy 6063-T5 for extrusions.
  - 3. Photoluminescent: Phosphorescent pigment, Strontium Aluminate Oxide, combined with a carrier/fixer that is applied to an aluminum substrate. PVC based systems shall not be acceptable.
  - 4. Standard Abrasive: 2-part epoxy combined with aluminum oxide grit.
  - 5. Photoluminescent Stair Nosing R 315L-PL100 Single Component, Abrasive as manufactured by Balco or approved equal.

#### **2.04 FINISHES - STEEL**

- A. Prime paint steel items.
- B. Prepare surfaces to be primed in accordance with SSPC-SP2.
- C. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- D. Prime Painting: Two coats.

#### **2.05 FABRICATION TOLERANCES**

- A. Squareness: 1/8 inch maximum difference in diagonal measurements.
- B. Maximum Offset Between Faces: 1/16 inch.
- C. Maximum Misalignment of Adjacent Members: 1/16 inch.
- D. Maximum Bow: 1/8 inch in 48 inches.
- E. Maximum Deviation From Plane: 1/16 inch in 48 inches.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that field conditions are acceptable and are ready to receive work.

#### **3.02 PREPARATION**

- A. Clean and strip primed steel items to bare metal where site welding is required.

#### **3.03 INSTALLATION**

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- C. Perform field welding in accordance with AWS D1.1/D1.1M.
- D. Obtain approval prior to site cutting or making adjustments not scheduled.
- E. After erection, prime welds, abrasions, and surfaces not shop primed , except surfaces to be in contact with concrete.

#### **3.04 TOLERANCES**

- A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch.
- C. Maximum Out-of-Position: 1/4 inch.

**END OF SECTION**

**SECTION 05 5213  
PIPE AND TUBE RAILINGS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Wall mounted handrails.
- B. Stair railings and guardrails.
- C. Free-standing railings at steps and ramps.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 3000 - Cast-in-Place Concrete: Placement of anchors in concrete.
- B. Section 04 2000 - Unit Masonry: Placement of anchors in masonry.

**1.03 REFERENCE STANDARDS**

- A. ADA Standards - 2010 ADA Standards for Accessible Design.
- B. AISC 201 - AISC Certification Program for Structural Steel Fabricators, Standard for Steel Building Structures.
- C. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
- D. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- E. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
- F. ASTM E935 - Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings.
- G. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer.
- H. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic").

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Welder's Qualifications Statement.
- C. Fabricator's Qualification Statement.

**1.05 QUALITY ASSURANCE**

- A. Structural Designer Qualifications: Professional Structural Engineer experienced in design of this work and licensed in the State in which the Project is located, or personnel under direct supervision of such an engineer.
- B. Welder Qualifications: Show certification of welders employed on the Work, verifying AWS qualification within the previous 12 months.
- C. Fabricator Qualifications:
  - 1. A qualified steel fabricator that is certified by the American Institute for Steel Construction (AISC) under AISC 201.
  - 2. A company specializing in manufacturing products specified in this section, with not less than ten years of documented experience.

**PART 2 PRODUCTS**

**2.01 RAILINGS - GENERAL REQUIREMENTS**

- A. Design, fabricate, and test railing assemblies in accordance with the most stringent requirements of applicable local code.

- B. Distributed Loads: Design railing assembly, wall rails, and attachments to resist distributed force of 75 pounds per linear foot applied to the top of the assembly and in any direction, without damage or permanent set. Test in accordance with ASTM E935
- C. Concentrated Loads: Design railing assembly, wall rails, and attachments to resist a concentrated force of 200 pounds applied at any point on the top of the assembly and in any direction, without damage or permanent set. Test in accordance with ASTM E935
- D. Intermediate Rails: (All those except the handrail), balusters and panel fillers shall be designed to resist a concentrated load of 50 pounds.
- E. Allow for expansion and contraction of members and building movement without damage to connections or members.
- F. Dimensions: See drawings for configurations and heights.
  - 1. Top Rails and Wall Rails: 1-1/2 inches diameter, round.
  - 2. Intermediate Rails: 1-1/2 inches diameter, round.
  - 3. Posts: 1-1/2 inches diameter, round.
- G. Provide anchors and other components as required to attach to structure, made of same materials as railing components unless otherwise indicated; where exposed fasteners are unavoidable provide flush countersunk fasteners.
- H. Provide slip-on non-weld mechanical fittings to join lengths, seal open ends, and conceal exposed mounting bolts and nuts, including but not limited to elbows, T-shapes, splice connectors, flanges, escutcheons, and wall brackets.
- I. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on exterior metal fabrications by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.
  - 1. Temperature Change: 120 degree F, ambient; 180 degree F, material surfaces.
- J. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

## **2.02 STEEL RAILING SYSTEM**

- A. Steel Tube: ASTM A500/A500M Grade B cold-formed structural tubing.
- B. Steel Pipe: ASTM A53/A53M Grade B Schedule 80, black finish.
- C. Non-Weld Mechanical Fittings: Slip-on, galvanized malleable iron castings, for Schedule 40 pipe, with flush setscrews for tightening by standard hex wrench, no bolts or screw fasteners.
- D. Welding Fittings: Factory- or shop-welded from matching pipe or tube; seams continuously welded; joints and seams ground smooth.
- E. Exposed Fasteners: No exposed bolts or screws.
- F. Galvanizing: In accordance with requirements of ASTM A123/A123M.
  - 1. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20 Type I - Inorganic.
- G. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

## **2.03 FABRICATION**

- A. Accurately form components to suit specific project conditions and for proper connection to building structure.
- B. Fabricate railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.
- C. Fit and shop assemble components in largest practical sizes for delivery to site.
- D. Fabricate components with joints tightly fitted and secured. Provide spigots and sleeves to accommodate site assembly and installation.
- E. Welded Joints:



1. Exterior Components: Continuously seal joined pieces by intermittent welds and plastic filler. Drill condensate drainage holes at bottom of members at locations that will not encourage water intrusion.
  2. Interior Components: Continuously seal joined pieces by intermittent welds and plastic filler.
  3. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- F. Fabricate connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that field conditions are acceptable and are ready to receive work.
- B. Examine plaster and gypsum board assemblies, where reinforced to receive anchors, to verify that locations of concealed reinforcements have been clearly marked for installer. Locate reinforcements and mark locations if not already done.

### **3.02 PREPARATION**

- A. Clean and strip primed steel items to bare metal where site welding is required.
- B. Supply items required to be cast into concrete or embedded in masonry with setting templates, for installation as work of other sections.
- C. Apply one coat of bituminous paint to concealed aluminum surfaces that will be in contact with cementitious or dissimilar materials.

### **3.03 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Install components plumb and level, accurately fitted, free from distortion or defects, with tight joints.
- C. Anchor railings securely to structure and capable of withstanding design loads.
- D. Field weld anchors as indicated on shop drawings. Touch-up welds with primer. Grind welds smooth.
- E. Conceal anchor bolts and screws whenever possible. Where not concealed, use flush countersunk fastenings.

### **3.04 TOLERANCES**

- A. Maximum Variation From Plumb: 1/4 inch per floor level, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch.
- C. Maximum Out-of-Position: 1/4 inch.

**END OF SECTION**

**SECTION 05 5400  
FLOOR TRENCH COVERS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Trench covers.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 3000 - Cast-In-Place Concrete.

**1.03 REFERENCE STANDARDS**

- A. AWS B2.1/B2.1M - Specification for Welding Procedure and Performance Qualification.
- B. AWS D1.1/D1.1M - Structural Welding Code - Steel.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Submittals shall contain the following as required for each specified system
  1. Shop Drawings; showing complete fabrication details for all trench and access covers, including required anchorage to surrounding construction, recesses, blocking, backing, and connections between similar and dissimilar trench and access cover assemblies.
  2. Manufacturer's product data; including product details, installation instructions, maintenance and cleaning instructions, Safety Data Sheets, and LEED documentation.
  3. Two (2) complete sets of color chips representing manufacturer's full range of available colors and patterns.
  4. Three (3) 6" (152mm) samples of the specified systems
- C. Welders' Qualification Statement: Welders' certificates in accordance with AWS B2.1/B2.1M and dated within the previous 12 months.
- D. Manufacturer's Installation Instructions: Indicate special requirements for opening and perimeter framing.

**1.05 QUALITY ASSURANCE**

- A. Designer Qualifications: Design trench covers under direct supervision of a licensed Professional Engineer experienced in design of this type of Work.
- B. Welder Qualifications: Welding processes and welding operators qualified within previous 12 months in accordance with AWS D1.1/D1.1M.
- C. Installer: All products listed in this section shall be installed by a single installer with demonstrated experience in installing products of the same type and scope as specified. Installer shall be insured and licensed as required by agencies within the project's jurisdiction and acceptable to the manufacturer
- D. Warranty: Minimum Five (5) Warranty from manufacturer.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Provide temporary protective cover on anodized aluminum finished surfaces.
- B. Deliver trench and access covers to jobsite in clean, unopened crates of sufficient size and strength to protect materials during transit.
- C. Store components in original containers in a clean, dry location.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Balco, Inc.; TS Series, Model TST: [www.balcousa.com](http://www.balcousa.com).
- B. Or approved equal.
- C. Substitutions: See Section 01 6000 - Product Requirements.

## **2.02 TRENCH COVERS**

- A. Trench Covers: Fabricate trench cover assemblies as detailed. Provide fasteners as required for complete installation.
  - 1. Trench covers shall have a 1/8 inch recessed surface.
  - 2. Trench cover thickness: 0.375 inch
  - 3. Trench covers shall cover the trench completely and be flush with surrounding finished floor surfaces to allow unrestricted pedestrian traffic.
- B. Trench Liners:
  - 1. Aluminum: ASTM B209, alloy 5052-H32, 0.063" thick
- C. Standard fasteners required for assembly and installation shall be included.
- D. All surfaces in contact with masonry or concrete shall be protected by a factory-applied coating.

## **2.03 MATERIALS**

- A. Metals:
  - 1. Aluminum extrusions: ASTM B221, alloy 6063-T5.
  - 2. Aluminum plate and sheet: ASTM B209, alloy 5052-H32

## **2.04 FINISHES**

- A. Aluminum Extrusions: Mill finish, AA-M10.
- B. Aluminum Plates: AA-M30, directional textured finish.
- C. Aluminum Liners: Mill finish, AA-M10.

## **2.05 FABRICATION**

- A. Fabricate trench and access covers as detailed.
  - 1. Fabricate trench covers of width and length as shown on shop drawings.
  - 2. Fabricate trench liners of width, length, and depth as shown on shop drawings.
  - 3. Fabricate splices, special transitions, corner units, corner fittings, intersections, and end closures as required.
  - 4. Miter and weld joints shall be factory manufactured.
  - 5. Standard fasteners required for assembly and installation shall be included.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify product types, quantities, dimensions, and attachment methods shown on shop drawings against field conditions prior to releasing materials for fabrication by the manufacturer.
- B. Verify that opening sizes and dimensional tolerances are acceptable.
- C. Verify that supports are correctly positioned.
- D. Installer shall examine conditions under which work is to be performed and shall notify the contractor in writing of unsatisfactory conditions. Installer shall not proceed until all unsatisfactory conditions have been corrected in a manner acceptable to the installer.
- E. If field conditions require modifications to the trench and access covers, communicate necessary changes on the manufacturer's shop drawings

### **3.02 PREPARATION**

- A. Prepare surfaces using methods recommended by the manufacturer for achieving the required results within project conditions.
- B. Corner blockouts should be square, level, free of spalling or laitance, and meet the dimensions shown on shop drawings. Repairs should be made using appropriate materials as recommended by concrete repair material manufacturer, based on project-specific conditions.
- C. Concrete repair material must be applied and allowed to cure in accordance to the manufacturer of the product recommendations and instructions.

- D. Clean dirt, debris, and other contaminants from both the blockout and trench opening
- E. Mask areas adjacent to the trench and access covers as required to achieve a neat and clean installation. Remove masking prior to the curing process.

**3.03 INSTALLATION**

- A. Install components in accordance with manufacturer's instructions.
- B. Locate fasteners at interval recommended by manufacturer as shown on shop drawings.
- C. Repair or grout blockouts as required for continuous frame support. Bring base members to proper level; shimming is not allowed.

**3.04 PROTECTION AND CLEANING**

- A. Protect the installation from damage by Work of other Sections.
- B. Where required, remove and store cover plates and install temporary protection over trenches; re-install cover plates prior to substantial completion of Work.
- C. Do not remove protective coverings until finish work in adjacent areas is complete.
- D. Prior to project closeout, clean exposed surfaces with a suitable cleaner as recommended by manufacturer.

**SECTION 06 1000  
ROUGH CARPENTRY**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Roof-mounted curbs.
- B. Preservative treated wood materials.
- C. Fire retardant treated wood materials.
- D. Miscellaneous framing and sheathing.
- E. Communications and electrical room mounting boards.
- F. Concealed wood blocking, nailers, and supports.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 3000 - Cast-in-Place Concrete: Setting anchors in concrete.
- B. Section 03 5400 - Cast Underlayment.
- C. Section 07 6200 - Sheet Metal Flashing and Trim
- D. Section 07 7200 - Roof Accessories: Prefabricated roof curbs.

**1.03 REFERENCE STANDARDS**

- A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- D. AWPA U1 - Use Category System: User Specification for Treated Wood.
- E. PS 20 - American Softwood Lumber Standard.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Manufacturer's Certificate: Certify that wood products supplied for rough carpentry meet or exceed specified requirements.
- C. Blocking details and anchorage for items listed in this section or noted on the drawings.

**1.05 DELIVERY, STORAGE, AND HANDLING**

- A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.
- B. Fire Retardant Treated Wood: Prevent exposure to precipitation during shipping, storage, or installation.

**PART 2 PRODUCTS**

**2.01 GENERAL REQUIREMENTS**

- A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
  - 1. Species: Douglas Fir-Larch, unless otherwise indicated.
  - 2. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee ([www.alsc.org](http://www.alsc.org)) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.
- B. Lumber salvaged from deconstruction or demolition of existing buildings or structures is permitted in lieu of sustainably harvested lumber provided it is clean, denailed, and free of paint and finish materials, and other contamination; identify source.

**2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS**

- A. Sizes: Nominal sizes as indicated on drawings, S4S.

- B. Moisture Content: S-dry or MC19.
- C. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
  - 1. Lumber: S4S, No. 2 or Standard Grade.
  - 2. Boards: Standard or No. 3.

### **2.03 ACCESSORIES**

- A. Fasteners and Anchors:
  - 1. Metal and Finish: Hot-dipped galvanized steel complying with ASTM A153/A153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
  - 2. Anchors: Toggle bolt type for anchorage to hollow masonry.

### **2.04 FACTORY WOOD TREATMENT**

- A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
  - 1. Fire-Retardant Treated Wood: Mark each piece of wood with producer's stamp indicating compliance with specified requirements.
  - 2. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.
- B. Fire Retardant Treatment:
  - 1. Interior Type A: AWPA U1, Use Category UCFA, Commodity Specification H, low temperature (low hygroscopic) type, chemically treated and pressure impregnated; capable of providing a maximum flame spread index of 25 when tested in accordance with ASTM E84, with no evidence of significant combustion when test is extended for an additional 20 minutes.
    - a. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
    - b. Treat rough carpentry items as indicated .
    - c. Do not use treated wood in applications exposed to weather or where the wood may become wet.
- C. Preservative Treatment:
  - 1. Preservative Pressure Treatment of Lumber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A using waterborne preservative.
    - a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
    - b. Treat lumber in contact with flashing or waterproofing.
    - c. Treat lumber in contact with masonry or concrete.
    - d. Treat lumber less than 18 inches above grade.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Coordinate installation of rough carpentry members specified in other sections.

### **3.02 INSTALLATION - GENERAL**

- A. Select material sizes to minimize waste.
- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
- C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

### **3.03 BLOCKING, NAILERS, AND SUPPORTS**

- A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.
- B. Secure blocking to structure with fasteners of adequate size and spacing to resist specified design loads for grab bars, handrails, guards, wind, etc. If not specified, follow building code requirements.

- C. In framed assemblies that have concealed spaces, provide solid wood fireblocking as required by applicable local code, to close concealed draft openings between floors and between top story and roof/attic space; other material acceptable to code authorities may be used in lieu of solid wood blocking.
- D. In metal stud walls, provide continuous blocking around door and window openings for anchorage of frames, securely attached to stud framing.
- E. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.
- F. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.
- G. Provide the following specific non-structural framing and blocking:
  - 1. Cabinets and shelf supports.
  - 2. Wall brackets.
  - 3. Handrails and Guards. Resist a linear load of 50 pounds per linear foot and concentrated load of 200 pounds.
  - 4. Wall-mounted door stops.
  - 5. Chalkboards and marker boards.
  - 6. Wall paneling and trim.
  - 7. Joints of rigid wall coverings that occur between studs.

### **3.04 ROOF-RELATED CARPENTRY**

- A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.
- B. Provide wood curb at all roof openings except where prefabricated curbs are specified and where specifically indicated otherwise. Form corners by alternating lapping side members.
- C. Place horizontal members with crown side up.
- D. Construct curb members of single pieces.

### **3.05 SITE APPLIED WOOD TREATMENT**

- A. Apply preservative treatment compatible with factory applied treatment at site-sawn cuts, complying with manufacturer's instructions.
- B. Allow preservative to dry prior to erecting members.

### **3.06 CLEANING**

- A. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.
- B. Prevent sawdust and wood shavings from entering the storm drainage system.

**END OF SECTION**

**SECTION 06 2000  
FINISH CARPENTRY**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Finish carpentry items.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 1000 - Rough Carpentry: Support framing, grounds, and concealed blocking.

**1.03 REFERENCE STANDARDS**

- A. ANSI A208.1 - American National Standard for Particleboard.
- B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- C. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards.
- D. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards, U.S. Version 3.1.
- E. AWPA U1 - Use Category System: User Specification for Treated Wood.
- F. HPVA HP-1 - American National Standard for Hardwood and Decorative Plywood.
- G. NEMA LD 3 - High-Pressure Decorative Laminates.
- H. WDMA I.S. 4 - Industry Specification for Preservative Treatment for Millwork.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data:
  - 1. Provide data on fire retardant treatment materials and application instructions.
- C. Fabricator's Qualifications as listed in Quality Assurance.
- D. Submit manufacturer's certifications for each type of fire retardant coating and/or preservative treatment, signed by the manufacturer, certifying that materials and substrate conditions comply with specified performance characteristics and physical properties.

**1.05 QUALITY ASSURANCE**

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Store finish carpentry items under cover, elevated above grade, and in a dry, well-ventilated area not exposed to heat or sunlight.
- B. Protect from moisture damage.
- C. Handle materials and products to prevent damage to edges, ends, or surfaces.

**PART 2 PRODUCTS**

**2.01 FINISH CARPENTRY ITEMS**

- A. Quality Standard: Custom Grade, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.
- B. Surface Burning Characteristics: Provide materials having fire and smoke properties as required by applicable code.
- C. Interior Woodwork Items:
  - 1. Moldings, Bases, Casings, and Miscellaneous Trim: Clear maple; prepare for paint finish or clear coat.

**2.02 LUMBER MATERIALS**

- A. Hardwood Lumber: Maple species, maximum moisture content of 6 percent, of quality suitable for transparent finish.



## **2.03 FASTENINGS**

- A. Adhesive for Purposes Other Than Laminate Installation: Suitable for the purpose; not containing formaldehyde or other volatile organic compounds.

## **2.04 ACCESSORIES**

- A. Lumber for Shimming and Blocking: Softwood lumber of Douglas Fir species.
- B. Primer: Alkyd primer sealer.
- C. Wood Filler: Solvent base, tinted to match surface finish color.

## **2.05 WOOD TREATMENT**

- A. Fire Retardant Treatment (FR-S Type): Chemically treated and pressure impregnated; capable of providing flame spread index of 25, maximum, and smoke developed index of 450, maximum, when tested in accordance with ASTM E84.
- B. Wood Preservative by Pressure Treatment (PT Type): Provide AWPA U1 treatment using waterborne preservative with 0.25 percent retainage.
- C. Water Repellent Preservative Treatment by Dipping Method: WDMA I.S. 4, with 0.25 percent retainage.
- D. Provide identification on fire retardant treated material.
- E. Redry wood after pressure treatment to maximum 17 percent moisture content.

## **2.06 SITE FINISHING MATERIALS**

- A. Stain, Shellac, Varnish, and Finishing Materials: In compliance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.

## **2.07 FABRICATION**

- A. Shop assemble work for delivery to site, permitting passage through building openings.
- B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

## **2.08 SHOP FINISHING**

- A. Sand work smooth and set exposed nails and screws.
- B. Apply wood filler in exposed nail and screw indentations.
- C. On items to receive transparent finishes, use wood filler that matches surrounding surfaces and is of type recommended for the applicable finish.
- D. Finish work in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), Section 5 - Finishing for grade specified and as follows:
  - 1. Transparent:
    - a. System - 2, Lacquer, Precatalyzed.
    - b. Sheen: Semigloss.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify adequacy of backing and support framing.
- B. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.

### **3.02 INSTALLATION**

- A. Install custom fabrications in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade indicated.
- B. Set and secure materials and components in place, plumb and level.
- C. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.

### **3.03 SITE APPLIED WOOD TREATMENT**

- A. Apply preservative treatment in accordance with manufacturer's instructions.
- B. Brush apply one coats of preservative treatment on wood in contact with cementitious materials. Treat site-sawn cuts.
- C. Allow preservative to dry prior to erecting members.

### **3.04 PREPARATION FOR SITE FINISHING**

- A. Set exposed fasteners. Apply wood filler in exposed fastener indentations. Sand work smooth.
- B. Site Finishing: See Section 09 9000 Painting and Coatings.
- C. Before installation, prime paint surfaces of items or assemblies to be in contact with cementitious materials.

### **3.05 PROTECTION**

- A. Protect installed material and products from damage from weather or other causes during construction.
- B. Remove and replace finish carpentry material that is wet, moisture damaged, and mold damaged.
  - 1. Indications that materials are wet or moisture damaged include, but not limited to, discoloration, sagging, or irregular shape.
  - 2. Indications that materials are mold damaged include, but not limited to, fuzzy or splotchy surface contamination and discoloration.

### **3.06 TOLERANCES**

- A. Maximum Variation from True Position: 1/16 inch.
- B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

**END OF SECTION**

**SECTION 06 6100  
SOLID SURFACE FABRICATIONS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. This Section includes the following horizontal and trim solid surface product types:
  - 1. Countertops
  - 2. Laboratory countertops
  - 3. Lavatory tops with undermount bowls
  - 4. Window sills
  - 5. Cove backsplashes

**1.02 RELATED REQUIREMENTS**

- A. Section 05 5000 - Metal Fabrication
- B. Section 06 1000 - Rough Carpentry
- C. Section 22 4000 - Plumbing Fixtures

**1.03 DEFINITION**

- A. Solid surface is defined as nonporous, homogeneous material maintaining the same composition throughout the part with a composition of acrylic polymer, aluminum trihydrate filler and pigment.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices and other components.
  - 1. Show full-size details, edge details, thermoforming requirements, attachments, etc.
  - 2. Show locations and sizes of furring, blocking, including concealed blocking and reinforcement specified in other Sections.
  - 3. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, soap dispensers, waste receptacle and other items installed in solid surface.
- C. Product Data: Indicate product description, fabrication information and compliance with Specified Performance Requirements
- D. Samples:
  - 1. Provide complete chip chest from which Architect will select colors.
  - 2. Submit two (2) 6 inch by 6 inch sample of each color selected.
  - 3. Cut sample and seam together for representation of inconspicuous seam.
  - 4. Indicate full range of color and pattern variation.
- E. Manufacturer's Certificate signed by manufacturers certifying that they comply with requirements.
- F. Fabricator/Installer qualifications: Provide one (1) copy of certification number.
- G. Maintenance Data:
  - 1. Submit manufacturer's care and maintenance data, including repair and cleaning instructions.
  - 2. Provide maintenance kit for finishes to be included in Project Closeout Documents.
- H. Certificate signed by manufacturers certifying that they comply with requirements.

**1.05 QUALITY ASSURANCE**

- A. Applicable standards:
  - 1. Standards of the following, as referenced herein:
    - a. American National Standards Institute (ANSI)
    - b. American Society for Testing and Materials (ASTM)
    - c. National Electrical Manufacturers Association (NEMA)
    - d. NSF International
- B. Fire test response characteristics:

1. Provide with the following Class A (Class I) surface burning characteristics as determined by testing identical products per UL 723 (ASTM E84) or another testing and inspecting agency acceptable to Authorities Having Jurisdiction:
  - a. Flame Spread Index: 25 or less.
  - b. Smoke Developed Index: 450 or less.
- C. Qualifications:
  1. Shop that employs skilled workers who custom fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.
- D. Fabricator/installer qualifications:
  1. Work of this Section shall be by a certified fabricator/installer, certified in writing by the manufacturer.

#### **1.06 DELIVERY, STORAGE AND HANDLING**

- A. Deliver no components to Project Site until areas are ready for installation.
- B. Store components indoors prior to installation.
- C. Handle materials to prevent damage to finished surfaces.
  1. Provide protective coverings to prevent physical damage or staining following installation for duration of Project.

#### **1.07 WARRANTY**

- A. Provide manufacturer's warranty against defects in materials.
  1. Warranty shall provide material and labor to repair or replace defective materials.
  2. Damage caused by physical or chemical abuse or damage from excessive heat will not be warranted.
- B. Manufacturer's warranty period:
  1. Ten (10) years from Date of Substantial Completion.

#### **1.08 MAINTENANCE**

- A. Provide maintenance requirements as Specified by the manufacturer.

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Manufacturers:
  1. Subject to compliance with requirements, provide products by one of the following:
    - a. Wilsonart.
    - b. Or approved equal.
    - c. Substitutions: See Section 01 6000 - Product Requirements.

#### **2.02 COUNTERTOPS**

- A. Solid Surface (Type SOS-1):
  1. Solid polymer components
    - a. Cast, nonporous, filled polymer, not coated, laminated or of composite construction with through body colors meeting ANSI Z124.3 or ANSI Z124.6, having minimum physical and performance properties Specified.
    - b. Superficial damage to a depth of 0.010 inch shall be repairable by sanding and/or polishing.
  2. Thickness: See paragraph 3.05.
  3. Edge treatment: See paragraph 3.05.
  4. Backsplash: See paragraph 3.05.
  5. Sidesplash: See paragraph 3.05.
  6. Performance characteristics:
    - a. Property Typical Result Test
    - b. Tensile Strength 6,000 psi ASTM D 638
    - c. Tensile Modulus  $1.5 \times 10^{-6}$  psi ASTM D 638
    - d. Tensile Elongation 0.4% min. ASTM D 638

- e. Flexural Strength 10,000 psi ASTM D 790
- f. Flexural Modulus 1.2 x 10<sup>-6</sup> psi ASTM D 790

### **2.03 ACCESSORIES**

- A. Joint adhesive:
  - 1. Manufacturer's standard one- or two-part adhesive kit to create inconspicuous, nonporous joints.
- B. Sealant:
  - 1. Manufacturer's standard mildew-resistant, FDA-compliant, NSF 51-compliant (food zone - any type), UL-listed silicone sealant in colors matching components.
- C. Sink/lavatory mounting hardware:
  - 1. Manufacturer's standard bowl clips, panel inserts and fasteners for attachment of undermount sinks/lavatories.

### **2.04 FACTORY FABRICATION**

- A. Shop assembly
  - 1. Fabricate components to greatest extent practical to sizes and shapes indicated, in accordance with approved shop drawings and manufacturer's printed instructions and technical bulletins.
  - 2. Form joints between components using manufacturer's standard joint adhesive without conspicuous joints.
    - a. Reinforce with strip of solid polymer material, 2 inches wide.
  - 3. Provide factory cutouts for plumbing fittings and bath accessories as indicated on the Drawings.
  - 4. Rout and finish component edges with clean, sharp returns.
    - a. Rout cutouts, radii and contours to template.
    - b. Smooth edges.
    - c. Repair or reject defective and inaccurate Work.

### **2.05 FINISHES**

- A. Color: See drawings for basis of design.
- B. Finish: Provide surfaces with a uniform finish.
  - 1. Matte; gloss range of 5-20

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Examine substrates and conditions, with fabricator present for compliance with requirements for installation tolerances and other conditions affecting performance of Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.02 INSTALLATION**

- A. Install components plumb, level and rigid, scribed to adjacent finishes, in accordance with approved shop drawings and product data.
  - 1. Provide product in the largest pieces available.
  - 2. Form field joints using manufacturer's recommended adhesive, with joints inconspicuous in finished Work.
    - a. Exposed joints/seams shall not be allowed.
  - 3. Reinforce field joints with solid surface strips extending a minimum of 1 inch on either side of the seam with the strip being the same thickness as the top.
  - 4. Cut and finish component edges with clean, sharp returns.
  - 5. Rout radii and contours to template.
  - 6. Anchor securely to base cabinets or other supports.
  - 7. Align adjacent countertops and form seams to comply with manufacturer's written recommendations using adhesive in color to match countertop.
  - 8. Carefully dress joints smooth, remove surface scratches and clean entire surface.
  - 9. Install countertops with no more than 1/8 inch sag, bow or other variation from a straight line.
- B. Coved backsplashes and applied sidesplashes:

1. Install applied sidesplashes using manufacturer's standard color-matched silicone sealant.
2. Adhere applied sidesplashes to countertops using manufacturer's standard color-matched silicone sealant.

### **3.03 REPAIR**

- A. Repair or replace damaged work which cannot be repaired to Architect's satisfaction.

### **3.04 CLEANING AND PROTECTION**

- A. Keep components clean during installation.
- B. Remove adhesives, sealants and other stains.

### **3.05 SCHEDULE**

- A. Countertops with integral sink:
  1. Thickness: 3/4 inch
  2. Edge detail: As selected by Architect
  3. Backsplash: coved
  4. Sidesplash: coved
  5. Color: As selected by Architect
- B. Countertops without integral sink:
  1. Thickness: 3/4 inch
  2. Edge detail: As selected by Architect
  3. Backsplash: Coved
  4. Sidesplash: Coved
  5. Color: As selected by Architect
- C. Windowsills:
  1. Thickness: 3/4 inch
  2. Edge detail: As selected by Architect

**END OF SECTION**

**SECTION 07 0153.10  
EPDM ROOFING REPAIR**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Repair and modification of existing EPDM Roofing System.

**1.02 EXISTING SYSTEM DESCRIPTION**

- A. The Work of this Section consists of minor modifications to the existing warranted roof system.
  - 1. Existing Roof Type: Fully Adhered EPDM System.
  - 2. Roofing System Manufacturer: Elevate Building Products (formerly Firestone)
- B. Core sample taken to identify roof system composition.

**1.03 REFERENCE STANDARDS**

- A. ANSI/SPRI/FM 4435/ES-1 - Test Standard for Edge Systems Used with Low Slope Roofing Systems.
- B. ASTM C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
- C. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
- D. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
- E. ASTM D4637/D4637M - Standard Specification for EPDM Sheet Used in Single-Ply Roof Membrane.
- F. ASTM D4811/D4811M - Standard Specification for Nonvulcanized (Uncured) Rubber Sheet Used as Roof Flashing.
- G. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- H. ASTM E136 - Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750°C.
- I. FM 4470 - Approval Standard for Single-Ply, Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR) and Liquid Applied Roof Assemblies for use in Class 1 and Noncombustible Roof Deck Construction.
- J. FM DS 1-28 - Wind Design.
- K. FM DS 1-29 - Roof Deck Securement and Above-Deck Roof Components.
- L. PS 1 - Structural Plywood.
- M. PS 20 - American Softwood Lumber Standard.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data: Catalog sheets, specifications, installation instructions for each material specified.
- C. Quality Control Submittals:
  - 1. Membrane Manufacturer's Qualifications, showing minimum of ten years experience with the manufacture and installation of EPDM Roofing Systems.
  - 2. Roofing applicator qualifications:
    - a. Current certification from Roofing System Manufacturer indication the Roofing System Applicator has Master Contractor status or equal.
    - b. Minimum five years experience in the completion of EPDM System Repairs/Modifications while maintaining manufacturer's existing warranty.
  - 3. Product Data: Catalog sheets, specifications, installation instructions for each material specified.
  - 4. Installation Instructions: Provide manufacturer's instructions to installer, marked up to show exactly how all components will be installed; where instructions allow installation options, clearly indicate which option will be used.

- D. Shop Drawings: Provide the roof membrane manufacturer's standard details customized for this project for all relevant conditions, including flashings, base tie-ins, roof edges, terminations, expansion joints, penetrations, and drains.
- E. Samples:
  - 1. Sheet Membrane: One 6 inch square piece.
  - 2. Sheet Flashing: One 6 inch square piece.
  - 3. EPDM Cover Tape: One 12 inch square piece.
  - 4. Inseam Tape: One piece 3 inches wide by 12 inches long.
  - 5. Fasteners: Two each type.
  - 6. Insulation: One 3 inch square piece.
  - 7. Coverboard: One 3 inch square piece.
  - 8. Underlayment Board: One 3 inch square piece.
- F. Submit all items, except contract closeout submittals and MSDS, at one time as a complete package. Partial submittals will not be considered.
- G. See Section 01 7800 - Closeout Submittals for additional submittals.

### **1.05 QUALITY ASSURANCE**

- A. Fire Hazard Classification: The sheet membrane roof system shall have an Underwriters Laboratories Class A or B External Fire Resistance rating, as determined by tests conducted in conformity with UL-790 "Tests for Fire Resistance of Roof Covering Materials".
- B. Material Classification Identification: Materials delivered to the site that are a component of the roofing system shall bear the UL Classification mark.
- C. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with at least five years of documented experience.
  - 1. The manufacturer shall have the technical expertise and qualified technical representatives to resolve questions or problems that may arise both during and after the Work is completed.
  - 2. The manufacturer will require the roof system modifications/repair to be installed by a licensed or approved applicator.
- D. Installer Qualifications: Company specializing in performing work of the type specified and with at least ten years of documented experience.
- E. The Owner reserves the sole right to determine if the Contractor meets the minimum experience requirement of this Section based on a completed Contractor's Qualification Statement (AIA A305).
- F. Perform Work in accordance with NRCA Roof and Waterproofing Manual: Membrane Roof Systems.
- G. Manufacturer's Inspection:
  - 1. Manufacturer will provide a minimum of two progress inspections and one final inspection.
  - 2. Manufacturer's inspection is to be completed by a Technical Representative whom does not perform any sales functions.
  - 3. The Roofing System Manufacturer will provide an inspection of the roofing system modifications/repairs upon the completion of the work to confirm the existing warranty has not been compromised. The Manufacturer's Field Representative is to provide a copy of the written inspection report to the Architect, Owner and Roofing Applicator.
  - 4. Contractor is to complete any/all necessary repairs noted by the Roofing Manufacturer's Technical Representative and those noted by the Architect.

### **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver products in manufacturer's original containers, dry, undamaged, with seals and labels intact.
- B. Store products in weather protected environment, clear of ground and moisture.
  - 1. Do not store materials in a manner that will overload the deck or structural assembly.
  - 2. Store all materials on raised platforms covered with properly secured breathable water resistant covers.
  - 3. Ventilate shrink wrapping to minimize condensation and cover with breathable tarp.



- C. Keep all combustible materials/products away from ignition sources.
  - 1. Store volatile liquids in a separate storage building or trailer, or remove from the site at the end of each workday.
- D. Do not remove materials from factory packaging until ready for use.

### **1.07 FIELD CONDITIONS**

- A. Complete roof modifications/repairs only when surfaces are clean, dry, free of water, snow and ice.
- B. Do not complete roofing membrane modification repairs/modifications during inclement weather or when ambient conditions will not allow proper application. Consult roofing system manufacturer on cold weather application.
- C. The Contractor will provide temporary closure/protection and temporary water cut-offs which will assure moisture damage does not occur to interior spaces during roofing system modification/repair procedures.
- D. Limit the removal of existing materials to areas that can be completely repaired or temporarily protected within the same day. At the discretion of the Architect and Construction Manager a watertight built-up vapor barrier may be acceptable temporary protection for a maximum of 48 hours.

### **1.08 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.
- B. Provide Certification from Roofing System Manufacturer confirming roof system modifications/repairs have not compromised the current warranty and that the original Roof System Manufacturer Warranty has remained intact.
- C. Contractor Correction Period for Roofing System modifications/repairs: Correct defective work within two-year period commencing on Date of Substantial Completion.

## **PART 2 PRODUCTS**

### **2.01 EPDM SHEET MEMBRANE, SHEET FLASHING, AND RELATED PRODUCTS**

- A. The EPDM sheet membrane shall be visually free of streaks, particles of foreign matter, undispersed raw material, pinholes, cracks, tears, and shall be uniform in thickness. When unrolled in a relaxed position, the membrane shall be free of wrinkles, distortions, and blisters.
- B. EPDM (Ethylene, Propylene, Diene, Monomer) Sheet Membrane:
  - 1. One of the following types as required to achieve a UL Class A external fire rating:
    - a. 60 mil, fire retardant, unreinforced, EPDM membrane.
- C. Sheet Flashing: Membrane manufacturer's cured and uncured EPDM as specified
- D. Inseam Tape: Membrane manufacturer's minimum 6 inch wide self adhering tape consisting of cured butyl double sided adhesive tape, for inseam splicing of rubber to rubber.
- E. Cured EPDM Cover Tape: Membrane manufacturer's minimum 5 inch wide self adhering tape consisting of cured butyl adhesive laminated to cured EPDM, for installation over EPDM seams, cuts in field membrane, and for stripping in metal work.
- F. Uncured EPDM Cover Tape: Membrane manufacturer's minimum 5 inch wide self adhesive tape, consisting of, cured butyl adhesive laminated to uncured EPDM, for installation over base flashing corners, inside and outside corners, pipe flashings and other detail work.
- G. Related Products: Membrane manufacturer's bonding adhesive, splicing cement, lap sealant, water cut-off mastic, nite seal, pourable sealer, splice joint cleaning agent and primer, insulation adhesive, and all other products related to the sheet membrane system.

### **2.02 INSULATION**

- A. Uniform Thickness isocyanurate insulation and Tapered isocyanurate insulation:
  - 1. Approved closed cell isocyanurate foam core insulation skinned on both sides with factory applied fiberglass facers suitable for installation with hot asphalt and cold adhesive. ASTM C1289-02, Type II, Class 1, Grade 2. UL Classified and Factory Mutual Approved for direct application over steel deck.
    - a. R-value (Minimum LTTR): 6.0 per inch thickness. Match existing thickness.

- b. Adhesively Secured Insulation: Maximum board size 4 feet x 4 feet.
2. Tapered Insulation System: Membrane manufacturer's approved factory tapered polyisocyanurate insulation to match existing taper.

### **2.03 ROOF DECK SHEATHING AND COVER BOARD**

- A. Roof Deck Sheathing (Underlayment): Gypsum roof board composed of a silicone treated gypsum core with fiberglass facers. Match existing thickness.
  1. Acceptable Product: "DensDeck" by Georgia-Pacific Corporation, Gypsum Division, Atlanta, GA 30303, (800) 225-6119, www.gp.com..
  2. Board Sizes:
    - a. Adhesively Attached Board: Maximum board size 4 feet x 4 feet.
    - b. Mechanically Attached Board: Minimum board size 4 feet x 8 feet.
- B. Coverboard over insulation (gypsum based):
  1. Match existing thickness with gypsum roof board composed of a silicone treated gypsum core with fiberglass facers.
    - a. Acceptable Product: "DensDeck" by Georgia-Pacific Corporation, Gypsum Division, Atlanta, GA 30303, (800) 225-6119, www.gp.com.
  2. Board Sizes:
    - a. Adhesively Attached Board: Maximum board size 4 feet x 4 feet.
    - b. Mechanically Attached Board: Minimum board size 4 feet x 8 feet.

### **2.04 VAPOR BARRIER REPAIR MATERIALS**

- A. Materials For Repair Of Existing Vapor Barrier:
  1. Membrane: High density polyethylene sheet with SBS modified bitumen adhesive.
    - a. Attachment: Self adhering.

### **2.05 FASTENERS AND ADHESIVES**

- A. Insulation and Membrane Fasteners: Provide fasteners that are approved for use with the existing roof system.
  1. Steel: Membrane manufacturer and Factory Mutual approved, hardened, self-tapping, anti-backout, Phillips pan head screws with round, square or hexagonal steel stress plates. Plate size as recommended by the manufacturer.
    - a. Steel Decks: Minimum penetration 1/2 inch, minimum pull out resistance from deck 400 pounds unless specified otherwise by the membrane manufacturer.
    - b. Wood Decks: Minimum penetration one inch, minimum pull out resistance from deck 360 pounds unless specified otherwise by the membrane manufacturer.
  2. Concreted Decks: Membrane manufacturer and Factory Mutual approved; hardened, self-tapping, anti-backout, Phillips pan head screws with round, square or hexagonal steel stress plates; or hammer driven spikes with deformed shanks and round, square, or hexagonal steel stress plates. Plate size as recommended by the membrane manufacturer.
- B. Base Flashing Fasteners (use along top edge of base, beneath in-wall cap flashings):
  1. Concrete and/or Masonry Surfaces: Hardened masonry nails or zinc alloy hammer driven expansion anchors with stainless steel drive pins through 1 inch minimum sheet metal discs.
  2. Sheet Metal Surfaces: Hardened, self tapping, #10 sheet metal screws through 1 inch minimum sheet metal discs.
  3. Wood Surfaces: Hot dipped galvanized roofing nails with minimum 3/8 inch diameter head.
- C. Termination Bar and Fasteners:
  1. Termination Bar: Factory fabricated one inch wide x .100 inches thick, mill finish aluminum bar, with 1/4 inch x 3/8 inch slotted holes 8 inches on center and with a 1/4-inch wide 35 degree caulking and stiffener flange.
  2. Fasteners:
    - a. Concrete Or Masonry Surfaces: Slotted hex washer head masonry screws or zinc alloy hammer driven expansion anchors. Length as required to securely hold the compression bar tight against the wall surface.

- b. Wood and Sheet Metal Surfaces: Hardened, self-tapping, slotted hex washer head screws.
- D. Insulation Adhesive: Two-Part, Low rise polyurethane foam adhesive designed to attach polyisocyanurate insulation to various acceptable substrates.
- E. Bonding Adhesive: Neoprene-based, formulated for compatibility with EPDM membrane and wide variety of substrate materials, including masonry, wood, and insulation facings.
  - 1. Bonding adhesive to be Low-VOC, solvent free.
  - 2. Splice wash to be Low-VOC, solvent free.

## 2.06 MISCELLANEOUS MATERIALS

- A. Pre-Molded Pipe Flashings: EPDM, molded for quick adaptation to different sized pipes.
- B. Multi-pipe Flashing: QuadFlash/WideFlash as manufactured by OMG Roofing Products.
- C. Compression Clamp: Stainless steel or cadmium plated steel worm drive clamp.
- D. Rooftop Pipe Supports:
  - 1. Rooftop Pipe Supports: "PipeGuard" as manufactured by OMG Roofing Products.
    - a. Supports small rooftop pipes with engineered, prefabricated pipe supports.
    - b. Material: Smooth, flexible, black, EPDM rubber.
    - c. Protects roof system from damage due to movement.
    - d. Pipe Support Height: 1-1/2 inches (Mini) , 3-1/2 inches (Small) , and 6 inches (Tall Small).
    - e. Supports Nominal Pipe Size: 1/2 to 1-1/2 inches (Mini) , 3/4 to 2 inches (Small) , 3/4 to 2 inches (Tall Small), and 2-1/2" to 5 inches (Large)
    - f. Drainage Slots: Prevent pipes from sitting in standing water.
  - 2. Height Adjustable PipeGuard:
    - a. Strut Channel (First & Second Strut): Low profile, 1-5/8-inch (40-mm), galvanized steel, accepts standard strut clamps.
      - 1) Second Strut is height adjustable with 2 zinc plated threaded rods with nuts.
    - b. Pipe Support Heights: Adjustable from 4 inches (after removing second strut channel or setting it above pipes) to 10 inches.
    - c. Width at Top: 10 inches (255 mm).
- E. Equipment Rails:
  - 1. Rail Construction:
    - a. Galvanized Steel; 18 Gauge.
    - b. Cap flashing: Glvanized.
    - c. Nailer: Overhanging to accommodate insulation of rail.
    - d. Construction:
      - 1) Unitized Construction.
      - 2) Internal Reinforcement.
      - 3) Continuously welded corner seams.
      - 4) Minimum Height: 14 inches above membrane.
    - e. Manufacturer: Roof Products & Systems, Carol Stream, IL.
- F. Pitch Pocket Filler Material:
  - 1. Pourable Sealer: Membrane manufacturer's 2 component liquid urethane.
  - 2. Mortar: ASTM C 270, Type S.
- G. Water Block Seal: Butyl rubber sealant for use between two surfaces, not exposed.
- H. Sealant at termination bar with no cap flashing: One-part, low modulus, silicone sealant: Dow Corning's 790, General Electric's Silpruf, Pecora's 864, or Tremco's TremPro 646.
- I. Roof Walkway Pads: EPDM, 0.30 inch (7.6 mm) thick by 30 by 30 inches (760 by 760 mm) with EPDM tape adhesive strips laminated to the bottom.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Cleaning: Before the roofing repair commences, sweep and/or vacuum all surfaces as required to remove all ballast, dirt, dust, loose aggregate, foreign matter, and debris from repair area, a minimum 6 inches beyond where the perimeter of the area to be modified or repaired.
  - 1. Scrub area of membrane with a solution of detergent and water such as Spic 'n Span or other detergent containing trisodium phosphate as approved by the roofing system manufacturer. Use warm water and a stiff bristle brush to clean the membrane. Rinse thoroughly with clean water and allow membrane to dry. A rubber bladed squeegee and clean, absorbent, lint-free cloths may be used to facilitate drying. Dirt must be removed from area to be patched.
  - 2. Use warm water and a stiff bristle brush to clean the membrane.
  - 3. Rinse thoroughly with clean water and allow membrane to dry. A rubber bladed squeegee and clean, absorbent, lint-free cloths may be used to facilitate drying.
  - 4. Dirt must be removed from area to be modified or repaired.
- B. Ensure roof drain strainers are in place and secured during removal of insulation and other debris.
  - 1. Provide cast iron strainers where existing strainers are missing. Do not allow debris to enter drains.

### **3.02 INSTALLATION OF INFILL INSULATION**

- A. Install in accordance with manufacturer's written instructions.
- B. Keep insulation absolutely dry at all times. Discard insulation that contains moisture.
  - 1. Install only as much insulation as can be covered with roofing membrane the same day.
  - 2. Discard all units with broken corners or similar defects.
  - 3. At roof drains, terminate the insulation with tapered edge strips so that all flashing and coverstrip joint laps can be made within the tapered portion.
- C. Cut back the membrane at affected area to expose the insulation. Remove fasteners holding the insulation, if present. Cut the insulation and discard properly, taking care not to damage vapor barrier, if present.
- D. Installing Adhesively Secured Insulation: Set each board in insulation adhesive applied in accordance with manufacturer's printed instructions. Press insulation into the adhesive immediately and as necessary thereafter to assure proper bonding. Maintain pressure on the adhesive until the adhesive has completely set (20 to 45 minutes).
- E. Installing Insulation Board: Install each layer of insulation with joints staggered. Butt edges and ends snugly so there are no gaps between the insulation boards. Discard boards with broken corners and boards that are warped.
- F. Installing Tapered Insulation System: Install the tapered insulation to match the existing tapered insulation system. Install each layer of insulation with joints staggered. Butt edges and ends snugly so that there are no gaps between the insulation boards.
- G. Install coverboard insulation over the polyisocyanurate insulation.

### **3.03 MEMBRANE PREPARATION**

- A. Preparing Existing Roof Membrane:
  - 1. Repair Splits, Cuts and Seams: Cut the membrane a short distance from and parallel with the perimeter, base of the wall, curb or termination point to relieve the tension. Allow the membrane to relax for a minimum of 30 minutes.
  - 2. Membrane Shrinkage Repairs:
    - a. Cut the membrane a short distance from and parallel with the perimeter, base of the wall, curb or termination point to relieve the tension. Allow the membrane to relax for a minimum of 30 minutes.
    - b. Secure the existing membrane to the deck or base of the wall by mechanically fastening with metal batten bars or plates and fasteners, or as directed by the membrane manufacturer.

- c. Thoroughly clean the surface of the membrane area to be repaired and backside of the patch material of the patch material with a clean, absorbent, lint-free cloth and an acceptable solvent cleaner as prescribed by the membrane manufacturer. If the membrane manufacturer can not be identified, other solvents such as Heptane, unleaded gasoline or Xylene may be used. Turn the cloth frequently and replace when dirty to prevent dirt and contaminants from being scrubbed into the membrane. Allow the solvent-wash to thoroughly flash-off and dry.
- B. Maintain clean surface in a clean condition until EPDM Membrane Repair is complete. If cleaned area becomes soiled/contaminated prior to repair of membrane, reclean as necessary for proper membrane repair.

### **3.04 EPDM MEMBRANE REPAIR INSTALLATION**

- A. Cut a piece of like membrane large enough to extend 4 inches beyond any part of the cut and to provide an expansion fold of 4 to 6 inches. Round the corners of the patch to prevent peeling of square corners.
  - 1. Apply primer to both surfaces to be mated and allow to dry.
  - 2. If the existing membrane surface is excessively degraded, insert the new patch material under the existing membrane so that adhering of the patch may be accomplished to the underside of the existing membrane.
- B. Adhering Roofing Membrane To The Substrate:
  - 1. Adhere the roofing membrane to the substrate bonding adhesive. Mating surfaces must be clean and dry before adhering the membrane.
  - 2. Apply a uniform coating of bonding adhesive to both mating surfaces at the rate recommended by the manufacturer. Do not leave "skips" or "holidays". Do not allow the bonding adhesive to puddle.
  - 3. Do not allow bonding adhesive to come in contact with areas to be spliced.
  - 4. Allow the adhesive to dry until it does not stick to the dry finger touch. Do not attempt to adhere the membrane if the bonding adhesive is wet to the touch.
  - 5. Adhere the membrane to the substrate so it is free of wrinkles, fishmouths, or voids.
  - 6. Broom the membrane to achieve maximum adhesion. Do not try to reposition the sheet once it has been adhered to the substrate.
  - 7. Apply lap sealant along edges of repair.
- C. Phasing of Membrane Installation:
  - 1. Limit the removal of existing materials and repairs to areas that can be completely repaired within the same day.

### **3.05 FIELD QUALITY CONTROL**

- A. As the repairs are completed or at the end of each workday, in the presence Construction Manager of the closely examine joints in the membrane and repairs. Cut out and repair areas of the joints that are not fully bonded or that contain "fishmouths" or "wrinkles". Repair the membrane so it is restored to its full waterproof integrity. Lap patches a minimum of 6 inches beyond cuts.

**END OF SECTION**

**SECTION 07 0553  
FIRE AND SMOKE ASSEMBLY IDENTIFICATION**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Identification markings for fire and smoke rated partitions, and fire rated walls.

**1.02 REFERENCE STANDARDS**

- A. ICC (IBC) - International Building Code.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's printed product literature for each type of marking, indicating font, foreground and background colors, wording, and overall dimensions.
- C. Schedule: Completely define scope of proposed marking, and indicate location of affected walls and partitions, and number of markings.
- D. Samples: Submit one sample of each type of marking proposed for use, of size similar to that required for project, illustrating font, wording, and method of application.

**1.04 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

**1.05 FIELD CONDITIONS**

- A. Do not install adhered markings when ambient temperature is lower than recommended by label or sign manufacturer.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Partition Identification Labels:
  - 1. Fire Wall Signs, Inc: [www.firewallsigns.com/#sle](http://www.firewallsigns.com/#sle).
  - 2. Safety Supply Warehouse, Inc: [www.safetysupplywarehouse.com/#sle](http://www.safetysupplywarehouse.com/#sle).
  - 3. My Safety Sign: [www.mysafetysign.com](http://www.mysafetysign.com).
  - 4. Smart Sign: [www.smartsign.com](http://www.smartsign.com).
  - 5. Seton: [www.seton.com](http://www.seton.com).
  - 6. Or approved equal.

**2.02 FIRE AND SMOKE ASSEMBLY IDENTIFICATION**

- A. Regulatory Requirements: Comply with "Marking and Identification" requirements of "Fire-Resistance Ratings and Fire Tests" chapter of ICC (IBC).
- B. Adhered Fire and Smoke Assembly Identification Signs: Printed vinyl sign with factory applied adhesive backing.
- C. Include lettering not less than 3 inches in height with a minimum 3/8-inch stroke in a contrasting color incorporating the suggested wording "*1 HR RATED FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENINGS AND PENETRATIONS*". Substitute the "1 HR" wording with the appropriate hourly fire-resistive ratings noted on the drawing plans. A sample sign is illustrated below:



- D. Languages: Provide sign markings in English.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that substrate surfaces are ready to receive work.

#### **3.02 PREPARATION**

- A. Prepare substrate per manufacturer's recommendations.

#### **3.03 INSTALLATION**

- A. Locate markings as required by ICC (IBC).
  1. Permanently and effectively mark all fire walls, fire barriers, fire partition, smoke barriers, smoke partitions and any other wall required to have protected openings or penetrations with signs.
  2. Locate in accessible concealed spaces below floors, above ceilings and in attic spaces.
  3. Locate in non-occupied fire rated service rooms such as mechanical, electrical, plumbing, communications and equipment rooms.
  4. Locate markings on both sides of walls.
  5. Locate within 15 feet of the end of each wall and at intervals not exceeding 30 feet measured horizontally along the wall or partition.
- B. Install adhered markings in accordance with manufacturer's instructions.
- C. Install neatly, with horizontal edges level.
- D. Protect from damage until Date of Substantial Completion; repair or replace damaged markings.

**END OF SECTION**

**SECTION 07 2100  
THERMAL INSULATION**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Board insulation and integral vapor retarder at over roof deck.
- B. Batt insulation in exterior wall and ceiling construction.
- C. Batt insulation for filling perimeter window and door shim spaces and crevices in exterior wall and roof.

**1.02 RELATED REQUIREMENTS**

- A. Section 07 0153.10 EPDM Roofing Repair

**1.03 DEFINITIONS**

- A. Mineral Fiber Material Composition: Insulation referred to as mineral fiber block, board, and blanket insulation is composed of fibers from mineral based substances such as rock, slag, or glass and processed from the molten state into fibrous form.
  - 1. Based on type of insulation substance, the material will be referred to as a mineral fiber when having a rock or slag base, and glass fiber with a glass or silica sand base, also considered a mineral.
  - 2. Insulation blankets are flexible units consisting of felted, bonded, or unbonded fibers formed into rolls or flat cut pieces referred to as batts; rolls are simply longer versions of batts.
  - 3. For additional information about mineral fiber and the various classification types, refer to the following reference standards; ASTM C553, ASTM C612, ASTM C665, and ASTM C726.

**1.04 REFERENCE STANDARDS**

- A. ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications.
- B. ASTM C612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation.
- C. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
- D. ASTM C726 - Standard Specification for Mineral Wool Roof Insulation Board.
- E. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
- F. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

**PART 2 PRODUCTS**

**2.01 APPLICATIONS**

- A. Insulation in Metal Framed Walls: Batt insulation with separate vapor retarder.
- B. Insulation Over Roof Deck: Polyisocyanurate board.

**2.02 FOAM BOARD INSULATION MATERIALS**

- A. Polyisocyanurate (ISO) Board Insulation: Rigid cellular foam, comply with ASTM C1289.
  - 1. Classifications:
    - a. Type II: Faced with either cellulosic facers or glass fiber mat facers on both major surfaces of the core foam.
      - 1) Class 1 - Faced with glass fiber reinforced cellulosic facers on both major surfaces of core foam.
      - 2) Compressive Strength: Classes 1-2-3, Grade 2 - 20 psi (138 kPa), minimum.
      - 3) Thermal Resistance, R-value: At 1-1/2 inch thick; Class 1, Grades 1-2-3 - 8.4 (1.48), minimum, at 75 degrees F.
  - 2. Flame Spread Index (FSI): Class A - 0 to 25, when tested in accordance with ASTM E84.
  - 3. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.
  - 4. Board Size: 48 inch by 96 inch.



5. Board Thickness: 2.5 inch.
6. Tapered Board: Slope as indicated; minimum thickness 1/2 inch; fabricate of fewest layers possible.
7. Board Edges: Square.

### **2.03 MINERAL FIBER BLANKET INSULATION MATERIALS**

- A. Mineral Wool Blanket Thermal Insulation: Flexible or semi-rigid preformed insulation, complying with ASTM C665.
  1. Flame Spread Index: 25 or less, when tested in accordance with ASTM E84.
  2. Smoke Developed Index: 450 or less, when tested in accordance with ASTM E84.
  3. Products:
    - a. Johns Manville; MinWool Sound Attenuation Fire Batts: [www.jm.com/#sle](http://www.jm.com/#sle).
    - b. Knauf Insulation; EcoBatt Insulation: [www.knaufinsulation.com/#sle](http://www.knaufinsulation.com/#sle).
    - c. ROCKWOOL (ROXUL, Inc); COMFORTBATT: [www.rockwool.com/#sle](http://www.rockwool.com/#sle).

### **2.04 ACCESSORIES**

- A. Interior Vapor Retarder: Modified polyethylene/polyacrylate (PE/PA) film reinforced with polyethylene terephthalate (PET) fibers, 12 mil, 0.012 inch thick.
  1. Width: 4.9 feet.
- B. Tape: Reinforced polyethylene film with acrylic pressure sensitive adhesive.
  1. Application: Sealing of interior circular penetrations, such as pipes or cables.
  2. Width: Are required for application.
- C. Tape joints of rigid insulation in accordance with roofing and insulation manufacturers' instructions.
- D. Wire Mesh: Galvanized steel, hexagonal wire mesh.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation.
- B. Verify substrate surfaces are flat, free of honeycomb, fins, irregularities, or materials or substances that may impede adhesive bond.

### **3.02 BOARD INSTALLATION OVER LOW SLOPE ROOF DECK**

- A. Board Installation Over Roof Deck, General:
  1. See applicable roofing specification section for specific board installation requirements.
  2. Fasten insulation to deck in accordance with roofing manufacturer's written instructions and applicable Factory Mutual requirements.
  3. Do not apply more insulation than can be covered with roofing on the same day.

### **3.03 BATT INSTALLATION**

- A. Install insulation and vapor retarder in accordance with manufacturer's instructions.
- B. Install in exterior wall and roof spaces without gaps or voids. Do not compress insulation.
- C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.
- D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.
- E. Retain insulation batts in place with wire mesh secured to framing members.
- F. At metal framing, place vapor retarder on warm side of insulation; lap and seal sheet retarder joints over face of member
- G. Tape seal tears or cuts in vapor retarder.
- H. Extend vapor retarder tightly to full perimeter of adjacent window and door frames and other items interrupting the plane of the membrane; tape seal in place.

### **3.04 PROTECTION**

- A. Do not permit installed insulation to be damaged prior to its concealment.

**END OF SECTION**

**SECTION 07 6200  
SHEET METAL FLASHING AND TRIM**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Fabricated sheet metal items, including flashings, counterflashings, and exterior penetrations.
- B. Sealants for joints within sheet metal fabrications.

**1.02 RELATED REQUIREMENTS**

- A. Section 04 2000 - Unit Masonry: Metal flashings embedded in masonry.
- B. Section 06 1000 - Rough Carpentry: Field fabricated roof curbs.
- C. Section 07 7200 - Roof Accessories: Manufactured metal roof curbs.
- D. Section 07 9200 - Joint Sealants: Sealing non-lap joints between sheet metal fabrications and adjacent construction.

**1.03 REFERENCE STANDARDS**

- A. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.
- B. CDA A4050 - Copper in Architecture - Handbook.
- C. SMACNA (ASMM) - Architectural Sheet Metal Manual.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

**1.05 QUALITY ASSURANCE**

- A. Perform work in accordance with SMACNA (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
- B. Prevent contact with materials that could cause discoloration or staining.

**PART 2 PRODUCTS**

**2.01 SHEET MATERIALS**

- A. Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24 gauge, (0.0239 inch) thick base metal.
- B. Pre-Finished Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24 gauge, (0.0239) inch thick base metal, shop pre-coated with PVDF coating.
  - 1. Modified Silicone Polyester Coating: Pigmented Organic Coating System, AAMA 2603; baked enamel finish system.
  - 2. Color: As selected by Architect from manufacturer's standard colors.
- C. Aluminum: ASTM B209 (ASTM B209M); 20 gauge, 0.032 inch thick; anodized finish of color as selected.
  - 1. Clear Anodized Finish: AAMA 611 AA-M12C22A41 Class I clear anodic coating not less than 0.7 mils thick.
- D. Pre-Finished Aluminum: ASTM B209 (ASTM B209M); 20 gauge, 0.032 inch thick; plain finish shop pre-coated with modified silicone coating.
  - 1. Fluoropolymer Coating: High Performance Organic Finish, AAMA 2604; multiple coat, thermally cured fluoropolymer finish system.
  - 2. Color: As selected by Architect from manufacturer's standard colors.

## **2.02 FABRICATION**

- A. Form sections true to shape, accurate in size, square, and free from distortion or defects.
- B. Form pieces in longest possible lengths.
- C. Hem exposed edges on underside 1/2 inch; miter and seam corners.
- D. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.
- E. Fabricate flashings to allow toe to extend 2 inches over roofing gravel. Return and brake edges.

## **2.03 ACCESSORIES**

- A. Fasteners: Galvanized steel, with soft neoprene washers.
- B. Primer: Zinc chromate type.
- C. Concealed Sealants: Non-curing butyl sealant.
- D. Exposed Sealants: ASTM C920; elastomeric sealant, with minimum movement capability as recommended by manufacturer for substrates to be sealed; color to match adjacent material.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.
- B. Verify roofing termination and base flashings are in place, sealed, and secure.

### **3.02 PREPARATION**

- A. Install starter and edge strips, and cleats before starting installation.
- B. Install surface mounted reglets true to lines and levels, and seal top of reglets with sealant.
- C. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil.

### **3.03 INSTALLATION**

- A. Insert flashings into reglets to form tight fit; secure in place with lead wedges; pack remaining spaces with lead wool; seal flashings into reglets with sealant.
- B. Secure flashings in place using concealed fasteners, and use exposed fasteners only where permitted..
- C. Apply plastic cement compound between metal flashings and felt flashings.
- D. Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.
- E. Seal metal joints watertight.

**END OF SECTION**

**SECTION 07 7200  
ROOF ACCESSORIES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Roof curbs.
- B. Equipment rails.
- C. Roof penetrations mounting curbs.

**1.02 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data: Manufacturer's data sheets on each product to be used.
  - 1. Preparation instructions and recommendations.
  - 2. Storage and handling requirements and recommendations.
  - 3. Installation methods.
  - 4. Maintenance requirements.
- C. Shop Drawings: Submit detailed layout developed for this project and provide dimensioned location and number for each type of roof accessory.
- D. Warranty Documentation:
  - 1. Submit manufacturer warranty.
  - 2. Ensure that forms have been completed in Owner's name and registered with manufacturer.
  - 3. Submit documentation that roof accessories are acceptable to roofing manufacturer, and do not limit the roofing warranty.

**1.03 DELIVERY, STORAGE, AND HANDLING**

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store products under cover and elevated above grade.

**1.04 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

**PART 2 PRODUCTS**

**2.01 ROOF CURBS**

- A. Roof Curbs Mounting Assemblies: Factory fabricated hollow sheet metal construction, internally reinforced, and capable of supporting superimposed live and dead loads and designated equipment load with fully mitered and sealed corner joints welded or mechanically fastened, and integral counterflashing with top and edges formed to shed water.
  - 1. Applications: Roof curbs used for HVAC units, exhaust fans, duct openings, and pipe penetrations.
  - 2. Roof Curb Mounting Substrate: Curb substrate consists of flat roof deck sheathing with insulation.
  - 3. Sheet Metal Material:
    - a. Aluminum: 0.080 inch minimum thickness, with 3003 alloy, and H14 temper.
      - 1) Finish: Mill finish.
  - 4. Provide layouts and configurations indicated on drawings.
- B. Equipment Rail Curbs: Straight curbs on each side of equipment, with top of curbs horizontal and level with each other for equipment mounting.
  - 1. Height Above Finished Roof Surface: 8 inches, minimum.
  - 2. Products:
    - a. Basis of design: Pate ES-5b.
- C. Pipe Supports: Pipe roller assembly, Galvanized steel, continuous welded corner seams, 2 x 4 treated wood nailer, heavy ga. Galvanized steel counter-flashing with galvanized steel channel track attached.
  - 1. Roller assembly consists of galvanized steel channel track, galvanized steel fittings, washers and nuts and painted cast iron roller.

2. Assembly permits both vertical and horizontal adjustment.
  3. Height above finished roof surface: 12 inches minimum.
  4. Basis of Design: Pate RAC with PRS1
- D. Pipe, Duct, or Conduit Mounting Curbs: Vertical posts, minimum 8 inches square unless otherwise indicated.
1. Provide sliding channel welded along top edge with adjustable height steel bracket, fabricated to fit item supported.
  2. Height Above Finished Roof Surface: 12 inches, minimum.
  3. Basis of Design: Pate MCPA and PPA.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

### **3.02 PREPARATION**

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using methods recommended by manufacturer for achieving acceptable results for applicable substrate under project conditions.

### **3.03 INSTALLATION**

- A. Install in accordance with manufacturer's instructions, in manner that maintains roofing system weather-tight integrity.

### **3.04 CLEANING**

- A. Clean installed work to like-new condition.

### **3.05 PROTECTION**

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Date of Substantial Completion.

**END OF SECTION**

**SECTION 07 8400  
FIRESTOPPING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Firestopping systems.
- B. Firestopping of joints and penetrations in fire-resistance-rated and smoke-resistant assemblies, whether indicated on drawings or not, and other openings indicated.
- C. Firestopping membrane penetrations in fire rated and smoke rated assemblies, whether indicated on drawings or not.

**1.02 SUMMARY**

- A. Each Prime Contractor shall provide tested and listed firestop systems consisting of a material or combination of materials installed to retain the integrity of fire-resistance rated construction by maintaining an effective barrier against the spread of flame, smoke, and/or hot gases through penetrations, blank openings, construction joints, or at the gap that is created at the building perimeter of the horizontal fire-resistance rated assembly and exterior wall and in or adjacent to either fire-resistance or non-rated-resistance rated barriers in accordance with the requirements of the Building Code for this project.
- B. Firestop systems shall be used in locations including, but not limited to, the following:
  - 1. Penetrations through fire-resistance-rated floor and roof assemblies requiring protected openings including both empty openings and openings that contain penetrations.
  - 2. Penetrations through fire-resistance-rated wall assemblies including both empty openings and openings that contain penetrations.
  - 3. Membrane penetrations in fire-resistance-rated wall and roof-ceiling assemblies where items penetrate one side of the barrier.
  - 4. Joints in fire-resistance-rated assemblies that allow independent movement.
  - 5. Perimeter of the horizontal fire-resistance rated assembly and exterior wall between a rated floor/roof and the exterior wall assembly that is not fire-resistance rated.
  - 6. Joints, through penetrations and membrane penetrations in smoke barriers, smoke partitions and those assemblies required to limit, restrict or retard the passage of smoke.

**1.03 RELATED REQUIREMENTS**

- A. Refer to "Code Compliance Drawings" for location or fire rated assemblies. At a minimum all corridor walls and all floors between stories shall have a 1 hour fire rating.
- B. Statement of Special Inspections (included in the front end documents when applicable).
- C. Sample Firestop Schedule (at the end of this section).
- D. Section 01 4533 - Code Required Special Inspections.
- E. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions.
- F. Section 01 7000 - Execution and Closeout Requirements: Cutting and patching.
- G. Section 07 0553 - Fire and Smoke Assembly Identification.
- H. Section 09 2116 - Gypsum Board Assemblies: Gypsum wallboard fireproofing.
- I. Division 03 0000 - Concrete; concrete work.
- J. Division 04 0000 - Masonry.
- K. Division 21 0000 - Fire Suppression.
- L. Division 22 0000 - Plumbing.
- M. Division 23 0000 - Heating, Ventilation and Air Conditioning.
- N. Division 26 0000 - Electrical.
- O. Division 27 0000 - Communications.

- P. Division 28 0000 - Electronic Safety and Security.

#### **1.04 DEFINITIONS**

- A. Barrier: Any bearing or non-bearing wall or floor that has an hourly fire and smoke rating.
- B. Fire-Resistant Firestop Joint System: An assemblage of specific materials or products that are designed, tested and fire-resistance rated in accordance with either ASTM E1966 or UL 2079 to resist for a prescribed period of time the passage of fire through joints made in or between fire-resistance rated assemblies.
- C. Joint: Any gap, joint, or opening, whether static or dynamic, between two fire-rated barriers including to where the top of the wall meets the floor; bottom of wall meets the floor; wall edge to wall edge applications; floor edge to floor edge applications; floor edge to wall; or where one fire-rated barrier meets a non fire-rated assembly such as at fire-rated floor edge to non-fire-rated exterior wall and top of fire-rated wall to non-fire-rated roof assembly.
- D. Membrane Penetration: Any penetration in a fire-rated wall or floor/roof-ceiling assembly that breaches only one side of the barrier.
- E. Membrane Penetration Firestop System: An assemblage consisting of a fire-resistance rated floor-ceiling, roof-ceiling or wall assembly, one or more penetrating items installed into or passing through the breach in one side of the assembly and the materials or devices, or both, installed to resist the spread of fire into the assembly for a prescribed period of time.
- F. Through Penetration: Any penetration of a fire-rated wall or floor assembly that completely breaches the barrier.
- G. Through Penetration Firestop System: An assemblage of specific materials or products that are designed, tested and fire-resistance rated in accordance with either ASTM E814 or UL 1479 to resist for the prescribed period of time the passage of fire through penetrations made in fire-resistance rated assemblies.

#### **1.05 REFERENCE STANDARDS**

- A. ICC (IBC) - International Building Code; Most Recent Edition adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- B. International Firestop Council (IFC) - Recommended IFC Guidelines for Evaluating Firestop System Engineering Judgements; Current Edition.
- C. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
- D. ASTM E814 - Standard Test Method for Fire Tests of Penetration Firestop Systems.
- E. ASTM E1966 - Standard Test Method for Fire-Resistive Joint Systems.
- F. ASTM E2174 - Standard Practice for On-Site Inspection of Installed Firestop Systems.
- G. ASTM E2393 - Standard Practice for On-Site Inspection of Installed Fire Resistive Joint Systems and Perimeter Fire Barriers.
- H. ASTM E2307 - Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers Using Intermediate-Scale, Multi-story Test Apparatus.
- I. ASTM E2837 - Standard Test Method for Determining the Fire Resistance of Continuity Head-of-Wall Joint Systems Installed Between Rated Wall Assemblies and Nonrated Horizontal Assemblies.
- J. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.
- K. ITS (DIR) - Directory of Listed Products.
- L. FM 4991 - Approval Standard for Firestop Contractors.
- M. FM (AG) - FM Approval Guide.
- N. SCAQMD 1168 - Adhesive and Sealant Applications.
- O. UL 1479 - Standard for Fire Tests of Penetration Firestops.
- P. UL 2079 - Standard for Tests for Fire Resistance of Building Joint Systems.



Q. UL (DIR) - Online Certifications Directory.

R. UL (FRD) - Fire Resistance Directory.

## **1.06 PERFORMANCE REQUIREMENTS**

- A. Penetrations: Provide and install firestopping products that once installed to the tested and listed system or engineering judgement (EJ) / equivalent fire-resistance rated assembly (EFRRA) to become firestop systems or EJ/EFRRA's that are produced to resist the spread of fire, and/or the passage of smoke through breaches, gaps, openings, in fire-resistance-rated and smoke resistant assemblies according to requirements indicated, including but not limited to the following:
1. Firestop all breaches made in fire-resistance-rated assemblies for penetrating items passing through fire-resistance-rated wall and floor assemblies and other locations indicated on the Contract Drawings.
  2. Provide and install complete penetration firestopping systems that have been tested and approved by a nationally recognized third-party testing agency to the listing and the manufacturer's installation instructions.
  3. F-Rated Through-Penetration Firestop Systems: Provide through-penetration firestop systems with F (fire resistance) ratings indicated, as determined through testing in accordance with ASTM E 814 or UL1479, but not less than one hour or the fire-resistance rating of the construction being penetrated by the penetrating item.
  4. T-Rating Through-Penetration Firestop Systems: Provide firestop systems with T (temperature) ratings, in addition to F ratings, as determined per ASTM E 814 or UL 1479, in horizontal fire-resistance-rated assemblies and where required by the Building Code.
  5. L-Rated Through-Penetration Firestop Systems: Provide firestop systems with L (air leakage) ratings, in addition to F and T ratings, as determined in accordance with UL 1479, in smoke barriers and smoke partitions where required by the Building Code.
  6. W-Rated Through-Penetration Firestop Systems: Provide firestop systems with W (water resistance) ratings, in addition to F, T and L ratings, as determined in accordance with UL 1479, for wet areas of the building including but not limited to janitor closets, bathrooms, kitchen areas and for wet piping penetrations for plumbing, mechanical and wet-pipe sprinkler systems.
  7. For penetrations involving non-metallic, CPVC, PVC, or plastic piping, tubing, or conduit, provide firestop systems that are chemically compatible in accordance with manufacturer requirements.
  8. For penetrations involving insulated piping, provide firestop systems not requiring removal of insulation.
  9. For penetrations involving fire or fire/smoke dampers, only firestop products approved by the damper manufacturer shall be installed in accordance with the damper installation instructions.
  10. Penetrations near head-of-wall joints are restricted within 6 inches of the head-of-wall joint where dynamic joints require proper movement.
- B. Perimeter Interior Fire Barrier Systems: Provide perimeter interior fire barrier systems with fire-resistance ratings indicated, as determined per ASTM E 2307, but not less than fire-resistance rating of the floor construction.
- C. Fire-Resistance Joints: Provide fire-resistive joint systems with fire-resistance ratings indicated, as determined by tests performed to ASTM E 1966 and ASTM E 1399, E 2837, or UL 2079, but not less than the fire-resistance rating of the assembly in which the breach, void or joint occurs. For where fire-resistance rated walls do not meet and create a breach between a non-fire-resistant horizontal assembly, provide fire-resistive joint systems with fire-resistance ratings as determined by ASTM E 2837.
1. For firestopping assemblies exposed to view, traffic, moisture, and physical damage, provide products that after curing do not deteriorate when exposed to these conditions both during and after construction.
  2. For floor penetrations exposed to possible loading and traffic, provide firestop systems capable of supporting floor loads involved either by installing floor plates, covers, or by other means, as specified by the Architect.
  3. L-Rating Systems: Provide firestop systems with L-ratings at smoke barrier joints and at the intersection of horizontal smoke barriers and exterior curtain wall construction not exceeding 5 cfm/lf. Provide firestop system at smoke barrier joints.

- D. Where there is no specific third-party tested and listed, classified firestop system available for a particular firestop configuration, the Contractor with the Firestop Manufacturer's Representative shall obtain from the firestop manufacturer, an (EJ) or (EFRRA) for submittal. All EJ's shall follow the current International Firestop Council (IFC) Guidelines for Evaluating Firestop Systems in Engineering Judgements and shall state that the manufacturer believes the EJ would pass the fire tests referenced for the application, if tested.

#### **1.07 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Schedule of Firestopping: List each type of penetration and joint system, fire rating of the penetrated assembly, and firestopping test or design number. The BCA Sample Firestop Schedule is for information only and will not be acted on for approval. See BCA Sample Firestop Schedule at the end of this section.
- C. Product Data: Provide data on product characteristics, performance ratings, and limitations. Provide illustration drawings on each type of tested and listed firestop system being used on the Project.
- D. Sustainable Design Submittal: Submit VOC content documentation for nonpreformed materials.
- E. Manufacturer's Installation Instructions: Indicate preparation and installation instructions.
- F. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- G. Manufacturer's qualification statement.
- H. Installer's qualification statement.
- I. Firestopping Manufacturer's Representative contact information as listed in Quality Assurance.
- J. Engineering Judgements if applicable.
- K. Manufacturer's self-adhering vinyl firestop label samples. Include the following information:
  - 1. "WARNING - Do Not Disturb, Through Penetration Firestop System. Notify Building Management of Any Damage." or "WARNING - Do Not Disturb, Joint Firestop System. Notify Building Management of Any Damage."
  - 2. F, T, L and W ratings as applicable.
  - 3. Firestop system manufacturer's name.
  - 4. Firestop system UL designation.
  - 5. Product.
  - 6. Contractor's name.
  - 7. Installer's name and phone number.
  - 8. Date of installation.
- L. Manufacturer's qualifications as listed in Quality Assurance.
- M. Installer's qualifications as listed in Quality Assurance.

#### **1.08 QUALITY ASSURANCE**

- A. Fire Testing: Provide firestopping assemblies of designs that provide the scheduled fire ratings when tested in accordance with methods indicated.
  - 1. Listing in the current-year classification or certification books of UL (FRD), FM (AG), or ITS (DIR) will be considered as constituting an acceptable test report.
  - 2. Valid evaluation report published by ICC Evaluation Service, Inc. (ICC-ES) at [www.icc-es.org](http://www.icc-es.org) will be considered as constituting an acceptable test report.
  - 3. Submission of actual test reports is required for assemblies for which none of the above substantiation exists.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- C. Installer Qualifications: Company specializing in performing the work of this section and:
  - 1. Trained by manufacturer.
  - 2. Approved by Factory Mutual Research Corporation under FM 4991, or meeting any two of the following requirements:

- a. Verification of minimum three years documented experience installing work of this type.
  - b. Verification of at least five satisfactorily completed projects of comparable size and type.
  - c. Licensed by local authorities having jurisdiction (AHJ).
- D. Pre-Installation Conference: This conference should be a joint meeting attended by the Owner's Representative and Prime Contractors, respective firestopping sub-contractors, firestopping company field advisors and testing agencies to review project requirements. The agenda should include the following topics:
- 1. Review Scope of Work.
  - 2. Review shop drawings and completed firestop schedule.
  - 3. Discuss identification labeling and locations.
  - 4. Discuss wall markings and locations.
  - 5. Review schedule, coordination and sequencing with all Trades.
  - 6. Review coordination with special inspection requirements.
  - 7. Review any engineering judgements or other special requirements.
  - 8. Review mock-up requirements.
  - 9. Review Firestop Application Log.
- E. Manufacturer's Company Field Advisor: Secure the services of a Company Field Advisor for the following:
- 1. Render advice to the Contractor regarding suitability of firestopping systems for the various project conditions.
  - 2. Assist Contractor with completing the Schedule of Firestopping. See Sample Firestop Schedule at the end of this Section.
  - 3. Attend Pre-installation Conference.
  - 4. Assist installers with manufacturer's installation requirements.
  - 5. Advise the Contractor on ASTM special inspection requirements for both visual and destructive testing methods.
  - 6. Assist in providing Engineering Judgements from manufacturer's technical specialists when necessary.
- F. Special Inspections are required for buildings designated as Risk Category III as determined by the building code. Visual inspections per ASTM E2174 and ASTM E2393 are required. Destructive testing inspections will be conducted when visual inspections are not properly coordinated by each Prime Contractor with the Owner's Representative and the third party testing agency. Provide 48 hours notice for special inspections.
- G. Single Source Limitations: Each Prime Contractor shall obtain firestop systems for their Scope of Work from a single manufacturer to the greatest extent possible.
- 1. Tested and listed, classified firestop systems are to be used. If another manufacturer has a tested and listed system, then that system shall be used prior to an EJ or EFRA.
  - 2. Material from different manufacturer than allowed by the tested and listed system shall not be intermixed in the same firestop system, void, breach, gap, intersection, or opening.
- H. Inspection of penetrations through fire-rated floor and wall assemblies shall be in accordance with ASTM E 2174 - Standard Practice for On-Site Inspection of Installed Firestop Systems and ASTM E 2393 - Standard Practice for On-Site Inspection of Installed Fire-Resistive Joint Systems and Perimeter Fire Barriers.

#### **1.09 FIELD CONDITIONS**

- A. Comply with firestopping manufacturer's recommendations for temperature and conditions during and after installation; maintain minimum temperature before, during, and for three days after installation of materials.
- B. Provide ventilation in areas where solvent-cured materials are being installed.

#### **1.10 COORDINATION**

- A. Coordinate construction of openings and penetrating items to ensure that penetration firestopping systems can be installed in accordance with specified firestopping system design.

- B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate penetration firestopping systems.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Firestopping Manufacturers:
  - 1. 3M Fire Protection Products: [www.3m.com/firestop/#sle](http://www.3m.com/firestop/#sle).
  - 2. A/D Fire Protection Systems Inc: [www.adfire.com/#sle](http://www.adfire.com/#sle).
  - 3. Everkem Diversified Products, Inc: [www.everkemproducts.com/#sle](http://www.everkemproducts.com/#sle).
  - 4. Hilti, Inc: [www.us.hilti.com/#sle](http://www.us.hilti.com/#sle).
  - 5. HoldRite, a Brand of Reliance Worldwide Corporation: [www.holdrite.com/#sle](http://www.holdrite.com/#sle).
  - 6. Nelson FireStop Products: [www.nelsonfirestop.com/#sle](http://www.nelsonfirestop.com/#sle).
  - 7. Passive Fire Protection Partners: [www.firestop.com/#sle](http://www.firestop.com/#sle).
  - 8. Specified Technologies Inc: [www.stifirestop.com/#sle](http://www.stifirestop.com/#sle).
  - 9. Tremco Commercial Sealants & Waterproofing: [www.tremcosealants.com/#sle](http://www.tremcosealants.com/#sle).
  - 10. RectorSeal: [www.rectorseal.com](http://www.rectorseal.com).
  - 11. Or approved equal.

### **2.02 MATERIALS**

- A. Firestopping Materials: Any materials meeting requirements.
- B. Prohibited Materials: Do not use firestopping materials containing asbestos or lead and shall not incorporate nor require use of hazardous solvents.
- C. Volatile Organic Compound (VOC) Content: Provide products having VOC content lower than that required by SCAQMD 1168.
- D. Mold and Mildew Resistance: Provide firestopping materials with mold and mildew resistance rating of zero(0) in accordance with ASTM G21.
- E. Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Provide type of materials as required for tested firestopping assembly.
- F. Fire Ratings: Refer to drawings for required systems and ratings.
- G. Firestopping sealants must be flexible, allowing for normal movement.
- H. Firestopping materials shall not shrink upon drying as evidenced by cracking or pulling back from contact surfaces such that a void is created.
- I. Firestopping material shall be moisture resistant and may not dissolve in water after curing.

### **2.03 FIRESTOPPING ASSEMBLY REQUIREMENTS**

- A. Perimeter Fire Containment Firestopping: Use system that has been tested according to ASTM E2307 to have fire resistance F Rating equal to required fire rating of floor assembly.
  - 1. Movement: Provide systems that have been tested to show movement capability as indicated.
  - 2. Temperature Rise: Provide systems that have been tested to show T Rating as indicated or where required by Building Code.
  - 3. Air Leakage: Provide systems that have been tested to show L Rating as indicated or required by Building Code.
  - 4. Where floor assembly is not required to have a fire rating, provide systems that have been tested to show L Rating as indicated or required by Building Code.
- B. Head-of-Wall (HW) Joint System Firestopping at Joints Between Fire-Rated Wall Assemblies and Non-Rated Horizontal Assemblies: Use system that has been tested according to ASTM E2837 to have fire resistance F Rating equal to required fire rating of wall assembly.
  - 1. Movement: Provide systems that have been tested to show movement capability as indicated.
- C. Floor-to-Floor (FF), Floor-to-Wall (FW), Head-of-Wall (HW), and Wall-to-Wall (WW) Joints, Except Perimeter, Where Both Are Fire-Rated: Use system that has been tested according to ASTM E1966 or UL 2079 to have fire resistance F Rating equal to required fire rating of the assembly in which the joint occurs.

1. Movement: Provide systems that have been tested to show movement capability as indicated.
  2. Air Leakage: Provide systems that have been tested to show L Rating as indicated or required by Building Code.
  3. Watertightness: Provide systems that have been tested to show W Rating as indicated.
  4. Listing by FM (AG), ITS (DIR), UL (DIR), or UL (FRD) in their certification directories will be considered evidence of successful testing.
- D. Through Penetration Firestopping: Use system that has been tested according to ASTM E814 to have fire resistance F Rating equal to required fire rating of penetrated assembly.
1. Temperature Rise: Provide systems that have been tested to show T Rating as indicated or required by Building Code.
  2. Air Leakage: Provide systems that have been tested to show L Rating as indicated or required by Building Code.
  3. Watertightness: Provide systems that have been tested to show W Rating as indicated.
  4. Listing by FM (AG), ITS (DIR), UL (DIR), or UL (FRD) in their certification directories will be considered evidence of successful testing.
- E. Membrane Penetrations: Use system that has been tested according to ASTM E814 to have fire resistance F Rating equal to required fire rating of penetrating assembly.

## **2.04 FIRESTOPPING FOR PERIMETER CONTAINMENT**

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify openings are ready to receive the work of this section.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Verify that all pipes, conduits, cables, clips, and/or other items which penetrate fire-rated construction have been permanently installed prior to installation of firestops.

#### **3.02 PREPARATION**

- A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other materials that could adversely affect bond of firestopping material.
- B. Remove incompatible materials that could adversely affect bond.
- C. Install backing materials to prevent liquid material from leakage.
- D. Remove laitance and form-release agents from concrete
- E. Prime substrates where recommended by firestopping manufacturer using manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

#### **3.03 INSTALLATION**

- A. Install materials in manner described in fire test report and in accordance with manufacturer's instructions, completely closing openings.
- B. Do not cover installed firestopping until inspected by Owner's Independent Testing Agency.
- C. The General Contractor shall coordinate with other Prime Contractors firestopping work prior to installation of ceilings.
- D. Identification: Each Prime Contractor is to install firestop system labeling.
  1. Identify installed firestop systems with preprinted vinyl labels.
  2. Clean surfaces of dust and debris.
  3. Attach self-adhesive labels permanently to surfaces adjacent to firestop systems so that labels will be visible to anyone seeking to remove or compromise penetrating items or firestop systems.
  4. In addition, the General Contractor shall install joint firestop labels at all fire-rated wall assembly joints. Locate labels within 15 feet of the wall or partition end, and no more than 30 feet apart horizontally.

### **3.04 FIELD QUALITY CONTROL**

- A. Independent Testing Agency: Inspection agency employed and paid by Owner, will examine penetration firestopping in accordance with ASTM E2174 (penetrations) and ASTM E2393 (joints).
- B. Contractor shall coordinate visual inspections and destructive testing with Independent Testing Agency as Work is being performed according to ASTM E2174 and ASTM E2393.
- C. Contractor shall repair or replace through-penetration, membrane penetration and joint firestopping at locations where visual inspection results indicate penetration and joint firestopping do not meet specified requirements for the project and the manufacturer's tested and listed firestop system.
- D. Contractor shall repair or replace through-penetration, membrane penetration and joint penetration firestopping at locations where code required destructive inspections are performed. Owner shall pay for firestopping re-installation found in compliance. Contractor shall pay for firestopping re-installation found in non-compliance.

### **3.05 CLEANING**

- A. Clean adjacent surfaces of firestopping materials.
- B. Leave finished Work in neat, clean condition with no evidence of spillovers or damage to adjacent surfaces.

### **3.06 PROTECTION**

- A. Protect adjacent surfaces from damage by material installation.

### **3.07 BCA SAMPLE FIRESTOP SCHEDULE:**

- A. The sample firestop schedule indicated below is available in Excel or PDF format for contractor's / manufacturer's representative use when requested. Otherwise, the manufacturer's representative shall use their own schedule.

**BCA SAMPLE FIRESTOP SCHEDULE**

No.	Manufacturer's Product Reference Numbers and/or Drawing Numbers (include fill materials)	U.L., FM, Warnock Hersey or Omega Point Lab Penetration,	Penetrating Item: Material, Size, Insulated, Combustible, Joint, Perimeter, etc. Description:	Maximum Allowable Annular Space or Maximum Size Opening	Assemble Wall type Construction Architects Designation Description	Assemble Floor or Roof/Ceiling Type Construction	Fire Resistant Rating of Wall or Floor (Hour)	F Rating (Hour)	T Rating Floors available only	L Rating if available (leakage)	W Rating if available	Movement
<b>Through-Penetration Vertical Firestopping Systems (Walls)</b>												
1	Example No. 1 Tremstop Acrylic	UL CA-1205	6" steel pipe schedule 40	min 1/4" to max 1"	P3	6" reinf normal weight concrete	2 Hour	2 Hour		Ambient less than 1 CFM/Lin		
2	Example No. 2 Tremstop Acrylic SP Thermalbar SAF	W-D-1022	NA	4" max oprng	Curtain Wall/ Perimeter	4 1/2" reinforced LW concrete	2 Hour	2 Hour	2 1/4-Hr			Class II
<b>Through-Penetration Horizontal Firestopping Systems (Floors)</b>												
3	Example No. 3 EGS Nelson Firestop ES1399 Sealant	UL WHE FE-3007	Cables - max 3 1/2" dia	0" joint contact to max 1/2"	NA	NA concrete/joints/gypsum board	1 Hour	1 Hour	1 Hour			
<b>Fire-resistant Joint Systems (construction joints, perimeter joints, top-of-wall and bottom-of-wall joints)</b>												
4	Example No. 4 EGS Nelson Firestop ES 1395 Sealant	UL HW-D-019	NA	NA	P8	3" fluted deck w/ 2 1/2" concrete	2 Hour					Class II & III
5	Example No. 5 3M PB-2000+ Rockwool Roxul Safe	UL FW-D-1009	NA	4" nominal joint width	P4	6" nominal, cmu reinforced concrete	2 Hour	3 Hour				Class II & III
<b>Membrane Penetrations (vertical and horizontal)</b>												
6	Example No. 6 Hilti - CP 617 Firestop Putty Pad	UL WL-1462	medical gas station outlets (max.100 psig) Beacon Medical Products	1/8" min. thick moldable putty pads	P8	3 1/2" steel studs 16" oc	1 Hour	1 Hour	1 Hour			

**END OF SECTION**

## **SECTION 07 9200 JOINT SEALANTS**

### **PART 1 GENERAL**

#### **1.01 SECTION INCLUDES**

- A. Nonsag gunnable joint sealants.
- B. Self-leveling pourable joint sealants.
- C. Joint backings and accessories.
- D. Owner-provided field quality control.

#### **1.02 RELATED REQUIREMENTS**

- A. Section 07 8400 - Firestopping: Firestopping sealants.
- B. Section 08 7100 - Door Hardware: Setting exterior door thresholds in sealant.
- C. Section 09 2116 - Gypsum Board Assemblies: Sealing acoustical and sound-rated walls and ceilings.
- D. Section 09 3000 - Tiling: Sealant between tile and plumbing fixtures and at junctions with other materials and changes in plane.

#### **1.03 REFERENCE STANDARDS**

- A. ASTM C661 - Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer.
- B. ASTM C794 - Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants.
- C. ASTM C834 - Standard Specification for Latex Sealants.
- D. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications.
- E. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.
- F. ASTM C1087 - Standard Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems.
- G. ASTM C1193 - Standard Guide for Use of Joint Sealants.
- H. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants.
- I. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants.
- J. ASTM C1521 - Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints.
- K. SCAQMD 1168 - Adhesive and Sealant Applications.
- L. SWRI (VAL) - SWR Institute Validated Products Directory.

#### **1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data for Sealants: Submit manufacturer's technical data sheets for each product to be used, that includes the following.
  - 1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
  - 2. List of backing materials approved for use with the specific product.
  - 3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
  - 4. Substrates the product should not be used on.
  - 5. Substrates for which use of primer is required.
  - 6. Installation instructions, including precautions, limitations, and recommended backing materials and tools.
  - 7. Sample product warranty.
  - 8. Certification by manufacturer indicating that product complies with specification requirements.



9. SWRI Validation: Provide currently available sealant product validations as listed by SWRI (VAL) for specified sealants.
- C. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.
- D. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.
- E. Preconstruction Laboratory Test Reports: Submit at least four weeks prior to start of installation.
- F. Installation Plan: Submit at least four weeks prior to start of installation.
- G. Preinstallation Field Adhesion Test Plan: Submit at least two weeks prior to start of installation.
- H. Field Quality Control Plan: Submit at least two weeks prior to start of installation.
- I. Preinstallation Field Adhesion Test Reports: Submit filled out Preinstallation Field Adhesion Test Reports log within 10 days after completion of tests; include bagged test samples and photographic records.
- J. Installation Log: Submit filled out log for each length or instance of sealant installed.
- K. Field Quality Control Log: Submit filled out log for each length or instance of sealant installed, within 10 days after completion of inspections/tests; include bagged test samples and photographic records, if any.
- L. Manufacturer's Qualification Statement.
- M. Installer's Qualification Statement.

#### **1.05 QUALITY ASSURANCE**

- A. Maintain one copy of each referenced document covering installation requirements on site.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- C. Installer Qualifications: Company specializing in performing the work of this section and with at least three years of documented experience.
- D. Preconstruction Laboratory Testing: Arrange for sealant manufacturer(s) to test each combination of sealant, substrate, backing, and accessories.
  1. Adhesion Testing: In accordance with ASTM C794.
  2. Compatibility Testing: In accordance with ASTM C1087.
  3. Allow sufficient time for testing to avoid delaying the work.
  4. Deliver to manufacturer sufficient samples for testing.
  5. Report manufacturer's recommended corrective measures, if any, including primers or techniques not indicated in product data submittals.
  6. Testing is not required if sealant manufacturer provides data showing previous testing, not older than 24 months, that shows satisfactory adhesion, lack of staining, and compatibility.
- E. Installation Plan: Include schedule of sealed joints, including the following.
  1. Joint width indicated in Contract Documents.
  2. Joint depth indicated in Contract Documents; to face of backing material at centerline of joint.
  3. Method to be used to protect adjacent surfaces from sealant droppings and smears, with acknowledgement that some surfaces cannot be cleaned to like-new condition and therefore prevention is imperative.
  4. Approximate date of installation, for evaluation of thermal movement influence.
  5. Installation Log Form: Include the following data fields, with known information filled out.
    - a. Unique identification of each length or instance of sealant installed.
    - b. Location on project.
    - c. Substrates.
    - d. Sealant used.
    - e. Stated movement capability of sealant.
    - f. Primer to be used, or indicate as "No primer" used.
    - g. Size and actual backing material used.
    - h. Date of installation.

- i. Name of installer.
  - j. Actual joint width; provide space to indicate maximum and minimum width.
  - k. Actual joint depth to face of backing material at centerline of joint.
  - l. Air temperature.
- F. Preinstallation Field Adhesion Test Plan: Include destructive field adhesion testing of one sample of each combination of sealant type and substrate, except interior acrylic latex sealants, and include the following for each tested sample.
- 1. Identification of testing agency.
  - 2. Name(s) of sealant manufacturers' field representatives who will be observing
  - 3. Preinstallation Field Adhesion Test Log Form: Include the following data fields, with known information filled out.
    - a. Test date.
    - b. Location on project.
    - c. Sealant used.
    - d. Stated movement capability of sealant.
    - e. Test method used.
    - f. Date of installation of field sample to be tested.
    - g. Date of test.
    - h. Copy of test method documents.
    - i. Age of sealant upon date of testing.
    - j. Test results, modeled after the sample form in the test method document.
    - k. Indicate use of photographic record of test.
- G. Owner will employ an independent testing agency to perform the field quality control inspection and testing as referenced in PART 3 of this section and as follows, to prepare and submit the field quality control plan and log, and to provide recommendations of remedies in the case of failure.
- 1. Contractor shall cooperate with testing agency and repair failures discovered and destructive test location damage.
- H. Field Quality Control Plan:
- 1. Visual inspection of entire length of sealant joints.
  - 2. Non-destructive field adhesion testing of sealant joints, except interior acrylic latex sealants.
    - a. For each different sealant and substrate combination, allow for one test every 12 inches in the first 10 linear feet of joint and one test every 24 inches thereafter.
    - b. If any failures occur in the first 10 linear feet, continue testing at 12 inches intervals at no extra cost to Owner.
  - 3. Destructive field adhesion testing of sealant joints, except interior acrylic latex sealant.
    - a. For each different sealant and substrate combination, allow for one test every 100 feet in the first 1000 linear feet, and one test per 1000 linear feet thereafter, or once per floor on each elevation.
    - b. If any failures occur in the first 1000 linear feet, continue testing at frequency of one test per 500 linear feet at no extra cost to Owner.
  - 4. Field Quality Control Log Form: Show same data fields as on Preinstallation Field Adhesion Test Log, with known information filled out and lines for multiple tests per sealant/substrate combinations; include visual inspection and specified field testing; allow for possibility that more tests than minimum specified may be necessary.
- I. Field Adhesion Test Procedures:
- 1. Allow sealants to fully cure as recommended by manufacturer before testing.
  - 2. Have a copy of the test method document available during tests.
  - 3. Take photographs or make video records of each test, with joint identification provided in the photos/videos; for example, provide small erasable whiteboard positioned next to joint.
  - 4. Record the type of failure that occurred, other information required by test method, and the information required on the Field Quality Control Log.
  - 5. When performing destructive tests, also inspect the opened joint for proper installation characteristics recommended by manufacturer, and report any deficiencies.

6. Deliver the samples removed during destructive tests in separate sealed plastic bags, identified with project, location, test date, and test results, to Owner.
  7. If any combination of sealant type and substrate does not show evidence of minimum adhesion or shows cohesion failure before minimum adhesion, report results to Architect.
- J. Non-Destructive Field Adhesion Test: Test for adhesion in accordance with ASTM C1521, using Nondestructive Spot Method.
1. Record results on Field Quality Control Log.
  2. Repair failed portions of joints.
- K. Destructive Field Adhesion Test: Test for adhesion in accordance with ASTM C1521, using Destructive Tail Procedure.
1. Sample: At least 18 inches long.
  2. Minimum Elongation Without Adhesive Failure: Consider the tail at rest, not under any elongation stress; multiply the stated movement capability of the sealant in percent by two; then multiply 1 inch by that percentage; if adhesion failure occurs before the "1 inch mark" is that distance from the substrate, the test has failed.
  3. If either adhesive or cohesive failure occurs prior to minimum elongation, take necessary measures to correct conditions and re-test; record each modification to products or installation procedures.
  4. Record results on Field Quality Control Log.
  5. Repair failed portions of joints.
- L. Field Adhesion Tests of Joints: Test for adhesion using most appropriate method in accordance with ASTM C1521, or other applicable method as recommended by manufacturer.

#### **1.06 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective work within a five year period after Date of Substantial Completion.
- C. Warranty: Include coverage for installed sealants and accessories that fail to achieve watertight seal , exhibit loss of adhesion or cohesion, or do not cure.

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Non-Sag Sealants: Permits application in joints on vertical surfaces without sagging or slumping.
  1. Dow Chemical Company: [consumer.dow.com/en-us/industry/ind-building-construction.html/#sle](http://consumer.dow.com/en-us/industry/ind-building-construction.html/#sle).
  2. Master Builders Solutions by BASF: [www.master-builders-solutions.basf.us/en-us/#sle](http://www.master-builders-solutions.basf.us/en-us/#sle).
  3. Momentive Performance Materials, Inc (formerly GE Silicones): [www.momentive.com/#sle](http://www.momentive.com/#sle).
  4. Pecora Corporation: [www.pecora.com/#sle](http://www.pecora.com/#sle).
  5. Sika Corporation: [www.usa-sika.com/#sle](http://www.usa-sika.com/#sle).
- B. Self-Leveling Sealants: Pourable or self-leveling sealant that has sufficient flow to form a smooth, level surface when applied in a horizontal joint.
  1. Dow Chemical Company: [consumer.dow.com/en-us/industry/ind-building-construction.html/#sle](http://consumer.dow.com/en-us/industry/ind-building-construction.html/#sle).
  2. Master Builders Solutions by BASF: [www.master-builders-solutions.basf.us/en-us/#sle](http://www.master-builders-solutions.basf.us/en-us/#sle).
  3. Pecora Corporation: [www.pecora.com/#sle](http://www.pecora.com/#sle).
  4. Sika Corporation: [www.usa-sika.com/#sle](http://www.usa-sika.com/#sle).
  5. Substitutions: See Section 01 6000 - Product Requirements.

#### **2.02 JOINT SEALANT APPLICATIONS**

- A. Scope:
  1. Exterior Joints: Seal open joints, whether or not the joint is indicated on drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to, the following items.
    - a. Wall expansion and control joints.
    - b. Joints between door, window, and other frames and adjacent construction.
    - c. Joints between different exposed materials.
    - d. Openings below ledge angles in masonry.

- e. Other joints indicated below.
- 2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
  - a. Joints between door, window, and other frames and adjacent construction.
  - b. In sound-rated wall and ceiling assemblies, gaps at electrical outlets, wiring devices, piping, and other openings; between wall/ceiling and other construction; and other flanking sound paths.
  - c. Other joints indicated below.
- 3. Do not seal the following types of joints.
  - a. Intentional weepholes in masonry.
  - b. Joints indicated to be treated with manufactured expansion joint cover or some other type of sealing device.
  - c. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
  - d. Joints where installation of sealant is specified in another section.
  - e. Joints between suspended panel ceilings/grid and walls.
- B. Exterior Joints: Use non-sag non-staining silicone sealant, unless otherwise indicated.
- C. Interior Joints: Use non-sag polyurethane sealant, unless otherwise indicated.
  - 1. In Sound-Rated Assemblies: Acrylic emulsion latex sealant.
- D. Interior Wet Areas: Bathrooms and restrooms; fixtures in wet areas include plumbing fixtures, countertops, cabinets, and other similar items.
- E. Sound-Rated Assemblies: Walls and ceilings identified as "STC-rated", "sound-rated", or "acoustical".

### 2.03 JOINT SEALANTS - GENERAL

- A. Sealants and Primers: Provide products having lower volatile organic compound (VOC) content than indicated in SCAQMD 1168.

### 2.04 NONSAG JOINT SEALANTS

- A. Non-Staining Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.
  - 1. Movement Capability: Plus and minus 50 percent, minimum.
  - 2. Non-Staining To Porous Stone: Non-staining to light-colored natural stone when tested in accordance with ASTM C1248.
  - 3. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.
  - 4. Hardness Range: 15 to 35, Shore A, when tested in accordance with ASTM C661.
  - 5. Color: To be selected by Architect from manufacturer's standard range.
  - 6. Manufacturers:
    - a. Dow Chemical Company; DOWSIL 791 Silicone Weatherproofing Sealant: [consumer.dow.com/en-us/industry/ind-building-construction.html/#sle](http://consumer.dow.com/en-us/industry/ind-building-construction.html/#sle).
    - b. Sika Corporation; Sikasil WS-295: [www.usa-sika.com/#sle](http://www.usa-sika.com/#sle).
  - 7. Color: White.
- B. Silyl-Terminated Polyether (STPE) and Silyl-Terminated Polyurethane (STPU) Sealant: ASTM C920, Grade NS, Uses M and A; single component; not expected to withstand continuous water immersion or traffic.
  - 1. Movement Capability: Plus and minus 50 percent, minimum.
  - 2. Hardness Range: 20 to 40, Shore A, when tested in accordance with ASTM C661.
  - 3. Color: To be selected by Architect from manufacturer's standard range.
  - 4. Service Temperature Range: minus 40 to 170 degrees F.
  - 5. Manufacturers:
    - a. Pecora Corporation; DynaTrol I-XL Hybrid: [www.pecora.com/#sle](http://www.pecora.com/#sle).
    - b. Sika Corporation; SikaHyflex-150 LM: [www.usa-sika.com/#sle](http://www.usa-sika.com/#sle).
- C. Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single-component; not expected to withstand continuous water immersion or traffic.
  - 1. Movement Capability: Plus 100 percent, minus 50 percent, minimum.

2. Hardness Range: 20 to 35, Shore A, when tested in accordance with ASTM C661.
  3. Color: To be selected by Architect from manufacturer's standard range.
  4. Service Temperature Range: Minus 40 to 180 degrees F.
  5. Manufacturers:
    - a. Master Builders Solutions by BASF; MasterSeal NP1: [www.master-builders-solutions.basf.us/en-us/#sle](http://www.master-builders-solutions.basf.us/en-us/#sle).
    - b. Sika Corporation; Sikaflex-15 LM: [www.usa-sika.com/#sle](http://www.usa-sika.com/#sle).
    - c. Substitutions: See Section 01 6000 - Product Requirements.
- D. Type Acoustic Sealant - Acrylic Emulsion Latex: Water-based; ASTM C834, single component, non-staining, non-bleeding, non-sagging; not intended for exterior use.
1. Color: To be selected by Architect from manufacturer's standard range.
  2. Manufacturers:
    - a. Master Builders Solutions by BASF; MasterSeal NP 520: [www.master-builders-solutions.basf.us/en-us/#sle](http://www.master-builders-solutions.basf.us/en-us/#sle).
    - b. Tremco Commercial Sealants & Waterproofing; Tremstop Smoke and Sound: [www.tremcosealants.com/#sle](http://www.tremcosealants.com/#sle).

## 2.05 SELF-LEVELING SEALANTS

- A. Self-Leveling Silicone Sealant: ASTM C920, Grade P, Uses M and A; single or multicomponent, explicitly approved by manufacturer for traffic exposure when recessed below traffic surface; not expected to withstand continuous water immersion.
1. Movement Capability: Plus 100 percent, minus 50 percent, minimum.
  2. Hardness Range: 0 to 15, Shore A, when tested in accordance with ASTM C661.
  3. Color: Gray.
  4. Color: To be selected by Architect from manufacturer's standard range.
  5. Manufacturers:
    - a. Pecora Corporation; Pecora 300 SL (Self-Leveling): [www.pecora.com/#sle](http://www.pecora.com/#sle).
    - b. Sika Corporation; Sikasil 728RCS: [www.usa-sika.com/#sle](http://www.usa-sika.com/#sle).

## 2.06 ACCESSORIES

- A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.
1. Type for Joints Not Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type O - Open Cell Polyurethane.
  2. Type for Joints Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type B - Bi-Cellular Polyethylene.
  3. Open Cell: 40 to 50 percent larger in diameter than joint width.
  4. Closed Cell and Bi-Cellular: 25 to 33 percent larger in diameter than joint width.
- B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.
- C. Masking Tape: Self-adhesive, nonabsorbent, non-staining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.
- D. Joint Cleaner: Non-corrosive and non-staining type, type recommended by sealant manufacturer; compatible with joint forming materials.
- E. Primers: Type recommended by sealant manufacturer to suit application; non-staining.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that joints are ready to receive work.
- B. Verify that backing materials are compatible with sealants.
- C. Verify that backer rods are of the correct size.
- D. Preinstallation Adhesion Testing: Install a sample for each test location indicated in the test plan.

1. Test each sample as specified in PART 1 under QUALITY ASSURANCE article.
2. Notify Architect of date and time that tests will be performed, at least seven days in advance.
3. Arrange for sealant manufacturer's technical representative to be present during tests.
4. Record each test on Preinstallation Adhesion Test Log as indicated.
5. If any sample fails, review products and installation procedures, consult manufacturer, or take whatever other measures are necessary to ensure adhesion; re-test in a different location; if unable to obtain satisfactory adhesion, report to Architect.
6. After completion of tests, remove remaining sample material and prepare joint for new sealant installation.

### **3.02 PREPARATION**

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
- B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.
- D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.
- E. Concrete Floor Joints That Will Be Exposed in Completed Work: Test joint filler in inconspicuous area to verify that it does not stain or discolor slab.

### **3.03 INSTALLATION**

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform installation in accordance with ASTM C1193.
- C. Perform acoustical sealant application work in accordance with ASTM C919.
- D. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer.
- E. Install bond breaker backing tape where backer rod cannot be used.
- F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.
- G. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.
- H. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.
- I. Concrete Floor Joint Filler: After full cure, shave joint filler flush with top of concrete slab.

### **3.04 FIELD QUALITY CONTROL**

- A. Owner will employ an independent testing agency to perform field quality control inspection and testing as specified in PART 1 under QUALITY ASSURANCE article.
- B. Non-Destructive Adhesion Testing: If there are any failures in first 100 linear feet, notify Architect immediately.
- C. Destructive Adhesion Testing: If there are any failures in first 1000 linear feet, notify Architect immediately.
- D. Remove and replace failed portions of sealants using same materials and procedures as indicated for original installation.
- E. Repair destructive test location damage immediately after evaluation and recording of results.

### **3.05 POST-OCCUPANCY**

- A. Post-Occupancy Inspection: Perform visual inspection of entire length of project sealant joints at a time that joints have opened to their greatest width; i.e. at low temperature in thermal cycle. Report failures immediately and repair.

**END OF SECTION**

**SECTION 07 9513  
EXPANSION JOINT COVER ASSEMBLIES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Expansion joint cover assemblies for floor, wall, and ceiling surfaces.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 1000 - Concrete Forming and Accessories: Placement of joint cover assembly frames in formwork.
- B. Section 04 2000 - Unit Masonry: Placement of joint cover assembly frames in masonry.

**1.03 REFERENCE STANDARDS**

- A. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- B. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric).
- C. ASTM B308/B308M - Standard Specification for Aluminum-Alloy 6061-T6 Standard Structural Profiles.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Installation Templates: For frames and anchors to be embedded in concrete or masonry, furnish templates to relevant installers; include installation instructions and tolerances.

**1.05 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide joint assembly profiles, profile dimensions, anchorage devices and available colors and finish.
- C. Shop Drawings: Indicate joint and splice locations, miters, layout of the work, affected adjacent construction and anchorage locations.
- D. Manufacturer's Installation Instructions: Indicate rough-in sizes and required tolerances for item placement.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Expansion Joint Cover Assemblies:
  - 1. Construction Specialties, Inc: [www.c-sgroup.com/#sle](http://www.c-sgroup.com/#sle).
  - 2. Or approved Equal..
  - 3. Substitutions: See Section 01 6000 - Product Requirements.

**2.02 EXPANSION JOINT COVER ASSEMBLIES**

- A. Expansion Joint Cover Assemblies - General: Factory-fabricated and assembled; designed to completely fill joint openings, sealed to prevent passage of air, dust, water, smoke; suitable for traffic expected.
  - 1. Joint Dimensions and Configurations: As indicated on drawings.
  - 2. Joint Cover Sizes: Selected to suit joint width and configuration, based on manufacturer's published recommendations and limitations.
  - 3. Lengths: Provide covers in full lengths required; avoid splicing wherever possible.
  - 4. Anchors, Fasteners, and Fittings: Provided by cover manufacturer.

**2.03 MATERIALS**

- A. Extruded Aluminum: ASTM B221 (ASTM B221M), 6063 alloy, T6 temper; or ASTM B308/B308M, 6061 alloy, T6 temper.
- B. Backing Paint for Aluminum Components in Contact with Cementitious Materials: Asphaltic type.



## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that joint preparation and dimensions are acceptable and in accordance with manufacturer's requirements.

### **3.02 INSTALLATION**

- A. Install components and accessories in accordance with manufacturer's instructions.
- B. Align work plumb and level, flush with adjacent surfaces.
- C. Rigidly anchor to substrate to prevent misalignment.

**END OF SECTION**

**SECTION 08 1113  
HOLLOW METAL DOORS AND FRAMES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Non-fire-rated hollow metal doors and frames.
- B. Fire-rated hollow metal doors and frames.

**1.02 RELATED REQUIREMENTS**

- A. Section 08 7100 - Door Hardware.

**1.03 REFERENCE STANDARDS**

- A. ADA Standards - 2010 ADA Standards for Accessible Design.
- B. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors.
- C. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100).
- D. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
- E. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- F. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable.
- G. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.
- H. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete.
- I. ASTM C476 - Standard Specification for Grout for Masonry.
- J. ICC A117.1 - Accessible and Usable Buildings and Facilities.
- K. ITS (DIR) - Directory of Listed Products.
- L. NAAMM HMMA 840 - Guide Specifications For Receipt, Storage and Installation of Hollow Metal Doors and Frames.
- M. NFPA 80 - Standard for Fire Doors and Other Opening Protectives.
- N. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies.
- O. UL (DIR) - Online Certifications Directory.
- P. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced standards/guidelines.
- C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and any indicated finish requirements.

**1.05 QUALITY ASSURANCE**

- A. Maintain at project site copies of reference standards relating to installation of products specified.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Comply with NAAMM HMMA 840 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.

- B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.

## **PART 2 PRODUCTS**

### **2.01 PERFORMANCE REQUIREMENTS**

- A. Requirements for Hollow Metal Doors and Frames:
  - 1. Steel Sheet: Comply with one or more of the following requirements; galvanized steel complying with ASTM A653/A653M, cold-rolled steel complying with ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M, commercial steel (CS) Type B, for each.
  - 2. Accessibility: Comply with ICC A117.1 and ADA Standards.
- B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

### **2.02 HOLLOW METAL DOORS**

- A. Interior Doors, Non-Fire-Rated:
  - 1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
    - a. Level 2 - Heavy-duty.
    - b. Physical Performance Level B, 500,000 cycles; in accordance with ANSI/SDI A250.4.
    - c. Model 1 - Full Flush.
    - d. Door Face Metal Thickness: 16 gauge, 0.053 inch, minimum.
  - 2. Door Thickness: 1-3/4 inches, nominal.
- B. Fire-Rated Doors:
  - 1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
    - a. Level 2 - Heavy-duty.
    - b. Physical Performance Level B, 500,000 cycles; in accordance with ANSI/SDI A250.4.
    - c. Model 1 - Full Flush.
    - d. Door Face Metal Thickness: 16 gauge, 0.053 inch, minimum.
  - 2. Fire Rating: As indicated on Door Schedule, tested in accordance with UL 10C and NFPA 252 ("positive pressure fire tests").
  - 3. Temperature-Rise Rating (TRR) Across Door Thickness: In accordance with local building code and authorities having jurisdiction.
  - 4. Provide units listed and labeled by UL (DIR) or ITS (DIR).
    - a. Attach fire rating label to each fire rated unit.
  - 5. Door Thickness: 1-3/4 inches, nominal.

### **2.03 HOLLOW METAL FRAMES**

- A. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.
- B. Frame Finish: Factory primed and field finished.
- C. Interior Door Frames, Non-Fire Rated: Full profile/continuously welded type.
  - 1. Frame Metal Thickness: 16 gauge, 0.053 inch, minimum.
  - 2. Frame Finish: Factory primed and field finished.
- D. Door Frames, Fire-Rated: Full profile/continuously welded type.
  - 1. Fire Rating: Same as door, labeled.
  - 2. Frame Metal Thickness: 16 gauge, 0.053 inch, minimum.
  - 3. Frame Finish: Factory primed and field finished.

### **2.04 FINISHES**

- A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

## 2.05 ACCESSORIES

- A. Door Window Frames: Door window frames with glazing securely fastened within door opening.
  - 1. Size: As indicated on drawings.
  - 2. Frame Material: 18 gauge, 0.0478 inch, galvanized steel.
  - 3. Metal Finish: Beige polyester powder coating.
  - 4. Glazing: 1/4 inch thick, tempered glass, in compliance with requirements of authorities having jurisdiction.
- B. Astragals and Edges for Double Doors: Pairs of door astragals, and door edge sealing and protection devices.
  - 1. UL listed products in compliance with requirements of authorities having jurisdiction.
  - 2. Provide surface mounted astragal to cover or fill space for full door height between pair of doors or door and adjacent jamb.
  - 3. Material: Aluminum.
  - 4. Metal Finish: Beige powder coating.
- C. Door Frame Anchors
  - 1. Masonry Anchors: (New Construction)
    - a. "T"- Anchor, 16 ga. galvanized Fixed snap-in anchor.
      - 1) Minimum 3 anchor/ bolts per vertical leg of frame for frames up to 7'-0" in height.
      - 2) Minimum 4 anchor/bolts per vertical leg of frame for frames up to 7'-6" in height.
      - 3) Minimum 5 anchor/bolts per vertical leg of frame for frames up to 10'-0" in height.
    - b. "Yoke and Strap", 16 ga, Galvanized welded anchor.
      - 1) Minimum 3 anchor/ bolts per vertical leg of frame for frames up to 7'-0" in height.
      - 2) Minimum 4 anchor/bolts per vertical leg of frame for frames up to 7'-6" in height.
      - 3) Minimum 5 anchor/bolts per vertical leg of frame for frames up to 10'-0" in height.
    - c. Floor anchor: 16. ga., welded Fixed Floor Anchor
  - 2. Masonry Anchors (Existing Construction):
    - a. Butterfly Anchor: 16 ga. galvanized snap-in in anchor with bolts.
      - 1) Minimum 3 anchor/ bolts per vertical leg of frame for frames up to 7'-0" in height.
      - 2) Minimum 4 anchor/bolts per vertical leg of frame for frames up to 7'-6" in height.
      - 3) Minimum 5 anchor/bolts per vertical leg of frame for frames up to 10'-0" in height.
    - b. Pipe & Plate Anchors: 16 ga. galvanized pipe with 12 ga. galvanized plate.
      - 1) Minimum 3 anchor/ bolts per vertical leg of frame for frames up to 7'-0" in height.
      - 2) Minimum 4 anchor/bolts per vertical leg of frame for frames up to 7'-6" in height.
      - 3) Minimum 5 anchor/bolts per vertical leg of frame for frames up to 10'-0" in height.
    - c. Floor anchor: 16. ga., welded Fixed Floor Anchor
  - 3. Metal Stud Anchors:
    - a. "Z" Anchor: 16 ga, welded anchor with wall board pocket.
      - 1) Minimum 3 anchor/ bolts per vertical leg of frame for frames up to 7'-0" in height.
      - 2) Minimum 4 anchor/bolts per vertical leg of frame for frames up to 7'-6" in height.
      - 3) Minimum 5 anchor/bolts per vertical leg of frame for frames up to 10'-0" in height.
      - 4) Provide one additional jamb anchor at existing studs walls.
    - b. Floor anchor: 16. ga., welded Fixed Floor Anchor
- D. Grout for Frames: Mortar grout complying with ASTM C476 with maximum slump of 4 inches as measured in accordance with ASTM C143/C143M for hand troweling in place; plaster grout and thinner pumpable grout are prohibited.
- E. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.
- F. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.

## **2.06 GLASS ALERT MARKING IDENTIFICATION**

- A. Provide glass alert awareness markers to meet the size and dimension requirements of New York State, Department of Labor Industrial Code Rule 47. Marking identification methods to be visible adhesive strips.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Verify that finished walls are in plane to ensure proper door alignment.

### **3.02 PREPARATION**

- A. Coat inside of frames to be installed in masonry or to be grouted, with bituminous coating, prior to installation.

### **3.03 INSTALLATION**

- A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.
- B. Install fire rated units in accordance with NFPA 80.
- C. Coordinate frame anchor placement with wall construction.
- D. Grout frames in masonry construction, using hand trowel methods; brace frames so that pressure of grout before setting will not deform frames.
- E. Install door hardware as specified in Section 08 7100.
- F. Coordinate installation of electrical connections to electrical hardware items.

### **3.04 TOLERANCES**

- A. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

### **3.05 ADJUSTING**

- A. Adjust for smooth and balanced door movement.

### **3.06 INSTALLATION - GLASS ALERT MARKING IDENTIFICATION**

- A. Locate and install awareness markings in two areas on the glass surface and as required by the New York State, Department of Labor, Industrial Code Rule 47.
- B. Install awareness markings in accordance manufacturer's written recommendations.

### **3.07 SCHEDULE**

- A. Refer to Door and Frame Schedule on the drawings.

**END OF SECTION**

**SECTION 08 1416  
FLUSH WOOD DOORS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Flush wood doors; flush and flush glazed configuration; fire-rated.

**1.02 RELATED REQUIREMENTS**

- A. Section 08 1113 - Hollow Metal Doors and Frames.
- B. Section 08 7100 - Door Hardware.
- C. Section 08 8000 - Glazing.

**1.03 REFERENCE STANDARDS**

- A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials.
- B. AWI (QCP) - Quality Certification Program.
- C. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards.
- D. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards, U.S. Version 3.1.
- E. NFPA 80 - Standard for Fire Doors and Other Opening Protectives.
- F. NFPA 105 - Standard for Smoke Door Assemblies and Other Opening Protectives.
- G. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies.
- H. WDMA I.S. 1A - Interior Architectural Wood Flush Doors.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data: Indicate door core materials and construction; veneer species, type and characteristics.
- C. Shop Drawings: Show doors and frames, elevations, sizes, types, swings, undercuts, beveling, blocking for hardware, factory machining, factory finishing, cutouts for glazing and other details.
  - 1. Provide information as required by AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS).
  - 2. Include certification program label.
- D. Samples: Submit two samples of door construction, \_\_\_ by \_\_\_ inches in size cut from top corner of door.
- E. Samples: Submit two samples of door veneer, 4 by 4 inches in size illustrating wood grain, stain color, and sheen.
- F. Certificate: Submit labels and certificates required by quality assurance and quality control programs.
- G. Manufacturer's qualification statement.
- H. Specimen warranty.
- I. Warranty, executed in Owner's name.

**1.05 QUALITY ASSURANCE**

- A. Maintain one copy of the specified door quality standard on site for review during installation and finishing.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section, with not less than three years of documented experience.
  - 1. Accredited participant in the specified certification program prior to the commencement of fabrication and throughout the duration of the project.
- C. Installer Qualifications: Company specializing in performing work of the type specified in this section, with not less than three years of documented experience.
- D. Woodwork Quality Assurance Program:

1. Comply with AWI (QCP) woodwork association quality assurance service/program in accordance with requirements for work specified in this section; [www.awiqcp.org/#sle](http://www.awiqcp.org/#sle).
2. Provide labels indicating that the installed work complies with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade or grades specified.
3. Provide designated labels on shop drawings as required by quality assurance program.
4. Provide designated labels on installed products as required by quality assurance program.
5. Submit documentation upon completion of installation that verifies this work is in compliance with specified requirements.

#### **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Package, deliver and store doors in accordance with specified quality standard.
- B. Accept doors on site in manufacturer's packaging, and inspect for damage.
- C. Protect doors with resilient packaging sealed with heat shrunk plastic; do not store in damp or wet areas or areas where sunlight might bleach veneer; seal top and bottom edges with tinted sealer if stored more than one week, and break seal on site to permit ventilation.

#### **1.07 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Wood Veneer Faced Doors:
  1. Masonite Architectural; Aspiro Select Wood Veneer Doors: [www.architectural.masonite.com/#sle](http://www.architectural.masonite.com/#sle).

#### **2.02 DOORS**

- A. Doors: See drawings for locations and additional requirements.
  1. Quality Standard: Premium Grade, Extra Heavy Duty performance, in accordance with WDMA I.S. 1A.
  2. Wood Veneer Faced Doors: 5-ply unless otherwise indicated.
- B. Interior Doors: 1-3/4 inches thick unless otherwise indicated; flush construction.
  1. Provide solid core doors at each location.
  2. Fire Rated Doors: Tested to ratings indicated on drawings in accordance with UL 10C - Positive Pressure; Underwriters Laboratories Inc (UL) or Intertek/Warnock Hersey (WHI) labeled without any visible seals when door is open.
  3. Wood veneer facing with factory transparent finish as indicated on drawings.

#### **2.03 DOOR AND PANEL CORES**

- A. Non-Rated Solid Core and 20 Minute Rated Doors: Type structural composite lumber core (SCLC), plies and faces as indicated.
- B. Fire-Rated Doors: Mineral core type, with fire resistant composite core (FD), plies and faces as indicated above; with core blocking as required to provide adequate anchorage of hardware without through-bolting.

#### **2.04 DOOR FACINGS**

- A. Veneer Facing for Transparent Finish: Maple, veneer grade in accordance with quality standard indicated, plain sliced (flat cut), with book match between leaves of veneer, running match of spliced veneer leaves assembled on door or panel face.

#### **2.05 DOOR CONSTRUCTION**

- A. Fabricate doors in accordance with door quality standard specified.
- B. Cores Constructed with stiles and rails:
  1. Provide solid blocks at lock edge for hardware reinforcement.
  2. Provide solid blocking for other throughbolted hardware.
- C. Glazed Openings: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings.

- D. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.
- E. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.
- F. Provide edge clearances in accordance with the quality standard specified.

## **2.06 FINISHES - WOOD VENEER DOORS**

- A. Finish work in accordance with WDMA I.S. 1A for grade specified and as follows:
  - 1. Transparent:
    - a. System - TR-2, Catalyzed Lacquer.
    - b. Stain: As selected by Architect.
    - c. Sheen: Semigloss.
- B. Factory finish doors in accordance with approved sample.
- C. Seal door top edge with color sealer to match door facing.

## **2.07 ACCESSORIES**

- A. Hollow Metal Door Frames: See Section 08 1113.
- B. Glazed Openings:
  - 1. Fire-Protection-Rated Glass: Safety Certification, 16 CFR 1201, Category II.
- C. Door Window Frames: Door window frames with glazing securely fastened within door opening.
  - 1. Size: As indicated on drawings.
  - 2. Frame Material: 18 gauge, 0.0478 inch, galvanized steel.
  - 3. Metal Finish: Beige polyester powder coating.
- D. Glazing Stops: Wood, of same species as door facing, butted corners; prepared for countersink style tamper proof screws.
- E. Door Hardware: See Section 08 7100.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment.

### **3.02 INSTALLATION**

- A. Install doors in accordance with manufacturer's instructions and specified quality standard.
  - 1. Install fire-rated doors in accordance with NFPA 80 requirements.
  - 2. Install smoke and draft control doors in accordance with NFPA 105 requirements.
- B. Factory-Finished Doors: Do not field cut or trim; if fit or clearance is not correct, replace door.
- C. Use machine tools to cut or drill for hardware.
- D. Coordinate installation of doors with installation of frames and hardware.
- E. Coordinate installation of glazing.

### **3.03 TOLERANCES**

- A. Comply with specified quality standard for fit and clearance tolerances.
- B. Comply with specified quality standard for telegraphing, warp, and squareness.

### **3.04 ADJUSTING**

- A. Adjust doors for smooth and balanced door movement.
- B. Adjust closers for full closure.

**END OF SECTION**



**SECTION 08 3100  
ACCESS DOORS AND PANELS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Wall mounted access units.
- B. Ceiling mounted access units.

**1.02 REFERENCE STANDARDS**

- A. UL (FRD) - Fire Resistance Directory.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide sizes, types, finishes, hardware, scheduled locations, and details of adjoining work.
- C. Shop Drawings: Indicate exact position of each access door and/or panel unit.
- D. Product Schedule: Provide complete access door and frame schedule, including types, locations, sizes, latching or locking provisions, and other data pertinent to installation.

**PART 2 PRODUCTS**

**2.01 ACCESS DOORS AND PANELS ASSEMBLIES**

- A. Fire-Rated Access Doors and Frames: Units complying with NFPA 80 that are identical to access door and frame assemblies tested for fire-test-response characteristics according to the following test method and that are listed and labeled by UL or other testing and inspecting agency acceptable to the authorities having jurisdiction:
  - 1. NFPA 252 or UL 10B for fire-rated access door assemblies installed vertically.
  - 2. NFPA 288 for fire-rated access door assemblies installed horizontally.
- B. Wall-Mounted Units:
  - 1. Size: 12 by 12 inches.
  - 2. Door/Panel: Hinged, standard duty, with tool-operated spring or cam lock and no handle.
- C. Wall-Mounted Units in Wet Areas:
  - 1. Size: 12 by 12 inches.
  - 2. Door/Panel: Hinged, standard duty, with tool-operated spring or cam lock and no handle.
- D. Ceiling-Mounted Units:
  - 1. Size - Lay-In Grid Ceilings: To match module of ceiling grid.
  - 2. Size - Other Ceilings: 12 by 12 inches.
  - 3. Door/Panel: Hinged, standard duty, with tool-operated spring or cam lock and no handle.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verify that rough openings are correctly sized and located.

**3.02 INSTALLATION**

- A. Install units in accordance with manufacturer's instructions.
- B. Install frames plumb and level in openings, and secure units rigidly in place.
- C. Position units to provide convenient access to concealed equipment when necessary.

**3.03 SCHEDULE**

**END OF SECTION**

**SECTION 08 4313  
ALUMINUM-FRAMED STOREFRONTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Aluminum-framed storefront, with vision glass.
- B. Infill panels of metal and glass.
- C. Aluminum doors and frames.
- D. Weatherstripping.
- E. Glazing.

**1.02 RELATED REQUIREMENTS**

- A. Section 07 9200 - Joint Sealants: Perimeter sealant and back-up materials.
- B. Section 08 7100 - Door Hardware: Hardware items other than specified in this section.

**1.03 REFERENCE STANDARDS**

- A. AAMA CW-10 - Care and Handling of Architectural Aluminum from Shop to Site.
- B. AAMA 501.2 - Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing Systems.
- C. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum.
- D. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- E. ASTM E283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
- F. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
- G. ASTM E1105 - Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference.

**1.04 PERFORMANCE REQUIREMENTS**

- A. Air Infiltration: Limit air infiltration through assembly to 0.50 cu ft/ming/sq ft of wall area, measured at a reference differential pressure across assembly of 6.24 psf as measured in accordance with ASTM E 283 for a single door.
- B. Air Infiltration: Limit air infiltration through assembly to 1.00 cu ft/ming/sq ft of wall area, measured at a reference differential pressure across assembly of 1.57 psf as measured in accordance with ASTM E 283 for a pair of doors.
- C. Water Leakage: None, when measured in accordance with ASTM E 331 with a test pressure difference of 8.00 lb/sq ft.
- D. Thermal Transmittance (U-Value): 0.77 BTU/hr/sf/degree F per code, or better.
- E. Required to meet 120 mph wind rating.
- F. Glazing shall comply with CPSC 16 CFR, Part 1201 criteria for Category 1 or Category 2:
  - 1. Category 1: 9 square feet or less of exposed surface area.
  - 2. Category 2: more than 9 square feet of exposed surface area.

**1.05 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, glass and infill, door hardware, and internal drainage details.
- C. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related Work, expansion and contraction joint location and details, and field welding required.

- D. Samples: Submit two (2) samples 6 x 6 inches in size illustrating finished aluminum surface, glass, glazing materials.
- E. Hardware Schedule: Complete itemization of each item of hardware to be provided for each door, cross-referenced to door identification numbers in Contract Documents.
- F. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

#### **1.06 QUALITY ASSURANCE**

- A. Manufacturer and Installer Qualifications: Company specializing in manufacturing aluminum glazing systems and with a minimum of five (5) years of documented experience.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Handle products of this section in accordance with AAMA CW-10.
- B. Protect finished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond to aluminum when exposed to sunlight or weather.

#### **1.08 FIELD CONDITIONS**

- A. Do not install sealants when ambient temperature is less than 40 degrees F. Maintain this minimum temperature during and forty eight (48) hours after installation.

#### **1.09 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Provide two (2) year manufacturer warranty against failure of glass seal on insulating glass units, including interpane dusting or misting. Include provision for replacement of failed units.
- C. Provide two (2) year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking.

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Aluminum-Framed Storefronts Manufacturers:
  - 1. Kawneer North America; Product Trifab VG 451T Framing System & 500 Stile Swing Doors: [www.kawneer.com](http://www.kawneer.com).
  - 2. Or approved equal.
  - 3. Substitutions: See Section 01 6000 - Product Requirements.

#### **2.02 STOREFRONT**

- A. Aluminum-Framed Storefront: Factory fabricated, factory finished aluminum framing members with infill, and related flashings, anchorage and attachment devices.
  - 1. Glazing Position: Front-set.
  - 2. Finish: Class I natural anodized.
  - 3. Fabrication: Joints and corners flush, hairline, and weatherproof, accurately fitted and secured; prepared to receive anchors and hardware; fasteners and attachments concealed from view; reinforced as required for imposed loads.
- B. Performance Requirements:
  - 1. Water Penetration Resistance on Manufactured Assembly: No uncontrolled water on interior face, when tested in accordance with ASTM E331 at pressure differential of 8 psf.
  - 2. Air Leakage Laboratory Test: Maximum of 0.06 cu ft/min sq ft of wall area, when tested in accordance with ASTM E283 at 6.27 psf pressure differential across assembly.

#### **2.03 COMPONENTS**

- A. Aluminum Framing Members: Tubular aluminum sections, thermally broken with interior section insulated from exterior, drainage holes and internal weep drainage system.
  - 1. Glazing Stops: Flush.
  - 2. Door Stop: Extruded. Do not cut stop to install hardware.

3. Frame Size: 6 inches deep, 2 inch sightline.
- B. Swing Doors: Glazed aluminum.
1. Top Rail: 5 inches wide.
  2. Vertical Stiles: 5 inches wide.
  3. Bottom Rail: 6 inches wide.
  4. Finish: Same as storefront.

## **2.04 MATERIALS**

- A. Extruded Aluminum: ASTM B221; 6063-T5 alloy and temper.
- B. Fasteners: Stainless steel.
- C. Perimeter Sealant: As Specified in Section 07 9200 - Joint Sealants.
- D. Glass: At exterior locations
1. Glass shall be 1 inch insulated tempered glass units, consisting of 1/4 inch tinted tempered glass at exterior lite, 1/2 inch air spacer, and 1/4 inch clear Solarban 60 low E #3 surface tempered glass at interior lite, unless otherwise noted.
  2. Tint: Color as selected by Architect.
  3. Air spacer shall be continuous, one (1) piece, Warm Edge Spacer.
- E. Glass: At interior locations
1. Glass shall be 1/4 inch tempered monolithic.
- F. Gaskets: Glazing gaskets shall be extruded EPDM rubber.

## **2.05 FINISHES**

- A. Class I Natural Anodized Finish: AAMA 611AA-M12C22A41 Clear anodic coating or AAMA 612 clear anodic coating with electronically deposited organic seal; not less than 0.7 mils thick.

## **2.06 HARDWARE**

- A. Other Door Hardware: As specified in Section 08 7100 - Door Hardware.
- B. Weatherstripping: Wool pile, continuous; provide on all exterior doors.
1. Meeting stiles on pairs on doors shall be equipped with adjustable astragal utilizing wool pile with polymeric fin.
  2. The door weathering on a single acting offset pivot or butt hung door and frame (single or pairs) shall be Kawneer Sealair weathering. This is comprised of a thermoplastic elastomer weathering on a tubular shape with a semi-rigid polymeric backing.
- C. Threshold: Extruded aluminum, one (1) piece per door opening, ribbed surface; width as required, provide on all exterior doors.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that opening are dimensionally within allowable tolerances, plumb, level, clean, provide a solid anchoring surface and are in accordance with the Contract Drawings and Shop Drawings.
- B. Verify that wall openings and adjoining air and vapor seal materials are ready to receive Work of this Section.

### **3.02 INSTALLATION**

- A. Use only skilled tradesmen with Work done in accordance with approved Shop Drawing and Specifications. Install aluminum entrance system in accordance with manufacturer's instructions.
- B. Plumb and align entrance door faces in a single plane for each wall plane and erect doors and materials square and true. Adequately anchor to maintain positions permanently when subjected to normal thermal movement, Specified building movement, and Specified windloads.
- C. Adjust doors for proper operation after installation.
- D. Provide sealants to provide a weather tight installation at all joints and intersections and at opening perimeters. Wipe off excess material and leave all exposed surfaces and joints clean and smooth.

- E. Provide thermal isolation where components penetrate or disrupt building insulation.
- F. Coordinate attachment and seal of perimeter air and vapor barrier materials.
- G. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

### **3.03 TOLERANCES**

- A. Maximum Variation from Plumb: 0.06 inch per 3 feet non-cumulative or 1/16 inch per 10 feet, whichever is less.
- B. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch.

### **3.04 FIELD QUALITY CONTROL**

- A. See Section 01 4000 - Quality Requirements, for independent field testing and inspection requirements. Inspection will monitor quality of installation and glazing.

### **3.05 ADJUSTING**

- A. Adjust operating hardware for smooth operation.

### **3.06 CLEANING**

- A. After completion of entrance installation, entrance doors shall be inspected, adjusted, put into working order and left clean, free of labels, and dirt. Protection shall be the responsibility of the General Contractor.
- B. Remove protective material from pre-finished aluminum surfaces.
- C. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths, and take care to remove dirt from corners. Wipe surfaces clean.
- D. Remove excess sealant by method acceptable to sealant manufacturer.

### **3.07 PROTECTION**

- A. Protect installed products from damage during Subsequent Construction.

**END OF SECTION**

**SECTION 08 5113  
ALUMINUM WINDOWS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Extruded aluminum windows.
- B. Factory glazing.
- C. Operating hardware.
- D. Insect screens.

**1.02 RELATED REQUIREMENTS**

- A. Section 05 5000 - Metal Fabrications: Steel lintels.
- B. Section 06 1000 - Rough Carpentry: Rough opening framing.
- C. Section 07 9200 - Joint Sealants: Perimeter sealant and back-up materials.

**1.03 REFERENCE STANDARDS**

- A. AAMA/WDMA/CSA 101/I.S.2/A440 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights.
- B. AAMA CW-10 - Care and Handling of Architectural Aluminum from Shop to Site.
- C. AAMA 502 - Voluntary Specification for Field Testing of Newly Installed Fenestration Products.
- D. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum.
- E. AAMA 1503 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections.
- F. AAMA 2603 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix).
- G. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix).
- H. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix).
- I. AAMA CW-10 - Care and Handling of Architectural Aluminum From Shop to Site; American Architectural Manufacturers Association; 2012.
- J. ASTM E283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
- K. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
- L. ASTM E783 - Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors.

**1.04 PERFORMANCE REQUIREMENTS**

- A. Performance Requirements: As specified in PART 2, with the following additional requirements:
  - 1. Movement: Accommodate movement between window and perimeter framing and deflection of lintel, without damage to components or deterioration of seals as recommended by manufacturer.
  - 2. Horizontal Sliding Windows - 4-1/2 inch Depth: AAMA Rating AW-PG80-HS
    - a. Air Infiltration: Limit air infiltration through assembly to 0.3 cubic feet/minute/square foot of wall area, measured at a reference differential pressure across assembly of 6.27 psf as measured in accordance with ASTM E 283.
    - b. Condensation Resistance Factor: CRF of 67 (frame) when measured in accordance with AAMA 1503.1.
    - c. Thermal Transmittance: maximum .43 BTU/hour/square foot/F U value.

- d. Water Leakage: None, when measured in accordance with ASTM E 331 with a test pressure at 15 PSF.
- e. Solar Heat Gain Coefficient: 0.4 or better.
- f. Structural: 80 PSF uniform load deflection as measured in accordance with ASTM E330.
- 3. Glazing shall comply with the CPSC 16 CFR, Part 1201 criteria for Category 1 or Category 2:
  - a. Category 1: 9 square feet or less of exposed surface area.
  - b. Category 2: more than 9 square feet of exposed surface area.
- B. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, or migrating moisture occurring within system.
- C. Required to meet 120 mph wind rating.
- D. Glazing shall comply with the CPSC 16 CFR, Part 1201 criteria for Category 1 or Category 2:
  - 1. Category 1: 9 square feet or less of exposed surface area.
  - 2. Category 2: more than 9 square feet of exposed surface area.

#### **1.05 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide component dimensions, information on glass and glazing, internal drainage details, and descriptions of hardware and accessories.
- C. Shop Drawings: Indicate opening dimensions, elevations of different types, framed opening tolerances, method for achieving air and vapor barrier seal to adjacent construction, anchorage locations, glass types, and installation requirements.
  - 1. Contractor to field verify existing conditions and dimensions prior to submittal phase and fabrication.
- D. Samples: Submit two (2) samples, 12 inches x 12 inches in size, illustrating typical corner construction, accessories, and finishes.
- E. Manufacturer's Installation Instructions: Include complete preparation, installation, and cleaning requirements.
- F. Field Quality Control Submittals: Report of field testing for water penetration and air leakage.
- G. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

#### **1.06 QUALITY ASSURANCE**

- A. Manufacturer and Installer: Company specializing in fabrication of commercial aluminum windows of types required with not fewer than 5 years of experience.
- B. Installer Qualifications: Company specializing in performing work of type specified and with at least ten years of documented experience.
  - 1. Provide installers and supervisors who are trained and approved by manufacturer.
- C. Furnish a valid AAMA "Notice of Product Certification" indicating that the windows for the Project conform to AAMA/NWWDA 101/I.S.2-97.
- D. Furnish visible, permanent IGCC certification labels for the CBA rating level on dual-seal double insulating glass units.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Comply with requirements of AAMA CW-10.
- B. Protect finished surfaces with wrapping paper or strippable coating during installation. Do not use adhesive papers or sprayed coatings that bond to substrate when exposed to sunlight or weather.

#### **1.08 FIELD CONDITIONS**

- A. Do not install sealants when ambient temperature is less than 40 degrees F.
- B. Maintain this minimum temperature during and 24 hours after installation of sealants.
- C. Verify all existing conditions prior to order release.

## **1.09 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.
- B. Windows: Warrant for 5-years against defects in material or workmanship under normal use.
- C. Insulating Glass Units: Warrant seal for 10-years against visual obstruction from film formation or moisture collection between internal glass surfaces, excluding that caused by glass breakage or abuse.
- D. Anodized Finish: Warranty for 5-years against peeling, checking, cracking, chalking and change in color.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. EFCO Corporation,
- B. Or approved equal.
- C. Substitutions: See Section 01 6000 - Product Requirements.

### **2.02 WINDOWS**

- A. Windows: Tubular aluminum sections, factory fabricated, factory finished, thermally broken, vision glass, infill panels, related flashings, anchorage and attachment devices.
- B. Horizontal Sliding Type:
  - 1. Basis of Design: EFCO Series SX45 Thermal High Performance, Architectural Grade, Aluminum Windows AW-PG80-HS (or Equal).
  - 2. Construction: Thermally broken.
  - 3. Provide screens.
  - 4. Glazing: Double; bronze tinted; Solarban 60 on # 3 surface Low E.
  - 5. Color: Class 1 Anodized Finish.

### **2.03 COMPONENTS**

- A. Insect Screens (Sliding): Half; held in exterior integral tracks with two (2) stainless steel leaf springs; 5/16 inch x 1-1/2 inches x .050 inch extruded tubular aluminum frame with finish to match window in color and performance; corners mitered, gusset reinforced, and crimped; 18 x 16 dark aluminum mesh secured with PVC spline.
  - 1. Insect screens shall be hinged, sliding or easily pushed out with one hand and without use of key or pull pins on emergency egress windows.
- B. Weatherstrip: Secured in extruded ports; double rows on sash perimeters: rigid PVC weatherseal in one side of the horizontal sash rails, and pile conforming to AAMA 701-00 with polypropylene center fin in remaining locations. All primary weather-strip shall be E-lon or equal.

### **2.04 MATERIALS**

- A. Extruded Aluminum: ASTM B 221, 6063 alloy, T6 temper.
- B. Thermal Barrier
  - 1. All exterior aluminum shall be separated from interior aluminum by a rigid, structural thermal barrier. For purposes of this specification, a structural thermal barrier is defined as a system that shall transfer shear during bending and, therefore, promote composite action between the exterior and interior extrusions.
  - 2. The thermal barrier shall be thermal struts, consisting of glass reinforced polyamide nylon, mechanically crimped in raceways extruded in the exterior and interior extrusions.
    - a. Poured and debridged urethane thermal barriers shall not be permitted.

### **2.05 HARDWARE**

- A. Hardware:
  - 1. Concealed plunger lock in the meeting rail with a flush mounted actuating handle.
  - 2. Sash shall ride on steel ball bearing rollers and a raised track, so dirt will not interfere with normal operation.
  - 3. Rescue Window Hardware: Rescue window shall be a maximum of 54 inches above the finish floor..



## 2.06 FABRICATION

- A. General:
  - 1. All aluminum frame and sash extrusions shall have a minimum wall thickness of 0.080" . Frame sill members shall have a minimum wall thickness of 0.094".
  - 2. Depth of frame shall not be less than 4-1/2".
  - 3. Mechanical fasteners, welded components, and hardware items shall not bridge thermal barriers. Thermal barriers shall align at all frame and vent corners.
  - 4. All frame and vent members shall be able to accommodate separate interior and exterior finishes and colors.
- B. Frame:
  - 1. Frame components shall be mechanically fastened.
  - 2. Frame and sash shall have a continuous interlock at the meeting rail.
- C. Sash:
  - 1. Sash vertical members shall telescope into the sash horizontals and be mechanically fastened.
  - 2. The sash shall be double weather-stripped. Two holes per sash and two slots through window frame to facilitate weepage.
- D. Screens:
  - 1. Half screens only shall be permitted. The screen shall not be surface mounted.
  - 2. Screen frames shall be extruded aluminum.
  - 3. Screen mesh shall be 0.011" aluminum.
- E. Glazing:
  - 1. All lites (both sash and fixed) of the horizontal sliding window shall be inside glazed and weeped.
  - 2. All units shall be glazed with the manufacturer's standard sealant process provided the glass is held in place by a removable, extruded aluminum, glazing bead. The glazing bead must be isolated from the glazing material by a gasket.
  - 3. All units shall be glazed with a minimum of 1/2" glass bite.
- F. Stand alone windows shall be provided with an extruded sill with drip leg matching existing profile and setback whether a replacement or new installation, or as indicated on drawings. Windows in receptor or panning systems shall meet the same criteria, but will incorporate manufacturer's entire system.

## 2.07 DOUBLE INSULATING GLASS UNITS

- A. Construction:
  - 1. Dual Perimeter Sealants: Polyisobutylene and silicone.
  - 2. Air space: Continuous aluminum; no corner keys; argon-filled.
- B. Exterior Glass Lite:
  - 1. Thickness: 1/4 inch.
  - 2. Tint: gray.
  - 3. Type: tempered.
- C. Interior Glass Lite:
  - 1. Thickness: 1/4 inch.
  - 2. Tint: clear.
  - 3. Type: tempered.
  - 4. Coating: Solarban 60 Low E on # 3 surface.

## 2.08 FINISHES

- A. Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41 Clear anodic coating not less than 0.7 mils thick.

## 2.09 INSULATED METAL PANELS

- A. Furnish and install all MAPEPANEL porcelain insulating, panels as manufactured by MAPES Industries, Inc.:
  - 1. Porcelain on Aluminum (Embossed):

- a. Exterior Face: 24 gauge porcelain enamel on aluminum of a suitable alloy for application of exterior grade porcelain enamel. Porcelain enamel shall be acid resistant CLASS A or better in accordance with current conditions of the Porcelain Enamel Institute's S-100(65) "Test for Weather Resistance of Architectural Porcelain Enamels". The base metal shall be pre-cleaned and treated to insure maximum adherence of the porcelain enamel. The surface of the aluminum shall receive a ground coat of porcelain enamel which is fused to the metal by a separate firing operation. A porcelain enamel cover coat of color selected shall be applied to one (1) surface of the ground coat and fused by a second firing operation. All porcelain enamel slips shall be machine applied with automatic spray to insure finish uniformity. Porcelain enamel shall be MAPE'S full color range as selected by the Architect.
  - b. Exterior Substrate: 1/8 inch thick fiber reinforced cement board.
  - c. Core Material for Insulating Panel: 1.7 pound density Isocyanurate
  - d. Lamination: Lamination shall be permanently elastic type neoprene or rubber base adhesive, using heat and pressure. Neither the adhesive selected nor the method of lamination shall be incompatible with the core material used. Adhesive strength shall be equal or better than the strength of any of the core materials.
  - e. Interior Substrate: 1/2 inch Type 'X', fire rated gypsum board.
  - f. Interior Finish: Smooth Primed Aluminum. Color to be selected by Architect.
  - g. Dimensional Tolerance: The tolerance shall be width and length plus or minus 1/16 inch. Thickness shall be plus or minus 1/16 inch.
  - h. Panel Thickness: Insulating panels shall have an actual thickness of 1 inch width.
  - i. R-Value: 3.6100.
  - j. U-Value: 0.2270.
  - k. Job Site Storage: All panels shall be stored in a protected area free from moisture. If the panels are allowed to get wet, they will be rejected by the Architect and replaced by the Contractor at no additional cost to the Owner.
  - l. Erection: Panels shall be properly blocked with elastic blocking devices in accordance with recommendations by the window manufacturers.
  - m. Cleaning: Panels shall be delivered with the surfaces clean from foreign matter.
  - n. Guarantee: All porcelain enamel finishes shall carry the guarantee as set forth in the Porcelain Enamel Institute's specifications.
  - o. Warranty: 25 year on lamination.
  - p. A representative panel sample shall be submitted by the manufacturer for the Architect's inspection and approval.
2. Kynar on Aluminum (Smooth):
- a. Exterior Face: Standard Kynar finish chosen from MAPE'S full color range as selected by the Architect.
  - b. Exterior Substrate: 1/8 inch thick fiber reinforced cement board.
  - c. Core Material for Insulating Panel: 1.7 pound density Isocyanurate
  - d. Lamination: Lamination shall be permanently elastic type neoprene or rubber base adhesive, using heat and pressure. Neither the adhesive selected nor the method of lamination shall be incompatible with the core material used. Adhesive strength shall be equal or better than the strength of any of the core materials.
  - e. Interior Substrate: 1/2 inch Type 'X', fire rated gypsum board.
  - f. Interior Finish: Smooth Primed Aluminum. Color to be selected by Architect.
  - g. Dimensional Tolerance: The tolerance shall be width and length plus or minus 1/16 inch. Thickness shall be plus or minus 1/16 inch.
  - h. Panel Thickness: Insulating panels shall have an actual thickness of 1 inch width.
  - i. R-Value: 3.6100.
  - j. U-Value: 0.2270.
  - k. Job Site Storage: All panels shall be stored in a protected area free from moisture. If the panels are allowed to get wet, they will be rejected by the Architect and replaced by the Contractor at no additional cost to the Owner.
  - l. Erection: Panels shall be properly blocked with elastic blocking devices in accordance with recommendations by the window manufacturers.

- m. Cleaning: Panels shall be delivered with the surfaces clean from foreign matter.
  - n. Guarantee: All porcelain enamel finishes shall carry the guarantee as set forth in the Porcelain Enamel Institutes specifications.
  - o. Warranty: 20 year on Lamination.
  - p. A representative panel sample shall be submitted by the manufacturer for the Architect's inspection and approval.
3. Porcelain on Steel (Smooth) - RUST:
- a. Exterior Face: 24 gauge porcelain enamel on steel of a suitable alloy for application of exterior grade porcelain enamel. Porcelain enamel shall be acid resistant CLASS A or better in accordance with current conditions of the Porcelain Enamel Institutes S- 100(65) "Test for Weather Resistance of Architectural Porcelain Enamels". The base metal shall be pre-cleaned and treated to insure maximum adherence of the porcelain enamel. The surface of the steel shall receive a ground coat of porcelain enamel which is fused to the metal by a separate firing operation. A porcelain enamel cover coat of color selected shall be applied to one surface of the ground coat and fused by a second firing operation. All porcelain enamel slips shall be machine applied with automatic spray to insure finish uniformity. Porcelain enamel shall be MAPE'S non-standard color as selected by the Architect.
  - b. Exterior Substrate: 1/8 inch thick fiber reinforced cement board.
  - c. Core Material for Insulating Panel: 1.7 pound density Isocyanurate.
  - d. Lamination: Lamination shall be permanently elastic type neoprene or rubber base adhesive, using heat and pressure. Neither the adhesive selected nor the method of lamination shall be incompatible with the core material used. Adhesive strength shall be equal or better than the strength of any of the core materials.
  - e. Interior Substrate: 1/2 inch Type 'X', fire rated gypsum board.
  - f. Dimensional Tolerance: The tolerance shall be width and length plus or minus 1/16 inch. Thickness shall be plus or minus 1/16 inch.
  - g. Panel Thickness: Insulating panels shall have an actual thickness of 1 inch width.
  - h. R-Value: 3.6100.
  - i. U-Value: 0.2770.
  - j. Job Site Storage: All panels shall be stored in a protected area free from moisture. If the panels are allowed to get wet, they will be rejected by the Architect and replaced by the Contractor at no additional cost to the Owner.
  - k. Erection: Panels shall be properly blocked with elastic blocking devices in accordance with recommendations by the window manufacturers.
  - l. Cleaning: Panels shall be delivered with the surfaces clean from foreign matter.
  - m. Guarantee: All porcelain enamel finishes shall carry the guarantee as set forth in the Porcelain Enamel Institutes specifications.
  - n. Warranty: 20 year on lamination.
  - o. A representative panel sample shall be submitted by the manufacturer for the Architect's inspection and approval.

## 2.10 ACCESSORIES

- A. Rescue Window Labels:
  - 1. Color: Bright yellow background with black letters.
  - 2. Size: minimum: 3 inches by 5 inches.
  - 3. Text: **RESCUE WINDOW** (text must be readable from each side of window).

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Prepare openings to be in tolerance, plumb, level, provide for secure anchoring, and in accordance with approved Shop Drawings. Provide perimeter wood blocking as required for secure anchoring.
- B. Verify that wall openings and adjoining air and vapor seal materials are ready to receive aluminum windows.

### **3.02 INSTALLATION**

- A. Use only skilled tradesmen with Work done in accordance with the Contract Drawings and approved Shop Drawings.
- B. Install windows in accordance with manufacturer's instructions.
- C. Install windows level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction to produce weathertight construction.
- D. Install window assembly in accordance with AAMA/WDMA/CSA 101/I.S.2/A440.
- E. Provide perimeter wood blocking as required for secure anchoring. Attach window frame and shims to perimeter opening to accommodate construction tolerances and other irregularities.
- F. Align window plumb and level, free of warp or twist. Maintain dimensional tolerances and alignment with adjacent Work.
- G. Install windows and components to drain condensation, water penetrating joints, and moisture migrating within windows to the exterior.
- H. Provide thermal isolation where components penetrate or disrupt building insulation. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- I. Coordinate attachment and seal of perimeter air barrier and vapor retarder materials.
- J. Install operating hardware not pre-installed by manufacturer.
- K. Install perimeter sealant in accordance with requirements specified in Section 07 9200 - Joint Sealants.
  - 1. Prior to installing, window subsills shall be dammed at each end to substrate a minimum 1 inch vertical and horizontal. Sealant shall be tooled to create swale moving water away from each end. Fastener heads shall be sealed with manufacturer recommended sealant prior to setting window. Receptor and panning systems shall be dammed at the head on each end, and at all exterior joints where vertical and horizontal members meet. Systems that are required to be reversed due to existing conditions shall be dammed at the interior members intersections, however, prior approval by Architect is required.

### **3.03 TOLERANCES**

- A. Maximum Variation from Level or Plumb: 1/16 inches every 3 ft non-cumulative or 1/8 inches per 10 ft, whichever is less.

### **3.04 FIELD QUALITY CONTROL**

- A. Provide services of aluminum window manufacturer's field representative to observe for proper installation of system and submit report.
- B. See Section 01 4000 - Quality Requirements, for independent field testing and inspection requirements, and requirements for monitoring quality of specified product installations.
- C. Provide field testing of installed aluminum windows by independent laboratory in accordance with AAMA 502 and AAMA/WDMA/CSA 101/I.S.2/A440 during construction process and before installation of interior finishes.
  - 1. Perform tests on three individual windows in designated locations as directed by Architect.
  - 2. Field test for water penetration in accordance with ASTM E1105 using Procedure B - cyclic static air pressure difference; test pressure shall not be less than 1.9 psf.
  - 3. Field test for air leakage in accordance with ASTM E783 with uniform static air pressure difference of 1.57 psf.
- D. Repair or replace fenestration components that have failed designated field testing, and retest to verify performance complies with specified requirements.

### **3.05 FIELD QUALITY CONTROL**

- A. Test installed units in conformance with AAMA 502-02 minimum requirements for air and water infiltration with the window manufacturer, Contractor, and Owner present.

- B. Select test units as directed by the Owner's Representative and use an AAMA-accredited laboratory provided by the Owner or Contractor.
- C. Replace windows that have failed field testing and retest until performance is satisfactory.

**3.06 ADJUSTING**

- A. Adjust operating sashes and hardware for a tight fit at contact points and weather stripping for smooth operation and weathertight closure..

**3.07 CLEANING**

- A. Remove protective material from factory finished aluminum surfaces.
- B. Wash surfaces by method recommended and acceptable to window manufacturer; rinse and wipe surfaces clean.
- C. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.
- D. Protect window surfaces from contact with contaminating substances resulting from construction operations. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written instructions.
- E. Remove excess sealant by moderate use of mineral spirits or other solvent acceptable to sealant and window manufacturer.

**END OF SECTION**

**SECTION 08 7100  
DOOR HARDWARE**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Hardware for wood and hollow metal doors.
- B. Hardware for fire-rated doors.
- C. Thresholds.
- D. Weatherstripping and gasketing.

**1.02 RELATED REQUIREMENTS**

- A. Section 07 9200 - Joint Sealants: Sealants for setting exterior door thresholds.
- B. Section 08 1113 - Hollow Metal Doors and Frames.

**1.03 REFERENCE STANDARDS**

- A. ADA Standards - 2010 ADA Standards for Accessible Design.
- B. BHMA (CPD) - Certified Products Directory.
- C. BHMA A156.1 - Standard for Butts and Hinges.
- D. BHMA A156.2 - Bored and Preassembled Locks and Latches.
- E. BHMA A156.3 - American National Standard for Exit Devices.
- F. BHMA A156.4 - Door Controls - Closers.
- G. BHMA A156.16 - Standard for Auxiliary Hardware.
- H. BHMA A156.21 - Thresholds.
- I. ICC A117.1 - Accessible and Usable Buildings and Facilities.
- J. ITS (DIR) - Directory of Listed Products.
- K. NFPA 80 - Standard for Fire Doors and Other Opening Protectives.
- L. NFPA 101 - Life Safety Code.
- M. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies.
- N. UL (DIR) - Online Certifications Directory.
- O. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordinate the manufacture, fabrication, and installation of products that door hardware is installed on.
- B. Keying Requirements Meeting:
  - 1. Attendance Required:
    - a. Contractor.
    - b. Owner.
    - c. Architect.
    - d. Installer's Architectural Hardware Consultant (AHC).
    - e. Hardware Installer.
    - f. Construction Manager.
  - 2. Agenda:
    - a. Establish keying requirements.
    - b. Verify locksets and locking hardware are functionally correct for project requirements.
    - c. Verify that keying and programming complies with project requirements.
    - d. Establish keying submittal schedule and update requirements.
  - 3. Incorporate "Keying Requirements Meeting" decisions into keying submittal upon review of door hardware keying system including, but not limited to, the following:

4. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.
5. Deliver established keying requirements to manufacturers.

#### **1.05 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project, and includes construction details, material descriptions, finishes, and dimensions and profiles of individual components.
- C. Shop Drawings - Door Hardware Schedule: Submit detailed listing that includes each item of hardware to be installed on each door. Use door numbering scheme as included in Contract Documents.
  1. Prepared by or under supervision of Architectural Hardware Consultant (AHC).
  2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
  3. Content: Include the following information:
    - a. Type, style, function, size, label, hand, and finish of each door hardware item.
    - b. Manufacturer of each item.
    - c. Fastenings and other pertinent information.
    - d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
    - e. Explanation of abbreviations, symbols, and codes contained in schedule.
    - f. Mounting locations for door hardware.
    - g. Door and frame sizes and materials.
    - h. Warranty information for each product.
  4. Provide complete description for each door listed.
  5. Include account of abbreviations and symbols used in schedule.
  6. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.
  7. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.
  8. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Procedures.
- D. Keying Schedule:
  1. The School District master keying system is BEST Access system. Cylinders for locksets, exit devices and removeable mullions are required to be keyed for use on the existing master keying system in place.
  2. After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.
- E. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Procedures.

## 1.06 QUALITY ASSURANCE

- A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.
- B. Certified Products: Where specified, products must maintain a current listing in the Builders Hardware Manufacturers Association (BHMA) Certified Products Directory (CPD).
- C. Standards: All hardware specified herein shall comply with the following industry standards as applicable. Any undated reference to a standard shall be interpreted as referring to the latest edition of that standard:
  - 1. ANSI/BHMA Certified Product Standards - A156 Series.
  - 2. UL10C – Positive Pressure Fire Tests of Door Assemblies.
  - 3. ANSI/UL 294 – Access Control System Units.
  - 4. UL 305 – Panic Hardware.
- D. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- E. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.
- F. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
- G. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.
- H. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
  - 1. Function of building, purpose of each area and degree of security required.
  - 2. Plans for existing and future key system expansion.
  - 3. Requirements for key control storage and software.
  - 4. Installation of permanent keys, cylinder cores and software.
  - 5. Address and requirements for delivery of keys.
- I. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
  - 1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
  - 2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
  - 3. Review sequence of operation narratives for each unique access controlled opening.
  - 4. Review and finalize construction schedule and verify availability of materials.
  - 5. Review the required inspecting, testing, commissioning, and demonstration procedures.
- J. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.



## **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Package hardware items individually; label and identify each package with door opening code to match door hardware schedule.
- B. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
- C. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- D. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

## **1.08 COORDINATION**

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.
- B. Door Hardware and Electrical Connections: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power uncton boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems.
- C. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

## **1.09 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.
- B. Manufacturer's Warranty: Provide warranty against defects in material and workmanship for period indicated. Complete forms in Owner's name and register with manufacturer.
  - 1. Closers: Five years, minimum.
  - 2. Exit Devices: Five years, minimum.
  - 3. Locksets and Cylinders: Seven years, minimum.
  - 4. Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
    - a. Structural failures including excessive deflection, cracking, or breakage.
    - b. Faulty operation of the hardware.
    - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
    - d. Electrical component defects and failures within the systems operation.

## **1.10 MAINTENANCE SERVICE**

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

## **PART 2 PRODUCTS**

### **2.01 DESIGN AND PERFORMANCE CRITERIA**

- A. Provide specified door hardware as required to make doors fully functional, compliant with applicable codes, and secure to extent indicated.
- B. Provide individual items of single type, of same model, and by same manufacturer.
- C. Provide door hardware products that comply with the following requirements:
  - 1. The Building Code of New York State, 2020 edition

2. Accessibility: ADA Standards and ICC A117.1.
3. Applicable provisions of NFPA 101.
4. Applicable provisions of NFPA 70, National Electrical Code.
5. Fire-Rated Doors: NFPA 80, listed and labeled by qualified testing agency for fire protection ratings indicated, based on testing at positive pressure in accordance with NFPA 252 or UL 10C.
6. Hardware on Fire-Rated Doors: Listed and classified by UL (DIR), ITS (DIR), or testing firm acceptable to authorities having jurisdiction as suitable for application indicated.
7. Listed and certified compliant with specified standards by BHMA (CPD).

D. Fasteners:

1. Provide fasteners of proper type, size, quantity, and finish that comply with commercially recognized standards for proposed applications.
  - a. Aluminum fasteners are not permitted.
  - b. Provide phillips flat-head screws with heads finished to match door surface hardware unless otherwise indicated.
2. Provide machine screws for attachment to reinforced hollow metal and aluminum frames.
  - a. Self-drilling (Tek) type screws are not permitted.
3. Provide stainless steel machine screws and lead expansion shields for concrete and masonry substrates.
4. Provide wall grip inserts for hollow wall construction.
5. Provide spacers or sex bolts with sleeves for through bolting of hollow metal doors and frames.
6. Fire-Rated Applications: Comply with NFPA 80.
  - a. Provide wood or machine screws for hinges mortised to doors or frames, strike plates to frames, and closers to doors and frames.
  - b. Provide steel through bolts for attachment of surface mounted closers, hinges, or exit devices to door panels unless proper door blocking is provided.

## 2.02 SCHEDULED DOOR HARDWARE

- A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.
- B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
  1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.
- C. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

## 2.03 HINGES

- A. Manufacturers:
  1. McKinney; an Assa Abloy Group company: [www.assaabloydss.com/#sle](http://www.assaabloydss.com/#sle).
  2. Bommer Industries, Inc: [www.bommer.com/#sle](http://www.bommer.com/#sle).
  3. Hager Companies: [www.hagerco.com/#sle](http://www.hagerco.com/#sle).
  4. Stanley, dormakaba Group: [www.stanleyhardwarefordoors.com/#sle](http://www.stanleyhardwarefordoors.com/#sle).
- B. Hinges: Comply with BHMA A156.1.
  1. Provide hinges on every swinging door.
  2. Provide five-knuckle full mortise butt hinges unless otherwise indicated.
  3. Provide following quantity of butt hinges for each door:
    - a. Doors up to 60 inches High: Two hinges.
    - b. Doors From 60 inches High up to 90 inches High: Three hinges.
    - c. Doors 90 inches High up to 120 inches High: Four hinges.
    - d. Doors over 120 inches High: One additional hinge per each additional 30 inches in height.

4. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
  - a. Widths up to 3'0": 4-1/2" heavy weight.
  - b. Sizes from 3'1" to 4'0": 5" heavy weight.
5. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
  - a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
  - b. Interior Doors: Standard weight, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.
6. Hinge Options: Comply with the following:
  - a. Non-removable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.
7. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 certified continuous geared hinge with minimum 0.120-inch thick extruded 6060 T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.
8. Manufacturers:
  - a. Bommer Industries (BO).
  - b. Hager Companies (HA).
  - c. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).

## 2.04 EXIT DEVICES

- A. Manufacturers:
  1. Corbin Russwin, Sargent, or Yale; an Assa Abloy Group company: [www.assaabloydss.com/#sle](http://www.assaabloydss.com/#sle).
  2. Precision, dormakaba Group; Apex 2000 Series: [www.precisionhardware.com/#sle](http://www.precisionhardware.com/#sle).
  3. Substitutions: See Section 01 6000 - Product Requirements.
- B. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:
  1. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
  2. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.
  3. Except on fire rated doors, provide exit devices with key cylinder dogging device to hold the pushbar and latch in a retracted position. Provide less-dogging option where indicated.
  4. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
  5. Flush End Caps: Provide flush end caps made of architectural metal in the same finish as the devices as in the Hardware Sets. Plastic end caps will not be acceptable.
  6. Electromechanical Options: Subject to same compliance standards and requirements as mechanical exit devices, electrified devices to be of type and design as specified in hardware sets. Include any specific controllers when conventional power supplies are not sufficient to provide the proper inrush current.
  7. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.
    - a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
    - b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.
  8. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.

9. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.
  10. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
  11. Rail Sizing: Provide exit device rails factory sized for proper door width application.
  12. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.
- C. Exit Devices: Comply with BHMA A156.3, Grade 1, Certified Products Directory (CPD) listed panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be stainless steel, pullman type, with deadlock feature.
1. Lever design to match lockset trim.
  2. Provide cylinder with cylinder dogging or locking trim.
  3. Provide exit devices properly sized for door width and height.
- D. Tube Steel Removable Mullions: ANSI/BHMA A156.3 removable steel mullions with malleable-iron top and bottom retainers and a primed paint finish.
1. Provide keyed removable feature where specified in the Hardware Sets.
  2. Provide stabilizers and mounting brackets as required.
  3. Provide electrical quick connection wiring options as specified in the hardware sets.
  4. Manufacturers:
    - a. Same as exit device manufacturer.

## 2.05 LOCK CYLINDERS

- A. Manufacturers:
1. Basis of Design: Best Access. Note: This is the District existing keying system and all cylinders provided by the Work must tie-in to the existing keying system.
- B. Lock Cylinders: Provide key access on outside of each lock, unless otherwise indicated.
1. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
  2. Bored-Lock Type: Cylinders with tailpieces to suit locks.
  3. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
  4. Keyway: Match Facility Standard.
  5. Provide cylinders from same manufacturer as locking device.
  6. Provide cams and/or tailpieces as required for locking devices.
- C. Patented Cylinders: ANSI/BHMA A156.5, Grade 1, certified patented cylinders employing a utility patented and restricted keyway requiring the use of a patented key. Cylinders are to be protected from unauthorized manufacture and distribution by manufacturer's United States patents.
1. Patented key systems shall not be established with products that have an expired patent. Expired systems shall only be specified and supplied to support existing systems.
- D. Keying System: Each type of lock and cylinders to be factory keyed.
1. Supplier shall conduct a "Keying Conference" to define and document keying system instructions and requirements.
  2. Existing System: Field verify and key cylinders to match Owner's existing system.
- E. Key Quantity: Provide the following minimum number of keys:
1. Change Keys per Cylinder: By Contractor.
  2. Master Keys (per Master Key Level/Group): By Contractor.
  3. Construction Keys (where required): Ten (10).
- F. Construction Keying: Provide construction master keyed cylinders.

## 2.06 CYLINDRICAL LOCKS

- A. Manufacturers:
1. Basis of Design: Best Access 93K Series. Note: This is the District existing keying system and all cylinders provided by the Work must tie-in and be compatible with the existing locking system.
  2. Best, dormakaba Group: [www.bestaccess.com/#sle](http://www.bestaccess.com/#sle).
- B. Cylindrical Locks (Bored): Comply with BHMA A156.2, Grade 1, 4000 Series,

1. Furnish with solid cast levers.
2. Bored Hole: 2-1/8 inch diameter, unless otherwise required by the manufacturer.
3. Latchbolt Throw: 1/2 inch, minimum. 3/4 inch at paired openings.
  - a. Brass or stainless steel latchbolt
4. Backset: 2-3/4 inch unless otherwise indicated.
5. Strikes: Provide manufacturer's standard strike for each latchset or lockset with strike box and curved lip extending to protect frame in compliance with indicated requirements.
  - a. Finish: To match lock or latch.
6. Provide a lock for each door, unless otherwise indicated that lock is not required.

## **2.07 CLOSERS**

- A. Manufacturers; Surface Mounted - Heavy Duty:
  1. Corbin Russwin; an Assa Abloy Group company; DC6000: [www.assaabloydss.com/#sle](http://www.assaabloydss.com/#sle).
  2. DORMA USA, Inc; 8900 Series: [www.dorma.com/#sle](http://www.dorma.com/#sle).
  3. Substitutions: See Section 01 6000 - Product Requirements.
- B. All door closers specified herein shall meet or exceed the following criteria:
  1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers.
  2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
  3. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the Americans with Disabilities Act, provide units complying with ANSI ICC/A117.1.
  4. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
  5. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.
- C. Closers: Comply with BHMA A156.4, Grade 1. Certified Products Directory (CPD) listed surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units standard.
  1. Type: As indicated in door hardware sets.
  2. Provide door closer on each exterior door.
  3. Provide door closer on each fire-rated and smoke-rated door.
  4. Where an overlapping astragal is included on pairs of swinging doors, provide coordinator to ensure door leaves close in proper order.
  5. At corridor entry doors, mount closer on room side of door.
  6. At outswinging exterior doors, mount closer on interior side of door.

## **2.08 SURFACE MOUNTED CLOSER HOLDERS**

- A. Closer Holder Release Devices: ANSI A156.15 certified closer holder release devices designed to hold open fire or smoke rated doors until interruption of signal from fire alarm, smoke detector or remote release switch. . Pull side, push side, or double egress mounting applications available with non-handed track and closer body and dual voltage input (24V/120V). Voltage to be 24VDC unless otherwise specified. Where optional detector is required, provide integral photo electric type with LED indicator. Auxiliary door stops are required at hold open point.
  1. Manufacturers:
    - a. Norton Door Controls (NO) - 7700PT(D) Series.
    - b. Rixson Door Controls (RF) - Smok-Chek VI Series.

- c. Sargent Manufacturing (SA) -351 EHT(D) Series.
- B. Electromagnetic Door Holders: Certified ANSI A156.15 electromagnetic door holder/releases with a minimum 20 to 40 pounds holding power and single coil construction able to accommodate 12VDC, 24VAC, 24VDC and 120VAC. Coils to be independently wound, employing an integral fuse and armatures to include a positive release button.
- C. Manufacturers:
  - 1. Rixson (RF) - 980/990 Series.
  - 2. Sargent Manufacturing (SA) - 1560 Series.
- D. Coordinate Closer Release Devices and Electromagnetic Door Holders with Division 26, 27 and 28 contractor.

## 2.09 KICK PLATES

- A. Manufacturers:
  - 1. Hiawatha, Inc, an Activar Construction Products Group company: [www.activarcpg.com/hiawatha/#sle](http://www.activarcpg.com/hiawatha/#sle).
  - 2. Rockwood Products; ASSA ABLOY Architectural Door Accessories
  - 3. Trimco: [www.trimcohardware.com/#sle](http://www.trimcohardware.com/#sle).
- B. Kick Plates: Provide along bottom edge of push side of every door with closer, except aluminum storefront and glass entry doors, unless otherwise indicated.
  - 1. Size: 8 inch high by 2 inch less door width (LDW) on pull side of door.
  - 2. Size: 8 inch high by 2 inch less door width (LDW) on push side of door.
  - 3. Where plates are applied to fire rated doors with the top of the plate more than 16" above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer's catalog and template book for specific requirements for size and applications.
  - 4. Protection Plates: ANSI/BHMA A156.6 certified kick protection plates, fabricated from the following:
    - a. Stainless Steel: 300 grade, 050-inch thick
  - 5. Options and fasteners: Provide security fastener type. Provide countersunk screw holes.

## 2.10 DOOR STOP AND HOLDERS

- A. Manufacturers:
  - 1. Rockwood; an Assa Abloy Group company: [www.assaabloydss.com/#sle](http://www.assaabloydss.com/#sle).
  - 2. Hiawatha, Inc, division of Activar Construction Products Group, Inc: [www.activarcpg.com/hiawatha/#sle](http://www.activarcpg.com/hiawatha/#sle).
  - 3. Trimco: [www.trimcohardware.com/#sle](http://www.trimcohardware.com/#sle).
  - 4. Substitutions: See Section 01 6000 - Product Requirements.
- B. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.
- C. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.
- D. Door Holders: Comply with BHMA A156.16, Grade 1.
  - 1. Certified Products Directory (CPD) listed overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.
  - 2. Manufacturers:
    - a. Rixson Door Controls (RF).
    - b. Sargent Manufacturing (SA).

## 2.11 THRESHOLDS

- A. Manufacturers:
  - 1. Pemko; an Assa Abloy Group company; Pemko 2266A: [www.assaabloydss.com/#sle](http://www.assaabloydss.com/#sle).
  - 2. Hager Companies; 455: [www.hagerco.com/#sle](http://www.hagerco.com/#sle).

3. National Guard Products, Inc; 513: [www.ngpinc.com/#sle](http://www.ngpinc.com/#sle).
  4. Substitutions: See Section 01 6000 - Product Requirements.
- B. Thresholds: Comply with BHMA A156.21.
1. Provide threshold at interior doors for transition between two different floor types, unless otherwise indicated.
  2. Provide threshold at each gymnasium door, unless otherwise indicated.
  3. Type: Flat surface.
  4. Material: Aluminum.
  5. Threshold Surface: Fluted horizontal grooves across full width.
  6. Field cut threshold to profile of frame and width of door sill for tight fit.
  7. Provide non-corroding fasteners at exterior locations.

## **2.12 WEATHERSTRIPPING AND GASKETING**

- A. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.
1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.
- B. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.
- C. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
- D. Manufacturers:
1. National Guard Products (NG).
  2. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).

## **2.13 FABRICATION**

- A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

## **2.14 FINISHES**

- A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.
- B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware
- C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that doors and frames are ready to receive this work; labeled, fire-rated doors and frames are properly installed, and dimensions are as indicated on shop drawings.
- B. Verify that electric power is available to power operated devices and of correct characteristics.
- C. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- D. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

### **3.02 INSTALLATION**

- A. Install hardware in accordance with manufacturer's instructions and applicable codes.
- B. Install hardware on fire-rated doors and frames in accordance with applicable codes and NFPA 80.
- C. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.
- D. Use templates provided by hardware item manufacturer.
- E. Door Hardware Mounting Heights: Distance from finished floor to center line of hardware item. As indicated in following list; unless noted otherwise in Door Hardware Schedule or on drawings.
  - 1. Mounting heights in compliance with ADA Standards and with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
    - a. Locksets: 40-5/16 inch.
    - b. Exit Devices: 40-5/16 inch.
- F. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
- G. Set exterior door thresholds with full-width bead of elastomeric sealant at each point of contact with floor providing a continuous weather seal; anchor thresholds with stainless steel countersunk screws.
  - 1. See Section 07 9200 for additional requirements.
- H. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

### **3.03 FIELD QUALITY CONTROL**

- A. Provide an Architectural Hardware Consultant (AHC) to inspect installation and certify that hardware and installation has been furnished and installed in accordance with manufacturer's instructions.

### **3.04 ADJUSTING**

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
- B. Adjust work under provisions of Section 01 7000 - Execution and Closeout Requirements.
- C. Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.

### **3.05 CLEANING**

- A. Clean finished hardware in accordance with manufacturer's written instructions after final adjustments have been made.
- B. Clean adjacent surfaces soiled by hardware installation.
- C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.
- D. Replace items that cannot be cleaned to manufacturer's level of finish quality at no additional cost.

### **3.06 PROTECTION**

- A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.
- B. Protect finished Work under provisions of Section 01 7000 - Execution and Closeout Requirements.
- C. Do not permit adjacent work to damage hardware or finish.



### **3.07 DEMONSTRATION**

- A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

### **3.08 DOOR HARDWARE SETS**

- A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.
  - 1. Quantities listed are for each pair of doors, or for each single door.
  - 2. The supplier is responsible for handling and sizing all products.
  - 3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate application for the opening.
  - 4. At existing openings with new hardware the supplier shall field inspect existing conditions prior to the submittal stage to verify the specified hardware will work as required. Provide alternate solutions and proposals as needed.

### **3.09 HARDWARE SCHEDULE**

- A. See drawings.

**END OF SECTION**

**SECTION 08 8000  
GLAZING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Glass.
- B. Glazing compounds and accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 07 9200 - Joint Sealants: Sealant and back-up material.
- B. Section 08 1113 - Hollow Metal Doors and Frames: Glazed lites in doors and borrowed lites.
- C. Section 08 1416 - Flush Wood Doors: Glazed lites in doors.

**1.03 REFERENCE STANDARDS**

- A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials.
- B. ASTM C1036 - Standard Specification for Flat Glass.
- C. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass.
- D. ASTM C1172 - Standard Specification for Laminated Architectural Flat Glass.
- E. ASTM C1193 - Standard Guide for Use of Joint Sealants.
- F. ASTM E 119 - Standard Test Method for Tests of Building Construction and Materials.
- G. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation.
- H. GANA (GM) - GANA Glazing Manual.
- I. GANA (SM) - GANA Sealant Manual.
- J. ICC (IBC) - International Building Code.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data on Glass Types: Provide structural, physical and environmental characteristics, size limitations, special handling or installation requirements.
- C. Product Data on Glazing Compounds: Provide chemical, functional, and environmental characteristics, limitations, special application requirements. Identify available colors.
- D. Samples: Submit two (2) samples 3 inch x 3 inch in size of glass units, showing coloration and design.
- E. Certificates: Certify that products meet or exceed specified requirements.

**1.05 QUALITY ASSURANCE**

- A. Perform Work in accordance with GANA Glazing Manual and FGMA Sealant Manual for glazing installation methods. Maintain one copy on site.
- B. Installer Qualifications: Company specializing in performing the work of this section with minimum five (5) years documented experience.

**1.06 PERFORMANCE REQUIREMENTS**

- A. Glazing shall comply with the CPSC 16 CFR, Part 1201 criteria for Category 1 or Category 2:
  - 1. Category 1: 9 square feet or less of exposed surface area.
  - 2. Category 2: more than 9 square feet of exposed surface area.

**1.07 FIELD CONDITIONS**

- A. Do not install glazing when ambient temperature is less than 40 degrees F.
- B. Maintain minimum ambient temperature before, during and twenty-four (24) hours after installation of glazing compounds.

## 1.08 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Sealed Insulating Glass Units: Provide a five (5) year warranty to include coverage for seal failure, interpane dusting or misting, including replacement of failed units.
- C. Laminated Glass: Provide a five (5) year warranty to include coverage for delamination, including replacement of failed units.

## PART 2 PRODUCTS

### 2.01 GLASS MATERIALS

- A. Glass Manufacturers:
  - 1. Pilkington Building Products North America.
  - 2. Technical Glass Products.
  - 3. SafTiFirst
  - 4. Or approved equal.
  - 5. Substitutions: Refer to Section 01 6000 - Product Requirements.
- B. Float Glass: All glazing is to be float glass unless otherwise indicated.
  - 1. Annealed Type: ASTM C1036, Type I, transparent flat, Class 1 clear, Quality Q3 (glazing select).
  - 2. Heat-Strengthened and Fully Tempered Types: ASTM C1048.
  - 3. Tinted Types: Color and performance characteristics as indicated.
  - 4. Thicknesses: As indicated; for exterior glazing comply with Specified Requirements for Wind Load Design regardless of Specified Thickness.
  - 5. Refer to requirements for sealed insulating glass units for performance characteristics of assembled units composed of tinted glass, coated or uncoated.
- C. Fire Resistance-Rated Glazing: Type, thickness, and configuration as required to achieve indicated ratings.
  - 1. IBC Fire Resistance Rating: W-45, minimum.
  - 2. Provide products listed by Underwriters Laboratories or Intertek Warnock Hersey.
  - 3. Safety Certification: 16 CFR 1201 Category II.
- D. Fire-Protection-Rated Glazing: Type, thickness, and configuration as required to achieve indicated ratings.
  - 1. IBC Fire Protection Rating: As indicated on drawings.
  - 2. Provide products listed by Underwriters Laboratories or Intertek Warnock Hersey.
  - 3. Labeling: Provide permanent label on each piece giving the IBC rating and other information required by the applicable code.
  - 4. "T-Rated" Products: Where D-H-T-90 or D-H-T-60 rating is indicated, provide one of the following products:
- E. Safety Glass (Type A ): Clear; laminated.
  - 1. Laminated with 0.030 inch thick plastic interlayer; comply with ASTM C 1172.
  - 2. 1/4 inch minimum thick.
- F. Safety Glass (Type B ): Clear; fully tempered.
  - 1. Comply with 16 CFR 1201 test requirements for Category I (for glass areas under 9 square feet) and Category II (for glass areas over 9 square feet).
  - 2. 1/4 inch minimum thick.
- G. Safety Glass (Type C ): Clear; Fire Rated.
  - 1. Type C1: Fire Rating of twenty (20) minutes (Interior Doors and Borrowed Lites): 1/4 inch thick, clear, tempered glass, impact resistant, exempt from hose stream test, UL listed. Superlite I-20 by SafTiFIRST, or Approved Equal.
  - 2. Type C2: Fire Rating of twenty (20) minutes (Transoms and Sidelights), and forty five (45) minutes (Interior Doors, Transoms, Sidelights, Borrowed Lites): 3/4 inch thick, wireless, no films or laminates, clear, glass, impact resistant, hose stream tested, UL listed. SuperClear 45-HS-LI manufactured and distributed by SAFTIFIRST or Approved Equal.

3. Type C3: Fire Rating of sixty (60) minutes and ninety (90) minutes with glazing up to 100 square inches (Interior Doors): 5/16 inch thick, clear, ceramic glass, impact resistant, hose stream tested, UL listed. Superlite X-60 & Superlite X-90 by Safti*FIRST*, or Approved Equal.
4. Type C4: Fire Rating of sixty (60) minutes and ninety (90) minutes with glazing in excess of 100 square inches (Interior Doors, Transoms, Sidelights, Borrowed Lites): 1-1/8 inch or 1-1/2 inch thick respectively, clear, annealed glass, impact resistant, hose stream tested, UL listed, ASTM E-119 Heat Barrier Protected. Superlite II XL-60 & XL-90 by Safti*FIRST*, or Approved Equal.
5. All glass to be clear. No visual distortion, tinting, and/or imperfections will be accepted.

## **2.02 SEALED INSULATING GLASS UNITS**

- A. Sealed Insulating Glass Units: Types as indicated.
  1. Durability: Certified by an independent testing agency to comply with ASTM E2190.
  2. Edge Spacers: continuous 1-piece, warm edge spacer.
  3. Edge Seal: Glass to elastomer with supplementary silicone sealant.
  4. Purge interpane space with dry hermetic air.
- B. Insulated glass for the aluminum entrances and the windows are to be provided by the manufacturer and is as specified in the appropriate sections.
- C. Insulated Glass Units (Type D ): Double pane with glass to elastomer edge seal.
  1. Outer pane of 1/4 inch fully tempered, bronze tint to match existing, safety (Type B) glass, inner pane of 1/4 inch fully tempered safety (Type B) glass with Solarban 60 Low E on #3 surface and argon gas.
  2. Total unit thickness of 1 inch minimum.

## **2.03 GLAZING COMPOUNDS**

- A. Silicone Sealant : Single component; moisture curing; capable of water immersion without loss of properties; non-bleeding, non-staining; ASTM C920, Type S, Grade NS, use NT, G, A, O, Class A cured Shore A hardness of 26 to 30; color as selected.

## **2.04 GLAZING ACCESSORIES**

- A. Glazing Tape: Closed cell polyvinyl chloride foam, coiled on release paper over adhesive on two (2) sides, designed for compression of 25% to effect an air barrier and vapor retarder seal; 1/4 inch x 1/4 inch size.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that openings for glazing are correctly sized and within tolerance.
- B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and ready to receive glazing.
- C. No glazing work shall be completed when the temperature is below 40 degrees F in accordance with Fed. Spec. TT-C-00598b and TT-S-00230.

### **3.02 PREPARATION**

- A. Clean contact surfaces with solvent and wipe dry.
- B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.
- C. Prime surfaces scheduled to receive sealant.
- D. Install sealants in accordance with ASTM C1193 and GANA Sealant Manual.
- E. Install sealant in accordance with manufacturer's instructions.

### **3.03 INSTALLATION GENERAL**

- A. The bite or overlap requirements established by the glass manufacturer shall be complied with. All bed clearance shall be maintained by setting blocks and as required by the glass manufacturer.
- B. The minimum bite shall be maintained as follows:
  1. 1/4 inch bite on glass under 50 inches.

2. 3/8 inch bite on glass between 50 inches and 100 inches.
  3. 1/2 inch bite on glass over 100 inches.
  4. Larger as required by special types and/or sizes of glass.
  5. Glass shall be centered exactly in openings.
- C. All tong marks or other irregularities in the glass shall be concealed in the "bite" against window members. If any marks cannot be concealed the glass unit shall be rejected and shall be replaced at no additional cost to the Owner.

**END OF SECTION**

**SECTION 09 0561  
COMMON WORK RESULTS FOR FLOORING PREPARATION**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. This section applies to floors identified in Contract Documents that are receiving the following types of floor coverings:
  - 1. Resilient tile and sheet.
  - 2. Carpet tile.
  - 3. Wood Strip Flooring.
- B. Removal of existing floor coverings.
- C. Preparation of new and existing concrete floor slabs for installation of floor coverings.
- D. Testing of concrete floor slabs for moisture and alkalinity (pH), to be completed by General Contractor.
- E. Remediation of concrete floor slabs due to unsatisfactory moisture or alkalinity (pH) conditions.
  - 1. Contractor shall perform all specified remediation of concrete floor slabs. If such remediation is indicated by testing agency's report and is due to a condition not under Contractor's control or could not have been predicted by examination prior to entering into the contract, a contract modification will be issued.
- F. Patching compound.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 4000 - Quality Requirements: Additional requirements relating to testing agencies and testing.
- B. Section 02 8213 - Asbestos Abatement
- C. Section 03 3000 - Cast-in-Place Concrete: Moisture emission reducing curing and sealing compound for slabs to receive adhered flooring, to prevent moisture content-related flooring failures; to remain in place, not to be removed.
- D. Section 03 5400 - Cast Underlayment: Self-leveling underlayment applied as remediation treatment.

**1.03 REFERENCE STANDARDS**

- A. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or (50-mm) Cube Specimens).
- B. ASTM C472 - Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete.
- C. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
- D. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
- E. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
- F. RFCI (RWP) - Recommended Work Practices for Removal of Resilient Floor Coverings.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordinate scheduling of cleaning and testing, so that preliminary cleaning has been completed for at least 24 hours prior to testing.

**1.05 SUBMITTALS**

- A. Visual Observation Report: For existing floor coverings to be removed.
- B. Floor Covering and Adhesive Manufacturers' Product Literature: For each specific combination of substrate, floor covering, and adhesive to be used; showing:
  - 1. Moisture and alkalinity (pH) limits and test methods.
  - 2. Manufacturer's required bond/compatibility test procedure.

- C. Remedial Materials Product Data: Manufacturer's published data on each product to be used for remediation.
  - 1. Manufacturer's qualification statement.
  - 2. Test reports indicating compliance with specified performance requirements, performed by nationally recognized independent testing agency.
  - 3. Manufacturer's installation instructions.
- D. Testing Agency's Report:
  - 1. Description of areas tested; include floor plans and photographs if helpful.
  - 2. Summary of conditions encountered.
  - 3. Moisture and alkalinity (pH) test reports.
  - 4. Copies of specified test methods.
  - 5. Recommendations for remediation of unsatisfactory surfaces.
  - 6. Submit report not more than two business days after conclusion of testing.
- E. Adhesive Bond and Compatibility Test Report.
- F. Floor Moisture Testing Technician Certificate: International Concrete Repair Institute (ICRI) Concrete Slab Moisture Testing Technician- Grade I certificate.
- G. Copy of RFCI (RWP).
- H. Moisture Mitigation System Warranty

#### **1.06 QUALITY ASSURANCE**

- A. Contractor may perform adhesive and bond test with Contractor's own personnel or hire a testing agency.
- B. Testing Agency Qualifications: Independent testing agency experienced in the types of testing specified.
  - 1. Submit evidence of experience consisting of at least 3 test reports of the type required, with project Owner's project contact information.
- C. Contractor's Responsibility Relating to Independent Agency Testing:
  - 1. Provide access for and cooperate with testing agency.
  - 2. Confirm date of start of testing at least 10 days prior to actual start.
  - 3. Allow at least 4 business days on site for testing agency activities.
  - 4. Achieve and maintain specified ambient conditions.
  - 5. Notify Architect when specified ambient conditions have been achieved and when testing will start.
- D. Floor Moisture Testing Technician Qualifications: International Concrete Repair Institute (ICRI) Concrete Slab Moisture Testing Technician Certification- Grade I.
- E. Remedial Coating Installer Qualifications: Company specializing in performing work of the type specified in this section, trained by or employed by coating manufacturer, and able to provide at least 3 project references showing at least 3 years' experience installing moisture emission coatings.
- F. Prior to installation of any moisture mitigation, patching or leveling materials, an on site meeting will be scheduled with the Construction Manager, Architect, Owner, Contractor, installation sub-contractor and the manufacturer's representative.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, store, handle, and protect products in accordance with manufacturer's instructions and recommendations.
- B. Deliver materials in manufacturer's packaging; include installation instructions.
- C. Keep materials from freezing.

#### **1.08 FIELD CONDITIONS**

- A. Maintain ambient temperature in spaces where concrete testing is being performed, and for at least 48 hours prior to testing, at not less than 65 degrees F or more than 85 degrees F.
- B. Maintain relative humidity in spaces where concrete testing is being performed, and for at least 48 hours prior to testing, at not less than 40 percent and not more than 60 percent.

## **1.09 FIELD QUALITY CONTROL**

- A. Testing Agency: The General Contractor will engage a qualified testing agency to perform tests required of this Section.
- B. Manufacturer's Field Service: The General Contractor will engage a manufacturer's site representative qualified by moisture mitigation manufacturer to inspect substrate conditions, surface preparation, moisture mitigation system application and protection.
  - 1. The manufacturer's representative is to complete inspection of substrate conditions prior to application of moisture mitigation, during application of moisture mitigation and at the completion of moisture mitigation installation, prior to flooring installation.
  - 2. The manufacturer's representative is to provide daily reports of the visit identifying room locations, square footage of spaces and observations including all deficiencies observed.
  - 3. Moisture mitigation system will be considered defective if it fails inspections and testing.

## **PART 2 PRODUCTS**

### **2.01 MATERIALS**

- A. Patching Compound: Floor covering manufacturer's recommended product, suitable for conditions, and compatible with adhesive and floor covering. In the absence of any recommendation from flooring manufacturer, provide a product with the following characteristics:
  - 1. Cementitious moisture-, mildew-, and alkali-resistant compound, compatible with floor, floor covering, and floor covering adhesive, and capable of being feathered to nothing at edges.
  - 2. Latex or polyvinyl acetate additions are permitted; gypsum content is prohibited.
  - 3. Compressive Strength: 3000 psi, minimum, after 28 days, when tested in accordance with ASTM C109/C109M or ASTM C472, whichever is appropriate.
  - 4. Products:
    - a. Basis of Design: Schonox SL-smoothing and finishing compound; Schonox RF for repairs from 1/16" to 2" deep, and Schonox SEZ Plus for filing trench voids from 1/2" to 10" depths.
      - 1) Schonox product representative contact: Ben Giamichael - 607-345-0032.
    - b. Substitutions: See Section 01 6000 - Product Requirements.

## **PART 3 EXECUTION**

### **3.01 CONCRETE SLAB PREPARATION**

- A. Perform following operations in the order indicated:
  - 1. Existing concrete slabs (on-grade and elevated) with existing floor coverings:
    - a. Visual observation of existing floor covering, for adhesion, water damage, alkaline deposits, and other defects.
    - b. Removal of existing floor covering.
  - 2. Preliminary cleaning.
  - 3. Moisture vapor emission tests; 3 tests in the first 1000 square feet and one test in each additional 1000 square feet, unless otherwise indicated or required by flooring manufacturer.
  - 4. Internal relative humidity tests; in same locations as moisture vapor emission tests, unless otherwise indicated.
  - 5. Alkalinity (pH) tests; in same locations as moisture vapor emission tests, unless otherwise indicated.
  - 6. Specified remediation, if required.
  - 7. Patching, smoothing, and leveling, as required.
  - 8. Other preparation specified.
  - 9. Adhesive bond and compatibility test.
  - 10. Protection.
- B. Remediations:
  - 1. Active Water Leaks or Continuing Moisture Migration to Surface of Slab: Correct this condition before doing any other remediation; re-test after correction.



2. Excessive Moisture Emission or Relative Humidity: If an adhesive that is resistant to the level of moisture present is available and acceptable to flooring manufacturer, use that adhesive for installation of the flooring; if not, apply remedial floor coating or remedial sheet membrane over entire suspect floor area.
3. Excessive Alkalinity (pH): If remedial floor coating is necessary to address excessive moisture, no additional remediation is required; if not, if an adhesive that is resistant to the level present is available and acceptable to the flooring manufacturer, use that adhesive for installation of the flooring; otherwise, apply a skim coat of specified patching compound over entire suspect floor area.

### **3.02 REMOVAL OF EXISTING FLOOR COVERINGS**

- A. Comply with local, State, and federal regulations and recommendations of RFCI (RWP), as applicable to floor covering being removed.
- B. Dispose of removed materials in accordance with local, State, and federal regulations and as specified.

### **3.03 PRELIMINARY CLEANING**

- A. Clean floors of dust, solvents, paint, wax, oil, grease, asphalt, residual adhesive, adhesive removers, film-forming curing compounds, sealing compounds, alkaline salts, excessive laitance, mold, mildew, and other materials that might prevent adhesive bond.
- B. Do not use solvents or other chemicals for cleaning.

### **3.04 MOISTURE VAPOR EMISSION TESTING**

- A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.
- B. Where this specification conflicts with the referenced test method, comply with the requirements of this section.
- C. Test in accordance with ASTM F1869 and as follows.
- D. Plastic sheet test and mat bond test may not be substituted for the specified ASTM test method, as those methods do not quantify the moisture content sufficiently.
- E. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if test values exceed 3 pounds per 1000 square feet per 24 hours.
- F. Report: Report the information required by the test method.

### **3.05 INTERNAL RELATIVE HUMIDITY TESTING**

- A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.
- B. Where this specification conflicts with the referenced test method, comply with the requirements of this section.
- C. Test in accordance with ASTM F2170 Procedure A and as follows.
- D. Testing with electrical impedance or resistance apparatus may not be substituted for the specified ASTM test method, as the values determined are not comparable to the ASTM test values and do not quantify the moisture content sufficiently.
- E. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if any test value exceeds 75 percent relative humidity.
- F. Report: Report the information required by the test method.

### **3.06 ALKALINITY TESTING**

- A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.
- B. The following procedure is the equivalent of that described in ASTM F710, repeated here for the Contractor's convenience.
  1. Use a wide range alkalinity (pH) test paper, its associated chart, and distilled or deionized water.

2. Place several drops of water on a clean surface of concrete, forming a puddle approximately 1 inch in diameter. Allow the puddle to set for approximately 60 seconds, then dip the alkalinity (pH) test paper into the water, remove it, and compare immediately to chart to determine alkalinity (pH) reading.
  3. Use of a digital pH meter with probe is acceptable; follow meter manufacturer's instructions.
- C. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if alkalinity (pH) test value is over 10.

### 3.07 PREPARATION

- A. See individual floor covering section(s) for additional requirements.
- B. Comply with requirements and recommendations of floor covering manufacturer.
- C. Fill and smooth surface cracks, grooves, depressions, control joints and other non-moving joints, and other irregularities with patching compound.
- D. Do not fill expansion joints, isolation joints, or other moving joints.

### 3.08 ADHESIVE BOND AND COMPATIBILITY TESTING

- A. Comply with requirements and recommendations of floor covering manufacturer.

### 3.09 APPLICATION OF MOISTURE MITIGATION

- A. Comply with requirements and recommendations of coating manufacturer.
- B. Prior to installation of any moisture mitigation materials, an on site meeting will be scheduled with the Construction Manager, Architect, Owner, Contractor, flooring sub-contractor and the manufacturer's representative.
- C. **Process and Requirements for Moisture-Mitigation and Existing Slab Preparation to receive new finishes- Basis of Design. Perform following operations in the order indicated:**
  1. **Step 1:** Remove all existing floor coverings and any adhesives following floor finish removal. Active water leaks must be corrected prior to doing any other remediation. Re-test after correction.
  2. **Step 2:** Mechanically prepare the existing concrete slab and locations where slab has been patched due to trenching occurrence to a level of CSP of 2-3.
  3. **Step 3:** Apply Schonox EPA moisture mitigation per specification to a closed film to cover 100% RH.
    - a. **Schonox EPA (Two-Part, Epoxy Based Moisture Mitigation System) Product Technical Data:**
      - 1) 2-Part fast-drying, Epoxy-based moisture mitigation system and migration barrier suitable on porous concrete slabs with residual moisture of 100% RH or 25 lbs./1000 sq. ft./24 hrs. on interior areas prior to applying Schonox underlayment. Underlayment may be applied after 4-6 hours and prior to installing flexible coverings.
    - b. Coverage: Approximately 290 sq. ft./26.9 sq. m. per unit based on a one-coat system.
    - c. LEED: IEQ 4.2 Low-Emitting Materials- Paints and Coatings- 1 Point.
    - d. VOC Content: Less than 100g/l according to SCAQMD 1168.
    - e. Working time: Approx. 40 mins. At 65 degrees Fahrenheit. Note: Lower temperatures will lengthen the working and curing time.
    - f. Color: Transparent Amber.
    - g. Storage Temperature: not below 41 degrees Fahrenheit.
    - h. Working temperature: Recommended- minimum 65 degrees Fahrenheit.
    - i. Application type: Roller.
    - j. Finished Application: must cover the substrate completely without any voids or pinholes to ensure moisture vapor suppression.
    - k. Pack size: 2-component system:
      - 1) 7.4 kg/1.78 gallons component A (resin) in metal canister.
      - 2) 2.6 kg/0.69 gallons component B (hardener) in metal canister.

- D. **Step 4:** When the Schonox EPA is cured as recommended, prime with Schonox SHP per manufacturer's instruction.
1. **Schonox SHP (Special Acrylic Primer) Product Technical Data:**
    - a. Suitable as a primer on non-porous substrates. EMICODE EC1Plus; very low emission. Solvent Free. Can be used on walls and floors, improving bond. Short wait time, high coverage, low odor, conforms with MED 96/98/EC. For old, smooth and sound concrete surfaces.
    - b. Base: Acrylic dispersion with additives.
    - c. Density: 1.3 kg/l.
    - d. Coverage: Approx. 350-500 sq. ft. per 1 gallon unit/ approx. 850- 1200 sq. ft. per 2.5-gallon unit.
    - e. VOC Content: 0g/l (calculated), SCAQMD 1113.
    - f. LEED:
      - 1) EQc2- 3 points- low emitting materials
      - 2) MRc2- 1 point- Environmental Product Declaration.
      - 3) MRc4- 1 point Material Ingredients.
      - 4) Environmental Product Declaration (EPD) #EPD-DBC-20220149-IBF1-EN.
    - g. Drying time: Approximately 1-2 hours prior to installing underlayment.
    - h. Storage Temperature: not below 41 degrees Fahrenheit.
    - i. Temperature resistance: up to 122 degrees Fahrenheit.
    - j. Application Temperature: not below 41 degrees Fahrenheit.
    - k. Mixing Ratio: Apply undiluted.
    - l. Application Type: Roller.
    - m. Avoid formation of puddles.
- E. **Step 5:** When primer has cured, Self-level with Schonox ZM cement-based self-leveler per manufacturer's instruction.

1. **Schonox ZM (Cement Based Self-Leveling Compound) Product Technical Data:**
  - a. Suitable on cement and gypsum base substrates. Fast leveling of floors for interior areas. Can be installed up to 1 1/2". EMICODE EC1Plus; very low emission. High hardness and strength. Moisture resistant- no moisture vapor emission limitations on properly prepared concrete. Subfloors must be smooth and sound, clean, dry and free of any contaminants which may hinder adhesion.
    - 1) Pot life- approx. 30 minutes.
    - 2) Ready for Foot Traffic: Approx. 2 hours.
    - 3) Ready for covering:
      - (a) After approx. 24 hours up to 1/4".
      - (b) After approx. 48 hours up to 3/8".
      - (c) For ceramic tiles: when walkable.
    - 4) Coverage: approx. 60-70 sq.ft. at 1/8"-depending on substate conditions and aggregate used.
    - 5) Compressive strength (ASTMC109): 5800 psi after 28 days.
    - 6) Tensile strength (ASTM C1583) at 1/8": above 400 psi after 3 days.
    - 7) Initial set (ASTM C191): approx. 60 minutes.
    - 8) Final set (ASTM C191): approx. 70 minutes.
    - 9) Cured Density: 116 lbs. cu.ft.
    - 10) VOC Content: 0g/l (calculated), SCAQMD 1113.
    - 11) LEED:
      - (a) EQc2- 3 points- low emitting materials
      - (b) MRc1- up to 2 points- Life Cycle Impact Reduction.
      - (c) MRc2- 1 point- Environmental Product Declaration.
      - (d) MRc4- 1 point Material Ingredients.
    - 12) Environmental Product Declaration (EPD) #EPD-DBC-20220217-IBF1-EN.
    - 13) ASTM E84: Flame Spread 0; Smoke Developed 0.

- F. **Step 6:** When the leveler has cured and floor finish is ready to be installed, Schonox Representative is to visit the project site to confirm proper adhesive for floor finish specified and to be utilized for the floor finish installation so the warranty of the products are not compromised.

**3.10 PROTECTION**

- A. Cover prepared floors with building paper or other durable covering.

**END OF SECTION**

**SECTION 09 2116  
GYPSUM BOARD ASSEMBLIES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Performance criteria for gypsum board assemblies.
- B. Metal stud wall framing.
- C. Metal channel ceiling framing.
- D. Resilient sound isolation clips.
- E. Acoustic insulation.
- F. Gypsum wallboard.
- G. Joint treatment and accessories.
- H. Acoustic (sound-dampening) wall and ceiling board.
- I. Glass mat faced board.

**1.02 RELATED REQUIREMENTS**

- A. Section 05 4000 - Cold-Formed Metal Framing: Structural steel stud framing.
- B. Section 07 2100 - Thermal Insulation: Acoustic insulation.
- C. Section 07 8400 - Firestopping: Top-of-wall assemblies at fire-resistance-rated walls.
- D. Section 07 9200 - Joint Sealants: Sealing acoustical gaps in construction other than gypsum board or plaster work.

**1.03 REFERENCE STANDARDS**

- A. AISI S220 - North American Standard for Cold-Formed Steel Nonstructural Framing.
- B. AISI S240 - North American Standard for Cold-Formed Steel Structural Framing.
- C. ASTM A1003/A1003M - Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members.
- D. ASTM C1007 - Standard Specification for Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories.
- E. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
- F. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
- G. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board.
- H. ASTM C1047 - Standard Specification for Accessories For Gypsum Wallboard and Gypsum Veneer Base.
- I. ASTM C1178/C1178M - Standard Specification for Coated Glass Mat Water-Resistant Gypsum Backing Panel.
- J. ASTM C1396/C1396M - Standard Specification for Gypsum Board.
- K. ASTM C1658/C1658M - Standard Specification for Glass Mat Gypsum Panels.
- L. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
- M. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- N. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
- O. ASTM E413 - Classification for Rating Sound Insulation.
- P. GA-216 - Application and Finishing of Gypsum Panel Products.

#### **1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Shop Drawings: Submit proposed control joint layout for review prior to installation.
- C. Product Data:

#### **1.05 QUALITY ASSURANCE**

- A. Installer Qualifications: Company specializing in performing gypsum board installation and finishing, with minimum 5 years of experience.
- B. Mock-up: Provide a mock-up of the area indicated on the Drawings for evaluation of surface preparation techniques and application workmanship.
  - 1. Locate finish areas designated by Architect.
  - 2. Do not proceed with the remaining work until workmanship and finish is approved by Architect.
  - 3. Refinish mock-up area as required to produce acceptable work.
  - 4. If accepted, mock-up will represent the minimum standard for the Work.
  - 5. If accepted, mock-up may remain as part of the Work.

### **PART 2 PRODUCTS**

#### **2.01 GYPSUM BOARD ASSEMBLIES**

- A. Provide completed assemblies complying with ASTM C840 and GA-216.
- B. Interior Partitions, Indicated as Acoustic: Provide completed assemblies with the following characteristics:
  - 1. Acoustic Attenuation: STC of 45-49 calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90.
- C. Shaft Walls at HVAC Shafts: Provide completed assemblies with the following characteristics:
  - 1. Air Pressure Within Shaft: Sustained loads of 5 lbf/sq ft with maximum mid-span deflection of L/240.
  - 2. Acoustic Attenuation: STC of 35-39 calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90.
- D. Fire-Resistance-Rated Assemblies: Provide completed assemblies complying with applicable code.

#### **2.02 METAL FRAMING MATERIALS**

- A. Steel Sheet: ASTM A1003/A1003M, subject to the ductility limitations indicated in AISI S220 or equivalent.
- B. Structural Steel Framing for Application of Gypsum Board: See Section 05 4000.
- C. Nonstructural Framing System Components: AISI S220; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/120 at 5 psf.
  - 1. Studs: C-shaped with knurled or embossed faces.
  - 2. Runners: U shaped, sized to match studs.
  - 3. Furring Members: Hat-shaped sections, minimum depth of 7/8 inch.
  - 4. Resilient Furring Channels: Single or double leg configuration; 1/2 inch channel depth.
    - a. Products:
      - 1) ClarkDietrich; RC Deluxe Resilient Channel: [www.clarkdietrich.com/#sle](http://www.clarkdietrich.com/#sle).
      - 2) Phillips Manufacturing Co; RC-2 Resilient Sound Channel: [www.phillipsmfg.com/#sle](http://www.phillipsmfg.com/#sle).
      - 3) Or approved equal.

#### **2.03 BOARD MATERIALS**

- A. Manufacturers - Gypsum-Based Board:
  - 1. CertainTeed Corporation: [www.certainteed.com/#sle](http://www.certainteed.com/#sle).
  - 2. Georgia-Pacific Gypsum: [www.gpgypsum.com/#sle](http://www.gpgypsum.com/#sle).
  - 3. National Gypsum Company: [www.nationalgypsum.com/#sle](http://www.nationalgypsum.com/#sle).
  - 4. USG Corporation: [www.usg.com/#sle](http://www.usg.com/#sle).

5. Substitutions: See Section 01 6000 - Product Requirements.
- B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
  1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
  2. Glass mat faced gypsum panels, as defined in ASTM C1658/C1658M, suitable for paint finish, of the same core type and thickness may be substituted for paper-faced board.
  3. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
    - a. Mold-resistant board is required whenever board is being installed before the building is enclosed and conditioned.
    - b. Mold resistant board is required in all potential wet locations.
  4. At Assemblies Indicated with Fire-Resistance Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.
  5. Thickness:
    - a. Vertical Surfaces: 5/8 inch.
    - b. Multi-Layer Assemblies: Thicknesses as indicated on drawings.
- C. Abuse Resistant Wallboard:
  1. Application: High-traffic areas indicated.
  2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
  3. Type: Fire-resistance-rated Type X, UL or WH listed.
  4. Thickness: 5/8 inch.
  5. Edges: Tapered.
- D. Backing Board For Wet Areas:
  1. Application: Horizontal surfaces behind tile in wet areas including countertops.
  2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
  3. Glass Mat Faced Board: Coated glass mat water-resistant gypsum backing panel as defined in ASTM C1178/C1178M.
    - a. Fire-Resistance-Rated Type: Type X core, thickness 5/8 inch.
- E. Backing Board For Non-Wet Areas: Water-resistant gypsum backing board as defined in ASTM C1396/C1396M; sizes to minimum joints in place; ends square cut.
  1. Application: Vertical surfaces behind thinset tile, except in wet areas.
  2. Type X Thickness: 5/8 inch.
  3. Edges: Tapered.
- F. Ceiling Board: Special sag resistant gypsum ceiling board as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
  1. Application: Ceilings, unless otherwise indicated.
  2. Thickness: 1/2 inch.
  3. Edges: Tapered.
- G. Acoustical Sound Dampening Wall and Ceiling Board: Two layers of heavy paper-faced, high-density gypsum board separated by a viscoelastic polymer layer and capable of achieving STC rating of 50 or more in typical stud wall assemblies as calculated in accordance with ASTM E413 and when tested in accordance with ASTM E90.
  1. Thickness: 1/2 inch.
  2. Long Edges: Tapered.
  3. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.

#### **2.04 GYPSUM BOARD ACCESSORIES**

- A. Acoustic Insulation: See Section 07 2100.
- B. Sound Isolation Tape: Elastomeric foam tape for sound decoupling.
  1. Surface Burning Characteristics: Provide assemblies with flame spread index of 75 or less and smoke developed index of 450 or less, when tested in accordance with ASTM E84.
  2. Tape Thickness: 1/8" inch.

- C. Finishing Accessories: ASTM C1047, extruded aluminum alloy (6063 T5) or galvanized steel sheet ASTM A924/A924M G90, unless noted otherwise.
  - 1. Types: As detailed or required for finished appearance.
- D. Beads, Joint Accessories, and Other Trim: ASTM C1047, rigid plastic, galvanized steel, or rolled zinc, unless noted otherwise.
  - 1. Expansion Joints:
    - a. Type: V-shaped metal with factory-installed protective tape.
- E. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.
  - 1. Fiberglass Tape: 2 inch wide, coated glass fiber tape for joints and corners, except as otherwise indicated.
  - 2. Joint Compound: Setting type, field-mixed.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that project conditions are appropriate for work of this section to commence.
- B. Coordinate and conduct a pre-closure inspection prior to enclosing ceilings, walls, chases, and shafts with gypsum board products with the Owner's Representative and all involved trades (sub-contractors and prime contractors) to verify that their work is complete including any testing.
- C. Do not install gypsum board until all unsatisfactory conditions have been corrected.

#### **3.02 FRAMING INSTALLATION**

- A. Metal Framing: Install in accordance with ASTM C1007/AISI S220 and manufacturer's instructions.
- B. Suspended Ceilings and Soffits: Space framing and furring members as indicated.
  - 1. Level ceiling system to a tolerance of 1/1200.
  - 2. Laterally brace entire suspension system.
  - 3. Install bracing as required at exterior locations to resist wind uplift.
- C. Studs: Space studs at 16 inches on center.
  - 1. Extend partition framing to structure in all locations.
- D. Openings: Reinforce openings as required for weight of doors or operable panels, using not less than double studs at jambs.
- E. Acoustic Furring: Install resilient channels at maximum 24 inches on center. Locate joints over framing members.

#### **3.03 ACOUSTIC ACCESSORIES INSTALLATION**

- A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.
- B. Sound Isolation Tape: Apply to vertical studs and top and bottom tracks/runners in accordance with manufacturer's instructions.
- C. Acoustic Sealant: Install in accordance with manufacturer's instructions.

#### **3.04 BOARD INSTALLATION**

- A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Fire-Resistance-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.

#### **3.05 INSTALLATION OF TRIM AND ACCESSORIES**

- A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.
  - 1. Provide blocking at control joints in fire rated wall and ceiling assemblies according to GA-600 Gypsum Associan's Fire Resistance Design Manual.
  - 2. Install joints where specifically indicated for design accent or architectural features.



- B. Corner Beads: Install at external corners, using longest practical lengths.

### **3.06 JOINT TREATMENT**

- A. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
  - 1. Level 1: Fire-resistance-rated wall areas above finished ceilings, whether or not accessible in the completed construction.
- B. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
  - 1. Feather coats of joint compound so that camber is maximum 1/32 inch.
- C. STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustic sealant. Install acoustic sealant at both faces of partitions at perimeters and at non-fire-rated through penetrations. Close off sound-flanking paths around or through assemblies, including sealing partitions above acoustic sealings.

### **3.07 TOLERANCES**

- A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

**END OF SECTION**

**SECTION 09 3000  
TILING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Tile for floor applications.
- B. Tile for wall applications.
- C. Tile for shower receptors.
- D. Stone thresholds.
- E. Ceramic accessories.
- F. Ceramic trim.
- G. Non-ceramic trim.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 5400 - Cast Underlayment.
- B. Section 07 9200 - Joint Sealants: Sealing joints between tile work and adjacent construction and fixtures.
- C. Section 09 0561 - Common Work Results for Flooring Preparation: Concrete slab moisture and alkalinity testing and remediation procedures.
- D. Section 09 2116 - Gypsum Board Assemblies: Tile backer board.

**1.03 REFERENCE STANDARDS**

- A. ANSI A108/A118/A136 - American National Standard Specifications for the Installation of Ceramic Tile (Compendium).
- B. ANSI A108.1a - American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar.
- C. ANSI A108.1b - Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set, Modified Dry-Set, or Improved Modified Dry-Set Cement Mortar.
- D. ANSI A108.1c - Contractor's Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set, Modified Dry-Set, or Improved Modified Dry-Set Cement Mortar.
- E. ANSI A108.4 - American National Standard Specifications for Installation of Ceramic Tile with Organic Adhesive or Water Cleanable Tile-Setting Epoxy Adhesive.
- F. ANSI A108.5 - Setting of Ceramic Tile with Dry-Set Cement Mortar, Modified Dry-Set Cement Mortar, EGP (Exterior Glue Plywood) Modified Dry-Set Cement Mortar, or Improved Modified Dry-Set Cement Mortar.
- G. ANSI A108.6 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grout Epoxy.
- H. ANSI A108.8 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant Furan Resin Mortar and Grout.
- I. ANSI A108.9 - American National Standard Specifications for Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout.
- J. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework.
- K. ANSI A108.12 - Installation of Ceramic Tile with EGP (Exterior Glue Plywood) Modified Dry-Set Mortar.
- L. ANSI A108.13 - American National Standard for Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone.
- M. ANSI A108.19 - American National Standard Specifications for Interior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs by the Thin-Bed Method Bonded with Modified Dry-Set Cement Mortar or Improved Modified Dry-Set Cement Mortar.

- N. ANSI A108.20 - American National Standard Specifications for Exterior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs.
- O. ANSI A118.7 - American National Standard Specifications for High Performance Cement Grouts for Tile Installation.
- P. ANSI A118.10 - American National Standard Specifications for Load Bearing, Bonded, Waterproof Membranes For Thin-Set Ceramic Tile And Dimension Stone Installation.
- Q. ANSI A118.12 - American National Standard Specifications for Crack Isolation Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation.
- R. ANSI A118.15 - American National Standard Specifications for Improved Modified Dry-Set Cement Mortar.
- S. ANSI A137.1 - American National Standard Specifications for Ceramic Tile.
- T. ASTM C373 - Standard Test Methods for Determination of Water Absorption and Associated Properties by Vacuum Method for Pressed Ceramic Tiles and Glass Tiles and Boil Method for Extruded Ceramic Tiles and Non-tile Fired Ceramic Whiteware Products.
- U. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation.
- V. TCNA (HB-GP) - Handbook for Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs Installation.

#### **1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by affected installers.

#### **1.05 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.
- C. Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints, thresholds, ceramic accessories, and setting details.
- D. Samples: Mount tile and apply grout on two plywood panels, minimum 18 by 18 inches in size illustrating pattern, color variations, and grout joint size variations.
- E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- F. Master Grade Certificate: Submit for each type of tile, signed by the tile manufacturer and tile installer.
- G. Installer's Qualification Statement:
  - 1. Submit documentation of National Tile Contractors Association (NTCA) or Tile Contractors' Association of America (TCAA) accreditation.
  - 2. Submit documentation of completion of apprenticeship and certification programs.
- H. Maintenance Data: Include recommended cleaning methods, cleaning materials, and stain removal methods.
- I. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 01 6000 - Product Requirements, for additional provisions.
  - 2. Extra Tile: 1 percent of each size, color, and surface finish combination, but not less than 10 square feet of each type.

#### **1.06 QUALITY ASSURANCE**

- A. Maintain one copy of ANSI A108/A118/A136, TCNA (HB), and TCNA (HB-GP) on-site.
- B. Manufacturer Qualifications: Company specializing in manufacturing the types of products specified in this section, with minimum ten years of documented experience.
- C. Installer Qualifications:
  - 1. Company specializing in performing tile installation, with minimum of five years of documented experience.

- a. Accredited Five-Star member of the National Tile Contractors Association (NTCA) or Trowel of Excellence member of the Tile Contractors' Association of America (TCAA).

### **1.07 MOCK-UPS**

- A. See Section 01 4000 - Quality Requirements for general requirements for mock-up.
- B. Construct tile mock-up where indicated on drawings, incorporating all components specified for the location.
  - 1. Minimum size of mock-up is indicated on drawings.
  - 2. Demolish mock-up when directed by Architect, and remove debris from the site.

### **1.08 DELIVERY, STORAGE, AND HANDLING**

- A. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

### **1.09 FIELD CONDITIONS**

- A. Maintain ambient and substrate temperature above 50 degrees F and below 100 degrees F during installation and curing of setting materials.

## **PART 2 PRODUCTS**

### **2.01 TILE**

- A. Manufacturers: All products by the same manufacturer.
  - 1. Dal-Tile Corporation: [www.daltile.com/#sle](http://www.daltile.com/#sle).
  - 2. Or approved equal.
  - 3. Substitutions: See Section 01 6000 - Product Requirements.
- B. Glazed Wall Tile, Type GWT-1: ANSI A137.1 standard grade.
  - 1. Moisture Absorption: 7.0 to 20.0 percent as tested in accordance with ASTM C373.
  - 2. Size: 4 inch by 12 inch, nominal.
  - 3. Edges: Cushioned.
  - 4. Surface Finish: Semi-gloss glaze.
  - 5. Thickness: 5/16 inch.
  - 6. Color: Arctic White (0190).
  - 7. Trim Units: Matching bead, bullnose, cove, and base shapes in sizes coordinated with field tile.
  - 8. Products:
    - a. Dal-Tile Corporation; Linear - Color Wheel Collection: [www.daltile.com/#sle](http://www.daltile.com/#sle).
- C. Glazed Wall Tile, Type GWT-2: ANSI A137.1 standard grade.
  - 1. Moisture Absorption: 7.0 to 20.0 percent as tested in accordance with ASTM C373.
  - 2. Size: 2 inch by 8 inch, nominal.
  - 3. Edges: Cushioned.
  - 4. Surface Finish: Semi-gloss glaze.
  - 5. Thickness: 5/16 inch.
  - 6. Color: Desert Grey (X114).
  - 7. Trim Units: Matching bead, bullnose, cove, and base shapes in sizes coordinated with field tile.
  - 8. Products:
    - a. Dal-Tile Corporation; Linear - Color Wheel Collection: [www.daltile.com/#sle](http://www.daltile.com/#sle).
- D. Glazed Wall Tile, Type GWT-2: ANSI A137.1 standard grade.
  - 1. Moisture Absorption: 7.0 to 20.0 percent as tested in accordance with ASTM C373.
  - 2. Size: 2 inch by 8 inch, nominal.
  - 3. Edges: Cushioned.
  - 4. Surface Finish: Semi-gloss glaze.
  - 5. Thickness: 5/16 inch.
  - 6. Color(s): Mustard (1012).
  - 7. Products:
    - a. Dal-Tile Corporation; Linear - Color Wheel Collection: [www.daltile.com/#sle](http://www.daltile.com/#sle).
- E. Glazed Wall Tile, Type GWT-3: ANSI A137.1 standard grade.

1. Moisture Absorption: 7.0 to 20.0 percent as tested in accordance with ASTM C373.
  2. Size: 2 inch by 8 inch, nominal.
  3. Edges: Cushioned.
  4. Surface Finish: Semi-gloss glaze.
  5. Thickness: 5/16 inch.
  6. Color(s): Navy (K189).
  7. Products:
    - a. Dal-Tile Corporation; Linear - Color Wheel Collection: [www.daltile.com/#sle](http://www.daltile.com/#sle).
- F. Quarry Tile: ANSI A137.1 standard grade.
1. Moisture Absorption: Over 3.0 but not more than 5.0 percent as tested in accordance with ASTM C373.
  2. Size: 4 by 8 inch, nominal.
  3. Surface Finish: Non-slip.
  4. Color(s): As indicated on drawings.
  5. Products:
    - a. Dal-Tile Corporation; \_\_\_\_\_: [www.daltile.com/#sle](http://www.daltile.com/#sle).
    - b. Or approved equal.
    - c. Substitutions: See Section 01 6000 - Product Requirements.
- G. Porcelain Tile, Type PRT-1: ANSI A137.1 standard grade.
1. Moisture Absorption: 0 to 0.5 percent as tested in accordance with ASTM C373.
  2. Size: 12 by 24 inch, nominal.
  3. Thickness: 5/16 inch.
  4. Edges: Square.
  5. Surface Finish: Matte glazed.
  6. Color(s): Modern Linear Medium Gray (ML63).
  7. Trim Units: Matching bullnose, cove base, and cove shapes in sizes coordinated with field tile.
  8. Products:
    - a. Dal-Tile Corporation; Fabric Art - Colorbody Porcelain Floor & Mosaic: [www.daltile.com/#sle](http://www.daltile.com/#sle).
    - b. Or approved equal.
    - c. Substitutions: See Section 01 6000 - Product Requirements.
- H. Porcelain Tile, Type PRT-2: ANSI A137.1 standard grade.
1. Moisture Absorption: 0 to 0.5 percent as tested in accordance with ASTM C373.
  2. Size: 12 by 24 inch, nominal.
  3. Thickness: 5/16 inch.
  4. Edges: Square.
  5. Surface Finish: Matte glazed.
  6. Color(s): Modern Linear White (ML60).
  7. Trim Units: Matching bullnose, cove base, and cove shapes in sizes coordinated with field tile.
  8. Products:
    - a. Dal-Tile Corporation; Fabric Art - Colorbody Porcelain Floor & Mosaic: [www.daltile.com/#sle](http://www.daltile.com/#sle).
    - b. Or approved equal.
    - c. Substitutions: See Section 01 6000 - Product Requirements.
- I. Porcelain Tile, Type PRT-1: ANSI A137.1 standard grade.
1. Moisture Absorption: 0 to 0.5 percent as tested in accordance with ASTM C373.
  2. Size: 12 by 24 inch, nominal.
  3. Thickness: 5/16 inch.
  4. Edges: Square.
  5. Surface Finish: Matte glazed.
  6. Color(s): Modern Linear Midnight Blue (ML65).
  7. Trim Units: Matching bullnose, cove base, and cove shapes in sizes coordinated with field tile.
  8. Products:
    - a. Dal-Tile Corporation; Fabric Art - Colorbody Porcelain Floor & Mosaic: [www.daltile.com/#sle](http://www.daltile.com/#sle).

- b. Or approved equal.
- c. Substitutions: See Section 01 6000 - Product Requirements.

## **2.02 TRIM AND ACCESSORIES**

- A. Ceramic Trim: Matching bullnose, double bullnose, cove base, and cove ceramic shapes in sizes coordinated with field tile.
  - 1. Manufacturers: Same as for tile.
- B. Non-Ceramic Trim: Satin brass anodized extruded aluminum, style and dimensions to suit application, for setting using tile mortar or adhesive.
  - 1. Applications:
    - a. Open edges of wall and floor tile.
    - b. Wall corners, outside and inside.
    - c. Expansion and control joints, floor and wall.
    - d. Borders and other trim as indicated on drawings.
  - 2. Products:
    - a. Schluter-Systems: [www.schluter.com/#sle](http://www.schluter.com/#sle). Quadec and Dilex-KSN
    - b. Substitutions: See Section 01 6000 - Product Requirements.
- C. Thresholds: four to five inches wide by full width of wall or frame opening; beveled edge on both long edges; without holes, cracks, or open seams.
  - 1. Thickness: 5/8 inch.
  - 2. Material: Marble, honed finish.
  - 3. Color and Pattern: as selected by Architect.
  - 4. Applications:
    - a. At doorways where tile terminates.
    - b. At open edges of floor tile where adjacent finish is a different height.

## **2.03 SETTING MATERIALS**

- A. Provide setting and grout materials from same manufacturer.
- B. Improved Latex-Portland Cement Mortar Bond Coat: ANSI A118.15.
  - 1. Applications: Use this type of bond coat where indicated, and where no other type of bond coat is indicated.
  - 2. Products:
    - a. LATICRETE International, Inc; LATICRETE 254 Platinum: [www.laticrete.com/#sle](http://www.laticrete.com/#sle).

## **2.04 GROUTS**

- A. Provide setting and grout materials from same manufacturer.
- B. High Performance Polymer Modified Grout: ANSI A118.7 polymer modified cement grout.
  - 1. Applications: Use this type of grout where indicated and where no other type of grout is indicated.
  - 2. Use sanded grout for joints 1/8 inch wide and larger; use unsanded grout for joints less than 1/8 inch wide.
  - 3. Color(s): As selected by Architect from manufacturer's full line.
  - 4. Products:
    - a. LATICRETE International, Inc; LATICRETE PERMACOLOR Grout: [www.laticrete.com/#sle](http://www.laticrete.com/#sle).
    - b. Substitutions: See Section 01 6000 - Product Requirements.

## **2.05 MAINTENANCE MATERIALS**

- A. Tile Sealant: Gunnable, silicone, siliconized acrylic, or urethane sealant; moisture and mildew resistant type.
  - 1. Applications: Between tile and plumbing fixtures.
  - 2. Products:
    - a. LATICRETE International, Inc; LATICRETE LATASIL: [www.laticrete.com/#sle](http://www.laticrete.com/#sle).
    - b. Substitutions: See Section 01 6000 - Product Requirements.
- B. Grout Sealer: Liquid-applied, moisture and stain protection for existing or new Portland cement grout.
  - 1. Composition: Water-based colorless silicone.

- C. Grout Release: Temporary, water-soluble pre-grout coating.

## **2.06 ACCESSORY MATERIALS**

- A. Waterproofing Membrane at Floors: Specifically designed for bonding to cementitious substrate under thick mortar bed or thin-set tile; complying with ANSI A118.10.
  - 1. Crack Resistance: No failure at 1/16 inch gap, minimum; comply with ANSI A118.12.
  - 2. Fluid or Trowel Applied Type:
    - a. Thickness: 25 mils, minimum, dry film thickness.
    - b. Products:
      - 1) LATICRETE International, Inc; LATICRETE HYDRO BAN: [www.laticrete.com/#sle](http://www.laticrete.com/#sle).
- B. Waterproofing Membrane at Showers and Tiled Tubs: Specifically designed for bonding to cementitious substrate under thick mortar bed or thin-set tile; complying with ANSI A118.10.
  - 1. Fluid or Trowel Applied Type:
    - a. Material: Synthetic rubber.
    - b. Thickness: 25 mils, minimum, dry film thickness.
    - c. Products:
      - 1) LATICRETE International, Inc; LATICRETE HYDRO BAN: [www.laticrete.com/#sle](http://www.laticrete.com/#sle).
      - 2) Substitutions: See Section 01 6000 - Product Requirements.
- C. Backer Board: Reference Section 092116 Gypsum Board Assemblies

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that subfloor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive tile.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive tile.
- C. Verify that subfloor surfaces are dust free and free of substances that could impair bonding of setting materials to subfloor surfaces.
- D. Cementitious Subfloor Surfaces: Verify that substrates are ready for tiling installation by testing for moisture and alkalinity (pH).
  - 1. Test in accordance with Section 09 0561.
  - 2. Obtain instructions if test results are not within limits recommended by tiling material manufacturer and setting material manufacturer.
  - 3. Follow moisture and alkalinity remediation procedures in Section 09 0561.
- E. Verify that required floor-mounted utilities are in correct location.

### **3.02 PREPARATION**

- A. Protect surrounding work from damage.
- B. Vacuum clean surfaces and damp clean.
- C. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.
- D. Prepare substrate surfaces for adhesive installation in accordance with adhesive manufacturer's instructions.

### **3.03 INSTALLATION - GENERAL**

- A. Install tile, thresholds, and stair treads and grout in accordance with applicable requirements of ANSI A108.1a through ANSI A108.20, manufacturer's instructions, and TCNA (HB) or TCNA (HB-GP) recommendations, as applicable.
- B. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.
- C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.

- D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make grout joints without voids, cracks, excess mortar or excess grout, or too little grout.
- E. Form internal angles square and external angles bullnosed.
- F. Install non-ceramic trim in accordance with manufacturer's instructions.
- G. Install thresholds where indicated.
- H. Sound tile after setting. Replace hollow sounding units.
- I. Keep control and expansion joints free of mortar, grout, and adhesive.
- J. Prior to grouting, allow installation to completely cure; minimum of 48 hours.
- K. Grout tile joints unless otherwise indicated. Use standard grout unless otherwise indicated.
- L. At changes in plane and tile-to-tile control joints, use tile sealant instead of grout, with either bond breaker tape or backer rod as appropriate to prevent three-sided bonding.

### **3.04 INSTALLATION - FLOORS - THIN-SET METHODS**

- A. Over interior concrete substrates, install in accordance with TCNA (HB) Method F113, dry-set or latex-Portland cement bond coat, with standard grout, unless otherwise indicated.
  - 1. Where waterproofing membrane is indicated, install in accordance with TCNA (HB) Method F122, with latex-Portland cement grout.

### **3.05 INSTALLATION - WALL TILE**

- A. Over cementitious backer units on studs, install in accordance with TCNA (HB) Method W244, using membrane at toilet rooms.
- B. Over interior concrete and masonry install in accordance with TCNA (HB) Method W202, thin-set with dry-set or latex-Portland cement bond coat.

### **3.06 CLEANING**

- A. Clean tile and grout surfaces.

### **3.07 PROTECTION**

- A. Do not permit traffic over finished floor surface for 4 days after installation.

### **3.08 SCHEDULE**

- A. Large Format Tile:
  - 1. Tile: Colorbody Porcelain.
    - a. Size: 12 x 24 inches, grout joint 3/16 inch.
    - b. Color: as selected by Architect
  - 2. Base: Coved, bullnosed top edge.
  - 3. Installation Method: Thin set.
    - a. At exterior walls locations, provide waterproofing & crack membrane.
  - 4. Grout: Permacolor
- B. Accent Tile
  - 1. Tile: Semigloss or Matte Glazed Ceramic tile.
    - a. Tile Size: 4 x 4 inch nominal, grout joint 3/16 inch.
    - b. Color: as selected by Architect.
  - 2. Grout: Permacolor
- C. Floor Tile:
  - 1. Tile: Mosaic.
    - a. Size 2 x 2 inch nominal
    - b. Color: as selected by Architect.
  - 2. Base: Coved base, mosaic.
  - 3. Installation Method: Thin set with waterproofing & crack membrane.
  - 4. Grout: Peracolor

**END OF SECTION**



**SECTION 09 5100  
ACOUSTICAL CEILINGS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Suspended metal grid ceiling system.
- B. Acoustical units.

**1.02 RELATED REQUIREMENTS**

- A. Section 07 9200 - Joint Sealants: Acoustical sealant.

**1.03 REFERENCE STANDARDS**

- A. ASTM C635/C635M - Standard Specification for Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
- B. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.
- C. ASTM E580/E580M - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions.
- D. ASTM E1264 - Standard Classification for Acoustical Ceiling Products.
- E. CISCA - Ceilings and Interior Systems Construction Association 2004, applicable Zones (0-4) to be coordinated with Seismic Design Category.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal process.
- B. Shop Drawings: Indicate grid layout and related dimensioning.
- C. Product Data: Provide data on suspension system components and acoustical units.
- D. Samples: Submit two (2) samples 6 x 6 inch in size illustrating material and finish of acoustical units.
- E. Samples: Submit two (2) samples each, 6 inches long, of suspension system main runner.
- F. Manufacturer's Installation Instructions: Indicate special procedures.
- G. Maintenance Materials: Furnish the following for Owner's use in maintenance of Project.
  - 1. See Section 01 6000 - Product Requirements, for additional provisions.
  - 2. Extra Acoustical Units: Quantity equal to 10 percent of total installed.

**1.05 QUALITY ASSURANCE**

- A. Single Source Responsibility: To insure proper interface and color match, all acoustical panel units and grid components shall be produced or supplied by a single manufacturer. Materials supplied by more than one (1) manufacturer shall not be permitted.
- B. Acoustical Unit Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum ten (10) years documented experience.

**1.06 FIELD CONDITIONS**

- A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

**PART 2 PRODUCTS**

**2.01 ACOUSTICAL UNITS**

- A. Manufacturers:
  - 1. Armstrong World Industries, Inc: [www.armstrong.com](http://www.armstrong.com).
  - 2. Or approved equal.
  - 3. Substitutions: See Section 01 6000 - Product Requirements.
- B. Acoustical Tile Type ACT-1: Painted mineral fiber, ASTM E 1264 Type III, Form 2, sag resistant, anti-microbial, low VOC with the following characteristics:

1. Size: 24 x 24 inches.
  2. Thickness: 7/8 inch.
  3. Composition: Wet-formed mineral fiber.
  4. Light Reflectance: 87 percent, determined as specified in ASTM E1264.
  5. NRC Range: 0.80, determined as specified in ASTM E 1264.
  6. Edge: Square.
  7. Surface Color: White.
  8. Surface Pattern: Fine texture.
  9. Fire Resistance Characteristics: Class A, Flame Spread of 25.
  10. Product: Ultima High NRC 1940 by Armstrong World Industries, Inc., or approved equal.
- C. Acoustical Tile Type ACT-2: Painted mineral fiber, ASTM E 1264 Type III, Form 2, sag resistant, anti-microbial, low VOC with the following characteristics:
1. Size: 24 x 24 inches.
  2. Thickness: 5/8 inch.
  3. Composition: Wet-formed mineral fiber.
  4. Light Reflectance: 80 percent, determined as specified in ASTM E1264.
  5. Ceiling Attenuation Class (CAC) Range: 40, determined as specified in ASTM E 1414.
  6. Edge: Square.
  7. Surface Color: White.
  8. Surface Pattern: Smooth texture.
  9. Fire Resistance Characteristics: Class A, Flame Spread of 25.
  10. Product: CLEAN ROOM VL 868 by Armstrong World Industries, Inc., or approved equal.

## 2.02 SUSPENSION SYSTEM(S)

- A. Manufacturers:
1. ACT 1 & 2, Style Prelude 15/16, by Armstrong World Industries, Inc. (DONN DX-DXL24 by USG) or equal.
  2. Substitutions: See Section 01 6000 - Product Requirements.
- B. Components: All grid components shall be hot dipped galvanized, then protective conversion-coated. Tees are double web steel, conforming to ASTM A 366, construction for direct hung installation, with 15/16 inch type exposed flange design.
1. Structural Classification: Intermediate.
  2. Web height on main runner shall be 1-11/16 inches. Each exposed bottom flange shall be continuous with unbroken roll formed cap, made from steel, running the length of the member.
  3. Wall moldings shall be Hemmed Angle Molding and have a nominal 15/16 inch exposed flange made from 0.019 inch nominal steel, finished to match main runners and cross tees.
  4. If a fire rated assembly is required, main runners shall have thermal expansion relief details conforming to UL approved time design ratings, and web ends shall be die-formed to provide for thermal expansion.
  5. Hanger wire shall be galvanized carbon steel per ASTM A641, soft temper, pre-stretched, with a yield stress load of at least 3 times design load, but not less than 12 gauge diameter.
- C. Finish: All steel roll formed parts, including cap, shall be chemically cleansed, galvanized. All exposed surfaces, except aluminum, shall then receive a baked-on polyester finish. All aluminum caps shall be etched and receive a lacquer finish.
1. Color shall be White, unless otherwise Specified.

## 2.03 ACCESSORIES

- A. Support Channels, Hangers, and Sleeves: Material, size and type to suit application, seismic requirements, and ceiling system flatness requirement Specified.
- B. Perimeter and Corner Moldings: Same material and finish as grid.
- C. Touch-up Paint: Type and color to match acoustical and grid units.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Do not proceed with installation until all wet work, such as concrete, terrazzo, tiling, and painting has been completed and is thoroughly dry unless expressly permitted by manufacturer's printed recommendations.
- B. Verify Existing Conditions before starting Work.
- C. Verify that layout of hangers will not interfere with other Work.

### **3.02 INSTALLATION - SUSPENSION SYSTEM**

- A. Install suspension system in accordance with ASTM C 636/C 636M, ASTM E 580/E 580M, and manufacturer's instructions and as supplemented in this Section.
- B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.
- C. Lay out system according to Contract Drawings.
- D. Install after major Above-ceiling Work is complete. Coordinate the location of hangers with other Work.
- E. Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
  - 1. Each vertical wire shall be attached to the ceiling and to support above with a minimum of three (3) turns with a connection device capable of carry not less than a 100 lb. allowable load.
  - 2. Suspension wires shall not be attached to equipment or non-structural elements.
  - 3. Suspension wire shall not be around any interfering equipment or material.
  - 4. Suspension wires shall be hung plumb. "Out of Plumbness" shall not exceed one in six.
- F. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.
- G. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.
- H. Suspend main runners from overhead construction with minimum 12 gauge hanger wires spaced 4 feet 0 Inches on center along the length of the main runner. Hanger wires shall be plumb and straight.
- I. Support fixture loads using supplementary No. 12 gauge hanger wires attached to the grid members within 3 inches of each corner of each fixture. Coordinate light fixture supplementary hangers with Electrician. (Per New York State Building Code)
- J. Do not eccentrically load system or induce rotation of runners.
- K. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
  - 1. Use longest practical lengths.
  - 2. Overlap and rivet corners.

### **3.03 INSTALLATION - ACOUSTICAL UNITS**

- A. Install acoustical units in accordance with manufacturer's instructions.
- B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
- C. Fit border trim neatly against abutting surfaces.
- D. Install units after Above-ceiling Work is complete.
- E. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.
- F. Cutting Acoustical Units:
  - 1. Cut to fit irregular grid and perimeter edge trim.
  - 2. Make field cut edges of same profile as factory edges.
- G. Where round obstructions occur, provide preformed closures to match perimeter molding.

- H. Install hold-down clips on panels within twenty (20) feet of an exterior door. Install hold-down clips on all tectum (wood fiber) panels.

**3.04 TOLERANCES**

- A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.
- B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

**END OF SECTION**

**SECTION 09 5423  
LINEAR METAL CEILINGS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Linear metal ceilings.
- B. Suspended metal support system and perimeter trim.

**1.02 REFERENCE STANDARDS**

- A. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.
- B. ASTM E580/E580M - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions.

**1.03 DESIGN REQUIREMENTS**

- A. Design components to ensure light fixtures will not induce eccentric loads. Where components may induce rotation of ceiling system components, provide stabilizing reinforcement.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data: Furnish for component profiles.
- C. Shop Drawings: Indicate reflected ceiling plan and location of mechanical and electrical components.
- D. Samples: Submit two samples 4 by 4 inch in size illustrating color and finish of components exposed to view.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- B. Installer Qualifications: Company specializing in performing the work of this section.
  - 1. Minimum 5 years documented experience.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Linear Metal Ceilings:
  - 1. Armstrong World Industries, Inc; Metal Works: [www.armstrongceilings.com/#sle](http://www.armstrongceilings.com/#sle).
  - 2. Substitutions: See Section 01 6000 - Product Requirements.

**2.02 LINEAR METAL CEILINGS**

- A. Linear Metal Ceiling System: Panels, suspension members, trim, and accessories as required to provide a complete system.
- B. Performance Requirements:
  - 1. Design to support imposed loads of indicated items without eccentric loading of supports.
  - 2. Design for maximum deflection of 1/360 of span.
  - 3. Design to resist seismic load required by applicable code.

**2.03 COMPONENTS**

- A. Linear Metal Panels:
  - 1. Type: Linear panel with reveals; snap-in installation.
    - a. Size and Configuration: As indicated on drawings.
- B. Acoustical Backer: Manufacturer's standard non-woven fabric; as required to achieve specified acoustic performance.

**2.04 FABRICATION**

- A. Shop cut linear panels to accommodate mechanical and electrical items.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify that layout of hangers will not interfere with other work.
- C. Verify that required utilities are available, in proper location, and ready for use.
- D. Verify that field measurements are as indicated.

### **3.02 INSTALLATION**

- A. Suspension Components:
  - 1. Install after above-ceiling work is complete in accordance with manufacturer's instructions, ASTM C636/C636M, and ASTM E580/E580M.
  - 2. Hang carrying members independent of walls, columns, ducts, light fixtures, pipe, and conduit; where carrying members are spliced, avoid visible displacement of face panels with adjacent panels.
  - 3. Where ducts or other equipment prevent regular spacing of hangers, reinforce nearest adjacent hangers to span the required distance.
- B. Linear Metal Ceiling:
  - 1. Install linear panels, baffles, and other system components in accordance with manufacturer's instructions.
  - 2. Install edge moldings at junctions with other finishes and at vertical surfaces; use maximum piece lengths.
  - 3. Install end caps at sight-exposed ends of linear panels.
  - 4. Exercise care when site cutting sight-exposed finished components to ensure surface finish is not defaced.
- C. Insulation: Install above panel members; fit tight between grid members ; place insulation with facing side up.

### **3.03 TOLERANCES**

- A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.
- B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.
- C. Maximum Variation From Dimensioned Position: 1/4 inch.

### **3.04 CLEANING**

- A. Clean surfaces.
- B. Replace damaged or abraded components.

**END OF SECTION**

**SECTION 09 6466  
WOOD ATHLETIC FLOORING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. The General Contractor is responsible for the removal of the existing athletic wood flooring system, existing vapor barrier and sleepers. The General Contractor shall provide a broom swept and vacuumed slab prior to Wood Athletic Flooring Vendor Installation.
- B. Wood athletic flooring (to be provided through Cooperative Purchasing)
- C. Subflooring.
- D. Floor finishes.
- E. Surface finishing.

**1.02 RELATED REQUIREMENTS**

- A. Section 09 0561 - Common Work Results for Flooring Preparation: Removal of existing floor coverings, cleaning, and preparation.
- B. Section 09 0561 - Common Work Results for Flooring Preparation: Concrete slab moisture and alkalinity testing and remediation procedures.

**1.03 REFERENCE STANDARDS**

- A. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
- B. DIN EN 14904 - Surfaces for Sports Areas – Indoor Surfaces for Multi-Sports Use – Specification.
- C. MFMA (SPEC) - Guide Specifications for Maple Flooring Systems.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Preinstallation Meetings: Convene a preinstallation meeting one week before starting work of this section; require attendance by affected installers; review preparation and installation procedures and coordination and scheduling necessary for related work.

**1.05 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data for flooring, floor finish materials, and resilient cushion.
- C. Shop Drawings: Indicate floor joint pattern and termination details.
  - 1. Indicate provisions for expansion and contraction, wall base, and game insert or socket devices.
- D. Samples: Submit two samples 12 by 12 inch in size showing floor finish, color, and sheen.
- E. Test Reports: Submit test reports showing compliance with DIN EN 14904.
- F. Concrete Subfloor Test Report: Submit a copy of the moisture and alkalinity (pH) test reports.
- G. Manufacturer's Instructions: Indicate standard and special installation procedures.
- H. Manufacturer's qualification statement.
- I. Installer's qualification statement.
- J. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 01 6000 - Product Requirements, for additional provisions.

**1.06 QUALITY ASSURANCE**

- A. Perform work of this section in accordance with MFMA (SPEC).
- B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section.
  - 1. Minimum ten years of documented experience.
  - 2. Member mill of the Maple Flooring Manufacturers Association, Inc (MFMA).
- C. Installer Qualifications: Company specializing in installing products specified in this section.

1. Minimum ten years of documented experience.
  2. Flooring contractor shall submit a list of at least three completed projects of similar magnitude and complexity completed under current corporate identity
  3. MFMA accredited and approved by flooring manufacturer.
- D. Floor System Performance Requirements
1. Floor Systems meets or exceeds criteria of the following performance criteria:
    - a. MFMA PUR
    - b. DIN 18032 Part2 2001
    - c. DIN 18032 Part2 1991
    - d. ASTM F2772 Sport Floor Standards
    - e. FIBA International Standards
    - f. EN 14904 Standards
  2. Independent testing report showing the system passing all criteria shall be provided as part of the bid qualification process and submittal process
  3. Surface Appearance (available option)
    - a. Expansion spaces will not exceed 1/64" (0.4mm) at time of installation and will be spread evenly across the floor with each row of flooring.
    - b. Expansion spacing will be installed to allow for normal expected increases in Equilibrium Wood Moisture Content (EMC).
  4. The wood flooring shall be MFMA-FJ maple.
  5. Maple Flooring shall been tested in accordance under California Department of Public Health/EHLB/Standard Method Version 1.2, 2017 and been found to be in compliance with the standard.
  6. Closed cell foam is not accepted as a resilient pad.
  7. The use of power-actuated or pneumatic anchoring systems is not allowed. The floor system must be anchored using the drilled and pinned method.
  8. Metal Channel anchorage shall be provided by 16 gauge (1.5mm) steel sections with subfloor anchor pockets dimensioned to allow a minimum of 1" (25mm) lateral movement.
  9. Steel anchor channels shall be of double flange design to capture both side edges of subfloor anchor pocket.
  10. Subfloor and metal channel design shall be constructed in a fashion to prevent the over anchorage of the flooring system. Special anchorage tools are not acceptable.
  11. Surface Appearance
    - a. Expansion spaces will not exceed 1/64" (0.4mm) at time of installation and will be spread evenly across the floor with each row of flooring.
    - b. Expansion spacing will be installed to allow for normal expected increases in Equilibrium Wood Moisture Content (EMC).

#### 1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials and store off the floor in a well-ventilated, weather-tight space.
- B. Materials shall not be delivered, stored or installed until all masonry, painting, plastering tilework, marble and terrazzo work is complete, and all overhead mechanical work, lighting, backstops, scoreboards are installed. **Room temperature of 55-80 degrees Fahrenheit (13 to 27 degrees Celsius) and relative humidity of 35-50 % are to be maintained.** In- Slab Relative Humidity shall be 85% or less using ASTM F 2170 In-Slab Relative Humidity test. Ideal installation/storage conditions are the same as those that will prevail when building is occupied
- C. Materials shall not be stored at the installation location if the In-Slab relative humidity level for the concrete slab is above 85% using ASTM F 2170 In-Slab Relative Humidity test.

#### 1.08 FIELD CONDITIONS

- A. The existing slab depression (per record drawings of 1966) is approximately 4 inches. The General Contractor and the Wood Athletic Flooring Installer shall field verify prior to the submission of product data and submittals.



- B. General Contractor is responsible to ensure slab is clean and free of all dirt and debris prior to floor installation beginning.
- C. General Environmental Control of Space:
  - 1. The General Contractor shall be responsible for maintaining the gymnasium at space conditions detailed below and/or as required by the flooring system manufacturer of materials being used during the length of the construction period. Existing facility HVAC equipment shall not be used to condition, circulate, or filter air within the gymnasium at this time, instead temporary equipment must be utilized as required. The General Contractor shall be responsible for furnishing, handling, supporting, operating, and maintaining all temporary HVAC equipment as well as providing any electrical materials or modifications required to power the equipment. Locations of temporary equipment and associated materials shall be coordinated with the building owner and the construction manager such that they do not create blockages of egress paths or create security risks for building occupants.
- D. Pre-construction:
  - 1. Existing HVAC equipment serving or connected to gymnasium shall not be used during the construction period. Coordinate the shutdown of all associated equipment with building owner. Provide plastic duct protection film or other plastic wrap across all air inlets and outlets within space such that they are airtight. This includes, but is not limited to supply diffusers, return and exhaust grilles, including those that may be at roof height.
- E. Removals:
  - 1. Starting during the flooring removal phase, the gymnasium shall be kept at constant negative pressure to adjacent corridors to prevent odors and particulate from migrating into other areas of the building during work and drying hours. Temporary air sealing at doorways may be required to achieve pressurization. Additionally, fan filter unit(s) with a minimum of MERV 11 final filters shall operate during work hours and periods afterwards while particulates are airborne. The fan filter units shall be sized for a minimum of 2 air changes an hour. It is recommended that the fan filter units be supported above the work area and blow in a circular pattern to best capture particulates before they migrate to higher surfaces.
- F. Flooring Installation:
  - 1. The previous pressurization and filtration requirements shall continue through the installation of the flooring. In addition, temperature and humidity within the space must now be maintained at conditions determined by the flooring manufacturer. As a reference, a wood flooring product may require ambient temperature to be between 55 deg F – 80 deg F, space relative humidity between 35% - 50% and an in-slab humidity below 85%. Confirm and maintain actual requirements of submitted and approved flooring products. At minimum desiccant or refrigerant based dehumidifiers shall be expected to be needed with the possibility of supplemental heating or cooling as well. Quantity and sizing of equipment shall be determined by project location and time of installation.
- G. Sanding and Pre-sealing:
  - 1. Previous pressurization, filtration, and ambient conditioning shall be maintained during the sanding process. Upon completion of sanding, all surfaces within the gymnasium, including walls, roof deck and joists, shall be washed with compressed air to free any loose particulate for vacuuming or capture by the fan filter units.
- H. Sealing, Painting and Curing:

1. Upon the completion of post-sanding cleaning, the fan filters may be removed, however pressurization and ambient conditions shall continue to be maintained. Ambient conditions shall be adjusted as required to maintain conditions determined by the manufacturers of the floor sealer and paints. As a reference, a wood flooring sealing product may require ambient temperature to be between 60 deg F – 90 deg F and a space relative humidity below 80% or the surface temperature of the floor, whichever is lower. Confirm and maintain actual requirements of submitted and approved flooring products. Maintain these conditions through the curing times of the products and up to final acceptance of flooring finish by owner and architect. At this time temporary equipment and inlet and outlet protection shall be removed and facility HVAC equipment energized. Provide all temporary flooring protections needed to protect the floor during these removals of the temporary HVAC system.
  - I. Acclimate wood flooring materials to installation space a minimum of 48 hours prior to installation.
  - J. After floors are finished, area is to be kept locked by General Contractor to allow curing time for the finish. If after required curing time General Contractor or Owner requires use of gym, the General Contractor shall protect the floor by covering with non-fibered kraft paper or red rosin paper with taped joints, until acceptance by Architect and Owner of completed gymnasium floor.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Wood Athletic Flooring:
  1. Robbins Sports Surfaces; Bio-Channel Classic Floor System: [www.robbsfloor.com](http://www.robbsfloor.com) (Basis of Design)
  2. Substitutions: See Section 01 6000 - Product Requirements

### **2.02 WOOD ATHLETIC FLOORING**

- A. General: Wood athletic flooring, system components provided by single manufacturer.
- B. Application: Gymnasium.

### **2.03 COMPONENTS**

- A. Wood Strip Flooring:
  1. Provide MFMA grade-marked flooring, stamped as manufactured by MFMA member mill.
  2. Species: Northern hard maple, kiln dried; tongue and groove edges, end matched.
  3. Grade: Second and better.
  4. Thickness: 25/32 inch.
  5. Width: 2-1/2 inches.
- B. Subflooring: Manufacturer's standard pre-engineered subfloor suitable for system indicated.
  1. Robbins Bio-Channels: engineered-wooden sleeper with 7/16" (11mm) EPDM Bio-Pads attached, factory encased in a steel channel.
    - a. Sleeper must be free to move vertically within steel channel confines to assure proper uniformity of resiliency and function.
  2. 23/32" (18mm) structural rated sheathing, exposure 1 (CD-X). 23/32" (18mm) structural rated sheathing, exposure 1 (CD-X).
  3. 16 gauge coated metal anchor channels.
- C. Moisture Protection:
- D. Robbins UltraShield 100. (Basis of Design).
  1. Traxxshield: Vaporshield 95.
- E. Fasteners and Anchors: Manufacturer's standard type and size to suit application.
  1. Flooring – 1-3/4" (45mm) barbed cleats or staples.
  2. Subfloor – 1-5/8" to 1-3/4" (40mm) subflooring nails or staples.
  3. Channel anchors - 1-1/2" (38mm) long steel Powers SPIKE® anchors or Tapcons.

### **2.04 FINISHES**

- A. Floor Finishes: Types recommended by flooring manufacturer and complying with MFMA specifications.

1. Sealer and Finish: Oil-modified polyurethane.
  - a. Robbins Miracle seale
2. Gameline paint(s) shall be recommended by the finishing materials manufacturer, and must be compatible with the finish.

## **2.05 ACCESSORIES**

- A. Ventilating Base: Molded rubber, 4 inch high with a 3 inch toe, pre-molded outside corners; color as selected by Architect.
- B. Transition Strips between wood athletic flooring and adjacent flooring; Pemko 151A Smooth Top Aluminum Saddle Threshold or equal.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify existing conditions before starting this work.
- B. Verify that the existing concrete subfloor surface is smooth and flat to plus or minus 1/8 inch in 10 feet. Report any discrepancies to the Architect in writing.
- C. Cementitious Subfloor Surfaces: Verify that substrates are ready for flooring installation by testing for moisture and alkalinity (pH).
  1. Test as Follows:
    - a. Internal Relative Humidity: ASTM F2170.
      - 1) Moisture content of the concrete slab shall not exceed 85%
  2. Obtain instructions if test results are not within limits recommended by flooring material manufacturer and adhesive materials manufacturer.
- D. Verify that required floor-mounted utilities are in correct location.

### **3.02 PREPARATION**

- A. Prepare substrate to receive wood flooring in accordance with manufacturer's and MFMA instructions.
- B. Vacuum clean substrate.

### **3.03 INSTALLATION**

- A. Place moisture barrier/vapor retarder over concrete surface and turn up wall a minimum of 4", overlap seams a minimum of 6 inches and seal with tape.
- B. **SUBFLOOR**
  1. Place Bio-Channels 16-1/16" (408mm) on center, end-to-end staggering end joints in adjacent rows, perpendicular to the intended direction of the maple flooring. Gap the ends of the sleepers approximately 1/4" (6mm). Provide 1-1/2" to 2" (40 to 50mm) expansion void at the perimeter and all vertical obstructions.
  2. Anchor Bio-Channels at predetermined locations.
    - a. Anchor sleepers in 3 of the pre-determined holes, at both ends and in center. When shimming for leveling is necessary, anchor in all 5 holes
  3. Install solid blocking at doorways, under bleachers in the stacked position, and below portable goals.
  4. Install Bleacher Blocking per manufacturer's recommendations.
  5. Install 23/32" (18mm) plywood subfloor parallel to sleeper channels and securely fasten subfloor 6" (150mm) on center along each channel sleeper.
- C. Wood Flooring:
  1. Install in accordance with manufacturer's and MFMA instructions.
  2. Machine nail maple finish flooring 10" to 12" O.C. with end joints properly driven up and proper spacing provided for humidity conditions in specific regions.
  3. Install edge strips at unprotected or exposed edges, and where flooring terminates.
  4. Provide 2 inch expansion space at walls and other interruptions.
  5. Expansion rows will be evenly distributed with each row of flooring, with each space not exceeding 1/64".

D. Finishing:

1. Mask off adjacent surfaces before beginning sanding.
2. Sand flooring to smooth even finish with no evidence of sander marks in accordance with manufacturer's recommendation.
  - a. After sanding, buff entire floor using 100 grit screen or equal grit sandpaper, with a heavy-duty buffing machine.
  - b. Inspect entire area of floor to insure the floor presents a smooth surface without drum stop marks, gouges, streaks or shiners.
  - c. Vacuum and/or tack floor before first coat of seal.
3. Floor should be clean and completely free of dirt and sanding dust.
4. Apply finishes in accordance with floor finish manufacturer's and MFMA instructions.
  - a. Apply specified combination of seal, gameline paint, and finish in accordance with manufacturer's instructions.
  - b. Buff and vacuum and/or tack between each coat after it dries.
  - c. Apply game lines accurately after the buffing and vacuuming the coated surfaces. Layout in accordance with drawings. For game lines, use current rules of association having jurisdiction. Lines shall be straight with sharp edges in colors selected by Architect.
5. Apply first coat, allow to dry, then buff lightly with recommended pad to remove irregularities. Vacuum clean and wipe with damp, lint-free cloth before applying succeeding coats.
6. Apply game lines/markers in accordance with layout indicated on drawings.
  - a. Apply game lines accurately after the buffing and vacuuming the coated surfaces. Game lines shall be painted between seal coats and finish coats. Layout in accordance with drawings
7. Apply last coat of finish.

**3.04 CLEANING**

- A. Clean floor surfaces in accordance with floor finish manufacturer's instructions.
- B. Clean up all unused materials and debris and remove it from the premises.

**3.05 PROTECTION**

- A. Prohibit traffic on finished floor for 72 hours after installation.
- B. Place protective coverings over finished floors; do not remove coverings until Date of Substantial Completion.

**3.06 MAINTENANCE**

- A. Upon completion of floor installation provide training/instruction of the MFMA and the manufacturer for the care and maintenance of the wood athletic flooring to the Owner.

**END OF SECTION**

**SECTION 09 6500  
RESILIENT FLOORING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Luxury vinyl tile.
- B. Resilient base.
- C. Installation accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 5400 - Cast Underlayment.
- B. Section 09 0561 - Common Work Results for Flooring Preparation: Concrete slab moisture and alkalinity testing and remediation procedures.

**1.03 REFERENCE STANDARDS**

- A. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.
- B. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
- C. ASTM F1066 - Standard Specification for Vinyl Composition Floor Tile.
- D. ASTM F1700 - Standard Specification for Solid Vinyl Floor Tile.
- E. ASTM F1861 - Standard Specification for Resilient Wall Base.
- F. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on Specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.
- C. Selection Samples: Submit manufacturer's complete set of color samples for Architect's initial selection.
- D. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.
- E. Maintenance Materials: Furnish the following for Owner's use in maintenance of Project.
  - 1. See Section 01 6000 - Product Requirements, for additional provisions.
- F. Extra Tile: Provide 2 percent of each type, color, and pattern for each type of tile to Owner as surplus stock.

**1.05 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver materials to the Job Site and store in their original unopened containers with all labels intact and legible at time of use. Store in strict accordance with the manufacturer's recommendations.

**1.06 FIELD CONDITIONS**

- A. Maintain temperature in storage area between 55 degrees F and 90 degrees F.
- B. Store materials for not less than forty eight (48) hours prior to installation in area of installation at a temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F.

**PART 2 PRODUCTS**

**2.01 TILE FLOORING**

- A. Luxury Vinyl Tile (LVT) (Type LVT-1): Printed film type, with transparent or translucent wear layer. Scratch and stain resistant.
  - 1. Minimum Requirements: Comply with ASTM F1700, of Class III, Type B, Embossed surface.
  - 2. Critical Radiant Flux (CRF): Class I, when tested in accordance with ASTM E 648.

3. Smoke and Flame spread: 450/25 or less when tested in Accordance with ASTM E 662.
  4. Size: 9.845 by 39.38 inch (25 cm x 1 m)
  5. Wear Layer Thickness: 0.020 inch.
  6. Thickness: 4.5 mm, wear layer: 22 mil.
  7. Slip Resistance: Greater than 0.55 wet/dry, ADA compliant, when tested in accordance with ASTM D2047.
  8. Static Load Limit: 1,500 PSI.
  9. Warranty: Twenty (20) year commercial resilient.
  10. Color: Pewter.
  11. Manufacturer:
    - a. Interface, Inc., Studio Set 4.5 mm: [www.interface.com](http://www.interface.com).
    - b. Or approved equal.
- B. Luxury Vinyl Tile (LVT) (Type LVT-2): Printed film type, with transparent or translucent wear layer. Scratch and stain resistant.
1. Minimum Requirements: Comply with ASTM F1700, of Class III, Type B, Embossed surface.
  2. Critical Radiant Flux (CRF): Class I, when tested in accordance with ASTM E 648.
  3. Smoke and Flame spread: 450/25 or less when tested in Accordance with ASTM E 662.
  4. Size: 9.845 by 39.38 inch (25 cm x 1 m)
  5. Thickness: 4.5 mm, wear layer: 22 mil.
  6. Slip Resistance: Greater than 0.55 wet/dry, ADA compliant, when tested in accordance with ASTM D2047.
  7. Static Load Limit: 1,500 PSI.
  8. Warranty: Twenty (20) year commercial resilient.
  9. Color: Silverlight.
  10. Manufacturer:
    - a. Interface, Inc., Studio Set 4.5 mm: [www.interface.com](http://www.interface.com).
    - b. Or approved equal.
- C. Luxury Vinyl Tile (LVT) (Type LVT-3): Printed film type, with transparent or translucent wear layer. Scratch and stain resistant.
1. Minimum Requirements: Comply with ASTM F1700, of Class III, Type B, Embossed surface.
  2. Critical Radiant Flux (CRF): Class I, when tested in accordance with ASTM E 648.
  3. Smoke and Flame spread: 450/25 or less when tested in Accordance with ASTM E 662.
  4. Size: 9.845 by 39.38 inch (25 cm x 1 m)
  5. Slip Resistance: Greater than 0.55 wet/dry, ADA compliant, when tested in accordance with ASTM D2047.
  6. Static Load Limit: 1,500 PSI.
  7. Warranty: Twenty (20) year commercial resilient.
  8. Color: Slate.
  9. Manufacturer:
    - a. Interface, Inc., Studio Set 4.5 mm: [www.interface.com](http://www.interface.com).
    - b. Or approved equal.

## 2.02 RESILIENT BASE

- A. Base: ASTM F 1861-98, rubber, standard toe base;
1. Height: 6 inches.
  2. Thickness: 0.125 inch thick.
  3. Finish: Satin.
  4. Color: As selected from manufacturer's standards.
  5. Accessories: Premolded external corners and internal corners.
  6. Manufacturers:
    - a. Johnsonite, Inc
    - b. Or approved equal.
    - c. Substitutions: See Section 01 6000 - Product Requirements.

## **2.03 ACCESSORIES**

- A. Skim Coating Compound: S-184 Fast Setting Cement Based Patch and Skim Coat.
- B. Primers, Adhesives, and Seaming Materials: Waterproof; types recommended by flooring manufacturer.
- C. Wheeled Traffic Transitions: CTA-XX-N, by Tarkett, or Approved Equal. Color as selected from manufacturer's standards.
- D. Provide all other materials including, but not limited to edgings, dividers, reducers, and tracks, not specifically described but required for a complete and proper installation of the work of this Section, as recommended by the manufacturer of the resilient materials used, and as approved by the Architect/Engineer.
- E. Sealer and Wax: Types recommended by flooring manufacturer.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of adhesive materials to sub-floor surfaces.
- B. Cementitious Sub-floor Surfaces: Verify that substrates are dry enough and ready for resilient flooring installation by testing for moisture and pH.
- C. Verify that required floor-mounted utilities are in correct location.

### **3.02 PREPARATION**

- A. Prepare substrates in accordance with tile manufacturer's instructions and recommendations.
- B. Moisture Emission Test for Concrete: Do not install tile on concrete which has moisture emission greater than 3.0 pounds per 1000 square feet per twenty-four (24) hours.
- C. New Concrete:
  - 1. Remove curing compounds, grease, dirt, loose particles, projections, and other foreign matter that would prevent adhesion.
  - 2. Fill joints, depressions, and irregularities with Specified patching compound.
- D. Existing Concrete:
  - 1. Remove adhesives, mastics, and sealers completely and thoroughly. Use shot blasting, grinding, sanding, or chemical remover as required.
  - 2. Clean off residues, grease, dirt, loose particles, projections, and all other foreign matter that would prevent adhesion.
  - 3. Fill joints, depressions, and irregularities with specified patching compound.
  - 4. Provide appropriate coats of cast underlayment to achieve an acceptable substrate for flooring.

### **3.03 INSTALLATION**

- A. Starting installation constitutes acceptance of sub-floor conditions.
- B. Install in accordance with manufacturer's instructions.
- C. Spread only enough adhesive to permit installation of materials before initial set.
- D. Fit joints tightly.
- E. Set flooring in place, press with heavy roller to attain full adhesion.
- F. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.
- G. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

### **3.04 TILE FLOORING**

- A. Install tile only after all finishing operations, including painting, have been completed and permanent heating system is operating. Moisture content of concrete slabs, building air temperature and relative humidity must be within limits recommended by tile manufacturer.

- B. Mix tile from container to ensure shade variations are consistent when tile is placed, unless manufacturer's instructions say otherwise.
- C. Install tile to pattern as selected by Architect. Allow minimum 1/2 full size tile width at room or area perimeter.

**3.05 RESILIENT BASE**

- A. Fit joints tightly and make vertical. Maintain minimum dimension of 48 inches between joints.
- B. At external and internal corners, use premolded units. At exposed ends, use premolded units.
- C. Use maximum length units in all locations.
- D. Install base on solid backing, clean and prepare backing as necessary to provide acceptable surface conditions. Bond tightly to wall and floor surfaces.
- E. Scribe and fit to door frames and other interruptions.

**3.06 FINISHING**

- A. Remove excess adhesive from floor, base, and wall surfaces without damage.
- B. Clean, seal, and wax in accordance with manufacturer's instructions.
  - 1. Contractor shall provide three (3) coats of wax for vinyl composite floor tile prior to turnover to Owner.

**3.07 PROTECTION**

- A. Prohibit traffic on resilient flooring for forty-eight (48) hours after installation.
- B. Protect installed flooring from damage until acceptance by the Owner.

**END OF SECTION**



**SECTION 09 6566  
RESILIENT ATHLETIC FLOORING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Indoor Resilient Multipurpose Flooring.
- B. Application of game lines.

**1.02 RELATED REQUIREMENTS**

- A. Section 09 0561 - Common Work Results for Flooring Preparation: Removal of existing floor coverings, cleaning, and preparation.
- B. Section 09 0561 - Common Work Results for Flooring Preparation: Concrete slab moisture and alkalinity testing and remediation procedures.
- C. Section 09 6500 - Resilient Flooring.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal process.
- B. Product Data: Manufacturer's printed data sheets for products Specified.
- C. Shop Drawings: Fabrication and installation details, and layout, colors, and widths of game lines and equipment locations.
- D. Selection Samples: Manufacturer's color charts for flooring materials specified and game line paints, indicating full range of colors and textures available.
- E. Manufacturer's Instructions: Indicate standard and special installation procedures.
- F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 01 6000 - Product Requirements, for additional provisions.
- G. Closeout Submittals:
  - 1. See Section 01 7800 - Closeout Submittals, for additional provisions.
  - 2. Submit copy of indoor resilient multipurpose surfacing and manufacture's maintenance instructions.
  - 3. Submit copy of the material and installation warranties as Specified. Warranty to be completed in Owner's name.

**1.04 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with at least five years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of the type specified and with at least five years of documented experience.

**1.05 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver materials to project site in unopened containers clearly labeled with manufacturer's name and identification of contents.
- B. Store materials in dry and clean location until needed for installation. Maintain temperatures between 65 and 85 degrees Fahrenheit. During installation, handle in a manner that will prevent marring and soiling of finished surfaces.

**1.06 FIELD CONDITIONS**

- A. The area in which the indoor resilient multipurpose surfacing will be installed shall be dry and weather tight. Permanent heat, light and ventilation shall be installed and operable.
- B. Work of all other Trades shall be complete prior to installation of resilient athletic flooring.
- C. Maintain stable room temperature of a minimum of 65 degrees Fahrenheit for a minimum of one (1) week prior to, during and thereafter installation.

## **PART 2 PRODUCTS**

### **2.01 PREFORMED ATHLETIC FLOORING**

- A. Manufacturers: All products by the same manufacturer.
  - 1. Tarkett Sports; DropTile - Aerobics 907A; DropZone Impact - Weight Traing 907B: [www.tarkettsportsindoor.com](http://www.tarkettsportsindoor.com).
  - 2. Or approved equal.
  - 3. Substitutions: See Section 01 6000 - Product Requirements.
- B. Resilient Multipurpose Flooring Aerobic Room (907A) : Vulcanized rubber with speckled surface design; spike and ice-skate resistance.
  - 1. High Density Rubber with cylindrical support feet
  - 2. Thickness: 1 inch (nominal).
  - 3. Tile Edge/Installation: Straight, adhesive installation.
  - 4. Size Tile: Nominal 24 inches by 24 inches.
  - 5. Coefficient of Friction: >.9 in accordance with ASTM 2047.
  - 6. Tensile Strength: 200 psi, when tested in accordance with ASTM D412.
  - 7. Impact Sound Insulation: 45 minimum in accordance with AST E492
  - 8. Fire Resistance: Class 1, when tested in accordance with ASTM E648.
  - 9. Smoke Density: Passes, when tested in accordance with ASTM E662.
  - 10. Chemical Resistance: Excellent when tested in accordance with ASTM F925.
  - 11. Static Load Limit: Less than or equal to 0.003 (250 psi / 24 hours), when tested in accordance with ASTM F970.
  - 12. Weight: 12.6 lbs per tile.
  - 13. Colors: 0Z103 Sky Blue, 30% color
  - 14. Products:
    - a. Basis of Design: Tarkett DropTile as manufactured by FieldTurf USA
    - b. Substitutions: See Section 01 6000 - Product Requirements.
- C. Resilient Multipurpose Flooring Weight Room (907B) : Vulcanized rubber with speckled surface design; spike and ice-skate resistance.
  - 1. Wear Surface Material: Virgin Rubber.
  - 2. Base Layer Material: Blended Rubber.
  - 3. Thickness: 10mm (nominal).
  - 4. Tile Edge/Installation: Straight, adhesive installation.
  - 5. Elongation: 250%, when tested in accordance with ASTM D412.
  - 6. Tensile Strength: 200 minimum, when tested in accordance with ASTM D412.
  - 7. Fire Resistance: Class 1, when tested in accordance with ASTM E648.
  - 8. Smoke Density: Passes, when tested in accordance with ASTM E662.
  - 9. Chemical Resistance: 0.99, when tested in accordance with ASTM F925.
  - 10. Static Load Limit: Less than or equal to 0.003 (250 psi / 24 hours), when tested in accordance with ASTM F970.
  - 11. Colors: 073 Dark Blue
  - 12. Products:
    - a. Basis of Design: Tarkett DropTile Impact Indoor Resilient Athletic Surface
    - b. Substitutions: See Section 01 6000 - Product Requirements.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Examine substrates for conditions detrimental to installation of athletic flooring. Proceed with installation only after unsatisfactory conditions have been corrected.
- B. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of athletic flooring to substrate.

### **3.02 PREPARATION**

- A. Prepare floor substrates as recommended by flooring and adhesive manufacturers.
- B. Remove coatings that are incompatible with flooring adhesives, using methods recommended by flooring manufacturer.
- C. Broom clean areas to receive athletic flooring immediately before beginning installation.
- D. Slab must be dust free.

### **3.03 INSTALLATION**

- A. Starting installation constitutes acceptance of subfloor conditions.
- B. Install in accordance with manufacturer's written instructions.

### **3.04 CLEANING**

- A. Clean flooring using methods recommended by manufacturer.

### **3.05 PROTECTION**

- A. Protect finished athletic flooring from construction traffic to ensure that it is without damage upon Date of Substantial Completion.

**END OF SECTION**

**SECTION 09 6800  
CARPETING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Carpet with standard carpet tile adhesive.
- B. Accessories.

**1.02 RELATED SECTIONS**

- A. Section 03 3000 - Concrete: Subfloor.
- B. Section 09 6500 - Resilient Flooring: Base finish.

**1.03 REFERENCES**

- A. ASTM D 2859 - Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials; 1996.
- B. ASTM E 648 - Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source; 1997.
- C. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source; 1995.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal process.
- B. Shop Drawings: Indicate seaming plan, method of joining seams, direction of carpet pile and pattern, location of edge moldings and edge bindings .
- C. Product Data: Provide data on Specified Products, describing physical and performance characteristics; sizes, patterns, colors available, and method of installation.
- D. Samples: Submit two (2) sample 12 x 12 inch in size illustrating color and pattern for each carpet material Specified.
- E. Manufacturer's Installation Instructions: Indicate special procedures.
- F. Maintenance Materials: Furnish the following for Owner's use in maintenance of Project.
  - 1. See Section 01 6000 - Product Requirements, for additional provisions.
  - 2. Provide 2 percent of carpeting of each type, color, and pattern selected.
- G. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing specified carpet with minimum three (3) years documented experience.
- B. Installer shall be contractor normally engaged in the installation of carpet and shall have a minimum of seven (7) years experience. Every installer shall be certified by the carpet manufacturer and carry proof of certification at all times.

**1.06 WARRANTY**

- A. The term of the carpet warranty shall be a lifetime commercial warranty and shall cover against:
  - 1. Excessive Surface Wear; not more than 10 percent loss of face fiber weight measured before and after use.
  - 2. Staining/Soiling Resistance.
  - 3. Color Pattern Permanency; no pattern loss during the lifetime of the carpet.
  - 4. Edge Ravel.
  - 5. Zippering.
  - 6. Tuft bind.
  - 7. Backing Delamination.

- 8. Antistatic.
- 9. Top Down Moisture Resistance.
- B. All carpet warranties to be sole source responsibility of the manufacturer. Second source warranties or warranties that involve parties other than the manufacturer are unacceptable.
- C. Carpet warranties will be official Standard Documents, not customized, and shall not be created on a Job-by-Job basis.
- D. Carpet selected, including all components shall be 100 percent recyclable. Floor coverings selected shall be recycled at the end of their useful life in an environmentally responsible program. The full resource potential of returned material shall be utilized by reusing and recycling 100 percent of the returned carpeting in new, value-added products. No carpeting returned for recycling shall be land filled or incinerated.
- E. All carpet warranties shall be signed and notarized by a company representative.

#### **1.07 ENVIRONMENTAL REQUIREMENTS AND ENVIRONMENTAL IMPACT CHARACTERISTICS**

- A. Store materials in area of installation for minimum period of twenty-four (24) hours prior to installation.
- B. Maintain minimum 70 degrees F ambient temperature twenty-four (24) hours prior to, during and twenty-four (24) hours after installation.
- C. Ventilate Installation Area during installation and for seventy two (72) hours after installation.
- D. Environmental Impact Characteristics:
  - 1. Product to comply with the 1994 State of Washington protocol. The product when tested as manufactured shall pass the protocol as written and shall have the following characteristics:
    - a. Less than 0.05 ppm of formaldehyde.
    - b. Less than 0.50 mg/cubic meter of total volatile organics.
    - c. Less than 50 ug/cubic meter of total particulates.
    - d. Less than 1.0 ppb (part per billion) 4-PC.
    - e. Test over a 96 hour time period.
    - f. Submit compliance table.
    - g. Carpet to be delivered with a recycle bag for recycling of the plastic film used to protect the Microencapsulated Tackifier.
    - h. All carpet products must pass the University of Pittsburgh protocol for toxicity being "no more toxic than wood" when burned under the same conditions.
    - i. Carpet to be installed without the use of wet adhesives.
    - j. Company to have an in-place, operational recycling program for product ( at the end of its use life) and manufacturing waste. Program shall recycle 100 percent of the product in the same operation. This program shall not consist of incineration.

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Walk-off Carpet:
  - 1. Interface, Inc.; Step Repeat Collection: [www.interface.com](http://www.interface.com).
  - 2. Or approved equal.
  - 3. Substitutions: See Section 01 6000 - Product Requirements.

#### **2.02 CARPET**

- A. The carpeting Specified, in order to establish a basis of design, performance and quality, is based on products as manufactured by Interface.
  - 1. The approval of other manufacturer's names and product number does not relieve the contractor from furnishing products which comply with the minimum detailed requirements as indicated herein.
- B. Walk-off CarpetType CPT-1:
  - 1. Construction: Tufted, Textured Loop.
  - 2. Product Size: 19.7 inch x 19.7 inch (50 cm x 50 cm) tile.
  - 3. Primary Backing: GlasBac.

4. Recycled Content: Yes, 100% Recycled Content Nylon Yarn System.
5. Tufted Yarn Weight: 26 oz./sq. yd.
6. Gauge: 1/12 inch.
7. Stitches per Inch: 10.0.
8. Pile Height Average: 0.20 inch.
9. Fiber Modification Ratio: 1.9 to 2.2.
10. Dye Method: 100 percent solution dyed.
11. Fluorine Free Soil Protection: Protekt<sup>2</sup>.
12. Pattern Match: Not required.
13. Colorfastness to Light: >4.0 after 60 hours.
14. Electrostatic Propensity: < 3.0 KV (AATCC 134); permanent conductive fiber.
15. Surface Flammability: Passes CPSC FF 1-70 (ASTM D-2859).
16. Flooring Radiant Panel: Class 1 (mean average CRF: 0.45 w/sq cm or higher) (ASTM E-648).
17. Smoke Generation: Less than 450 (ASTM E-662).
18. Installation Method: Monolithic.
19. Color: Midnight.

### **2.03 ACCESSORIES**

- A. Sub-Floor Filler: Type recommended by carpet manufacturer.
- B. Rubber Base: Reference Section 09 6500 - Resilient Flooring, for resilient base.
- C. Provide transition strips between all dissimilar floor materials (i.e. carpet to tile)
- D. Seam Adhesive: As recommended by manufacturer.
- E. Contact Adhesive: Recommended by carpet manufacturer and approved by the Architect/Engineer.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Examine the areas and conditions under which Work of this Section will be performed. Correct conditions detrimental to the proper and timely completion of the Work. Do not proceed until unsatisfactory conditions have been corrected.
- B. Verify that sub-floor surfaces are dust-free, and free of substances which would impair bonding of adhesives to sub floor surfaces.
- C. Verify that concrete sub-floor surfaces are ready for carpet installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within limits recommended by carpet manufacturer and adhesive materials manufacturer.
- D. Cementitious Sub-floor Surfaces: Verify that substrates are dry enough and ready for flooring installation by testing for moisture and pH.
  1. Test in accordance with ASTM F710.
  2. Obtain instructions if test results are not within limits recommended by flooring material manufacturer and adhesive materials manufacturer.
- E. Verify that required floor-mounted utilities are in correct location.
- F. All floors shall be inspected and approved by the manufacturer's representative and the installation contractor prior to the installation of carpet.

### **3.02 PREPARATION**

- A. Remove existing carpet and carpet cushion.
- B. Prepare floor substrates as recommended by flooring and adhesive manufacturers.
- C. Remove sub-floor ridges and bumps. Fill minor or local low spots, cracks, joints, holes, and other defects with sub-floor filler.
- D. Apply, trowel, and float filler to achieve smooth, flat, hard surface. Prohibit traffic until filler is cured.

- E. It shall be the Contractor's responsibility to properly prepare all floor surfaces (new or existing) as required to provide an acceptable substrate prior to the installation of carpeting. Areas scheduled for VAT Abatement Work or general demolition shall be prepared as required to shim and level subfloor to provide acceptable base for carpet installation.
- F. Clean substrate.

### **3.03 INSTALLATION - GENERAL**

- A. Install carpet in accordance with manufacturer's written recommendations.
- B. Verify carpet match before cutting to ensure minimal variation between dye lots.
- C. Lay out carpet and locate seams in accordance with shop drawings:
  - 1. Locate seams in area of least traffic, out of areas of pivoting traffic, and parallel to main traffic.
  - 2. Do not locate seams perpendicular through door openings.
  - 3. Align run of pile in same direction as anticipated traffic and in same direction on adjacent pieces.
  - 4. Provide monolithic color, pattern, and texture match within any one (1) area.
- D. Install carpet tight and flat on subfloor, well fastened at edges, with a uniform appearance.

### **3.04 DIRECT-GLUED CARPET**

- A. Double cut carpet seams with accurate pattern match. Make cuts straight, true, and unfrayed. Apply seam adhesive to cut edges of woven carpet immediately.
- B. Apply contact adhesive to floor uniformly at rate recommended by manufacturer. After sufficient open time, press carpet into adhesive.
- C. Apply seam adhesive to the base of the edge glued down. Lay adjoining piece with seam straight, not overlapped or peaked, and free of gaps.
- D. Roll with appropriate roller for complete contact of adhesive to carpet backing.
- E. Trim carpet neatly at walls and around interruptions.
- F. Complete installation of edge strips, concealing exposed edges. Bind cut edges where not concealed by edge strips.

### **3.05 CLEANING**

- A. Remove excess adhesive from floor and wall surfaces without damage.
- B. Clean and vacuum carpet surfaces.

**END OF SECTION**

**SECTION 09 8300  
ACOUSTIC FINISHES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Acoustic Insulation Finishes.
- B. Acoustic Wall Coverings.

**1.02 REFERENCE STANDARDS**

- A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data: Manufacturer's data sheets for products specified.
- C. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.
- D. Manufacturer's qualification statement.
- E. Installer's qualification statement.
- F. Maintenance Data: Provide manufacturer's data on maintenance and renewal of applied finishes.
- G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 01 6000 - Product Requirements, for additional provisions.
  - 2. Extra Wall Covering Materials: 25 linear feet of each color and pattern of wall covering; store where directed.
    - a. Package and label each roll by manufacturer, color and pattern, and destination room number.

**1.04 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.
- B. Installer Qualifications: Company specializing in installing work of type specified in this section, and with at least three years of documented experience.

**1.05 MOCK-UPS**

- A. See Section 01 4000 - Quality Requirements for additional requirements.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Store and handle materials according to manufacturer's instructions.

**PART 2 PRODUCTS**

**2.01 ACOUSTIC WALL COVERINGS**

- A. General:
  - 1. Provide materials compatible with one another and substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. Acoustical Wall Covering (Type AWC-1): Solution-dyed, recycled polyester with fused latex backing.
  - 1. Noise Reduction Coefficient (NRC) of not less than .15 when applied to gypsum board.
  - 2. Surface Burning Characteristics: Flame spread index of 25, maximum; smoke developed index of 450, maximum; when tested in accordance with ASTM E84.
  - 3. Color: Mineral Gray (PTLY-24).
  - 4. Adhesive: Type recommended by wall covering manufacturer to suit application.
  - 5. Manufacturer:
    - a. Momentum Textiles & Wallcoverings; NuFelt Langley: [www.momentumtextilesandwalls.com](http://www.momentumtextilesandwalls.com).
    - b. Or approved equal.



- c. Substitutions: See Section 01 6000 - Product Requirements.
- C. Acoustical Wall Covering (Type AWC-2): Solution-dyed, recycled polyester with fused latex backing.
  - 1. Adhesive: Type recommended by wall covering manufacturer to suit application.
  - 2. Manufacturer:
    - a. Momentum Textiles & Wallcoverings; NuFelt Langley: [www.momentumtextilesandwalls.com](http://www.momentumtextilesandwalls.com).
    - b. Or approved equal.
    - c. Substitutions: See Section 01 6000 - Product Requirements.

## **2.02 ACCESSORIES**

- A. Materials: Provide primers, sealers, cleaning agents, and clean up materials as required for completion of acoustic finish.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Do not begin application of acoustic finishes until substrates have been properly prepared.
- B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

### **3.02 PREPARATION**

- A. Protect adjacent surfaces and materials not receiving coating from splatter and overspray.
- B. Mask surface appurtenances including, but not limited to, exit signs, fire sprinkler escutcheons, HVAC grilles, light fixtures, and speaker grilles.
- C. Replace damaged ceiling materials.
- D. Prepare surfaces using cleaning methods recommended by the manufacturer.
- E. Seal surfaces that may cause bleed through or staining of wall covering.

### **3.03 APPLICATION**

- A. Apply in accordance with manufacturer's written instructions.
- B. Reinstall surface appurtenances removed prior to finishing.
- C. Acoustic Wall Coverings:
  - 1. Apply premixed adhesive directly to wall.
  - 2. Cut material to desired length and along vertical edge of ribbed pattern. Install in vertical strips, edges butted.
  - 3. Apply wall covering smooth, without wrinkles, gaps, or overlaps. Eliminate air pockets, and ensure full bond to substrate surface.

### **3.04 CLEANING**

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.
- B. Remove masking and covering and residue left from masking.

### **3.05 PROTECTION**

- A. Protect finishes from subsequent construction operations.
- B. Touch-up damaged finishes.

**END OF SECTION**

**SECTION 09 8430**  
**SOUND-ABSORBING WALL AND CEILING UNITS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Fabric-covered cementitious wood fiber plank.
- B. Wall mounted acoustical absorber panels.
- C. Wall sound diffuser panels.

**1.02 SYSTEM DESCRIPTION**

- A. Provide a system of sound absorbing and sound diffusing panels in configuration provided on Contract Drawings.

**1.03 REFERENCE STANDARDS**

- A. American Society of Civil Engineers (ASCE):
  - 1. ASCE 7 - Minimum Design Loads for Buildings and Other Structures.
- B. ASTM International (ASTM):
  - 1. ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
  - 2. ASTM C612 - Specification for Mineral Fiber Block and Board Thermal Insulation.
  - 3. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
  - 4. ASTM E336 - Standard Test Method for Measurement of Airborne Sound Insulation in Buildings.
  - 5. ASTM E413 - Classification for Determination of Sound Transmission Class.
  - 6. ASTM E795 - Practices for Mounting Test Specimens during Sound Absorption Tests.
- C. Underwriters Laboratories, Inc.:
  - 1. UL 723 - Test for Surface Burning Characteristics of Building Materials.
- D. ASTM E795 - Standard Practices for Mounting Test Specimens during Sound Absorption Tests.

**1.04 SUBMITTALS**

- A. See Section 01 3300 - Submittal Procedures, for submittal process.
- B. Product Data: Manufacturer's data sheets, installation instructions, and maintenance recommendations for each type of acoustical absorber and diffuser panel.
- C. Shop Drawings: Prepared by manufacturer. Include elevations showing acoustic room components, sizes, arrangements, and details of each condition of installation. Show fabrication and installation details.
  - 1. Indicate variations from basis of design unit sizes and layout shown on Drawings, based upon performance of proposed products.
- D. Samples: For each color and finish for each exposed acoustic room component:
  - 1. For fabric selection from manufacturer's full range of not less than forty (40) colors.
- E. Maintenance Data: Include fabric manufacturer's cleaning and stain-removal instructions.
- F. Warranty: Submit sample meeting warranty requirements of this Section.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Approved manufacturer listed in this section, with minimum five (5) years of experience in manufacture of acoustic room components.
  - 1. Manufacturers seeking approval must submit the following:
    - a. Acoustical analysis and proposed layout for this project as described in submittals article above.
    - b. Samples of each component of product Specified, when requested by Architect.
    - c. Project References: Minimum of five (5) installations not less than five (5) years old, with Owner contact information.
    - d. Sample warranty.

- B. Fire-Test-Response Characteristics per ASTM E84 or UL Standard 723:
  - 1. Flame spread index: 25 or less;
  - 2. Smoke developed index: 450 or less.
- C. Source Limitations: Obtain acoustic room components through one (1) source from a single approved manufacturer.

#### **1.06 COORDINATION**

- A. Coordinate requirements for blocking required in frame construction to receive acoustical absorber and diffuser panels.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, store, and handle acoustical absorber and diffuser panels in accordance with panel and fabric manufacturers' recommendations. Ship to jobsite only after roughing-in, painting work, and other related finish work has been completed and installation areas are ready to accept units and recommended temperature and humidity levels will be maintained during the remainder of construction.
- B. Protect acoustical panels from moisture during shipment, storage, and handling. Deliver in factory-wrapped bundles; do not open bundles until panels are needed for installation.
- C. Store panels flat, in dry, well-ventilated space; do not stand panels on end.
- D. Protect panel edges from damage.

#### **1.08 WARRANTY**

- A. Special Warranty: Manufacturer's written warranty indicating manufacturer's intent to repair or replace acoustical absorber and diffuser panels that fail in materials and workmanship within five (5) years from date of Substantial Completion. Failures are defined to include, but are not limited to, the following:
  - 1. Fracturing or breaking of unit components which results from normal wear and tear and normal use other than vandalism.
  - 2. Delamination or other failures of glue bond components.
  - 3. Warping of components not resulting from leaks, flooding, or other uncontrolled moisture of humidity.
  - 4. Failure of unit to perform acoustically in accordance with manufacturer's published data.

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Acoustical Absorber and Diffuser Panels:
  - 1. Wenger Corporation, Owatonna, MN; [www.wengercorp.com](http://www.wengercorp.com);
  - 2. Or approved equal.
- B. Acoustical Wall Panels:
  - 1. Fabric-Tough Wall Panels as manufactured by Tectum Inc.;
  - 2. Or approved equal.
- C. Substitutions: See Section 01 6000 - Product Requirements.

#### **2.02 SOUND ABSORBING / DIFFUSING PANELS**

- A. Glass Fiber Board: ASTM C612, Type 1A, 6lb/cu.ft. density molded rigid board.
  - 1. Flame spread index: 25 maximum.
  - 2. Smoke developed index: 450 maximum.
- B. Thermoplastic Sheet: PVC acrylic plastic sheet.
  - 1. Flame spread index: 25 maximum.
  - 2. Smoke developed index: 450 maximum.
- C. Fabric Facing Material: 100% woven plain weave polyester 2-ply, with the following characteristics:
  - 1. Light Fastness: AATCC 16, Option 3: Forty (40) hours.
  - 2. Fastness to Crocking: AATCC 8: #4 Wet & Dry.
  - 3. Flammability: ASTM E84, Class A or 1.
  - 4. Basis of Design Product: Guilford of Maine, FR-701.

## 2.03 MATERIALS (SOUND ABSORBING / DIFFUSING PANELS)

- A. General: Provide sound absorbing and sound diffusing panels meeting requirements of Performance Requirements Article and Requirements of this Article, with the following characteristics:
  - 1. Wall Panel Mounting Types for Acoustical Performance Characteristics according to ASTM E795, with measurements determined according to ASTM C423:
    - a. A1: Mounted with 9/32 inch air space similar to actual practice.
- B. Wall and Ceiling Absorber Panels: Manufacturer's standard panel, with fabric covering laminated to front face of rigid glass-fiber board, with chemically hardened edges, with the following characteristics:
  - 1. Basis of Design Product: Wenger Wall Absorber Panel.
  - 2. Absorber Panel:
    - a. Thickness: 3 inch.
    - b. Size: As indicated on Drawings.
    - c. Edges: Square.
    - d. Corners: Square.
  - 3. Fabric Covering: Manufacturer's standard, color and pattern as selected by Architect.
  - 4. Wall Panel Mounting Method: Metal wall bracket with panel-mounted Z-bracket.
- C. Convex Wall Diffuser Panels: Acoustically-configured, polycylindrical convex molded thermoplastic panel, .125 inch thick, width and length as indicated, and with the following characteristics:
  - 1. Basis of Design Product: Wenger Type I Convex Wall Diffuser.
  - 2. Diffuser Panel:
    - a. Size: as indicated on Drawings.
    - b. Thickness: 5 and 6 inches.
  - 3. Fabric Covering: Manufacturer's standard color and pattern as selected by Architect.
  - 4. Wall Panel Mounting Method: Metal wall bracket with panel-mounted Z-bracket.
  - 5. Sound Transmission Clas (STC): ASTM E90 and ASTM E413: 23.
- D. Convex Wall Diffuser Panels: Acoustically-configured, polycylindrical convex molded thermoplastic panel, .125 inch thick, width and length as indicated, glass fiber board glued to rear of panel, and with the following characteristics:
  - 1. Basis of Design Product: Wenger Type II Convex Wall Diffuser.
  - 2. Diffuser Panel:
    - a. Size: 3 feet x 6 feet.
    - b. Thickness: 8 inches.
  - 3. Fabric Covering: Manufacturer's standard color and pattern as selected by Architect.
  - 4. Wall Panel Mounting Method: Metal wall bracket with panel-mounted Z-bracket.
  - 5. Sound Transmission Clas (STC): ASTM E90 and ASTM E413: 23.

## 2.04 ACOUSTICAL WALL PANELS

- A. Panels: Prefinished, factory assembled fabric-covered panels, Class A rating.
  - 1. Surface Burning Characteristics: Flame spread index of 0 and smoke developed index of 0, when tested in accordance with ASTM E84.
- B. Cementitious wood fiber panels:
  - 1. Noise Reduction Coefficient (NRC): 0.05 to 0.90 when tested in accordance with ASTM C423.
  - 2. Panel Width: 24 inches.
  - 3. Panel Thickness: 1 in.
  - 4. Edges: Long edges, fabric wrapped to kerf.
  - 5. Colors: As selected by Architect/Engineer from manufacturer's standards.

## 2.05 FABRICATION

- A. Fabric Wrapped, General: Fabricate panels to sizes and configurations indicated, with fabric facing installed without sagging, wrinkles, blisters, or visible seams.
  - 1. Where radiused or mitered corners are indicated, install fabric to avoid seams or gathering of material.

2. For panels suspended from ceiling, provide fabric covering both sides, with seams only at panel edges.
- B. Tolerances: Fabricate to finished tolerance of plus or minus 1/16 inch for thickness, overall length and width, and squareness from corner to corner.

## **2.06 ACCESSORIES**

- A. Wall Brackets: Galvanized steel rail configured to accept Z-brackets attached to panel corners on concealed side.
- B. H Spline-Mounting Accessories: Manufacturer's concealed connecting splines designed for screw attachment to walls, with coordinating moldings and trim for interior and exterior corners and miscellaneous conditions.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Examine panels installation substrates and surroundings for compliance with requirements for installation tolerances, including required overhead clearances, and other existing conditions affecting installation and performance of acoustical panels. Proceed with unit installation only after unsatisfactory conditions have been corrected.

### **3.02 INSTALLATION**

- A. Install units plumb, level, and true. Install in accordance with manufacturer's recommendations and approved submittals.
- B. Install wall-mounted acoustical panels utilizing corner mounting Z-brackets, or grooved buttons, and concealed wall brackets. Where indicated, secure units to wall with fasteners along top of unit.
- C. Install ceiling-mounted acoustical panels utilizing intergral corner mounting brackets and one or more of the following mounting methods as indicated:
  1. Ceiling Grid Material: Mount and fasten panels to grid using grid clips.
  2. Do not modify panels in field.
- D. Install panels to construction tolerances of plus or minus 1/16 in for the following:
  1. Plumb and level.
  2. Flatness.
  3. Width of joints.

### **3.03 FIELD QUALITY CONTROL**

- A. Should completed installation fail to meet requirements, Contractor shall make modifications necessary to correct performance and retest room as directed by Architect to indicate compliance, at Contractor's expense.

### **3.04 CLEANING**

- A. Repair or replace defective work as directed by Architect upon inspection.
- B. Clean unit surfaces. Touch up, refinish, or replace damaged components in a manner acceptable to Architect.
- C. Clean fabric facing upon completion of installation from dust and other foreign materials, following manufacturer's instructions.

### **3.05 PROTECTION**

- A. Provide protection of installed acoustical panels until completion of the work.
- B. Replace panels that cannot be cleaned and repaired to satisfaction of the Architect.

**END OF SECTION**

**SECTION 09 9000  
PAINTING AND COATING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Surface preparation.
- B. Field application of paints, stains, varnishes, and other coatings.

**1.02 REFERENCE STANDARDS**

- A. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications.
- B. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Based Materials.
- C. SSPC (PM1) - Good Painting Practice: SSPC Painting Manual, Vol. 1; Society for Protective Coatings; Fourth Edition.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal process.
- B. Product Data: Provide complete list of all products to be used, with the following information for each:
  - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
  - 2. MPI product number (e.g. MPI #47).
  - 3. Cross-reference to Specified Paint System(s) product is to be used in; include description of each system.
- C. Samples: Submit three (3) paper "draw down" samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product Specified.
  - 1. Where sheen is Specified, submit samples in only that sheen.
- D. Certification: By manufacturer that all paints and coatings comply with VOC Limits Specified.
- E. Manufacturer's Instructions: Indicate special surface preparation procedures.
- F. Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.
- G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 01 6000 - Product Requirements, for additional provisions.
  - 2. Extra Paint and Coatings: 1 gallon of each color; store where directed.
  - 3. Label each container with color in addition to the manufacturer's label.

**1.04 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the products Specified, with minimum ten (10) years documented experience.
- B. Applicator Qualifications: Company specializing in performing the type of Work Specified with minimum ten (10) years experience.
- C. Single Source: All Work of this Section shall be produced by a single manufacturer unless otherwise approved by the Architect/Engineer. All paint and/or finish shall be of type and quality Specified.

**1.05 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

## 1.06 FIELD CONDITIONS

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.
- C. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.
- D. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS

- A. Paints/Stains/Varnishes:
  - 1. Sherwin-Williams Company: [www.sherwin-williams.com/#sle](http://www.sherwin-williams.com/#sle).
  - 2. Or approved equal.
- B. Fire Retardant Varnishes:
  - 1. Flame Control.
  - 2. Or approved equal.
- C. Substitutions: See Section 01 6000 - Product Requirements.

### 2.02 PAINTS AND COATINGS - GENERAL

- A. Paints and Coatings: Ready mixed, unless intended to be a field-catalyzed coating.
  - 1. Provide paints and coatings of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
  - 2. Supply each coating material in quantity required to complete entire Project's Work from a single production run.
  - 3. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.
- B. Volatile Organic Compound (VOC) Content:
  - 1. Provide coatings that comply with the most stringent requirements Specified in the following:
    - a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
    - b. Architectural coatings VOC limits of State in which the project is located.
  - 2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to Authorities Having Jurisdiction.
- C. Colors: To be selected from manufacturer's full range of available colors.
  - 1. Selection and color scheme to be made by Architect after Award of Contract.
  - 2. Allow for minimum of three (3) colors for each system, unless otherwise indicated, without additional cost to Owner.

### 2.03 PAINT SYSTEMS - EXTERIOR

- A. Paint WE-OP-3L - Paint - Wood, Opaque, Latex, 3 Coat:
  - 1. One (1) coat of latex primer sealer; S-W Exterior Latex Wood Primer, B42W08041.
    - a. 1.4 mils Dry per coat.
  - 2. Gloss: Two (2) coats of latex enamel; S-W DTM Acrylic Gloss Coating, B66-100.
    - a. 2.5-4.0 mils Dry per coat.
- B. Paint CE-OP-3L - Paint - Masonry/Concrete, Opaque, Latex, 3 Coat:
  - 1. One coat of block filler; S-W Loxon Block Surfacer A24W200.
    - a. 8.0 mils Dry per coat.
  - 2. Flat: Two (2) coats of latex enamel; S-W A-100 Exterior Latex Flat, A6 Series.
    - a. 1.2 mils Dry per coat.

- C. Paint ME-OP-3L - Paint - Ferrous Metals, Unprimed, Latex, 3 Coat:
  - 1. One (1) coat of latex primer; S-W DTM Acrylic Primer/Finish, B66W1.
    - a. 2.5-5.0 mils Dry per coat.
  - 2. Gloss: Two (2) coats of latex enamel; S-W DTM Acrylic Coating, B66-100.
    - a. 2.5-4.0 mils Dry per coat.
- D. Paint MgE-OP-3L - Paint - Galvanized Metals, Latex, 3 Coat:
  - 1. One (1) coat galvanize primer; S-W DTM Acrylic Primer/Finish, B66W1.
    - a. 2.5-5.0 mils Dry per coat.
  - 2. Gloss: Two (2) coats of latex enamel; S-W DTM Acrylic Coating, B66-100.
    - a. 2.5-4.0 mils Dry per coat.
- E. Paint E-Pav - Paint - Pavement Marking Paint:
  - 1. S-W Setfast Acrylic Waterborne Traffic Marking.
  - 2. Yellow: One coat.
  - 3. White: One coat.
- F. Paint - Cement Board, Acrylic Latex, 3-coat:
  - 1. One coat - Luxon concrete and masonry primer.
  - 2. Two coats - Superpaint Exterior Latex Satin A89-100 Series.

#### **2.04 PAINT SYSTEMS - INTERIOR**

- A. Paint WI-OP-3L - Paint - Wood, Opaque, Latex, 3 Coat:
  - 1. One (1) coat of latex primer sealer; S-W Premium Wall & Wood Interior Latex Primer, B28W08111.
    - a. 1.8 mils Dry per coat.
  - 2. Semi-gloss: Two (2) coats of latex enamel; S-W Promar 200, Zero VOC, Interior Latex Semi-Gloss, B31W02651.
    - a. 1.6 mils Dry per coat.
- B. Paint WI-TR-V - Wood, Transparent, Varnish, Fire Retardant:
  - 1. Varnish: One (1) coat Flame Control No. 166, Class A.
  - 2. Varnish Overcoat: One (1) coat Flame Control No. 167, Class A.
- C. Paint WI-TR-VS - Wood, Transparent, Varnish, Stain:
  - 1. One coat of stain; S-W Wood Classics Interior Oil Stain, A49-200.
    - a. 3.0-3.5 mils Wet per coat, no surface film Dry.
  - 2. One coat sealer; S-W Wood Classic FastDry Sanding Sealer, B26W43.
  - 3. Satin: One coat of varnish; Minwax High-Build Polyurethane.
    - a. 0.8-1.0 mils Dry per coat.
- D. Paint CI-OP-3L - Paint - Concrete/Masonry, Opaque, Latex, 3 Coat:
  - 1. One coat of block filler; S-W Loxon Block Surfacer, A24W200.
    - a. 8.0 mils Dry per coat.
  - 2. Semi-gloss: Two (2) coats of latex enamel; S-W Promar 200, Zero VOC Interior Latex, B31W02651.
    - a. 1.6 mils Dry per coat.
- E. Paint MI-OP-3L - Paint - Ferrous Metals, Latex, 3 Coat:
  - 1. One (1) coat of latex primer; S-W Pro Industrial Pro-Cryl Universal Primer, B66-1300 series.
    - a. 2.0 - 4.0 mils Dry per coat.
  - 2. Semi-gloss: Two (2) coats of latex enamel; S-W ProClassic Waterborne Acrylic, B31W01151.
    - a. 1.4 mils Dry per coat.
- F. Paint Mgl-OP-3L - Paint - Galvanized Metals, Latex, 3 Coat:
  - 1. One (1) coat galvanize primer; S-W Pro Industrial Pro-Cryl Universal Primer, B66-1300 series.
    - a. 2.0 - 4.0 mils Dry per coat.
  - 2. Semi-gloss: Two (2) coats of latex enamel; S-W ProClassic Waterborne Acrylic, B31W01151.
    - a. 1.4 mils Dry per coat.
- G. Paint GI-OP-3L - Paint - Gypsum Board/Plaster, Latex, 3 Coat:



1. One (1) coat of alkyd primer sealer; S-W Promar 200, Zero VOC Interior Latex Primer, B28W02600.
    - a. 1.3 mils Dry per coat.
  2. Eggshell: Two (2) coats of latex enamel; S-W Promar 200, Zero VOC Interior Latex, B20W02651.
    - a. 1.6 mils Dry per coat.
- H. Paint - Gypsum Board Paperless Drywall, Latex, 3 Coat:
1. One (1) coat of primer; Builders Solution Systems Interior Primer Surfer
    - a. 9-12 mils Dry per coat.
  2. Eggshell: Two (2) coats of Promar 200, Zero VOC Interior Latex, B20W02651.
    - a. 1.6 mils Dry per coat.

## 2.05 SPECIAL COATINGS

- A. Cold Galvanizing Compound:
  1. Premixed, ready to apply, UL recognized, liquid organic zinc compound, 90% metallic zinc by weight. Sherwin Williams, Zinc Clad 5, organic zinc rich primer, B69A45. 2.5 to 3.5 mils dry film thickness.
- B. Interior Concrete Floors / Steps (Shop Area)
  1. Primer: (1) Coat Sherwin Williams ArmorSeal 33 Epoxy Primer / Sealer, KB58AQ033
  2. Epoxy: (2) Coats Sherwin Williams ArmorSeal 1000HS, B67A02001.
- C. Anti-Graffiti Coating
  1. Two-component, Corotech V510 - aliphatic acrylic polyurethane by Benjamin Moore or equal. Multi-coat system, graffiti and UV resistance. Dry film thickness of 6-9 mils. Color as selected by Architect.

## 2.06 ACCESSORY MATERIALS

- A. Accessory Materials: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required to achieve the finishes specified whether Specifically indicated or not; commercial quality.
- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- B. Examine surfaces scheduled to be finished prior to Commencement of Work. Report any condition that may potentially affect proper application.
- C. Test shop-applied primer for compatibility with subsequent cover materials.
- D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
  1. Gypsum Wallboard: 12 percent.
  2. Plaster and Stucco: 12 percent.
  3. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
  4. Interior Wood: 15 percent, measured in accordance with ASTM D4442.
  5. Exterior Wood: 15 percent, measured in accordance with ASTM D4442.

### 3.02 PREPARATION

- A. Clean surfaces thoroughly and correct defects prior to Coating Application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the Project Conditions.
- C. Remove or repair existing coatings that exhibit surface defects.
- D. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.

- E. Seal surfaces that might cause bleed through or staining of topcoat.
- F. Remove mildew from impervious surfaces by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- G. Concrete and Unit Masonry Surfaces to be Painted: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.
- H. Gypsum Board Surfaces to be Painted: Fill minor defects with filler compound. Spot prime defects after repair.
- I. Plaster Surfaces to be Painted: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.
- J. Asphalt, Creosote, or Bituminous Surfaces to be Painted: Remove foreign particles to permit adhesion of finishing materials. Apply compatible sealer or primer.
- K. Prepare concrete floors for epoxy paint.
- L. Galvanized Surfaces to be Painted: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
- M. Corroded Steel and Iron Surfaces to be Painted: Prepare using at least SSPC-PC 2 (hand tool cleaning) or SSPC-SP 3 (power tool cleaning) followed by SSPC-SP 1 (solvent cleaning).
- N. Non-corroded, Uncoated Steel and Iron Surfaces to be Painted: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Prime paint entire surface; spot prime after repairs.
- O. Shop-Primed Steel Surfaces to be Finish Painted: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.
- P. Interior Wood Surfaces to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.
- Q. Interior Wood Surfaces to Receive Transparent Finish: Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats. Prime concealed surfaces with gloss varnish reduced 25 percent with thinner.
- R. Exterior Wood Surfaces to Receive Opaque Finish: Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior calking compound after prime coat has been applied. Back prime concealed surfaces before installation.
- S. Exterior Wood to Receive Transparent Finish: Remove dust, grit, and foreign matter; seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes with tinted exterior calking compound after sealer has been applied. Prime concealed surfaces.
- T. Metal Doors to be Painted: Prime metal door top and bottom edge surfaces.

### **3.03 APPLICATION**

- A. Exterior Wood to Receive Opaque Finish: If final painting must be delayed more than two (2) weeks after installation of woodwork, apply primer within two (2) weeks and final coating within four (4) weeks.
- B. Apply products in accordance with manufacturer's written application rates and instructions.
- C. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.
- D. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- E. Apply each coat to uniform appearance.
- F. Dark Colors and Deep Clear Colors: Regardless of number of coats Specified, apply as many coats as necessary for complete hide.

- G. Sand wood and metal surfaces lightly between coats to achieve required finish.
- H. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- I. Wood to Receive Transparent Finishes: Tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.

#### **3.04 FINISHING MECHANICAL AND ELECTRICAL EQUIPMENT**

- A. Paint shop-primed equipment, where indicated.
- B. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- C. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

#### **3.05 CLEANING**

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from Site.

#### **3.06 SCHEDULE - SURFACES TO BE FINISHED**

- A. Do Not Paint or Finish the Following Items:
  - 1. Items fully factory-finished unless specifically noted.
  - 2. Fire rating labels, equipment serial number and capacity labels.
  - 3. Aluminum and Stainless steel items.
- B. Mechanical and Electrical: Use paint systems defined for the substrates to be finished.
  - 1. Paint all conduit and exposed ductwork occurring in finished areas (including the tech shop & related lecture area) to match background surfaces, unless otherwise indicated.
  - 2. Paint interior surfaces of air ducts that are visible through grilles and louvers with one (1) coat of flat black paint to visible surfaces.
  - 3. Paint dampers exposed behind louvers, grilles, to match face panels.
- C. Paint both sides and edges of plywood backboards for electrical and telephone equipment before installing equipment.

**END OF SECTION**

**SECTION 10 1100  
VISUAL DISPLAY UNITS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Markerboards
- B. Tackboards
- C. Projection Screens.

**1.02 REFERENCE STANDARDS**

- A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's data on markerboard, tackboard, trim, and accessories.
- C. Shop Drawings: Indicate wall elevations, dimensions, joint locations, special anchor details.

**1.04 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Provide five (5) year warranty for chalkboard and markerboard to include warranty against discoloration due to cleaning, crazing or cracking, and staining.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Visual Display Boards:
  - 1. Claridge Products and Equipment, Inc: [www.claridgeproducts.com](http://www.claridgeproducts.com).
  - 2. Or approved equal.
  - 3. Substitutions: See Section 01 6000 - Product Requirements.

**2.02 VISUAL DISPLAY BOARDS**

- A. Markerboards: Porcelain enamel on steel, laminated to core.
  - 1. Color: White.
  - 2. Steel Face Sheet Thickness: 24 gage, 0.0239 inch.
  - 3. Core: Particleboard, 3/8 inch thick, laminated to face sheet.
  - 4. Backing: Aluminum foil, laminated to core.
  - 5. Size: As indicated on drawings.
  - 6. Frame: Extruded aluminum .
  - 7. Frame Finish: Anodized satin finish.
  - 8. Accessories: Provide chalk tray, map rail, and flag holder.
- B. Tackboards: Fabric laminated to cork.
  - 1. Cork Thickness: 1/4 inch.
  - 2. Fabric: Vinyl coated fabric.
  - 3. Color: As selected from manufacturer's full range.
  - 4. Backing: Hardboard, 1/4 inch thick, laminated to tack surface.
  - 5. Surface Burning Characteristics: Flame spread index of 25, maximum, and smoke developed index of 450, maximum, when tested in accordance with ASTM E84.
  - 6. Size: As indicated on drawings.
  - 7. Frame: Extruded aluminum .
  - 8. Frame Finish: Anodized satin finish.
- C. Exhibit Rails and Tack Strips: Fine-grained, homogeneous natural cork.
  - 1. Cork Thickness: 1/4 inch,
  - 2. Size: 2 inches wide with a 1-5/8 inch cork insert.
  - 3. Length: As indicated on drawings.

4. Frame: Extruded Aluminum.
5. Frame Finish: Anodized, satin finish.

### **2.03 ACCESSORIES**

- A. Projection Screens: Provide "Mira" - manually operated, glass beaded surface projection screens as manufactured by Claridge Products and Equipment, Inc. or equal. Unit shall be mounted on manufacturer's ceiling brackets. Provide one projection screen for each room where new chalkboard or markerboard is scheduled.
  1. Size: 60 x 60 inches unless otherwise noted.
  2. Registered as flame resistant with the California State Marshal.
  3. Certified as fire retardant in accordance with NFPA Standard 701, Small Scale Test.
  4. Certified as fire retardant in accordance with Federal Test Method Standard 191, Method 5903.
  5. Compliance with Federal Specification 191A/5760 as mildew and vermin proof.
- B. Markerboard Accessories: one (1) eraser; one (1) bottle of cleaner; one (1) red, blue, black, and green liquid chalk marker at each room where new markerboard is scheduled.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that field measurements are as indicated.
- B. Verify that internal wall blocking is ready to receive Work and positioning dimensions are as indicated on Shop Drawings.

### **3.02 INSTALLATION**

- A. Install boards in accordance with manufacturer's instructions.
- B. Secure units level and plumb.
- C. Coordinate final locations of all markerboards, tackboards, and accessories with Architect prior to installation. Provide all wood blocking, grounds, brackets, anchors, trim and accessories for a complete installation.

### **3.03 CLEANING**

- A. Clean board surfaces in accordance with manufacturer's instructions.
- B. Cover with protective cover, taped to frame.
- C. Remove temporary protective cover at Date of Substantial Completion.

**END OF SECTION**

**SECTION 10 1400  
SIGNAGE**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Room and door signs.
- B. Interior directional and informational signs.
- C. Emergency evacuation maps.

**1.02 RELATED REQUIREMENTS**

**1.03 REFERENCE STANDARDS**

- A. The New York State Uniform Fire Prevention and Building Code 2020.
- B. The New York State Education Department Manual of Planning Standards for Educational Facilities, March 1998.
- C. 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines.
- D. ADA Standards - 2010 ADA Standards for Accessible Design.
- E. ICC A117.1 - Accessible and Usable Buildings and Facilities.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's printed product literature for each type of sign, indicating sign styles, font, foreground and background colors, locations, overall dimensions of each sign.
- C. Signage Schedule: Provide information sufficient to completely define each sign for fabrication, including room number, room name, other text to be applied, pictograms, window inserts, copy position, graphic process, mounting location, mounting method, sign and letter sizes, fonts, and colors. Segregate signage schedule by building, floor, wing and area.
  - 1. When room numbers to appear on signs differ from those on drawings, include the drawing room number on schedule.
  - 2. When content of signs is indicated to be determined later, request such information from Owner through Architect at least 2 months prior to start of fabrication; upon request, submit preliminary schedule.
  - 3. Submit for approval by Owner through Architect prior to fabrication.
- D. Samples: Submit two samples of each type of sign, of size similar to that required for project, illustrating sign style, font, and method of attachment.
- E. Selection Samples: Where colors are not specified, submit two sets of color selection charts or chips.
- F. Verification Samples: Submit samples showing colors specified.
- G. Manufacturer's Installation Instructions: Include installation templates and attachment devices.
- H. Manufacturer's Qualification Statement.
- I. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years of documented experience.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Package signs as required to prevent damage before installation.
- B. Package room and door signs in sequential order of installation, labeled by floor or building.
- C. Store tape adhesive at normal room temperature.

## 1.07 FIELD CONDITIONS

- A. Do not install the sign units until all other finishing operations, including painting, have been completed unless otherwise directed.
- B. Do not install tape adhesive when ambient temperature is lower than recommended by manufacturer.
- C. Maintain this minimum temperature during and after installation of signs.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS

- A. Flat Signs:
  - 1. Mohawk Sign Systems, Inc; Series 200A, Sand-carved: [www.mohawksign.com/#sle](http://www.mohawksign.com/#sle).
  - 2. Substitutions: See Section 01 6000 - Product Requirements.

### 2.02 SIGNAGE APPLICATIONS

- A. Accessibility Compliance: Signs are required to comply with ADA Standards and ICC A117.1 2017, unless otherwise indicated; in the event of conflicting requirements, comply with the most comprehensive and specific requirements.
- B. Room and Door Signs: Provide a sign for every doorway in the new building or area of renovation, including the corridor and other similar common areas.
  - 1. Room and Door Signs: Provide a sign for every doorway, whether it has a door or not, not including corridors, lobbies, and similar open areas.
  - 2. Sign Type: Flat signs with engraved panel media as specified.
  - 3. Provide "tactile" signage, with letters raised minimum 1/32 inch and Grade II braille.
    - a. Tactile characters shall be raised 1/32 inches from the sign face.
    - b. Glue-on letter or etched backgrounds are not acceptable.
  - 4. Character Height: 1 inch.
  - 5. Sign Height: 2 inches x length required, unless otherwise indicated.
  - 6. Classroom Signs (Type 1):
    - a. Sign Size: 6 inches x 6 inches with single window insert.
    - b. Owner to provide window inserts.
  - 7. Office Doors: Identify with room numbers to be determined later, not the numbers indicated on drawings; in addition, provide "window" section for replaceable occupant name.
  - 8. Conference and Meeting Rooms: Identify with room numbers to be determined later, not the numbers indicated on drawings; in addition, provide "window" section with sliding "In Use/Vacant" indicator.
    - a. Sign Size: 6 inches x 6 inches.
  - 9. Service Rooms: Identify with room names and numbers to be determined later, not those indicated on drawings.
    - a. Doors into electrical control panel rooms shall have signs stating: ELECTRICAL ROOM or similar approved wording.
  - 10. Stair Doors: Identify sign stating: "STAIR" and include a stair pictogram. Include unique stair identifiers when provided to differentiate the stairs.
    - a. Sign Size: 6 inches x 8 inches
  - 11. Rest Rooms and Locker rooms (Type 3): Identify with pictograms, the names "MEN" and "WOMEN", room numbers to be determined later, and braille.
- C. Interior Directional and Informational Signs:
  - 1. Sign Type: Same as room and door signs.
  - 2. Sizes: as indicated on the Signage Plan.
  - 3. Locations: as indicated on the Signage Plan.
  - 4. Provide directional signs at inaccessible drinking fountains for persons using wheelchairs and drinking fountains for standing persons are not located adjacent to each other as indicated on the Signage Plan.
  - 5. Provide directional signs at inaccessible restrooms and bathing facilities as indicated on the Signage Plan.

6. Provide directional signs at exits serving required accessible spaces that do not have approved accessible means of egress as indicated on the Signage Plan.
- D. Emergency Evacuation Maps:
1. Allow for one map per elevator lobby floor.
  2. Map content to be provided by Owner indicating building floor plan, exit routes (primary and secondary), accessible egress routes (areas of refuge and exterior areas of assisted rescue), manual pull stations, portable fire extinguishers, fire extinguisher cabinets, occupant-use hose stations, fire alarm annunciators and controls, and current location (you are here).
  3. Comply with the New York State Building Code 2020, Section 3008.1.3 Fire Safety and Evacuation Plan and Fire Code 2020, Section 404.2.2 Fire Safety Plans item 4.
  4. Sign Type: Use clear plastic panel silk-screened on reverse, in brushed aluminum frame, screw-mounted.
  5. Sign Size: 12 inches x 12 inches.
- E. Room Occupancy Signs:
1. Provide Room Occupancy signs in all rooms where the rooms are calculated to have greater than 50 occupants or spaces of 1,000 square feet.
  2. Room Occupancy signs shall state: MAXIMUM OCCUPANCY # PERMITTED and the number (#) of occupants permitted within the space.
    - a. Comply with The State Education Department, Educational Facilities Manual of Planning Standards.
    - b. Comply with the New York State Building Code 2020, Section 1004.9.
    - c. Place sign near the main exit or exit access doorway from the room or space and as directed by the Owner & Architect.
    - d. Sign Type: Same as room and door signs.
    - e. Sign Size: 12 inches x 7 inches.
    - f. Coordinate with Owner & Architect during shop drawing phase.
- F. Exit Door Signs:
1. Provide tactile signs at exit passageway doors, exit discharge doors, exit doors leading directly to the exterior, horizontal exits, exit stairways and exit ramp doors.
  2. Comply with ADA 216.4.1 Exit Doors and ANSI 117.1 section 504.9.
  3. Comply with the New York State Building Code 2020, Section 1013.4.
  4. Sign Type: Same as room and door signs.
  5. Sign Size: 6 inches x 6 inches.
- G. Accessible Entrance Signs:
1. Provide signs with NYS Symbol of Accessibility at accessible entrances where not all entrances are accessible as indicated on the Signage Plan.
  2. Provide directional signs with NYS Symbol of Accessibility indicating the route to the nearest accessible building entrance at all non accessible building entrance as indicated on the Signage Plan.
  3. Provide directional signs with NYS Symbol of Accessibility indicating the route to the accessible exit as indicated on the Signage Plan.
  4. Sign Type: Same as room and door signs.
  5. Sign Size: 6 inches x 8 inches.
  6. Comply with the New York State Building Code 2020, Section 1111.1.
- H. Diaper Changing Station Signs:
1. Provide signage at each building that has one or more areas classified as an Assembly Group A occupancy and in which at least one diaper changing station is installed.
  2. Locate at each public toilet room which does not have a diaper changing station that is available for the use by the gender using such public toilet room as indicated on the Signage Plan.
  3. Comply with the New York State Building Code 2020, Appendix P Diaper Changing Stations, Section P106.1.
    - a. In addition to the Code, provide signage at diaper changing station toilet room doors as indicated on the Signage Plan.



4. Sign Type: Same as room and door signs.
  5. Sign Size: 6 inches x 9 inches.
- I. Group A Occupancy Signage:
1. In buildings in occupancy Group A having an occupant load of 300 or less, Groups B, F, M and S, and in places of religious worship, the main door or doors are permitted to be equipped with key-operated locking devices from the egress side provided:
    - a. The locking device is readily distinguishable as locked.
    - b. Provide signs posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED.
    - c. Comply with the New York State Building Code 2020, Section 1010.1.9.4.
    - d. Sign Type: permanent non-fading vinyl sticker or decal.
- J. Electrical Room Signs:
1. Provide signs to electrical rooms.
  2. Comply with the New York State Fire Code 2020, Section 604.3.1.
  3. Sign Type: Same as room and door signs
- K. Emergency Shower and Eyewash Station Signs:
1. Signs not directly applied to doors or sidelights: Sturdy, non-fading, aluminum.
  2. Provide signs at emergency showers, eyewash stations and combination emergency shower/eyewash stations as indicated on the Signage Plan.
  3. Sign Type: Same as room and door signs.
  4. Sign Size: 7 inches x 10 inches.
  5. Provide sign stating: EMERGENCY EYE WASH STATION. Include eyewash pictogram.
  6. Provide sign stating: EMERGENCY SHOWER / EMERGENCY EYE WASH. Include shower and eyewash pictograms.
  7. Provide sign stating: EMERGENCY SHOWER. Include shower pictogram.
- L. Fire Department Connection Signs:
1. Provide signs for fire department connections serving automatic sprinklers, standpipes or fire pump connections. Signs shall read: AUTOMATIC SPRINKLERS or STANDPIPES or TEST CONNECTIONS or a combination thereof as applicable as indicated on the Signage Plan . Where the fire department connection does not serve the entire building, a sign shall be provided indicating the portions of the building served.
  2. Sign Type: Sturdy non-fading aluminum.
  3. Comply with the New York State Building Code 2020, Section 912.5 Signs.
- M. Fire Protection Equipment Signs:
1. Provide signs identifying equipment and location for the fire department for rooms containing controls for air-conditioning systems, sprinkler risers and valves, or other fire detection, suppression or control elements shall be identified for the use of the fire department as indicated on the Signage Plan.
  2. Comply with the New York State Fire Code 2020, 509 Fire Protection and Utility Equipment Identification and Access.
- N. Gas Detection System Signs:
1. Provide signs adjacent to gas detection system alarm signaling devices that advise occupants of the nature of the signals and actions to take in response to the signal as indicated on the Signage Plan.
  2. Comply with the New York State Building Code 2020, Section 916.9 Signage.
- O. Truss Identification Signs:
1. Provide truss identification signs at newly constructed buildings or existing building additions that utilize truss type construction as defined in the New York State Building Code 2020, Section 102.2.1 (3), 19 NYCRR Part 1264 Identification of Buildings Utilizing Truss Type Construction.
  2. Signs Application:
    - a. Signs applied to doors or sidelights: Permanent non-fading sticker or decal.
    - b. Signs not directly applied to doors or sidelights: Sturdy, non-fading, aluminum.
  3. Locate signs in accordance with 19 NYCRR Part 1264, Table I-1264:

- a. Exterior building entrance doors, exterior exit discharge doors, exterior roof access doors to stairways. Attach sign to the door, or attached to a sidelight or the face of the building, not more than 12 inches horizontally from the latch side of the door jamb, and not less than 42 inches nor more than 60 inches above the adjoining walking surface.
  - b. Multiple contiguous exterior building entrance or exit discharge doors. Attach sign at each end of row of doors and at a maximum horizontal distance of 12 feet between signs, and not less than 42 inches or more than 60 inches above the adjoining walking surface.
  - c. Fire department hose connections. Attach sign to the face of the building, not more than 12 inches horizontally from the center line of the fire department hose connection, and not less than 42 inches nor more than 60 inches above the adjoining walking surface.
- P. Hazard Identification Signs:
- 1. Provide visible hazard identification signs as specified in NFPA 704 for the specific materials contained. Locate at the entrances where hazardous materials are stored, dispersed, used or handled in quantities requiring a permit and at specific entrances as indicated on the Signage Plan and at locations designated by the AHJ.
  - 2. Comply with the New York State Fire Code 2020, Section 5003.5 and 5003.6.
  - 3. Sign Type: \_\_\_\_\_.
  - 4. Sign Size: \_\_\_\_\_.

### **2.03 SIGN TYPES**

- A. Flat Signs: Signage media without frame.
  - 1. Edges: Square.
  - 2. Corners: Radiused.
  - 3. Wall Mounting of One-Sided Signs: Concealed screws at exterior signage and vinyl tape at interior signs.
- B. Color and Font: Unless otherwise indicated:
  - 1. Character Font: Helvetica, Arial, or other sans serif font.
  - 2. Character Case: Upper case only.
  - 3. Background Color: as selected by Architect.
  - 4. Character Color: Contrasting color.

### **2.04 TACTILE SIGNAGE MEDIA**

- A. Engraved Panels: Laminated colored plastic; engraved through face to expose core as background color:
  - 1. Total Thickness: 1/8 inch.
  - 2. Material: Plaque material shall be melamine plastic laminate with contrasting core color.
    - a. The melamine shall be non-static, fire-retardant and self-extinguishing.
      - 1) Flame Spread: Less than 25.
      - 2) Smoke Developed Values: 95-120
      - 3) Auto Ignition Temperature: Greater than 450 degrees F.
    - b. The plastic laminate is to be impervious to most acids, alkalies, alcohol, solvents, abrasives and boiling water.

### **2.05 NON-TACTILE SIGNAGE MEDIA**

- A. Silk Screened Plastic Panels: Letters and graphics silk screened onto reverse side of plastic surface:
  - 1. Sign Color: Clear.
  - 2. Total Thickness: 1/8 inch.

### **2.06 ACCESSORIES**

- A. Concealed Screws: Stainless steel, galvanized steel, chrome plated, or other non-corroding metal.
- B. Tape Adhesive: Double sided tape, permanent adhesive.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that substrate surfaces are ready to receive work.

### **3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Install neatly, with horizontal edges level.
- C. Locate signs and mount at heights indicated on drawings and in accordance with ADA Standards and ICC A117.1.
- D. Protect from damage until Date of Substantial Completion; repair or replace damaged items.

**END OF SECTION**

**SECTION 10 2113.17**  
**PHENOLIC TOILET COMPARTMENTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Phenolic toilet compartments.
- B. Urinal screens.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 1000 - Rough Carpentry: Blocking and supports.
- B. Section 10 2800 - Toilet Room Accessories.

**1.03 REFERENCE STANDARDS**

- A. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination: Coordinate the work with placement of support framing and anchors in walls and ceilings.

**1.05 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal process.
- B. Product Data: Provide data on panel construction, hardware, and accessories.
  - 1. Preparation instructions and recommendations.
  - 2. Storage and handling requirements and recommendations.
  - 3. Installation methods.
- C. Shop Drawings: Indicate partition plan, elevation views, dimensions, details of wall supports, door swings.
- D. Samples: Submit two samples of partition panels, 3 by 3 inch in size illustrating panel finish, color, and sheen.
- E. Manufacturer's Installation Instructions: Indicate special procedures.
- F. Manufacturer's Certificates: Certify products meet or exceed specified requirements

**1.06 WARRANTY**

- A. Warranty: Provide warranty for Phenolic Material against delamination, breakage, or corrosion for 25 years, assuming proper maintenance according to manufacturer's recommendations.

**1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Lay cartons flat, with adequate support to ensure flatness and to prevent damage to pre-finished surfaces.
- C. Do not store where ambient temperature exceeds 120 degrees F.

**1.08 PROJECT CONDITIONS**

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- B. Do not deliver materials or begin installation until building is enclosed, with complete protection from outside weather, and building temperature maintained at a minimum of 60 degrees F.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Phenolic Toilet Compartments:
  - 1. ASI Global Partitions; Black Core Phenolic: [www.asi-globalpartitions.com/#sle](http://www.asi-globalpartitions.com/#sle).

2. Metpar; Solitude Black Core Phenolic Toilet Enclosures: metpar.com
3. Substitutions: Section 01 6000 - Product Requirements.

## **2.02 PHENOLIC TOILET COMPARTMENTS**

- A. Toilet Compartments (Type TP1): Factory fabricated doors, pilasters, and divider panels made of solid phenolic core panels with integral melamine finish, floor-mounted headrail-braced.
  1. Edges: Black core
  2. Core: Fire Rated Material; Class A
  3. Color: to be selected by Architect from manufacturer's available colors.
- B. Doors:
  1. Thickness: 3/4 inch.
  2. Width: 24 inches or As indicated on the contract drawings
  3. Width for Handicapped Use: 36 inch.
  4. Height: 58 inch.
  5. Height above floor: 12" minimum.
- C. Panels:
  1. Thickness: 1/2 inch.
  2. Height: 58 inch.
  3. Height above floor: 12" minimum.
  4. Depth: As indicated on drawings.
- D. Pilasters:
  1. Thickness: 3/4 inch.
  2. Width: As required to fit space; minimum 3 inch.
  3. Pilaster Height: 82 inches.
- E. Screens (Type US1): Without doors; to match compartments; mounted to wall with two panel brackets with vertical support/bracing same as compartments.

## **2.03 ACCESSORIES**

- A. Pilaster Shoes: Formed ASTM A666 Type 304 stainless steel with No. 4 finish, 3 inch high, concealing floor fastenings.
  1. Provide adjustment for floor variations with screw jack through steel saddles integral with pilaster.
- B. Head Rails: Hollow anodized aluminum, 1 inch by 1-1/2 inch size, with anti-grip profile and cast socket wall brackets.
- C. Wall and Pilaster Brackets: Natural anodized aluminum; manufacturer's standard type for conditions indicated on drawings.
- D. Attachments, Screws, and Bolts: Stainless steel , tamper proof type.
  1. For attaching panels and pilasters to brackets: Through-bolts and nuts ; tamper proof.
- E. Hardware: Satin stainless steel:
  1. Hinge: Continuous, piano hinge.
  2. Door Latch: Slide type.
    - a. Non-ferrous, satin chrome-plated, slide latch
  3. Door strike and keeper with rubber bumper; mounted on pilaster in alignment with door latch.
  4. Coat hook with rubber bumper; one per compartment, mounted on door.
  5. Provide door pull for outswinging doors.
  6. Fastening Hardware: Manufacturer's standard, Type 304 stainless steel, No. 4 satin finish, with theft-resistant barrel nuts and machine screws.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Do not begin installation until installation conditions and substrates have been properly prepared.
- B. Verify that field measurements are as indicated on shop drawings.

- C. Verify correct spacing of and between plumbing fixtures.
- D. Verify correct location of built-in framing, anchorage, and bracing.
- E. Verify substrates or finishes have been properly installed.

### **3.02 PREPARATION**

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions

### **3.03 INSTALLATION**

- A. Install partitions secure, rigid, plumb, and level in accordance with manufacturer's instructions and approved shop drawings.
- B. Fasten components to adjacent materials and to other components using purpose-designed fastening devices.
- C. Maintain 3/8 inch to 1/2 inch space between wall and panels and between wall and end pilasters.
- D. Attach panels and pilasters to brackets. Locate head rail joints at pilaster center lines.
- E. Install door strike keeper on pilasters in alignment with door latch.
- F. Equip each compartment door with one coat hook and bumper.
- G. Field touch-up of scratches or damaged finish will not be permitted. Replace damaged or scratched materials with new materials.

### **3.04 TOLERANCES**

- A. Maximum Variation From True Position: 1/8 inch.
- B. Maximum Variation From Plumb: 1/8 inch.
- C. Clearance between wall surface and panels or pilasters: 3/4 inch maximum.

### **3.05 ADJUSTING**

- A. Adjust and align hardware to uniform clearance at vertical edge of doors, not exceeding 3/16 inch.
- B. Adjust hinges to position doors in partial opening position when unlatched. Return out-swinging doors to closed position.
- C. Adjust adjacent components for consistency of line or plane.

### **3.06 PROTECTION**

- A. Protect installed products until completion of project.
- B. Replace damaged products before Substantial Completion.
- C. Remove factory protective coverings and clean finish surfaces in accordance with manufacturer's instructions before substantial completion.

**END OF SECTION**

**SECTION 10 2239  
FOLDING PANEL PARTITIONS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Top-supported folding panel partitions, horizontal opening.

**1.02 RELATED REQUIREMENTS**

**1.03 REFERENCE STANDARDS**

- A. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- B. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric).
- C. ASTM C1396/C1396M - Standard Specification for Gypsum Board.
- D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- E. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
- F. ASTM E413 - Classification for Rating Sound Insulation.
- G. ASTM E557 - Standard Guide for Architectural Design and Installation Practices for Sound Isolation Between Spaces Separated by Operable Partitions.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on partition materials, operation, hardware and accessories, track switching components, and colors and finishes available.
- C. Design Data: Design calculations, bearing seal and signature of structural engineer licensed to practice in the State in which the Project is located, showing loads at points of attachment to the building structure.
- D. Shop Drawings: Indicate opening sizes, track layout, details of track and required supports, static and dynamic loads, location and details of pass door and frame, adjacent construction and finish trim, and stacking depth.
- E. Maintenance Data: Include recommended cleaning methods, cleaning materials, and stain removal methods. Describe cleaning materials detrimental to finish surfaces and hardware finish.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified this section with minimum three years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Store products in manufacturer's unopened packaging until installation.

**1.07 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Provide two year manufacturer warranty against defects in material and workmanship, excluding abuse.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Folding Panel Partitions - Horizontal Opening:
  - 1. Kwik-Wall Company; 2000 Series Operable Walls: [www.kwik-wall.com/#sle](http://www.kwik-wall.com/#sle).
  - 2. Substitutions: See Section 01 6000 - Product Requirements.

## 2.02 FOLDING PANEL PARTITIONS - HORIZONTAL OPENING

- A. Folding Panel Partitions: Center opening; paired panels; side stacking; motor operated.
- B. Panel Construction:
  - 1. Panel Frame: Vertical steel frame members shall be minimum 18-gauge galvanized steel, horizontal top cross member shall be minimum 12-gauge galvanized steel, which meets or exceeds ASTM A 653 requirements. Frame shall be all-welded construction with steel corner supports and cross-bracing reinforcements. Panel frame shall be Class A rated fire retardant, non-combustible and non-corrosive in accordance with ASTM E 84.
  - 2. Panel Skins: Panel skins shall be Class A rated in accordance with ASTM E 84. Panel skin material shall consist of:
    - a. Standard Acoustical Substrate: consisting of structural acoustical substrate pressure laminated to both sides of the steel frame to form a rigid, unitized and structural panel
  - 3. Panel hinges shall be architectural grade, full leaf butt hinges. Hinges shall be attached to the steel frame of the panel and reinforced with a steel backer plate.
  - 4. Panel Properties:
    - a. Thickness With Finish: 3 inches.
    - b. Weight: 6.5 lb/sq ft.
- C. Panel Finishes:
  - 1. Finish Material Type: Panel finish material shall be Class A (except wood veneer and high pressure laminate) rated in accordance with ASTM E 84, consisting of:
    - a. *Vinyl*: consisting of Type II, reinforced vinyl weighing 21 oz./lin. yd. (651 g/lin. m). Vinyl shall meet or exceed CCC-W-408A and CFFA-W-101-D quality standards.
- D. Panel Seals:
  - 1. Vertical Trim and Seals: Panels shall have vertical astragals containing flexible vinyl seals and incorporate reversible tongue-and-groove-type configurations for positive interlocking with adjacent panels. Vertical astragal type shall be:
    - a. Cap-type Astragal: consisting of an aluminum extrusion with tongue-and groove-type vertical astragals for encapsulating and protecting the finish material and substrate along the vertical edge of the panel.
  - 2. Horizontal Top Trim and Seals: Top seals shall consist of flexible vinyl sweep seals installed on both sides of the panel. The seals shall consist of a compressed bulb between two (2) fingers of vinyl. Top seal type shall be:
    - a. Fixed Top Seals: consisting of continuous-contact flexible vinyl sealing against the bottom flange of the overhead track
  - 3. Horizontal Bottom Trim and Seals: Bottom seals shall consist of multiple fingers of flexible vinyl for positive contact and sealing with various floor surfaces. Bottom seal type shall be:
    - a. *Operable Bottom Seals*: consisting of an edge-activated seal using a removable wrench as supplied by manufacturer. Bottom seals shall provide 2" [50.8] of nominal travel.
- E. Suspension System:
  - 1. Track: Formed steel; 1-1/4 by 1-1/4 inch size; thickness and profile designed to support loads, steel sub-channel and track connectors, and track switches.
  - 2. Carriers: Nylon wheels on trolley carrier at top of every second panel, sized to carry imposed loads, with threaded pendant bolt for vertical adjustment.
- F. Performance:
  - 1. Acoustic Performance:
    - a. Sound Transmission Class (STC): 48 to 52 calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90, on panel size of 100 sq ft.
  - 2. Surface Burning Characteristics of Panel Finish: Flame spread/smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84.
  - 3. Installed partition system track capable of supporting imposed loads, with maximum deflection of 1/360 of span.
- G. Accessories:



1. Ceiling Closure: White enameled ceiling closure; aluminum jamb and head molding, fittings and attachments, and intermediate meeting posts.
2. Acoustic Sealant: As recommended by partition manufacturer.

### **2.03 MATERIALS**

- A. Aluminum Extrusions: ASTM B221 (ASTM B221M), 6063 alloy, T6 temper.
- B. Fire Rated Gypsum Board: ASTM C1396/C1396M, Type X, UL rated; 1/2 inch thick, maximum practical length; ends square cut, square edges.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that field measurements are as indicated.
- B. Verify track supports are laterally braced and will permit track to be level within 1/4 inch of required position and parallel to the floor surface.
- C. Verify wall plumbness of 1/8 inch in 10 feet, non-cumulative.

### **3.02 INSTALLATION**

- A. Install partition in accordance with manufacturer's instructions and ASTM E557.
- B. Fit and align partition assembly and pocket doors level and plumb.
- C. Lubricate moving components.
- D. Install acoustic sealant to achieve required acoustic performance.
- E. Coordinate electrical connections.

### **3.03 ADJUSTING**

- A. Adjust partition assembly to provide smooth operation from stacked to full open position. Do not over-compress acoustic seals.
- B. Visually inspect partition in full extended position for light leaks to identify a potential acoustical leak.
- C. Adjust partition assembly to achieve lightproof seal.

### **3.04 CLEANING**

- A. Clean finish surfaces and partition accessories.

### **3.05 CLOSEOUT ACTIVITIES**

- A. Demonstrate operation of partition and identify potential operational problems.

**END OF SECTION**

**SECTION 10 2800  
TOILET ROOM ACCESSORIES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Accessories for toilet rooms and showers.
- B. Commercial shower and bath accessories.
- C. Electric hand dryers.
- D. Grab bars.

**1.02 RELATED REQUIREMENTS**

- A. Section 10 2113.17 - Phenolic Toilet Compartments.

**1.03 REFERENCE STANDARDS**

- A. ADA Standards - 2010 ADA Standards for Accessible Design.
- B. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
- C. ASTM B456 - Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.
- D. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Submit data on accessories describing size, finish, details of function, and attachment methods.
- C. Manufacturer's Installation Instructions: Indicate special procedures and conditions requiring special attention.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Toilet, Shower, and Utility Accessories:
  - 1. Bradley Corporation: [www.bradleycorp.com/#sle](http://www.bradleycorp.com/#sle).
  - 2. Bobrick Washroom Equipment, Inc.: [www.bobrick.com](http://www.bobrick.com).
  - 3. Zero International, Inc.: [www.us.allegion.com](http://www.us.allegion.com).
  - 4. Or approved equal.
  - 5. Substitutions: Section 01 6000 - Product Requirements.
- B. All items of each type to be made by the same manufacturer.

**2.02 FINISHES**

- A. Stainless Steel: No. 4 satin brushed finish, unless otherwise noted.

**2.03 TOILET ACCESSORIES**

- A. Electric Hand Dryer (Type HD1): Touch Button Operation, surface mounted, baked white enamel finish. Voltage required: 115 VAC, 15 amp, 1725 watts, 50/60 Hz, Single Phase.
  - 1. Product:
    - a. Bobrick Washroom Equipment, Inc.; B-7120: [www.bobrick.com](http://www.bobrick.com).
    - b. Or approved equal.
    - c. Substitutions: Section 01 6000 - Product Requirements.
- B. Toilet Paper Dispenser (Type TH1): Roll-in-reserve type designed to allow automatic activation of reserve roll when needed or manual activation by pressing release bar, surface-mounted, stainless steel unit with pivot hinge, tumbler lock
  - 1. Products:
    - a. Bobrick Washroom Equipment, Inc.; B-2888: [www.bobrick.com](http://www.bobrick.com).

- b. Or approved equal.
  - c. Substitutions: Section 01 6000 - Product Requirements.
- C. Paper Towel Dispenser (Type PT-1): Folded paper type, stainless steel, semi-recessed, with viewing slots on sides as refill indicator and tumbler lock.
  - 1. Capacity: 200 C-fold or 274 multi-fold.
  - 2. Finish: Powder Coated White.
  - 3. Products:
    - a. Bobrick Washroom Equipment, Inc.; B-26212: [www.bobrick.com](http://www.bobrick.com).
    - b. Or approved equal.
    - c. Substitutions: Section 01 6000 - Product Requirements.
- D. Soap Dispenser (Type SD-1): Liquid soap dispenser, wall-mounted, surface, with stainless steel cover and horizontal stainless steel tank and working parts; push type soap valve, check valve, and window to gauge refill indicator, tumbler lock.
  - 1. Minimum Capacity: 40 ounces.
  - 2. Products:
    - a. Bobrick Washroom Equipment, Inc.; B-2112: [www.bobrick.com](http://www.bobrick.com).
    - b. Or approved equal.
    - c. Substitutions: Section 01 6000 - Product Requirements.
- E. Mirrors (type MR1): Stainless steel framed, 1/4 inch thick tempered safety glass; ASTM C1048.
  - 1. Frame: Mitered and welded and ground corners, and tamperproof hanging system; No. 4 satin finish.
  - 2. Backing: Full-mirror sized, galvanized steel sheet and nonabsorptive filler material.
  - 3. Product:
    - a. Bobrick Washroom Equipment, Inc.; B-2908: [www.bobrick.com](http://www.bobrick.com).
    - b. Or approved equal.
    - c. Substitutions: Section 01 6000 - Product Requirements.
- F. Grab Bars: Stainless steel, peened surface finish.
  - 1. Standard Duty Grab Bars:
    - a. Push/Pull Point Load: 250 pound-force, minimum.
    - b. Dimensions: 1-1/2 inch outside diameter, minimum 0.05 inch wall thickness, exposed flange mounting, 1-1/2 inch clearance between wall and inside of grab bar.
    - c. Length and Configuration: As indicated on Drawings.
    - d. Product:
      - 1) Bobrick Washroom Equipment, Inc.; B-6806: [www.bobrick.com](http://www.bobrick.com).
      - 2) Or approved equal.
      - 3) Substitutions: Section 01 6000 - Product Requirements.
- G. Sanitary Napkin Disposal Unit (ND1): Stainless steel, surface-mounted, self-closing door, locking bottom panel with full-length stainless steel piano-type hinge, removable receptacle.
  - 1. Capacity: 1.0 Gallon.
  - 2. Products:
    - a. Bobrick Washroom Equipment, Inc.; B-270: [www.bobrick.com](http://www.bobrick.com).
    - b. Or approved equal.
    - c. Substitutions: Section 01 6000 - Product Requirements.

#### **2.04 SHOWER AND BATH ACCESSORIES**

- A. Shower Curtain Rod: Stainless steel tube, 1-1/4 inch outside diameter, 0.04 inch wall thickness, satin-finished, with 2-9/16 inch outside diameter, minimum 0.04 inch thick satin-finished stainless steel flanges, for installation with exposed fasteners.
  - 1. Length: As indicated on Contract Drawings.
  - 2. Products:
    - a. Bobrick Washroom Equipment, Inc.; Extra- Heavy-Duty Shower Curtain Rod: [www.bobrick.com](http://www.bobrick.com).

- b. Or approved equal.
  - c. Substitutions: Section 01 6000 - Product Requirements.
- B. Shower Curtain (Type SC1):
  - 1. Material: Heavy duty, 13 gauge, flame retardant, anti-microbial Super Bio Stat vinyl.
    - a. Features: Polyester reinforced medical grade PVC, anti-static, antimicrobial, flame retardant, stain resistant, odor resistant, water repellent, wear resistant, scrubbable and colorfast.
  - 2. Shield Fabric: 100% polyester, impregnated and multi-coated with Aqueous based microporous polymers.
  - 3. Chalet Fabric: Woven 100% polyester, Fire Rated, Visa Finish, treated with an antimicrobial agent to inhibit and control bacteria/mildew growth.
  - 4. Open Mesh Cloth: Provide curtain heading of open weave nylon mesh material with #50, 1/2 inch holes (greater than 70% open) to permit air circulation and sprinkler action. Mesh to be flame retardant, washable and dry-cleanable.
  - 5. Size: As indicated on Contract Drawings.
  - 6. Color: As selected by Architect from manufacturer's standard range of colors.
  - 7. Grommets: 4-ounce nickel-plated grommets; 6 inch on center for carriers. Top hem to be triple-turned hem over nylon tape for rugged wear.
  - 8. Products:
    - a. Inpro; Clickeze Shower Curtains: [www.inpro.com](http://www.inpro.com).
    - b. Or approved equal.
    - c. Substitutions: Section 01 6000 - Product Requirements.
- C. Folding Shower Seat (Type ST1): Wall-mounted surface; welded tubular seat frame, structural support members, swing-down legs, hinges, and mechanical fasteners of Type 304 stainless steel, L-shaped, right hand seat.
  - 1. Seat: Phenolic or polymeric composite one-piece seat or seat slats, of white color.
  - 2. Size: ADA Standards compliant.
  - 3. Products:
    - a. Bobrick Washroom Equipment, Inc; B-918116R: [www.bobrick.com](http://www.bobrick.com).
    - b. Substitutions: Section 01 6000 - Product Requirements.
- D. Towel Bar (Type TB1): Stainless steel, one inch round tubular bar; round brackets, concealed attachment, satin finish.
  - 1. Length: As indicated on Contract Drawings.
  - 2. Products:
    - a. Bobrick Washroom Equipment, Inc.; B-530: [www.bobrick.com](http://www.bobrick.com).
    - b. Or approved equal.
    - c. Substitutions: Section 01 6000 - Product Requirements.
- E. Wheelchair Accessible Neoprene Shower Threshold: High-quality aluminum threshold base with gentle slop and low wheeling force, neoprene gasket with mildew and wear resistance.
  - 1. Total Height: 1".
  - 2. Width: 1.75".
  - 3. Products:
    - a. Zero International, Inc.; Zero #8452A wheelchair accessible shower threshold.
    - b. Or approved equal.
    - c. Substitutions: Section 01 6000 - Product Requirements.

## 2.05 DIAPER CHANGING STATIONS

- A. Diaper Changing Station: Wall-mounted folding diaper changing station for use in commercial toilet facilities, meeting or exceeding ASTM F2285.
  - 1. Material: Polyethylene.
  - 2. Mounting: Surface.
  - 3. Color: As selected by Architect.
  - 4. Minimum Rated Load: 300 pounds.
  - 5. Products:

- a. Foundations Worldwide, Inc; Classic Baby Changing Station with Stainless Frame:  
www.foundations.com/#sle.
- b. Or approved equal.
- c. Substitutions: 01 6000 - Product Requirements.

## **2.06 UTILITY ROOM ACCESSORIES**

- A. Combination Utility Shelf/Mop and Broom Holder: 0.05 inch thick stainless steel, Type 304, with 1-1/2 inch returned edges, steel wall brackets.
  - 1. Drying rod: Stainless steel, 1/4 inch diameter.
  - 2. Hooks: Three, stainless steel rag hooks at shelf front.
  - 3. Mop/broom holders: Four spring-loaded rubber cam holders at shelf front.
  - 4. Length: 36 inches.
  - 5. Products:
    - a. B-224 manufactured by Bobrick Washroom Equipment, Inc..
    - b. Or approved equal.
    - c. Substitutions: 01 6000 - Product Requirements.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify exact location of accessories for installation.
- C. Coordinate installation of blocking, reinforcing plates and concealed anchors in walls and ceilings.

### **3.02 PREPARATION**

- A. Deliver inserts and rough-in frames to site for timely installation.
- B. Provide templates and rough-in measurements as required.

### **3.03 INSTALLATION**

- A. Install accessories in accordance with manufacturers' instructions in locations indicated on drawings.
- B. Install plumb and level, securely and rigidly anchored to substrate.
- C. Mounting Heights: As required by accessibility regulations, unless otherwise indicated.

### **3.04 PROTECTION**

- A. Protect installed accessories from damage due to subsequent construction operations.

**END OF SECTION**

**SECTION 10 4400  
FIRE PROTECTION SPECIALTIES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Fire extinguishers.
- B. Fire blankets and cabinets.
- C. Accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 1000 - Rough Carpentry: Wood blocking product and execution requirements.

**1.03 REFERENCE STANDARDS**

- A. NFPA 10 - Standard for Portable Fire Extinguishers.
- B. UL (DIR) - Online Certifications Directory.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Submittal Procedures, for submittal procedures.
- B. Shop Drawings: Indicate cabinet physical dimensions.
- C. Product Data: Provide extinguisher operational features.
- D. Manufacturer's Installation Instructions: Indicate special criteria and wall opening coordination requirements.
- E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- F. Maintenance Data: Include test, refill or recharge schedules and re-certification requirements.

**1.05 FIELD CONDITIONS**

- A. Do not install extinguishers when ambient temperature may cause freezing of extinguisher ingredients.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Fire Extinguisher Cabinets and Accessories:
  - 1. Potter-Roemer: [www.potterroemer.com/#sle](http://www.potterroemer.com/#sle).
  - 2. Or approved equal.
  - 3. Substitutions: See Section 01 6000 - Product Requirements.

**2.02 FIRE EXTINGUISHERS**

- A. Fire Extinguishers - General: Comply with product requirements of NFPA 10 and applicable codes, whichever is more stringent.
  - 1. Provide extinguishers labeled by UL for the purpose specified and indicated.
- B. ABC Multi-Purpose Dry Chemical Type (FE-1): Red Glossy polyester coated steel tank, with pressure gage.
  - 1. Class 2A:10B:C.
  - 2. Model 3005 as manufactured by Potter-Roemer or equal.
- C. Kitchen Dry Chemical Type (FE-3): Red glossy polyester coated steel tank, with pressure gauge.
  - 1. Cartridge Operated.
  - 2. Class: K type.
  - 3. Size: 9 pounds.
  - 4. Model: 3350 with wall mounted bracket by Potter-Roemer, or Approved Equal.

**2.03 FIRE EXTINGUISHER CABINETS (TYPE FEC-1)**

- A. Metal: Cold rolled steel with thermally-fused polyester coating.
- B. Cabinet Configuration: Recessed type.

1. Inside Box Dimensions: 9 inch wide x 24 inch high x 5 inch deep, 1/2 inch trim.
- C. Door: 0.036 inch thick, reinforced for flatness and rigidity; latch. Hinge doors for 180 degree opening with continuous piano hinge. Provide nylon catch.
- D. Door Glazing: Glass, clear, 1/4 inch thick tempered. Set in resilient channel gasket glazing.
- E. Finish of Cabinet Exterior Trim and Door: As selected by Architect/Engineer.
- F. Finish of Cabinet Interior: White polyester corrosion-resistant coating.
- G. Product: 7010-DV-5-VAB-FRC, 1 hour fire-rated, as manufactured by Potter-Roemer or equal. (For Type 1 Fire Extinguishers)

#### **2.04 ACCESSORIES**

- A. Fire blanket and Cabinet: Model 6603-VWL as manufactured by Potter-Roemer, woven fire retardant treated with fire resistant chemicals. Cabinets shall be constructed from heavy-duty cold-rolled steel and powder-coated with a thermally-fused re-coated red polyester finish with lettering. Fire retardant treated wool; red, 62 x 84 inch size.
- B. Extinguisher Brackets: Formed steel, chrome-plated.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify rough openings for cabinet are correctly sized and located.

#### **3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Install cabinets plumb and level in wall openings, 6 inches from finished floor to inside bottom of cabinet.
- C. Secure rigidly in place.
- D. Place extinguishers and accessories in cabinets and on wall brackets.

**END OF SECTION**

**SECTION 10 5100  
LOCKERS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Furnish and install factory-assembled Heavy-Duty MIG-Welded Metal Lockers, complete, as shown and specified per Contract Documents.
- B. Metal lockers.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 1000 - Rough Carpentry: Wood blocking and nailers.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on locker types, sizes, quantities, accessories and color charts.
- C. Shop Drawings: Indicate locker plan layout, sizes (height, width, depth) numbering plan and combination lock code with master-keyed.

**1.04 QUALITY ASSURANCE**

- A. Manufacturer's Qualifications: Company specializing in manufacturing products Specified in this Section with minimum of ten (10) years documented experience.
- B. Installer's Qualifications: Company specializing in performing Work of this Section with minimum five (5) years documented experience.
- C. Warranty: Provide manufacturer's standard Ten (10) Year Warranty for Lockers against defects in materials and workmanship.
- D. Warranty: All-welded Lockers are covered against all defects in materials and workmanship, excluding finish damage resulting from deliberate destruction and vandalism, under this Section for the lifetime of the facility.

**1.05 DELIVERY, STORAGE, AND HANDLING**

- A. Use all means necessary to protect materials of this Section before, during and after installation and to protect installed Work and materials of other Trades.
- B. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Metal Lockers:
  - 1. Lockers:
    - a. Premier Series Classmate Lockers - Superior Lockers by List Industries Inc.: [www.listindustries.com](http://www.listindustries.com).
    - b. Superior Lockers by List Industries Inc.: [www.listindustries.com](http://www.listindustries.com).
    - c. Substitutions: See Section 01 6000-Product Requirements.

**2.02 METAL LOCKERS**

- A. Lockers:
  - 1. Premier Series Classmate Lockers - Superior Lockers by List Industries Inc.: [www.listindustries.com](http://www.listindustries.com).
    - a. Tops, Bottoms, Shelves: 16-gauge solid sheet steel.
    - b. Sides: 16-gauge solid sheet steel
    - c. Doors: 14-gauge louvered sheet steel with recessed handle, multi-point gravity lift-type latching, and 3 inch wide 18 gauge full height door stiffener spot welded to inner door face and mig welded to hinge side, as well as top and bottom door flanges.
    - d. Backs: 18-gauge solid sheet steel



### **2.03 MATERIALS**

- A. Steel Sheet: All sheet steel used in fabrication shall be prime grade, free from scale and imperfections, and capable of receiving a heavy coat of high gloss baked enamel.
- B. Fasteners: Cadmium, zinc or nickel plated steel; bolt heads, slotless type; self-locking nuts or lock washers.
- C. Hardware: Hooks and hang rods of cadmium plated, or zinc plated steel, or cast aluminum.
- D. Handle: Seamless drawn stainless steel recessed handle.

### **2.04 ACCESSORIES**

- A. Provide all end panels, filler strips, tops, and trim as required/needed for a complete and proper installation.
- B. Single Tier Lockers: Opening 60 inches shall include one (1) hat shelf, one (1) double prong ceiling hook, and a minimum of two (2) single prong wall hooks.
- C. Locker end panels: All locker ends where exposed shall be provided with 1/8" thick steel check plate, finished to match locker color. Checker plate shall be securely fastened to locker units with tamper proof bolts.
- D. Fillers: Provide where indicated, of not less than 16 gauge sheet steel, factory fabricated and finished to match lockers.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that prepared bases are in correct position and configuration.

### **3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Install lockers plumb and square.
- C. Place and secure on prepared base.
- D. Secure lockers with anchor devices to suit substrate materials. Minimum Pullout Force: 100 lbs.
  - 1. Full perimeter anchoring to prevent movement at any one (1) point. Interior locker base should be reinforced to prevent buckling either by building a base under, or from manufacturer.
- E. Bolt adjoining locker units together to provide rigid installation.

### **3.03 CLEANING**

- A. Clean locker interiors and exterior surfaces.

**END OF SECTION**

**SECTION 11 3013  
RESIDENTIAL APPLIANCES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Kitchen appliances.
- B. Laundry appliances.

**1.02 RELATED REQUIREMENTS**

- A. Section 26 0583 - Wiring Connections: Electrical connections for appliances.

**1.03 REFERENCE STANDARDS**

- A. ICC (IMC)-2021 - International Mechanical Code.
- B. UL (DIR) - Online Certifications Directory.
- C. UL 2158A - Clothes Dryer Transition Duct.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's data indicating dimensions, capacity, and operating features of each piece of residential equipment specified.
- C. Copies of Warranties: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.
- B. Electric Appliances: Listed and labeled by UL (DIR) and complying with NEMA Standards (National Electrical Manufacturers Association).
- C. Gas Appliances: Bearing design certification seal of American Gas Association (AGA).

**1.06 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Provide five (5) year manufacturer warranty on refrigeration system of refrigerators.

**PART 2 PRODUCTS**

**2.01 KITCHEN APPLIANCES**

- A. Provide Equipment Eligible for Energy Star Rating: Energy Star Rated.
- B. Refrigerator: Free-standing, side-by-side, and frost-free.
  - 1. Capacity: Total minimum storage of 18 cubic ft; minimum 15 percent freezer capacity.
  - 2. Energy Usage: Minimum 20 percent more energy efficient than energy efficiency standards set by U.S. Department of Energy (DOE).
  - 3. Features: Include glass shelves, automatic icemaker, light in freezer compartment, and in-door water and ice dispenser.
  - 4. Exterior Finish: Porcelain enameled steel, color as indicated.
- C. Range: Electric, free-standing, with glass-ceramic cooktop.
  - 1. Size: 30 inches wide.
  - 2. Oven: Self-cleaning with electronic ignition.
  - 3. Elements: Four (4).
  - 4. Controls: Solid state electronic.
  - 5. Features: Include automatic meat thermometer, storage drawer, oven door window, broiler pan and grid, and oven light.
  - 6. Exterior Finish: Porcelain enameled steel, color as indicated.

- D. Cooking Exhaust: Range hood.
  - 1. Size: 30 inches wide.
  - 2. Fan: Two-speed, 500 cfm
  - 3. Exhaust: Rectangular, vented to exterior.
  - 4. Features: Include cooktop light, night light, backdraft damper, removable grease filter, and retractable visor.
  - 5. Exterior Finish: Painted steel, color as indicated.

## **2.02 LAUNDRY APPLIANCES**

- A. Provide Equipment Eligible for Energy Star Rating: Energy Star Rated.
- B. Clothes Washer: Front-loading.
  - 1. Size: Large capacity.
  - 2. Controls: Solid state electronic.
  - 3. Cycles: Include normal, permanent press, delicate, soak, and automatic soak.
  - 4. Motor Speed: Single-speed.
  - 5. Features: Include optional second rinse, bleach dispenser, fabric softener dispenser, self-cleaning lint filter, sound insulation, and end of cycle signal.
  - 6. Finish: Painted steel , color as indicated.
- C. Clothes Dryer: Electric, stationary.
  - 1. Size: Large capacity.
  - 2. Controls: Solid state electronic, with electronic moisture-sensing dry control.
  - 3. Temperature Selections: One.
  - 4. Cycles: Include normal, permanent press, knit/delicate, and air only.
  - 5. Features: Include interior light, reversible door, stationary rack, sound insulation, and end of cycle signal.
  - 6. Finish: Painted steel , color as indicated.

## **2.03 ACCESSORIES**

- A. Dryer Vent Assembly: Comply with ICC (IMC)-2021 and ICC (IRC)-2021.
  - 1. Exhaust Duct: Aluminum ribbon, 4-inch diameter, comply with UL 2158A.
    - a. Elbows: 26-gauge, 0.018-inch aluminized steel; 45 degree angle, nonsectioned curve; 4-inch diameter.
    - b. Clamps: Stainless steel, 3-1/2 to 4-3/4-inch diameter range.
  - 2. Finish for Exposed Metals: Black powder coat.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify utility rough-ins are provided and correctly located.

### **3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.

### **3.03 ADJUSTING**

- A. Adjust equipment to provide efficient operation.

### **3.04 CLEANING**

- A. Remove packing materials from equipment and properly discard.
- B. Wash and clean equipment.

**END OF SECTION**

**SECTION 11 5313  
LABORATORY FUME HOODS**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. Section Includes:
  - 1. Laboratory Fume Hoods
- B. Related Sections:
  - 1. Section 12 3201 - Manufactured Wood Casework
  - 2. Section 12 3216 - Manufactured Plastic Laminate Casework

**1.02 REFERENCE STANDARDS:**

- A. UL 1805 – Standard for Laboratory Fume Hoods and Cabinets
- B. ANSI/ASHRAE 110-1995 – Method of testing Performance Laboratory Fume Hoods

**1.03 PERFORMANCE**

- A. All fume hoods covered in this section are Isolator Series with a top and bottom airfoil and aerodynamically shaped fascia posts to minimize turbulence.
- B. VAV (Variable Air Volume) type: Design uses a “restricted by-pass design. Maximum air is exhausted when the sash is open, minimum air is exhausted when the sash is closed. A minimum flow of 25 CFM/sq ft of surface area, as stated by NFPA 45, should be maintained to achieve optimum containment and satisfactory dilution when the sash is closed.
- C. Fume hoods shall be designed for consistent and safe air flow through the hood face. Negative variations of face velocity shall not exceed 20% of the average face velocity at any designated measuring point as defined in this section.
- D. Average illumination of work area: minimum 80 foot-candles. Work area shall be defined as the area inside the superstructure from side to side and from face of baffle to the inside face of the sash, and from the working surface to a height of 48 inches.
- E. Fume hood shall be designed to minimize static pressure loss with stainless steel round duct collar configuration. Maximum average static pressure loss readings taken three diameters above the hood outlet from four points, 90 degrees apart, shall not exceed the following maximums:
- F. Fume hood shall maintain essentially constant exhaust volume at any baffle position for safety. Maximum variation in exhaust CFM, static pressure and average face velocity as a result of baffle adjustment shall not exceed 5% for any baffle position at the specified face velocity.

**1.04 PERFORMANCE TESTING REQUIREMENTS**

- A. General : One (1) hood of the same design as specified herein will be successfully tested as detailed below. Production of the hoods specified herein will not commence until the "Performance Test" has been successfully performed by the manufacturer. In general, the below detailed "Performance Test" will consist of the ANSI/ASHRAE 110-1995 test procedure using a five-minute tracer gas challenge at a rate of four (4) liters per minute. The PPM concentration outside the hood of a tracer gas released inside the hood will be measured utilizing a MIRAN 203 Gas Analyzer, or equivalent.
- B. Test Procedure:
  - 1. Tracer gas orifice and ejector as specified in ANSI/ASHRAE 110- 1995.
  - 2. Tracer gas is sulfur hexafluoride supplied from a cylinder capable of maintaining 30 PSI pressure at the test flow rate for at least five minutes. The test flow rate is four (4) liters per minute.
  - 3. Detector is a MIRAN 203 Infrared Spectrophotometer capable of indicating or recording concentrations of tracer gas in the range of 0.001 PPM, with an accuracy of  $\pm 10\%$  and a response time not to exceed ten (10) seconds to 90% indication of actual concentration.
  - 4. "Dummy" will be a manikin such as used in clothing display. The height of the manikin will be 67 inches with a shoulder height of 55" to 57", and otherwise represent normal proportions of the human body. Hairless dummies or torsos are unacceptable.

5. The detector is calibrated with a known concentration of tracer gas within 24 hours preceding a test, using the methods furnished or specified by the detector manufacturer.
- C. Hood Condition:
1. The sash or sashes shall be located in the design position or positions.
  2. If the hood has an auxiliary air supply, the supply shall be in operation.
- D. Quantitative Test Procedure:
1. Turn on detector, allow time to reach equilibrium.
  2. Insert orifice in test diffuser to give (4) liter per minute release rate.
  3. Install diffuser to a central test position. This position is equidistant from the inside side walls, six inches behind the sash plane.
  4. Install manikin standing 3" from the plane of the sash.
  5. Turn on tracer gas block valve. Position the detector probe between the nose and lip of the manikin.
  6. Observe and record the detector readings automatically. Background readings are to be taken before each test and subtracted from the actual test readings. The tests are run for five (5) minutes. An average heading above 0.07 PPM constitutes unsatisfactory performance under the conditions that exist for that test.
  7. During the sixth and seventh minute of testing, the sash is closed completely. Then, at 420 seconds elapsed time, the sash is re-opened.
  8. Between 450 and 510 seconds elapsed time, the hood perimeter is tested at a distance of 1" outside the plane of the sash.
  9. During all these procedures, breathing zone gas concentration shall not exceed 0.05 PPM.
- E. Qualitative Test Procedure:
1. Excerpt from SEFA 1.1 2002 (formerly SAMA Standard LF10-1981): It is recommended that the user make provisions to have the following tests performed on all laboratory fume hoods. These tests should be performed by qualified personnel to verify proper operation of the fume hoods before they are put to use. The tests of the fume hoods should be performed after the installation is complete, the building ventilation system has been balanced and all connections made. Any unsafe conditions disclosed by these tests should be corrected before using the hood.
- F. Test Conditions
1. Verify that building make-up air system is in operation, the doors and windows are in normal operating position, and that all other hoods and exhaust devices are operating at design conditions.
- G. Test Procedure:
1. Equipment List
    - a. A properly calibrated hot-wire thermal anemometer.
    - b. A supply of 2 -minute smoke candles.
    - c. A bottle of titanium tetrachloride and supply of cotton swabs or other recognized device for producing smoke.
  2. Room Conditions
    - a. Check room conditions in front of the fume hood using a thermal anemometer and a smoke source to verify that the velocity of cross drafts does not exceed 20 percent of the specified average fume hood face velocity. Any cross drafts that exceed these values shall be eliminated before proceeding with fume hood test.
    - b. Caution: Titanium Tetrachloride fumes are toxic and corrosive. Use sparingly; avoid inhalation and exposure to body, clothing and equipment that might be affected by corrosive fumes.
    - c. It must be recognized that no fume hood can operate properly if excessive cross drafts are present.

3. Face Velocity: Determine specified average face velocity for fume hood being tested. Perform the following test to determine if fume hood velocities conform to specifications or to the designated fume hood class. With the sash(es) positioned, turn on the exhaust blower. The face velocity shall be determined by averaging the velocity readings taken at the open fume hood face. Note: If not in accordance with specified face velocity, refer to (Troubleshooting Guide) of the complete SEFA document for aid in determining the cause of variation in air flow. If face velocity cannot be corrected to that specified, reclassify fume hood to conform to actual face velocity.
4. Sash Operation Check operation by moving sash(es) through its (their) full travel. Sash operation shall be smooth and easy. Vertical rising sashes shall hold at any height without creeping up or down, unless designed otherwise.
5. Verification of Proper Air Flow and Patterns
  - a. Fume Hoods without Auxiliary Air
    - 1) Turn fume hood exhaust blower on.
    - 2) With sash(es) in full open position, check air flow into the fume hood using a cotton swab dipped in titanium tetrachloride or other smoke source. Note: On fume hoods with horizontal sliding sash(es), check air flow with sash(es) at various full open positions. A complete traverse of the fume hood face should verify that air flow is into the fume hood over the entire face area. A reverse flow of smoke indicates unsafe fume hood operation.
    - 3) Move a lighted smoke candle throughout the fume hood work area, directing smoke across the work surface and against the side walls and baffle. Smoke should be contained within the fume hood and be rapidly exhausted. (Fume hoods with horizontal sliding sash(es) will show reverse flow and turbulence behind sash panel, but no outflow of smoke shall be evident.)
  - b. Fume Hoods with Auxiliary Air
    - 1) Turn exhaust blower on and determine face velocity
      - (a) Note: Face velocity and exhaust volumes shall be determined with the auxiliary air blower off.
    - 2) Turn on auxiliary air, verify that auxiliary air volume is as specified. Locate a straight section of the supply air duct and drill two holes of a size appropriate for the pitot tubes to be used, 90 degrees apart, on a plane through the duct, at the downstream end of the straight section. Measure the air velocity and calculate the air volume. Compare volumes determined with the specified volume of auxiliary air and with exhaust volume, to determine if proper ratio exists. Deviations of plus or minus five percent are acceptable. If deviations of more than five percent are noted, corrective measures should be taken. Seal holes in duct with duct tape or suitable sealant.
    - 3) With sash(es) in the open position, check air flow into the fume hood using a cotton swab dipped in titanium tetrachloride or other smoke source. A complete traverse of the fume hood face should verify that air flow is into the fume hood over the entire face area. A reverse flow of air indicates unsafe fume hood operation.
  - c. Evaluation of Low Air Flow Monitor
  - d. On fume hoods with low flow warning devices, verify that monitor functions properly and indicates unsafe conditions

## 1.05 SUBMITTALS

- A. Submit manufacturer's test data and installation instructions for each type of fume hood. Provide data indicating compliance with ANSI/ASHRAE Standard 110-1995.
- B. Provide samples of the following:
  1. 6" x 6" section of the interior fume hood liner material.
  2. 12" x 12" section of countertops with dish formation.
  3. Color samples of manufacturer's finish.
  4. Hardware and accessories including sample sash handle and/or pulls, chains, axles, and sprockets.
- C. Provide submittal drawings for fume hoods showing plans, elevations, sections and service run spaces. Details shall include notation of all specified items.
  1. Provide location and type of service fittings as related to the fume hood when required.

2. Provide roughing-in drawings for mechanical and electrical services as related to the fume hood when required.
3. Provide face opening, air volume and static pressure drop data.

#### **1.06 REFERENCE STANDARDS**

- A. ASTM D3359 - Standard Test Methods for Rating Adhesion by Tape Test.
- B. ASTM D3363 - Standard Test Method for Film Hardness by Pencil Test.
- C. NFPA 45 - Standard on Fire Protection for Laboratories Using Chemicals.
- D. SEFA 1 - Laboratory Fume Hoods.
- E. UL 1805 - Standard for Safety Laboratory Fume Hoods and Cabinets.

#### **1.07 FUME HOOD PERFORMANCE REQUIREMENTS**

- A. Metal Finish Performance Requirements: Coatings on Fume Hood components have been tested in conformance with the full requirements of SEFA 8 M-2010 Recommended Practice. See Section 2.07 for test procedures, acceptance levels and results for each criteria listed below from SEFA 8 M-2010 Section 8:
  1. Chemical Spot Test – Section 8.1
  2. Hot Water Test – Section 8.2
  3. Finish Impact Test – Section 8.3
  4. Paint Adhesion on Steel – Section 8.4
  5. Paint Hardness on Steel – Section 8.5

#### **1.08 QUALITY ASSURANCE**

- A. All laboratory fume hoods specified herein will be the product of one manufacturer and will be based on the specifications of the product line described in Part 2. All manufacturers other than those of the specified products will provide evidence of expertise in the manufacture of fume hoods and be willing to have their manufacturing facility scrutinized by the customer.
- B. All manufacturers desiring approval for this project must maintain a fume hood test facility at their factory location. This facility must provide for variable exhaust and make-up air control. In addition, any facility that provides for fume hood make-up air by using floor-to-ceiling wall diffusers is unacceptable. All qualified test facilities must contain, as part of their permanent equipment, ANSI/ASHRAE 110-1995 testing hardware as specified in that standard. In addition, all data readings shall be computer-recorded and the raw data submitted in disc format.
- C. The manufacturer shall provide certification that fume hoods shall meet the performance requirements described under "Fume Hood Performance Testing Requirements".
- D. The manufacturer shall warrant the sash counterweight system, excluding glass, against defects in materials and workmanship for the life of the fume hood. Any material or manufacturing defect in these components will be repaired without charge by the manufacturer.
- E. The manufacturer shall, for a period of one (1) year from date of shipment, warrant that furnished products shall be free from defects in material and workmanship. The manufacturer shall also warrant the products to be as represented and will repair or replace any part, under normal use, if examination discloses it to have been defective within the warranty period.
- F. UL 1805 Specification: Fume hoods must be UL 1805 approved. This standard covers electrical and mechanical hazards, investigates the flammability of materials and measures the effectiveness of airflow characteristics. Proper labeling must be affixed to the face of each fume hood indicating classification to UL 1805. UL listings covering electrical components only or other listings that do not encompass all elements of UL 1805 are insufficient.

#### **1.09 DELIVERY, STORAGE AND HANDLING**

- A. Schedule delivery of casework and equipment so that spaces are sufficiently complete that material can be installed immediately following delivery.
- B. Protect finished surfaces from soiling or damage during handling and installation. Keep covered with polyethylene film or other protective coating.

- C. Protect all work surfaces throughout construction period with 1/4" corrugated cardboard completely covering the top and securely taped to edges. Mark cardboard in large lettering "NO STANDING".

## **1.10 PROJECT CONDITIONS**

- A. Do not deliver or install equipment until the following conditions have been met:
  - 1. Windows and doors are installed and the building is secure and weather tight.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURER**

- A. Basis of Design. Institutional Casework, Inc., 1865 HWY 641 N, Paris, TN, 38242, F-100 Isolator Gen-5 ADA Bench Fume Hood - Framelss Vertical Sash.
  - 1. "American Made" – Laboratory Fume Hoods and related equipment wholly manufactured and assembled in the USA

### **2.02 MATERIALS**

- A. Sheet steel used in the construction of fume hoods:
  - 1. Mild carbon, cold rolled and leveled unfinished steel, ASTM A 1008
  - 2. Type 304 stainless steel, #4 finish one side, ASTM A 666
  - 3. Mild carbon, cold rolled and hot dipped galvanized steel
- B. Typical gauges:
  - 1. Mild Steel: 18 GA
  - 2. Galvanized steel: 18 GA
- C. Sash glass:
  - 1. 1/4" Laminated Glass per ASTM C 1172.
- D. Sash tracks: Corrosion-resistant polyvinyl chloride (PVC).
- E. Fastening devices:
  - 1. Interior surfaces: Nylon bolts, PVC fasteners, PVC-capped 410 stainless screws
  - 2. Exterior structural members: 410 stainless steel screws
- F. Interior liners: The liner consists of all interior surfaces, including sides, top, back and baffles.
  - 1. Fiberglass reinforced polyester material (polyglass), 3/16" nominal thickness, white

### **2.03 FUME HOOD CONSTRUCTION – BENCH HOODS**

- A. Superstructure: Shall consist of 18 GA mild steel side pans, painted neutral color grey, maximum 4-3/4" thick, holding side and rear liner panels, and fastened together with pinions and screws so that the entire structure is secure and rigid. Any framing system not providing structural support is unacceptable. Front and both sides of the superstructure are aligned and precision fit, eliminating the need for exterior gaskets.
- B. Airfoils:
  - 1. Lower airfoil shall be constructed of:
    - a. 16 GA Type 304 stainless steel, #4 finish.
    - b. and be equipped with power cord/tube pass-throughs 3" square near each side post. These pass-throughs shall allow sash handle to seal against airfoil without running cords and tubes under the airfoil, but by simply resting cords and tubes into the pass-through cavity. It is also flush with the work surface and has an integral drip trough.
  - 2. Upper airfoil:
    - a. 18 GA Type 304 stainless steel, #4 finish.
- C. Sash:



1. Provide a frameless vertical sash containing a 1/4" (6 mm) tempered glass panel and a full width painted steel sash handle (stainless steel optional) connected to a steel rear-hung counterweight system insuring non-tilting, non-binding, and non-creeping sash performance. Rear-mounted counterweight shall be connected to a #35 case-hardened steel chain engaging a twin sprocket axle system with positive master link connection points both front and rear. Sash systems utilizing cables and pulleys are not acceptable. Painted steel parts in the sash are not acceptable. Note: Sash interlock system utilized on double sided pass-through hoods.
- D. Baffles: Control air vectors into and through the fume hood, and shall be fabricated of the same material as the liner. Provide three fixed baffles and one adjustable baffle at bottom.
- E. Baffle attachment: Baffles are secured to the superstructure using non-metallic, corrosion resistant baffle stand-offs.
- F. Bypass: Isolator Viewpass system consisting of a 1/4" thick tempered glass panel allowing complete visual display of fume hood interior:
  1. Clear
- G. Duct collars: Standard 10" or 12" round exhaust outlet collar(s), fabricated of 20 gauge Type 304 stainless steel. Coated steel collars are not acceptable.
- H. Fascia posts :
  1. 18 GA Type 304 #4 finish stainless steel.
- I. Exterior end panels (Specifier's Option – choose one):
  1. 18 GA mild steel and painted
- J. Interior clearance: All bench type fume hoods are designed to have an interior vertical clearance of not less than 47" in the front twelve inches of the hood depth. Internal dimensions may be affected by accessories or options.
- K. Interior lighting: Standard configurations for fluorescent light fixtures are:
  1. 60" hood (1-48" fixture)
  2. Standard non-hinged fluorescent light fixture configured for LED lamp tubes shall be provided and installed on the exterior of the fume hood roof. A tempered glass panel is provided and has a vapor-tight seal to isolate the fixture from the hood interior. The largest possible double tube UL approved fixture is provided for each hood.
- L. Lamps
- M. Service Fittings and Fixtures:
  1. All laboratory service fittings and fixtures shall be as manufactured by the Water Saver Fixture Company or an approved equal. Fixtures, including handles, shall be color coded to indicate the proper service. Color code requirements for indexing service fixtures shall be as follows:

Service	Index Color
Gas	Blue
Air	Orange
Vacuum	Yellow
Steam	Black
Cold Water	Green
Hot Water	Red
Deionized Water	White

2. Finish of Service Fixtures:
  - a. Laboratory service fixtures(except fittings inside the fume hood) shall have (Specifier's Option – choose one):
    - 1) A polished chrome finish with clear epoxy coating.
    - 2) A satin chrome finish with clear epoxy coating.

- b. Fittings inside the fume hood shall have an epoxy finish color-coded to match the fixture service index color.
- N. Electrical services:
  - 1. Specified electrical services are prewired to a junction box located on the roof of the fume hood for field connection by the electrical contractor. All electrical receptacles are 3-wire, 20-amp duplex, 120/277VAC or as specified. Light switch shall be 3-wire polarized grounded, 15 amp, 125VAC or as specified. Face plates are stainless steel.
- O. Work surfaces:
  - 1. Epoxy resin, 1-1/4" thick, molded top made in the form of a watertight pan, not less than 1/4" deep to contain spillage.
    - a. Work surfaces are non-glaring finish and black, grey or white in color as selected by Architect during shop drawing phase..
- P. Instruction Plate: Corrosion resistant or plastic plate attached to the fume hood exterior with condensed information covering recommended locations for apparatus and accessories, use of sash and recommended safe operating procedures.

#### **2.04 HOOD FEATURES**

- A. Velocity alarm: Fume hoods shall be equipped with Jamestown-Tel fume hood velocity alarm to detect low hood face velocities. The units are surface-mounted on the hood's fascia panel. No control module, when mounted, shall be thicker than 1-1/2". The UL approved velocity alarm signals an unsafe operating condition when the fume hood face velocity falls below a preset amount. The alarm set-point calibration is performed by the user/owner once a proper face velocity has been set and measured. The alarm system consists of the following:
  - 1. LCD digital display that registers face velocities between 0 and 1000 FPM plus a safety reference display that actuates in low velocity conditions.
  - 2. Programmable alarm set point.
  - 3. Audible alarm of at least 80 dB.
  - 4. Flashing red warning light in synchronization with the audible alarm.
  - 5. Alarm system is furnished with velocity detector, 110V/12VDC power supply, and detector mounting hardware. The system operation at 110V, 60 Hz power.

#### **2.05 METAL FINISH (PAINTED SERIES)**

- A. Preparation: Metal shall be treated with a heated alkaline based acid solution, rinsed with water, and a coat of epoxy-link applied; immediately dried in heated ovens, then gradually cool prior to application of finish.
- B. Application: Electrostatically apply epoxy powder coat of selected color and bake in controlled high temperature oven to assure a smooth, hard satin finish. Surfaces shall have a chemical resistant, high grade laboratory furniture quality finish of the following thicknesses:
  - 1. Exterior and interior surfaces exposed to view: 1.8 – 3 mils.
  - 2. Backs of cabinets and other surfaces not exposed to view: 1.8 mils minimum.
- C. Chemical Spot Test :
  - 1. Test procedure: Place test panel on a flat surface, clean with soap and water and blot dry. Condition the test panel for 48 hours at 73°F ± 3°F and 50% ± 5% relative humidity. Panel will be subjected to chemical reagents according to SEFA 8 M-2010 Recommended Practice using one of the following two test methods:
    - a. Method A – Test volatile chemicals by placing a cotton ball saturated with reagent in the mouth of a 1-oz. bottle and inverting the bottle on the surface of the panel.
    - b. Method B – Test non-volatile chemicals by placing five drops of the reagent on the surface of the panel and covering with a 24 mm watch glass, convex side down.
    - c. For both test methods, leave the reagents on the panel for a period of one hour. Wash off the panel with water, clean with detergent and naptha, and rinse with deionized water. Dry with a towel and evaluate after 24 hours at 73°F ± 3°F and 50% ± 5% relative humidity using the following rating system.
  - 2. Evaluation ratings:

- a. Level 0 – No detectable change.
  - b. Level 1 – Slight change in color or gloss.
  - c. Level 2 – Slight surface etching or severe staining.
  - d. Level 3 – Pitting, cratering, swelling, or erosion of coating. Obvious and significant deterioration.
- D. Hot Water Test
- 1. Test procedure: Hot water (100°C±3%) shall be allowed to trickle (with a steady stream and at a rate of not less than 6 ounces [177.44cc] per minute) on a finished surface, which shall be set at an angle of 45-degrees, for a period of five minutes.
  - 2. Test results: The finish shows no visible effect due to the hot water.
- E. Finish Impact Test:
- 1. Test procedure: Position the 18 GA CRS test panel with nominal paint thickness of 3 mils on a smooth concrete floor. A one-pound ball (approximately 2" in diameter) shall be dropped from a distance of 12" onto a flat horizontal surface.
  - 2. Acceptance level: There shall be no visual evidence to the naked eye of cracks or checks in the finish due to impact.
  - 3. Test results: There is no visual evidence of any cracks or checks due to impact.
- F. Paint Adhesion on Steel:
- 1. Test procedure: This test is based on ASTM D3359-02 "Standard Test Methods for Measuring Adhesion by Tape Test 1 – Test Method B". Two sets of six parallel lines 2mm apart shall be cut with a razor blade to intersect at right angles thus forming a grid of 25 squares. The cuts shall be made just deep enough to go through the coating, but not into the substrate. Brush the grid area lightly with a soft brush, and then place a piece of tape over the grid. Rub the tape firmly with the eraser of a pencil to ensure good contact. Remove the tape by rapidly pulling it back upon itself as close to an angle of 180° as possible.
  - 2. Acceptance level: A 4B rating or better (ninety-five percent or more of the grid area shall show finish intact).
  - 3. Test results: 100% of the squares remained intact after the test.
- G. Paint Hardness on Steel:
- 1. Test procedure: This test is based on ASTM D3363-01 "Standard Test Method for Film Hardness by Pencil Test". Clip a corner of the sample at 45° exposing a raw metal edge. Place the sample on a raw metal base plate so that the exposed metal edge of the sample makes contact with the turned up side of the base plate. Remove approximately 6mm of wood from a 4H pencil, being careful to leave an undisturbed smooth cylinder of lead. Holding the pencil at an angle of 90° to an abrasive paper, rub the lead against the paper maintaining an exact angle of 90° section until a flat smooth and circular cross section is obtained. On the other end of the pencil remove approximately 13mm of wood from on half of the pencil. Install the pencil into a Sheen model 720N Pencil Scratch Hardness Tester. Follow the manufacturer's instructions for conducting the test.
  - 2. Acceptance level: The paint finish shall withstand the abrasion of a 4H pencil without penetrating through to the substrate and completing a continuous circuit.
  - 3. Test results: The 4H pencil did not penetrate the substrate during the test.
    - a. Note: manufacturer shall provide independent certified test report on chemical resistance of finish if requested.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Install fume hoods and equipment in accordance with manufacturer's instructions.
- B. Install equipment plumb, square, and straight with no distortion and securely anchored as required.
- C. Secure work surfaces to casework and equipment components with material and procedures recommended by the manufacturer.
- D. Accessory installation: Install accessories and fittings in accordance with manufacturer's recommendations.

### **3.02 FIELD QUALITY CONTROL TESTING OF FUME HOODS**

- A. All fume hoods are to be static tested for three (3) minutes using ANSI/ASHRAE 110-1995 by a manufacturer's/factory representative. All hoods shall pass with an average rating of AI 0.05 or less.
- B. All fume hoods tested using SEFA 1.1 - 2002. All units tested shall pass using the specified criteria.

### **3.03 ADJUSTING**

- A. Repair (or remove and replace) defective work, as directed by Architect or Construction Manager upon completion of installation.
- B. Adjust sash and other moving or operating parts to ensure smooth, near-silent and accurate sash operation with one hand and with uniform contact of rubber bumpers. Ensure counterweights operate without interference.
- C. Adjust fixtures and accessories to function smoothly.

### **3.04 CLEANING**

- A. Clean equipment, touch up as required.

### **3.05 PROTECTION OF FINISHED WORK**

- A. Take protective measures to prevent exposure of casework and equipment from exposure to other construction activity.
- B. Advise contractor of procedures and precautions for protection of material, installed laboratory casework and fixtures from damage by work of other trades.

**END OF SECTION**

**SECTION 11 6623  
GYMNASIUM EQUIPMENT**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Basketball backboards, goals, and support framing.
- B. Floor sleeves for net and goal posts.
- C. Volleyball nets and posts.

**1.02 RELATED REQUIREMENTS**

- A. Section 26 0583 - Wiring Connections.

**1.03 REFERENCE STANDARDS**

- A. AWS D1.1/D1.1M - Structural Welding Code - Steel.
- B. NFPA 70 - National Electrical Code.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Large Components: Ensure that large components can be moved into final position without damage to other construction.
- B. Electrically Operated Equipment: Coordinate location and electrical characteristics of service connection.

**1.05 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's data showing configuration, sizes, materials, finishes, hardware, and accessories; include:
  - 1. Electrical characteristics and connection locations.
  - 2. Manufacturer's installation instructions.
- C. Shop Drawings: For custom fabricated equipment indicate, in large scale detail, construction methods; method of attachment or installation; type and gauge of metal, hardware, and fittings; plan front elevation; elevations and dimensions; minimum one cross section; utility requirements as to types, sizes, and locations.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver products to project site in manufacturer's original packaging with factory original labels attached.
- B. Store products indoors and elevated above floor; prevent warping, twisting, or sagging.
- C. Store products in accordance with manufacturer's instructions; protect from extremes of weather, temperature, moisture, and other damage.

**PART 2 PRODUCTS**

**2.01 GENERAL REQUIREMENTS**

- A. See drawings for sizes and locations, unless noted otherwise.
- B. Provide mounting plates, brackets, and anchors of sufficient size and strength to securely attach equipment to building structure; comply with requirements of Contract Documents.
- C. Hardware: Heavy duty steel hardware, as recommended by manufacturer.
- D. Electrical Wiring and Components: Comply with NFPA 70; provide UL-listed equipment.
- E. Structural Steel Fabrications: Welded in accordance with AWS D1.1/D1.1M, using certified welders.

**2.02 BASKETBALL**

- A. Basketball System: Backstop assembly, backboard, and goal.
- B. Ceiling-Suspended Backstop Assemblies: Capable of mounting both rectangular and fan-shaped backboards.
  - 1. Framing: Center strut; forward folding framing.

2. Folding Control System: Electric hoist that folds backstop with 115 volt actuator, integral limit switches that provide automatic shut-off in both positions, and safety catch with automatic reset.
  3. Height Adjuster: Raises or lowers assembly by 2 feet to adjust goal height.
  4. Framing Color: Manufacturer's standard.
  5. Backboard Safety Strap: 2" wide Polyester belt with breaking strength of 6000 lbs. Entire unit must be capable of withstanding a test utilizing 1750 lbs of falling weight without strap failure.
    - a. Manufacturer: Porter 797 Saf-Strap.
- C. Backboards: Tempered glass, rectangular shaped.
1. Frame: Brushed aluminum edge, steel mounting.
  2. Markings: Painted.
  3. Color: Manufacturer's standard.
- D. Goals: Steel rim, mounted to backboard, with attached nylon net; complete with mounting hardware.
1. Net Attachment Device: Tube-tie.
  2. Finish: Powder coat orange.

### **2.03 FLOOR-MOUNTED EQUIPMENT**

- A. Volley Ball Nets and Posts: One court system of adjustable posts, net, and tensioning winch meeting requirements for FIVB, USA Volleyball, NCAA and NFHS competition requirements.
1. Posts: 3-1/2 inch O.D. schedule 80 aluminum tube with 1 inch height adjustments between 42 and 96 inches.
  2. Net: 4 inch square #36 nylon cord with vinyl coated polyester hem, double stitched around the perimeter.
    - a. Top Hem Reinforcing: 2000 pound minimum break strength galvanized aircraft cable in nylon coating.
    - b. Bottom Hem Reinforcing: 1/4 inch diameter braided nylon rope with spring loaded, pressure type rope tensioner.
    - c. Size: Regulation size.
  3. Tensioning Winch: Manual crank heavy duty, self-locking worm gear mechanism.
  4. Antenna and boundary marker.
  5. Protective Pads: Polyethylene foam covered with polyester reinforced vinyl fabric.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Take field measurements to ensure proper fitting of work. If taking field measurements before fabrication will delay work, allow for adjustments within recommended tolerances.
- B. Inspect areas and conditions before installation, and notify Architect in writing of unsatisfactory or detrimental conditions.
- C. Do not proceed with this work until conditions have been corrected; commencing installation constitutes acceptance of work site conditions.
- D. Verify that electrical services are correctly located and have proper characteristics.

### **3.02 INSTALLATION**

- A. Install in accordance with Contract Documents and manufacturer's instructions.
- B. Coordinate installation of inserts and anchors that must be built in to flooring or subflooring.
- C. Install equipment rigid, straight, plumb, and level.
- D. Secure equipment with manufacturer's recommended anchoring devices.
- E. Separate dissimilar metals to prevent electrolytic corrosion.

### **3.03 ADJUSTING**

- A. Verify proper placement of equipment.
- B. Verify proper placement of equipment anchors and sleeves, and use actual movable equipment to be anchored if available.

**3.04 CLEANING**

- A. Remove masking or protective covering from finished surfaces.
- B. Clean equipment in accordance with manufacturer's recommendations.

**3.05 PROTECTION**

- A. Protect installed products until Date of Substantial Completion.
- B. Replace damaged products before Date of Substantial Completion.

**END OF SECTION**

**SECTION 11 68 33.33**  
**BASEBALL AND SOFTBALL FIELD EQUIPMENT**

**PART 1 GENERAL**

**1.01 WORK INCLUDED**

- A. Provide all equipment and materials, and do all work necessary to furnish and install the athletic equipment, as indicated on the drawings and as specified herein. Athletic equipment shall include, but not be limited to:
  - 1. Turf Bases, Home Plate and Pitching Rubber

**1.02 RELATED WORK**

- A. Examine contract documents for requirements that affect work of this section. Other specification divisions and sections that directly relate to the work of this section include, but are not limited to:
  - 1. Division 31 – Earthwork

**1.03 REFERENCES**

- A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern.
  - 1. National Federation of State High School Associations (NFHS)
  - 2. National Collegiate Athletic Association (NCAA)
  - 3. International Association of Athletics Federations (IAAF)
  - 4. American Sports Builders Association (ASBA)
  - 5. Manufacturers Data and Recommended Installation Requirements

**1.04 SUBMITTALS**

- A. Manufacturers Product Data
  - 1. Provide manufacturers product data prior to actual field installation work, for Architects or Owners representatives review.
- B. Shop Drawings
  - 1. Provide drawings of the manufacturers recommended installation and foundation requirements prior to actual field installation work, for Architects or Owners representatives review.

**1.05 QUALITY ASSURANCE**

- A. Manufacturers warranties shall pass to the Owner and certification made that the product materials meet all applicable grade trademarks or conform to industry standards and inspection requirements.

**1.06 PRODUCT DELIVERY AND STORAGE**

- A. Materials delivered to the site shall be examined for damage or defects in shipping. Any defects shall be noted and reported to the Owners representative. Replacements, if necessary, shall be immediately re-ordered, so as to minimize any conflict with the construction schedule. Sound materials shall be stored above ground under protective cover or indoors so as to provide proper protection.

**PART 2 PRODUCTS**

**2.01 TURF BASES, HOME PLATE AND PITCHING RUBBER**

- A. TurfBase® Set as Manufactured or Supplied by:  
Sportsfield Specialties, Inc.  
P.O. Box 231  
41155 State Highway 10  
Delhi, NY 13753  
P. 888-975-3343



www.sportsfieldspecialties.com  
or approved equal.

**B. COMPONENTS:**

1. SH1BL – Rawlings Hollwood Impact Bases (set of 3) (white)
2. SHP-PS – Rawlings Pro Home Plate with ground anchor (white)
3. SHBBPB – Rawlings Hollywood MBL official four sided (white) professional pitching rubber
4. SHBBP – Rawlings ground rubber anchor mounts (set of 3)

**EXECUTION**

**3.01 INSTALLATION OF EQUIPMENT**

- A. All TurfBase® products shall be installed as recommended per manufacturer's written instructions and as indicated on the drawings.

**END OF SECTION**

**SECTION 12 2400  
WINDOW SHADES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Interior manual roller shades.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 1000 - Rough Carpentry: Concealed wood blocking for attachment of headrail brackets.

**1.03 REFERENCE STANDARDS**

- A. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.
- B. NFPA 701 - Standard Methods of Fire Tests for Flame Propagation of Textiles and Films.
- C. WCMA A100.1 - Standard for Safety of Window Covering Products.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination:
- B. Preinstallation Meeting: Convene one week prior to commencing work related to products of this section; require attendance of affected installers.
- C. Sequencing:
  - 1. Do not fabricate shades until field dimensions for each opening have been taken with field conditions in place.
  - 2. Do not install shades until final surface finishes and painting are complete.

**1.05 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets, including materials, finishes, fabrication details, dimensions, profiles, mounting requirements, and accessories.
- C. Shop Drawings: Include shade schedule indicating size, location and keys to details, head, jamb and sill details, mounting dimension requirements for each product and condition, and operation direction.
- D. Certificates: Manufacturer's documentation that line voltage components are UL listed or UL recognized.
- E. Source Quality Control Submittals: Provide test reports indicating compliance with specified fabric properties.
- F. Selection Samples: Include fabric samples in full range of available colors and patterns.
- G. Manufacturer's Instructions: Include instructions for storage, handling, protection, examination, preparation, and installation of product.
- H. Project Record Documents: Record actual locations of control systems and show interconnecting wiring.
- I. Warranty: Submit sample of manufacturer's warranty and documentation of final executed warranty completed in Owner's name and registered with manufacturer.

**1.06 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than five years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of this type with minimum five years of documented experience with shading systems of similar size and type.

**1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver shades in manufacturer's unopened packaging, labeled to identify each shade for each opening.
- B. Handle and store shades in accordance with manufacturer's recommendations.

**1.08 FIELD CONDITIONS**

- A. Do not install products under environmental conditions outside manufacturer's absolute limits.

## 1.09 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Provide manufacturer's warranty from Date of Substantial Completion, covering the following:
  - 1. Shade Hardware: One year.
  - 2. Fabric: One year.
  - 3. Aluminum and Steel Coatings: One year.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS

- A. Interior Manually Operated Roller Shades:
  - 1. Draper, Inc; Clutch Operated FlexShade: [www.draperinc.com/#sle](http://www.draperinc.com/#sle).
- B. Source Limitations: Furnish products produced by a single manufacturer and obtained from a single supplier.

### 2.02 ROLLER SHADES

- A. General:
  - 1. Provide shade system components that are easy to remove or adjust without removal of mounted shade brackets.
  - 2. Provide shade system that operates smoothly when shades are raised or lowered.
- B. Interior Roller Shades - Basis of Design: Draper, Inc; Clutch Operated FlexShade: [www.draperinc.com/#sle](http://www.draperinc.com/#sle).
  - 1. Description: Single roller, manually operated fabric window shade system complete with mounting brackets, roller tubes, hembars, hardware, and other components necessary for complete installation.
    - a. Drop Position: Regular roll.
    - b. Mounting: Window jamb mounted - inside, between jambs.
    - c. Size: As indicated on drawings.
  - 2. Mounting Hardware: As recommended by manufacturer for mounting indicated and to accommodate shade fabric roll-up size and weight.
    - a. Double Roller Mounting: Configured for light-filtering and room-darkening shades in one opening.
      - 1) Light-Filtering Fabric: Room-side of opening.
      - 2) Room-Darkening Fabric: Glass-side of opening.
  - 3. Roller Tubes: As required for type of shade operation; designed for removal without removing mounting hardware.
    - a. Material: Extruded aluminum or steel, with wall thickness and material selected by manufacturer.
    - b. Size: As recommended by manufacturer; selected for suitability for installation conditions, span, and weight of shades.
    - c. Capable of being removed and reinstalled without affecting roller shade limit adjustments.
  - 4. Hembars: Designed to maintain bottom of shade straight and flat, selected from manufacturer's standard options.
  - 5. Manual Operation:
    - a. Clutch Operator: Manufacturer's standard material and design, permanently lubricated.
    - b. Drive Chain: Continuous loop, stainless steel, beaded ball chain, 95 lb minimum breaking strength; comply with WCMA A100.1. Provide upper and lower limit stops.
    - c. Chain Retainer:
      - 1) Manufacturer's standard clip.
  - 6. Accessories:
    - a. Fascia: Extruded aluminum, size as required to conceal shade mounting, attachable to mounting end caps, without exposed fasteners; clear anodized finish.
    - b. Fasteners: Noncorrosive, and as recommended by shade manufacturer.

- c. Rescue Window Label: Any window coverings that cover a Rescue window must have a rescue window label.
  - 1) Rescue Window Labels:
    - (a) Color: Bright yellow background with black letters.
    - (b) Size: minimum: 3 inches by 5 inches.
    - (c) Text: RESCUE WINDOW.

### **2.03 SHADE FABRIC**

- A. Fabric: Nonflammable, color-fast, impervious to heat and moisture, and able to retain its shape under normal operation.
  - 1. Performance Requirements:
    - a. Flammability: Pass NFPA 701 large and small tests.
    - b. Fungal Resistance: No growth when tested according to ASTM G21.
  - 2. Color: As selected by Architect from manufacturer's full range of colors.

### **2.04 ROLLER SHADE FABRICATION**

- A. Field measure finished openings prior to ordering or fabrication.
- B. Dimensional Tolerances: Fabricate shades to fit openings within specified tolerances.
- C. Dimensional Tolerances: As recommended in writing by manufacturer.
- D. At openings requiring continuous multiple shade units with separate rollers, locate roller joints at window mullion centers; butt rollers end-to-end.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Examine finished openings for deficiencies that may preclude satisfactory installation.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- C. Start of installation shall be considered acceptance of substrates.

### **3.02 PREPARATION**

- A. Prepare surfaces using methods recommended by manufacturer for achieving best result for substrate under the project conditions.
- B. Coordinate with window installation and placement of concealed blocking to support shades.

### **3.03 INSTALLATION**

- A. Install in accordance with manufacturer's instructions and approved shop drawings, using mounting devices as indicated.
- B. Adjust level, projection, and shade centering from mounting bracket. Verify there is no telescoping of shade fabric. Ensure smooth shade operation.

### **3.04 CLEANING**

- A. Clean soiled shades and exposed components as recommended by manufacturer.
- B. Replace shades that cannot be cleaned to "like new" condition.

### **3.05 CLOSEOUT ACTIVITIES**

- A. See Section 01 7800 - Closeout Submittals, for closeout submittals.
- B. Demonstration: Demonstrate operation and maintenance of window shade system to Owner's personnel.

### **3.06 PROTECTION**

- A. Protect installed products from subsequent construction operations.
- B. Touch-up, repair, or replace damaged products before Substantial Completion.

**END OF SECTION**

**SECTION 12 3201  
MANUFACTURED WOOD CASEWORK**

**PART 1 GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and provisions of the contract including General Conditions, and Division 1. This Section applies to Art, Science, Library, and General Education Classrooms, and related support spaces.

**1.02 WORK INCLUDED**

- A. Furnish and install all cabinets and casework including counter, sink with cutouts, splash, shelving, tops, ledges and supporting structures and miscellaneous items of equipment as listed in the equipment schedules or as shown on the Drawings, including delivery to the buildings, unpacking, setting in place, leveling and anchoring to walls and floors as required. Furnish and install all filler panels, knee space panels where Specified and scribes required for a finished installation.

**1.03 RELATED SECTIONS**

- A. Section 06 1000 - Rough Carpentry: Blocking within walls to adequately support casework. Finish Carpentry/Millwork. Architectural Woodwork.
- B. Section 07 9200 - Joint Sealants: Caulking of casework and/or countertops to abutting walls.
- C. Section 08 7100 - Door Hardware: Cabinet locks keyed or master keyed to building locks.
- D. Section 09 6500 - Resilient Flooring.
- E. Division 22 - Plumbing: Furnishing, installation, and hook-up of sinks, fixtures, strainers, tailpieces, traps, vacuum breakers, stops, etc., shall be performed by the Plumbing contractor to state and local codes. In all cases, sink cutouts shall be by the casework contractor.
- F. Division 26 - Electrical: The electrical contractor to state and local codes shall perform electrical furnishing, installation, and final connections of wiring, conduit, and/or electrical items within casework.

**1.04 REFERENCES**

- A. Scientific Equipment and Furniture Association, SEFA 8-W-2020 Laboratory Furniture, Casework, Shelving and Tables
- B. National Fire Protection Association NFPA 45 Flammable and Combustible Liquids Code 2000 Edition

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications:
  - 1. Proof of five (5) years of experience in the manufacturing of wood casework and furnishings.
  - 2. Proof of five (5) completed installations, equal in size and educational requirements, which are available for inspection.
  - 3. Evidence of sufficient financial and technical resources to avoid delays in Completion of the Work, and to assure prompt and satisfactory production, delivery and installation of wood laboratory casework and equipment.
- B. Manufacturer must produce casework in compliance with SEFA 8, "Laboratory Furniture - Casework, shelving and Tables - Recommended Practices" guidelines.
- C. Safety Glass: Products complying with testing requirements in 16 CFR 1201 for Category II materials. Permanently mark safety glass with certification label of Safety Glazing Certification Council or another certification agency acceptable to authorities having jurisdiction.

**1.06 SUBMITTALS**

- A. Shop Drawings:
  - 1. Submit Shop Drawings consisting of floor plans indicating arrangement and relation to Adjacent Work and equipment, and complete elevation of casework.
    - a. Indicate locations of blocking and reinforcements required for installing casework.
    - b. Indicate locations of and clearances from adjacent walls, doors, windows, other building components, and other equipment, both contractor and owner supplied.
    - c. Indicate locations and types of service fittings and sinks where supplied under this section.

- d. Submit three (3) sets of laser quality, 11 x 17 inch Shop Drawings consisting of:
    - 1) Color and hardware options selection sheet.
    - 2) Small scale floor plan showing casework in relation to the building
    - 3) Large scale elevations and plan views
    - 4) Cross sections; service runs; blocking locations; and sink centerlines.
  - e. Coordination of fume hoods provided under Division 11.
  - f. Shop Drawings to be submitted within thirty (30) days of contract award.
- B. Product Data - Submit manufacturer's product literature including material specifications and other information on following components demonstrating compliance with Specified Requirements:
- 1. Wood casework Specification and catalog information.
  - 2. Countertop and Sink Specifications and product cut sheets.
  - 3. Accessories specifications and product cut sheets.
  - 4. Any additional information necessary for coordination with other Trades or Architectural/Owner review.
  - 5. Reports showing compliance with casework finish test requirements of this Specification.
  - 6. Reports showing compliance with epoxy counter top finish test requirements of this Specification.
- C. Samples:
- 1. Submit color samples of actual material for all selections and coordination.
    - a. Provide a minimum of ten (10) 6 x 6 inch standard wood casework color selections for the Architect and owner to select from.
    - b. Where indicated, match existing wood finish. Provide two (2) 6 x 6 inch samples matching existing finish for the Architect and owner to approve.
  - 2. Provide the Architect with a full-scale door and drawer base cabinet following written approval and color selection. The sample shall represent the approved construction, materials and finish for the product the casework manufacturer will provide, meeting the quality standards set forth by this Specification. The sample will be impounded by the Owner for comparison to products delivered to the Project Site and not returned.
  - 3. Color selectors/samples for all other products of this Section where applicable.
  - 4. Submit samples of all hardware to be used.

#### **1.07 DELIVERY, STORAGE, AND PROTECTION**

- A. Deliver casework only after wet operations in building are completed.
- B. Store casework in a ventilated place, protected from the weather, with relative humidity therein of 50 percent or less at 70 degrees F.
- C. Protect surfaces from soiling and damage during handling and installation. Keep covered with polyethylene film or other protective covering.
- D. Replace damaged material without additional cost to the Owner.
- E. Coordinate with General Contractor to verify wood or metal blocking (wall grounds) for sheet rock walls have been must be installed within partitions prior to delivery of casework and furnishings as required.

#### **1.08 WARRANTY**

- A. Manufacturer shall warranty casework to be free from defects in materials and workmanship, under normal use and service, for one (1) year from Date of Substantial Completion.

### **PART 2 - PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. CiFLab Solutions, Traditional Wood Series, basis for design.
- B. Or approved equal.
- C. Substitutions: See Section 01 6000 - Product Requirements.

#### **2.02 WOOD CASEWORK**

- A. Definitions:

1. Exposed Portions of Casework: Surfaces visible when doors and drawers are closed and visible surfaces in open cabinets or behind glass doors.
  2. Semi-Exposed Portions of Casework: Surfaces behind opaque doors, such as interiors of cabinets, shelves, dividers, interiors and sides of drawers, and interior faces of doors. Tops of cases 78 inches or more above floor and are defined as semi-exposed.
  3. Concealed Portions of Casework: Include sleepers, web frames, dust panels, and other surfaces not usually visible after installation.
- B. Materials:
1. Lumber Material:
    - a. Exposed Surfaces, Maple grade FAS or better, air dried and kiln dried to 6 percent moisture content, then tempered to 7-8 percent prior to fabrication. Red oak lumber exposed to view, is free of stains, splits, shakes, season checks and other similar defects.
    - b. Semi-Exposed and Concealed Surfaces: Other hardwoods are grade FAS or better, air dried to 6 percent moisture content, then tempered to 7-8 percent prior to fabrication. Other hardwoods are used in semi-exposed, or unexposed, areas and comply with NHLA grading for FAS or better lumber.
  2. Veneer Materials:
    - a. Exposed Areas: Maple plywood is red oak and maple, select grade A-2, plain sliced, book-matched, cross-banded, and has a solid core. 1 inch plywood is a minimum of 9-ply, 3/4 inch maple plywood is a minimum of 7-ply, 1/2 inch is a minimum of 5-ply, 1/4 inch is a minimum of 3-ply, and 3/32 inch is 3-ply.
    - b. Semi-exposed and Concealed Areas: Birch or Poplar are sound grade, have a solid core & are suitable for semi-exposed or unexposed areas. Thicknesses and minimum number of ply requirements are the same as stated under exposed material requirements above.
  3. Hardboard:
    - a. Hardboard is service tempered and consists of steam-exploded wood fibers, highly compressed into a hard, dense, 1/4 inch thick, homogeneous sheet, using natural resins and other added binders. Physical properties: Average modulus of rupture is 5,300-lbs./sq. inch; density is 50 to 60 lbs./cu. foot; and tensile strength of 3,500 lbs. /sq. inch.
  4. Particleboard: (door application only):
    - a. Particleboard is industrial grade, with the following physical properties: Density, 46 to 50 lbs./cu. foot; modulus of rupture, minimum, 2,200 psi; modulus of elasticity, minimum, and 450,000 psi.
- C. Edgings: Maple Hardwood, 3/8 inch thick or as noted below. 3mm thickness or any other dimensions less than Specified will not be accepted.

## 2.03 HARDWARE

- A. Hardware finish: Black epoxy powder coat, unless otherwise noted.
- B. Hinges are heavy duty, institutional type, 5-knuckle hospital tipped, and is made from .072 inch thick steel. Hinge is semi concealed, 2-1/2 inches high and has off-set wings; each wing has three (3) screw holes, one (1) of which is slotted for adjustability.
  1. Doors Less the 39-1/2 inches High: two (2) hinges per door.
  2. Doors 39-1/2 inches High and Over: Three (3) hinges per door.
- C. Pulls - Wall and Base Cabinets: Heavy-duty wire institutional type with 1 pull on drawers under 27 inches wide and 2 pulls on drawers 27 inches wide and wider. Pulls are anchored at 4 inches on center.
- D. Pulls/Handles - Tall Casework: 3-point latching systems consisting of dummy handle on left hand door and 3-point latching handle on right hand door, providing positive latching engagement at top, bottom and middle of door. Rod ends for 3-point system extend into cabinet body and have a steel plate guide to protect the anchoring hole from wire; exterior handles finished as directed by Architect. Locking handles provided where locks are required on tall storage units.
- E. Roller Catches: Friction roller catch is a zinc plated steel catch with a spring cushioned, polyethylene roller, and a metal strike plate. Screw-mounted catch and strike plate have slotted holes for adjustability.
  1. Doors Up to 39-1/2 inches High: One (1) catch each.

2. Doors 39-1/2 inches High and Over: Two (2) catches, located top and bottom.
- F. Drawer Slides: Drawer slides are self closing, epoxy powder coated, cold rolled steel, heavy-duty, side mounted, and have a 100 lb. load capacity. Paper and File drawer slides are 100lb. capacity, epoxy coated, full extension type. Slides have automatic positive stop levers to prevent drawer's accidental removal, but allow for quick removal without tools.
- G. Locks:
1. Cylinder type, die-cast, five disc tumbler mechanism with removable core as manufactured by National Lock or equal. Provide locking handles when indicated to be on tall storage units
  2. Key alike per room (each room different), unless otherwise indicated.
  3. Provide master key lock system and two (2) sets of master keys.
  4. Provide two (2) sets of keys for every different lock per room, unless otherwise indicated.
  5. Provide locks at all tall storage cabinets and wardrobes including any file drawers located within the wardrobe units.
  6. Provide three (3) core keys so that the School may switch out locks as required.
- H. Shelf Clips:
1. Shelf clips are made from clear polypropylene and are laboratory standard grade. Clips have double 1/4 inch diameter pins, 32mm on center and are equipped with shelf lock hold down tabs for 3/4 inch or 1 inch thick shelves. Clips with just 3/4 inch OR 1 inch but not both hold down tabs are not acceptable. Clips are to accommodate interchanging of shelves and thicknesses if desired by the owner. Polycarbonate clips are not acceptable.
- I. Leg Shoes:
1. Leg shoes are open-bottom style, 2-1/4 inch square, and molded of 1/8 inch black polyethylene.
- J. Leg panels:
1. Leg Panels shall be 1 inch thick 9 ply plywood construction.
  2. Leg Panels shall be secured to floor with aluminum C channel and covered with vinyl base by others.
- K. Apparatus Crossbars:
1. Crossbars are 3/4 inch diameter, anodized aluminum rods, with ends rounded. Lengths as indicated by assembly model number.
- L. Apparatus upright Rods:
1. Upright Rods are 3/4 inch diameter, anodized aluminum, 36 inch long with a rounded top and a tapered bottom to fit rod sockets.
- M. Apparatus Clamps:
1. Clamps are 1 inch square aluminum stock, two 3/4 inch diameter openings, at right angles to each other, bored through sides. Openings are for upright rods and crossbars. Thumb screw into each end of the clamp, tighten against the rods to hold positions.
- N. Apparatus Rod Sockets:
1. Rod sockets are mushroom type, machined from a solid aluminum rod. Sockets are held in place by a heavy aluminum lock nut and washer.
- O. Pencil Proof aluminum counter top grilles: 3-3/4 x 36 inches (O.D.) or size as shown on Drawings. Equal to Tuttle & Bailey 4101EO Series or equal.
- P. Toe Kick Grille: Falso industries model TC3, or approved equal, 14 gauge stamped aluminum with black textured powercoat finish. Hole size is 1-1/2 x 1-1/2 inches, 2 rows. Provide with width 2 inches less than the width of the corresponding cabinet.

#### **2.04 CASEWORK FABRICATION**

- A. Base Cabinets: All-compartment, drawer-and-compartment, or all-drawer type as Specified by manufacturer's model numbers; fully enclosed at bottom.



1. Tops: Four-sided horizontal frame with pinned mortise and tenon joints; joined to cabinet side with 8-mm hardwood dowels on 32-mm centers. Includes 1 inch thick x 2-1/4 inches deep front rail with 3/4 inch thick x 1-1/4 inches deep side rails and 3/4 inch thick x 1-3/4 inches deep back rail. Cabinets with just front and back rails are not acceptable Plywood or particle board top frames are not acceptable.
2. Divider Under Drawers: 3/4 inch thick x 2-3/4 inches deep front cross rail, secured to cabinet sides with 8-mm hardwood dowels on 32-mm centers. On all-drawer cabinets or between doors and drawers where locks are specified, a security panel fitted in intermediate horizontal frame and placed between drawers to prevent access to other drawers will be provided. Panels and frame shall be provided regardless of lock keying arrangement.
3. Bottoms: 3/4 inch thick 7-ply hardwood plywood, with 3/8 inch thick hardwood nosing applied to the exposed front edge and panel is jointed to cabinet sides with 8-mm hardwood dowels on 32-mm centers.
4. Top frame, Dividers Under Drawers, and Bottoms: Securely glued and screwed under pressure to sides at assembly to ensure joint integrity and squareness.
5. Sides: 3/4 inch thick 7-ply hardwood plywood, faced with selected hardwood veneer for exposed surfaces and unselected but sound veneers for unexposed surfaces. Includes 3/8 inch thick hardwood nosing applied to exposed front edge of cabinet side. Where adjustable shelves required by specified manufacturer's catalog numbers, sides bored with 5 mm holes at 32mm on center. 3mm edge banding is not acceptable.
6. Back Panels:
  - a. Semi-exposed backs: 1/2 inch thick veneer plywood secured to cabinet top and bottom and dadoed into cabinet sides. Backs recessed 1 inch to permit accurate scribing to wall and to accommodate exterior hangar rail. A bead of hot melt adhesive is applied back side of back panel around the perimeter for additional rigidity. Cabinets with removable and/or gravity fit backs as standard that are not dadoed into cabinet end panels and are not vertically cleated are not acceptable.
  - b. Interior exposed backs: 1/2 inch thick maple veneered vertical grain plywood panel stained to match exterior color. Back is secured to cabinet top and bottom and dadoed into cabinet sides. Backs recessed 1 inch to permit accurate scribing to wall and to accommodate exterior hangar rail. A bead of hot melt adhesive is applied back side of back panel around the perimeter for additional rigidity. Cabinets with removable and/or gravity fit backs as standard that are not dadoed into cabinet end panels and are not vertically cleated are not acceptable.
  - c. Exposed exterior finished backs: 3/4 inch thick maple veneered vertical grain plywood panel stained to match exterior color.
  - d. Removable Backs: Provide in one base cabinet per elevation. Coordinate locations with Architect prior to installation. Backs to be retained in vertical cleats secured to cabinet sides provide tight joints and convenient access to plumbing.
7. Exterior Hangar Rail: 1 inch thick x 3 inches high x full width of cabinet, plywood rail mounted behind the back panel, one at top and one at bottom of cabinet for fasteners to anchor through. Top hanger rail shall be mechanically fastened with screws to top frame and cabinet end panels. Lower hanger rail shall be mechanically fastened with screws to cabinet bottom and cabinet end panels.
8. Shelves (full-depth):
  - a. All Shelves: 1 inch thick 9-ply hardwood plywood with 3/8 inch hardwood nosing at front edges.
9. Toe Space: 4 inches high x 3-1/4 inches deep with 3/4 inch thick x 4 inches high toe board, joined between cabinet sides with 8 mm hardwood dowels.
10. Drawers – CiFLab Solutions Traditional Wood Series- Maple:
  - a. Drawer Face: to have a 3/4 inch thick solid maple lumber core drawer fronts, faced both sides with maple veneer. Drawer head to be semi-recessed with 3/8 inch radius lipped edges on all four sides. All plywood or particle board cores or lumber cores made from hardwood species other than maple are not acceptable. Maple edge banded cores are also not acceptable.
  - b. Sides and Back: 1/2 inch thick solid maple; dovetailed at all four corners. Plywood or birch drawer boxes are not acceptable.

- c. Bottoms: 1/2 inch thick veneer plywood fitted and secured into grooves in drawer face, sides and back. A bead of hot melt adhesive is applied under side of bottom panel around the entire perimeter for additional rigidity.
  - d. Interior Finish: Sealed and varnished to resist absorption.
  - e. Slides: Side mount, epoxy-coated drawer slides, providing at least 100 lb. load capacity and incorporating positive stops. Provide progressive full-extension type slide with minimum 100 lb. load capacity for file drawers.
- B. Wall Cabinets:
- 1. Tops and Bottoms: 1 inch thick 9-ply hardwood plywood with 3/8 inch thick hardwood nosing applied to front edges and joined to cabinet sides with 8 mm hardwood dowels on 32 mm centers. Securely glued and screwed under pressure at sides to assembly to ensure joint integrity and unit squareness. Wall cabinet bottoms stained to match rest of the cabinet exterior.
  - 2. Sides: 3/4 inch thick 7-ply hardwood plywood, faced with selected hardwood veneer on exposed surfaces and unselected but sound veneer on unexposed surfaces. 3/8 inch thick hardwood nosing applied to exposed front edge of cabinet side. Where adjustable shelves required, 5 mm holes bored in sides at 32 mm on center.
  - 3. Backs:
    - a. Semi-exposed backs: 1/2 inch thick veneer plywood secured to cabinet top and bottom and dadoed into cabinet sides. Backs recessed 1 inch to permit accurate scribing to wall. A bead of hot melt adhesive is applied back side of back panel around the perimeter for additional rigidity. Cabinet construction that has back panels with no hanger rails is not acceptable.
    - b. Interior exposed backs: 1/2 inch thick maple veneered plywood panel stained to match exterior color. Back is secured to cabinet top and bottom and dadoed into cabinet sides. Backs recessed 1 inch to permit accurate scribing to wall and accommodate exterior hanger rail. A bead of hot melt adhesive is applied back side of back panel around the perimeter for additional rigidity. Cabinet construction that has back panels with no hanger rails is not acceptable.
  - 4. Exterior Hanger Rail: 1 inch thick x 3 inches high x full width of cabinet, plywood rail mounted behind the back panel, one (1) at top and one (1) at bottom of cabinet for fasteners to anchor through. Top and bottom hanger rails shall be mechanically fastened with screws to cabinet top and bottom and cabinet end panels.
  - 5. Shelves:
    - a. All shelves: 1 inch thick 9-ply hardwood plywood with 3/8 inch hardwood nosing at front edges.
- C. Tall Cases:
- 1. Tops and Bottoms:
    - a. Bottom panels: 3/4 inch thick 7-ply hardwood plywood with 3/8 inch thick hardwood nosing applied to front edge.
    - b. Top panels: 1 inch thick 9-ply hardwood plywood with 3/8 inch thick hardwood nosing applied to front edge.
    - c. Tops and bottoms joined to cabinet sides with 8 mm hardwood dowels on 32 mm centers.
    - d. Tops and bottoms securely glued and screwed under pressure to sides at assembly to ensure joint integrity and unit squareness.
  - 2. Sides: 3/4 inch thick 7-ply hardwood plywood, faced with selected hardwood veneer on exposed surfaces and unselected but sound veneers on unexposed surfaces. 3/8 inch thick hardwood nosing applied to front edge of cabinet side. When adjustable shelves required, 5 mm holes bored in sides at 32 mm on center.
  - 3. Backs:
    - a. Semi-exposed backs: 1/2 inch thick veneer plywood secured to cabinet top and bottom and dadoed into cabinet sides. Backs recessed 1 inch to permit accurate scribing to wall. A bead of hot melt adhesive is applied back side of back panel around the perimeter for additional rigidity. Cabinet back panel construction that has back panels with no hanger rails is not acceptable.

- b. Interior exposed backs: 1/2 inch thick maple veneered plywood panel stained to match exterior color. Back is secured to cabinet top and bottom and dadoed into cabinet sides. Backs recessed 1 inch to permit accurate scribing to wall and to accommodate exterior hangar rail. A bead of hot melt adhesive is applied back side of back panel around the perimeter for additional rigidity. Cabinet back panel construction that has back panels with no hanger rails is not acceptable.
  - 4. Exterior Hangar Rail: 1 inch thick x 3 inches high x full width of cabinet, plywood rail mounted behind the back panel, one at top and one at bottom of cabinet for fasteners to anchor through. Top and bottom hanger rails shall be mechanically fastened with screws to cabinet top and bottom and cabinet end panels.
  - 5. Shelves:
    - a. All shelves: 1 inch thick 9-ply hardwood plywood with 3/8 inch hardwood nosing at front edges.
  - 6. Toe Space: 4 inches high x 3-1/4 inches deep with 3/4 inch thick x 4 inch high toe board, joined between cabinet sides with 8 mm hardwood dowels.
- D. Table Frames:
  - 1. 2-1/4 inch square table legs with adjustable glides and with solid 4 inch apron on all sides as shown on drawings. Leg shoes as required.
- E. Hardware:
  - 1. Counter support: Rakks, or equal, in milled aluminum finish, size as required to adequately support counter top.
  - 2. Grommets: 1 per knee space area. 2-1/2 inch round with flip top cap, available in black, gray, almond, or white.
- F. Doors:
  - 1. CiFLab Solutions Traditional Wood Series – Maple:
    - a. Base and Wall Cabinets: 3/4" this particle board core, framed on all four sides with 3/4 inch x 1-1/4 inch solid maple and faced with selected maple hardwood veneer. Veneer is to cover all but the radius portion of the hardwood frame. Edges are lipped and radiused with 3/8 inch on all 4 sides and overlay the cabinet body. Doors project 3/8 inch from the cabinet body. Hinges are mortised so that the door lays flat against the cabinet body. Mortising to be in solid maple edgebands only and not into the core material. Plywood core doors and lumber frames around doors of hardwoods other than maple or are smaller dimension edgebands than above are not acceptable. 3 mm edge banded doors are also not acceptable.
    - b. Tall Cases: 1-1/16 inch thick particleboard core, framed on all four sides with 3/4 inch x 2-1/2 inch solid maple and faced with selected maple hardwood veneer. Veneer is to cover all but the radius portion of the hardwood frame. Edges are lipped and radiused 3/8 inch on all 4 sides and overlay the cabinet body. 3/4 inch thick tall case doors are not acceptable.
- G. Hinged Glazed Doors: 1-1/16 inch thick x 2-3/4 inch wide heavy selected hardwood frame fitted with 1/4 inch tempered glass and equipped with same carriers specified for solid case doors above.
  - 1. Wall and Base Cabinets: 3/4 inch thick x 2-3/4 inch wide selected hardwood frame fitted and equipped as specified for "Hinged Glazed Doors" above.
- H. Wood Finishes: Varnish providing tough, hard properties to withstand most severe conditions and staining agents imparting clean, translucent appearance to wood substrate and enhance and improve natural graining in face without suggestion of masking or hiding. Finished film provides mellow, smooth texture. Finish to have no added formaldehyde and to be CARBS 1 compliant. Provide documentation for compliance in submittals.
  - 1. Surface Preparation: All surfaces thoroughly sanded with fine abrasive not coarser than 3/0 Garnet finishing paper, achieving absolute cleanliness before finishing coat application. All wood flour and abrasive particles removed with dry compressed air and all areas wiped with tack rag.
  - 2. Stain: Hand-wiped pigmented stain consisting of non-fading and non-bleeding colors, ground in suitable vehicle, permitting blending in proportions required to produce color selected by Architect from manufacturer's full range of 11 standard and custom colors.

3. Sealing: Synthetic resin based sealer applied to all surfaces of drawer, cabinet doors, exposed surface and other small sections where complete sealing of edges necessary to prevent moisture absorption. Remainder of cabinet sprayed with sealer after application to specific surfaces. Sealer air-dried within twenty (20) minutes to permit light scuff sanding with 5/0 Garnet finishing paper and subsequently thoroughly dusted.
4. Top Coat: Varnish consisting of moisture of chlorinated polymers and co-polymers suitably compounded with oil modified alkyd resin and other resinous plasticizers in solution of aromatic and oxygenated solvents. Produces cured film gloss with range of 25-35 measured by 60-degree glossmeter. Rubbed effect accomplished by inorganic flattening agent and acid catalyst added prior to spraying to convert film to cured state. Thorough sanding of previous coating provided to promote inter-coat adhesion with careful dusting to remove all powdered finish and abrasive prior to final coating.
5. Chemical Resistance Properties – Maple Wood Veneer Casework:
  - a. Spot Test to Evaporation:
    - 1) Boiling Water: No effect
    - 2) Ethyl Alcohol: No effect
    - 3) Isopropyl Alcohol: No effect
    - 4) Methyl Alcohol: No Effect
    - 5) Xylol: No effect
    - 6) Toluol: No effect
    - 7) Naptha: No effect
    - 8) Gasoline: No effect
    - 9) Methyl Ethyl Ketone: No effect
    - 10) Acetone: No effect
    - 11) Chloroform: No effect
    - 12) Formaldehyde: No effect
    - 13) Ink: No effect:
  - b. Spot Test for One Hour
    - 1) 25 percent Sulfuric Acid: No effect
    - 2) 70 percent Sulfuric Acid: Film destroyed
    - 3) 20 percent Hydrochloric Acid (5 min.): No effect
    - 4) 37 percent Hydrochloric Acid: Very slight ring & stain
    - 5) 50 percent Nitric Acid: Film destroyed
    - 6) 10 percent Sodium Hydroxide: No effect
    - 7) 29 percent Ammonia: No effect
    - 8) Iodine: Slight stain
  - c. Adhesion and Toughness: Attempts to separate various finish layers from each other and from wood with razor blade or sharp knife are extremely difficult or results in no separation of various layers.
  - d. Color of Finish: Selected by Architect from manufacturer's full range of a minimum 10 standard colors.

## 2.05 COUNTERTOPS

- A. Work surfaces shall be supplied in the largest practicable sizes. Tops shall not have a seam within 2 foot of a sink cutout.
- B. Epoxy Resin Tops and Sinks (at Science and Art Rooms only unless noted otherwise)
  1. Epoxy resin tops shall be molded from modified epoxy resins and inert fillers that have been compounded and completely cured in processing to give optimum physical and chemical resistance properties required of a heavy duty laboratory table top. Tops and curbs shall be a homogenous mixture throughout the full thickness and shall not depend upon a surface coating that may be removed by chemical and/or physical abuse. Tops and curbs shall be a non-glaring, medium sheen black. Epoxy resin surface shall have a drip groove set back 3/8" on the underside of the exposed edges.
  2. Manufacturers:

- a. Durcon, Inc. (Basis of Design)
- b. Other acceptable manufacturers:
  - 1) Epoxyn
  - 2) Kewaunee
3. Epoxy resin products blended to provide maximum chemical resistance and physical strength. Oven cured for maximum chemical stability.
4. Each epoxy top to be examined before fabrication to inspect for variances in thickness. Each corner of top shall not deviate more than plus or minimum 1/32" (.793mm) from normal.
5. Each epoxy top to be examined before fabrication to inspect for flatness. To be measured in unrestrained conditions. The tops are accepted for use if there is no gap exceeding 1/16" in a 36" span or 3/32" in a 96" span.
6. Countertops to be 1" thick with 4" applied curb. Coordinate opening size for plumbing fixtures. Provide continuous drip groove at all exposed edges of counter.
7. Provide epoxy resin sinks where required on drawings. Provide with removable strainer and threaded tailpipe. All sinks to be drop-in style. Overflows and stoppers to be provided.
8. Color to be black.
9. Chemical Resistance Properties:
  - a. Test Method A

<u>CHEMICAL</u>	<u>PANEL RATING</u>
Acetone	Excellent
Amyl Acetate	No Effect
Benzene	Excellent
Butyl Alcohol	No Effect
Carbon Tetrachloride	No Effect
Chloroform	Excellent
Diethyl Ether	No Effect
Dimethyl Formamide	Excellent
Dioxane	Excellent
Ethyl Acetate	Excellent
Ethyl Alcohol	No Effect
Formaldehyde	No Effect
Heptane	No Effect
Kerosene	No Effect
Methyl Alcohol	No Effect
Methyl Ethyl Ketone	Excellent
Toluene	Excellent
Trichloroethylene	Excellent
Turpentine	No Effect
Xylene	No Effect

- b. Test Method B

<u>CHEMICAL</u>	<u>PANEL RATING</u>
98% Acetic Acid	No Effect
5% Acetic Acid	No Effect
28% Ammonium Hydroxide	No Effect
10% Ammonium Hydroxide	No Effect
Aqua Regia	Excellent
Sat. Calcium Hypochlorite	No Effect
40% Chromic Acid	Good
10% Chromic Acid	No Effect

Dichromate Cleaning Solution	Failure
88% Formic Acid	No Effect
Furfural	Good
37% Hydrochloric Acid	No Effect
10% Hydrochloric Acid	Excellent
48% Hydrochloric Acid	Fair
3% Hydrogen Peroxide	Excellent
Mineral Oil	No Effect
70% Nitric Acid	Good
40% Nitric Acid	Excellent
30% Nitric Acid	No Effect
10% Nitric Acid	No Effect
Oleic Acid	No Effect
88% Phenol	Excellent
8% Phenol	Excellent
85% Phosphoric Acid	No Effect
10% Silver Nitrate	Good
50% Sodium Hydroxide	Excellent
40% Sodium Hydroxide	Excellent
10% Sodium Hydroxide	Excellent
1% Sodium Hydroxide	No Effect
20% Sodium Carbonate	No Effect
2% Sodium Carbonate	No Effect
Sat. Sodium Chloride	No Effect
10% Sodium Chloride	No Effect
5% Sodium Chloride	No Effect
96% Sulfuric Acid	Failure
77% Sulfuric Acid	Excellent
30% Sulfuric Acid	Excellent
3% Sulfuric Acid	Excellent
Sat. Zinc Chloride	No Effect

- c. Physical Properties Testing
  - 1) Material Tested: Modified Epoxy Resin
- d. Flexural Strength (ASTM D-790-71) 10,000 lbs/sq. in.
- e. Rockwell "M" Hardness (ASTM D-785-65) 100
- f. Density (ASTM D-792-66) 1.96 g/cc
- g. Water Absorption (ASTM D-570-77) .02%
- h. Other testing of uncommon requirements has been conducted. Results of these test and others required shall be available upon request.
- i. Epoxy Top Accessories:
  - 1) Apparatus Crossbars:
    - (a) Crossbars are 3/4 inch diameter, anodized aluminum rods, with ends rounded. Lengths as indicated by assembly model number.
  - 2) Apparatus upright Rods:
    - (a) Upright Rods are 3/4 inch diameter, anodized aluminum, 36 inch long with a rounded top and a tapered bottom to fit rod sockets.
  - 3) Apparatus Clamps:

- (a) Clamps are 1 inch square aluminum stock, two 3/4 inch diameter openings, at right angles to each other, bored through sides. Openings are upright rods and crossbars. Thumb screw into each end of the clamp, tighten against the rods to hold positions.
- 4) Apparatus Rod Sockets:
  - (a) Rod sockets are mushroom type, machined from a solid aluminum rod. Sockets are held in place by a heavy aluminum lock nut and washer.

## **2.06 ACCESSORIES**

- A. Sink support: SS040
- B. Hot cold mixing faucet: Watersaver L412VB. (Provide blade handles at handicap accessible sinks)
- C. Double valve gas fixture: Watersaver L4100-132AWSA (deck mount) with internal check valve.
- D. Deck mounted combination mixing faucet with gas: Watersaver L5800WSA. (To be provided at all LTA1 and LTA2 lab tables).
- E. Double valve gas fixture: Watersaver L41-158WSA (panel mount) with internal check valve.
- F. Electrical: Single-gang, flush-mount box with 20A GFI receptacle, Watersaver E233GF.

## **PART 3 - EXECUTION**

### **3.01 EXAMINATION**

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances, location of reinforcements, and other conditions affecting performance of laboratory casework.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.02 INSTALLATION OF CABINETS**

- A. Comply with installation requirements in SEFA 2.3. Install level, plumb, and true; shim as required, using concealed shims. Where laboratory casework abuts other finished work, apply filler strips and scribe for accurate fit, with fasteners concealed where practical. Do not exceed the following tolerances:
  - 1. Variation of Tops of Base Cabinets from Level: 1/16 inch in 10 feet.
  - 2. Variation of Bottoms of Upper Cabinets from Level: 1/8 inch in 10 feet.
  - 3. Variation of Faces of Cabinets from a True Plane: 1/8 inch in 10 feet.
  - 4. Variation of Adjacent Surfaces from a True Plane (Lippage): 1/32 inch.
  - 5. Variation in Alignment of Adjacent Door and Drawer Edges: 1/16 inch.
- B. Base Cabinets: Fasten cabinets to utility-space framing, partition framing, wood blocking, or reinforcements in partitions with fasteners spaced not more than 24 inches o.c. Bolt adjacent cabinets together with joints flush, tight, and uniform.
  - 1. Where base cabinets are installed away from walls, fasten to floor at toe space at not more than 24 inches o.c. and at sides of cabinets with not less than 2 fasteners per side.
- C. Wall Cabinets: Fasten to hanging strips, masonry, partition framing, blocking, or reinforcements in partitions. Fasten each cabinet through back, near top, at not less than 24 inches o.c.
- D. Install hardware uniformly and precisely.
- E. Adjust laboratory casework and hardware so doors and drawers align and operate smoothly without warp or bind and contact points meet accurately. Lubricate operating hardware as recommended by manufacturer.
- F. Caulk fillers to adjacent walls with paintable siliconized latex caulk.

### **3.03 INSTALLATION OF COUNTERTOPS**

- A. Comply with installation requirements in SEFA 2.3. Abut top and edge surfaces in one true plane with flush hairline joints and with internal supports placed to prevent deflection. Locate joints only where shown on Shop Drawings.
- B. Counter top and back splash joints are to be shop fabricated using biscuits, splines, fasteners, adhesives, and sealants recommended by manufacturer. Prepare edges in shop for field-installation.
- C. Fastening:

1. Secure epoxy countertops to cabinets with epoxy cement, applied at each corner and along perimeter edges at not more than 48" o.c.
- D. Provide required holes and cutouts for service fittings provided under other scopes of work.
- E. Provide scribe moldings for closures at junctures of countertop, curb, and splash with walls as recommended by manufacturer for materials involved. Match materials and finish to adjacent laboratory casework. Seal backsplash to counter top surface with 100% silicone.
- F. Provide a continuous ledger (min 3/4 inch x 1-1/2 inches) to support back edge of countertop where service chase is required or back of counter top is not supported.
- G. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
- H. Provide countertop support brackets at any span greater than 36 inches wide.
- I. Provide apron rail (min 3/4 inch x 3 inches) at kneespace or any countertop area not supported by a base cabinet. Comply with ADA guidelines for knee space clearance requirements.

### **3.04 INSTALLATION OF SINKS**

- A. Comply with installation requirements in SEFA 2.3.
- B. Underside Installation of Epoxy Sinks: Use laboratory casework manufacturer's recommended adjustable support system for table- and cabinet-type installations. Set top edge of sink unit in countertop using manufacturers' recommended chemical-resistant sealing compound or adhesive and firmly secure to produce a tight and fully leakproof joint. Adjust sink and securely support to prevent movement. Remove excess sealant or adhesive while still wet and finish joint for neat appearance.
- C. Drop-in Installation of Epoxy Sinks: Provide countertops with shop prepared groove to receive sink rim. Set sink in epoxy adhesive and fill remainder of groove for monolithic appearance. Use procedures and products recommended by sink and countertop manufacturers. Remove excess adhesive and sealant while still wet and finish joint for neat appearance.

### **3.05 CLEANING AND PROTECTING**

- A. Clean finished surfaces, touch up as required, and remove or refinish damaged or soiled areas to match original factory finish, as approved by Architect.
- B. Protect countertop surfaces during construction with 6-mil plastic or other suitable water-resistant covering. Tape to underside of countertop at a minimum of 48 inches o.c.
- C. Empty drawers of dirt and dust. Wipe out cabinet interiors to remove dirt and dust. Remove pencil or other marks, excess adhesive, etc., from cabinets and countertops. Remove all packaging, scraps, and debris resulting from casework installation activities.
- D. Make final adjustments to doors and drawers. Doors shall swing freely, catches shall hold securely, and all other doors shall be aligned both vertically and horizontally. Drawers shall open and close smoothly, without binding and without excessive slide play.
- E. Keys shall be appropriately labeled and turned over to the Owner.

**END OF SECTION**



**SECTION 12 3216  
MANUFACTURED PLASTIC LAMINATE CASEWORK**

**PART 1 – GENERAL**

**1.01 SUMMARY**

- A. Related Documents:
  - 1. Drawings and provisions of the contract including General Conditions Supplementary Conditions and Division 1, apply to this section.
- B. Section Includes:
  - 1. Furnish and install plastic laminate casework and accessories as shown and listed on drawings and specified herein. Includes all countertops, sink cutouts, splashes, supports, shelving, and filler panels necessary for a complete casework installation.
- C. Related Requirements to be Performed by Others:
  - 1. Division 06 Section: "Rough Carpentry" for blocking within walls to adequately support casework.
  - 2. Division 06 Section: "Finish Carpentry"/Millwork.
  - 3. Division 07 Section: "Preformed Joint Seals" for caulking of casework and/or countertops to abutting walls.
  - 4. Division 08 Section: "Finish Hardware" for cabinet locks keyed or master keyed to building locks.
  - 5. Division 09 Section: "Resilient Base and Accessories" for resilient base applied to manufactured casework.
  - 6. Division 22 Section: "Plumbing" for furnishing, installation, and hook-up of sinks, fixtures, outlets, strainers, tailpieces, traps, vacuum breakers, and stops shall be performed by the plumbing contractor to state and local codes. In all cases, sink cutouts shall be by the casework contractor.
  - 7. Division 23 Section: "Heating, Ventilating, and Air-Conditioning" for furnishings, installation, and final connections of all ductwork to range hoods and spray booths shall be by the HVAC contractor.
  - 8. Division 26 Section: "Electrical" for the electrical contractor to state and local codes shall perform electrical furnishing, installation, and final connections of wiring, conduit, and/or electrical items within casework.

**1.02 REFERENCES**

- A. ANSI-A135: for all hardboard.
- B. ANSI-A161.2-1998: for performance of fabricated high-pressure decorative laminate countertops.
- C. ANSI-A208.1-2016: for grade M-3 mat-formed wood particleboard.
- D. BHMA A156.9: for grade-1 hinge requirements.
- E. NEMA 3 LD-2005: for performance requirements of high pressure laminates.

**1.03 DEFINITIONS**

- A. Grain Direction:
  - 1. Wood grained and directionally grained laminates shall run vertically on doors, exposed cabinet ends, modesty panels, countertop supports and finished backs. Grain runs horizontally on drawer fronts, aprons and light valances.
- B. Exposed Surfaces:
  - 1. In casework, surfaces visible when drawers and opaque doors (if any) are closed; open cabinet interiors and interiors behind clear glass doors; exterior cabinet bottoms 42" or more A.F.F.; exterior cabinet tops 80" or less A.F.F. or seen from above; wall mounted shelving.
  - 2. Exposed cabinet surfaces shall be: NEMA LD-3-2005 VGS High Pressure Decorative Laminate (HPDL).
    - a. Choose from Formica, Wilsonart, Pionite and Nevamar non-premium, non-specialty laminates in Formica "58" finish, Wilsonart "60" or "38" matte finish and Nevamar "T" textured finish.
- C. Semi-Exposed Surfaces:

1. In casework, surfaces that become visible when opaque doors are open or drawers are extended; bottoms of cabinets less than 42" A.F.F.; exterior cabinet tops more than 80" A.F.F. and not seen from above.
  2. Semi-Exposed cabinet surfaces shall be: Low pressure decorative laminate (LPDL).
    - a. Frosty white, natural almond or fashion grey.
- D. Concealed Surfaces:
1. Exterior or interior surfaces that are covered or not normally exposed to view.
  2. Surfacing material at manufacturer's option. No exposed (raw) cabinet surfaces are permitted.

#### **1.04 SUBMITTALS**

- A. Shop Drawings:
1. Comply with Division 1.
  2. Submit one digital copy of shop drawings, if not submitting pdf shop drawings, provide three sets of laser quality, 11 x 17 shop drawings consisting of:
    - a. Finish, hardware, construction options selection sheet.
    - b. Small scale floor plan showing casework in relation to the building.
    - c. Large scale elevations and plan views.
    - d. Cross-sections; service runs; locations of blocking within walls (blocking is done by others); rough-in requirements and, sink centerlines
  3. Approved shop drawings to be returned to manufacturer by the contractor at least 60 days before production.
  4. Architect must approve all items prior to fabrication and delivery of casework.
  5. Manufacturer, Manufacturer's rep and Contractor verifies all critical building dimensions prior to fabrication.
- B. Samples:
1. Submit one set of laminate color brochures from standard laminate manufacturers Wilsonart, Formica, Pionite, and Nevamar.
  2. Submit one edge color sample chain.
  3. Submit one set of interior colors samples.
- C. LEED Submittals:
1. Not required. This project is not LEED certified.
- D. AWI (Architectural Woodwork Institute) membership. Manufactured Plastic Laminate Casework manufacturer is to have current and active membership with AWI.
- E. Warranty:
1. Provide sample warranty document stating specified terms as referenced in 1.8.

#### **1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Must have been engaged in the manufacture of institutional casework for a minimum of ten years.

#### **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Delivery and Acceptance Requirements:
1. Deliver casework once painting, and similar requirements have been completed that will not damage casework. This includes ensuring spaces are enclosed and weather tight.
  2. All casework shall be blanket wrapped for protection during shipping.
- B. Storage and Handling:
1. Casework must be protected from dust, dirt and/or other trades.
  2. Countertops are stacked, properly supported and spaced evenly to avoid warping. Large pieces are stacked first on the pallets with shorter pieces stacked on top.

#### **1.07 SITE CONDITIONS**

- A. Ambient Conditions:

1. Do not deliver or install the casework until concrete, masonry, and drywall/plaster work is dry; ambient relative humidity is maintained between 25 – 55% prior to delivery and throughout the life of installation; and the temperature is controlled above 55
2. Casework shall not be stored or installed in non-climate controlled conditions.
3. If ambient conditions are not met at the time of requested delivery, the general contractor or owner must provide the casework manufacturer a letter releasing manufacturer from any liability and responsibility from any warranty or damage resulting from not complying with required ambient conditions.

## 1.08 WARRANTY

- A. The casework manufacturer shall offer a five year warranty to the owner against defective material and workmanship.
  1. The warranty specifically does not cover any product or hardware, which has been incorrectly installed, including poor climate conditions, exposed to excessive loads or abuse.
  2. All non-casework items supplied, but not manufactured, by the casework manufacturer including, but not limited to, sinks, fixtures, apparatus, fume hoods, keyboard trays, spray booths, lights, power outlets, and power strips shall be covered under the original manufacturers' warranty.

## PART 2 – PRODUCTS

### 2.01 MANUFACTURERS

- A. Basis of Design:
  1. Case Systems, 2700 James Savage Road, Midland, Michigan 48642 (989) 496-9510 and/or Case Systems approved dealers.
- B. Substitution Limitations:
  1. Additional manufacturers may submit substitution requests in accordance with procurement substitution and/or substitution procedures, or provide a comparable product with the following support information detailed below:
    - a. Written documentation stating specification compliance regarding construction, materials, and standard of quality and manufacturing techniques.
    - b. Note all deviations to the drawings and/or specifications in writing.
    - c. Provide the Architect with a full-scale base cabinet not less than ten days prior to bid date. The sample shall represent typical construction and materials for the product the casework manufacturer proposes, meeting the quality standards set forth by this specification. The sample may be impounded by the owner and retained until completion of the casework installation.
    - d. The owner, or its designated representative, reserves the right to reject any proposal that in his opinion fails to meet the criteria established by this specification. Such a decision shall be final.

### 2.02 MATERIALS

- A. Provide Plastic Laminate Faced Cabinets Manufactured with:
  1. Particleboard Core:
    - a. M-3 CARB2 compliant for emission levels of urea formaldehyde, and shall meet or exceed all requirements as set by ANSI A208.1-2016.
 

Density	40-45 lbs/cu.ft
Moisture Content	10% Max
Modulus of Rupture	2176 psi
Modulus of Elasticity	362,600 psi
Internal Bond	73 psi
Hardness	500 pounds Min
Linear Expansion	<0.40%
Thickness Tolerance	+/- 0.008"
Face Screw Holding	225 pounds (min)
Core Screw Holding	202 pounds (min)

Formaldehyde Emission <0.09 ppm (Carb 2)

2. MR (Moisture Resistant)/FSC Core shall be:
  - a. Interior-Grade moisture resistant particleboard.
  - b. Meet or exceed M-3 Grade, according ANSI-A208.1-20016.
- B. Cabinet Joinery:
  1. Concealed Interlocking Mechanical Fasteners or Dowel construction: For cabinet body components. Manufacturer's discretion on best suited joinery method for project.
  2. Construction: Meets requirements in AWS Manual, Edition 2, including errata and appendix section.
- C. Surface Material:
  1. Acceptable laminate color, pattern, and finish as either scheduled or otherwise indicated on drawings or as selected by Architect from manufacturer's standards types and nominal thickness including:
    - a. General purpose vertical grade VGS HPDL. Choose from Formica, Wilsonart, Pionite and Nevamar non-premium, non-specialty laminates in Formica "58" finish, Wilsonart "60" or "38" matte finish and Nevamar "T" textured finish.
    - b. General purpose horizontal grade HGS HPDL. Choose full range of Formica, Wilsonart, and Nevamar laminates.
    - c. Cabinet decorative liner grade CLS
    - d. Non-decorative backer grade BKH
    - e. Low pressure decorative laminate
    - f. Chemical resistant decorative laminate
- D. Edge banding:
  1. PVC
    - a. Shall be applied utilizing hot melt adhesive and radiused by automatic trimmers. Edging shall be available in a variety of color options.
- E. Adhesives:
  1. PVA
    - a. Adhesive shall be mechanically applied.
    - b. ULEF, no VOC
  2. EVA
    - a. Adhesive shall be mechanically applied.

### 2.03 FABRICATION

- A. General Cabinet Body Construction:
  1. Cabinet Box Style shall be Reveal Overlay Fronts.
  2. Cabinet Box Core shall be standard M3 particleboard.
  3. Sink Cabinet Box Core shall be standard M3 particleboard.
  4. Bottoms and ends of cabinets, and tops of tall cabinets and tops and bottoms of wall cabinets (all structural components) shall be 3/4-inch thick.
  5. All panels shall be manufactured with balanced construction. Cabinet components may use CLS cabinet liner or BKH backer to balance VGS HPDL laminate at semi-exposed and non-exposed surfaces.
  6. Fixed interior components such as fixed shelves, dividers, and cubicle compartments shall be full 3/4" thick and attached with concealed interlocking mechanical fasteners.
  7. Fixed and adjustable shelves at open cabinets shall be 1" thick.
  8. Cabinet body exterior surfaces shall be considered Exposed Surfaces.
  9. Open cabinet interior surfaces and interiors behind clear glass doors shall be considered Exposed Surfaces.
  10. Closed cabinet body interior surfaces shall be considered Semi-Exposed Surfaces.
  11. Visible cabinet bottoms (e.g. wall cabinet bottoms) shall be considered Exposed if 42" or more A.F.F., Semi-Concealed between 24" and 42" and Concealed below 24": A.F.F.

12. Visible cabinet tops (e.g. wall cabinet tops, hutch cabinet tops, tall cabinet tops) shall be considered Exposed if 80" or less A.F.F. or if visible from above and Concealed if more than 80" A.F.F. and not visible from above.
  13. Cabinet edges:
    - a. Cabinet body front edge shall be: 3mm Thick PVC.
    - b. All other edges shall be: unfinished.
  14. Mounting stretchers are 3/4" thick structural components fastened to end panels and back by mechanical fasteners, and are concealed by the cabinet back.
  15. When the rear of a cabinet is exposed, a separate finished 3/4" thick decorative laminate back panel may be required.
  16. Backs of cabinets are 1/2" thick surfaced both sides for balanced construction and fully captured on both sides and bottom.
  17. A 5mm diameter row hole pattern 32mm (1-1/4") on center shall be bored in cabinet ends for adjustable shelves. This row hole pattern shall also serve for hardware mounting and replacement and/or relocation of cabinet components.
- B. Base Cabinet Construction:
1. Sink cabinets shall have a split removable back panel and be constructed in such a manner as to provide maximum clearance for sink installation. A formed metal front brace, and steel corner gussets, may be utilized to achieve maximum clearance and provides support and secure fastening for the top in all four corners. Front face shall be powder coated black.
  2. A minimum 4" wide stretcher shall be provided below drawers and shall be mechanically fastened to the end panels.
- C. Tall Cabinet Construction:
1. All tall cabinets shall be provided with an intermediate fixed shelf to maintain internal dimensional stability under heavy loading conditions as well as an intermediate 3/4" thick stretcher located behind the back panel, secured between the cabinet ends with mechanical fasteners. The stretcher shall be secured to the shelf through the back with #8 x 2" plated flat head screws.
- D. Wall Cabinet Construction:
1. All wall cabinet bottoms shall be 3/4-inch thick core (type specified above), mechanically fastened between end panels and secured to the bottom back stretcher. A lower 3/4" thick stretcher shall be located behind the back panel and attached between the end panels with mechanical fasteners. The stretcher is also secured through the back and into the cabinet bottom. Cabinets wider than 36" shall include a vertical partition mid-cabinet for added bottom and shelf support.
  2. All wall cabinet tops shall be 3/4 -inch thick.
- E. Tall and Wall Cabinet Top Edges shall be unfinished if not visible from above or nominal 1mm PVC edgeband matching the cabinet box edge if visible from above.
- F. Tall, Wall and Hutch Tops shall be considered Exposed or Semi-Exposed based on visibility as previously defined. Semi-Exposed surfaces shall utilize BKL, LPDL or CLS. LPDL and CLS shall match the color selected for Semi-Exposed surfaces.
- G. Reveal above the top door and drawer front shall be a maximum of 15mm for all cabinets.
- H. Toe Base of Cabinet:
1. Individual bases shall be constructed of: CDX plywood factory applied to base and tall cabinets and shall support and carry the load of the end panels, and the cabinet bottom, directly to the floor. The base shall be let in from the sides and back of the cabinet to allow cabinets to be installed tightly together and tight against a wall, also to conceal the top edge of applied vinyl base molding (not supplied by casework manufacturer). There shall be a front to back center support for all bases over 30" wide.
  2. Toe Base Height: 3-3/4" unless noted otherwise on the drawings to permit shimming to accommodate variances in the floor.
  3. Toe bases shall be securely attached to the base cabinet at the manufacturer.
- I. Drawer Fronts and Solid Doors:

1. All drawer fronts and solid door components shall be: 11/16" thick M-3 industrial particleboard surfaced both sides for balanced construction.
  2. Exterior of door and drawer fronts shall be surfaced with VGS HPDL, balanced with either VGS HPDL or CLS cabinet liner at Semi-Exposed interior surfaces and with VGS HPDL on Exposed interior surfaces. The interior surface of a glazed door is an Exposed Surface.
  3. Door and drawer front edge shall be: machine applied 3mm thick PVC radiused to eliminate sharp edges and corners.
- J. Drawer Boxes:
1. Drawer box core shall be M-3 industrial particleboard.
  2. Drawer box surface at finished interiors shall match semi-exposed interior finish.
  3. Drawer box sides, backs and sub-front shall be ½" thick, carried by a non-racking, non-deflecting ½" thick plant-on bottom mechanically fastened to the sides, sub-front and back 4" on center. The top edge shall be nominal 1mm (.020") PVC matching the drawer color. Drawer box corners shall be joined with fluted hardwood dowels and glue spaced at a minimum of 32mm on center.
  4. Bottom mount slides are secured with 1-1/4" long screws driven through the plant-on bottom up into the sides. Side-mount slides are secured with ½" long screws driven into the drawer box sides. Drawer box fronts shall be removable and attached to drawer box sub-front with screws from inside of drawer. Screws shall be located a maximum of 1-1/2" from the inside corner of the sub-front and shall be spaced a maximum of 12" on center. Horizontal parting rails between drawers shall be 3/4" thick core, with balanced surfaces, secured to and further reinforcing cabinet ends. File drawer box shall have full-height sides supporting a heavy-duty support rail for hanging file folders.
- K. Doors:
1. Solid Doors shall be surfaced both sides for balanced construction.
  2. Glazed Doors, Framed shall be:
    - a. Panels in hinged or sliding 3/4" thick, framed doors shall be clear laminated glass. Panels must be a minimum of ¼" thick. Glazing panel shall be set into the doorframe without the use of a separate molding. Glazing shall be held in place with removable stops.
  3. Glazed Doors, Frameless shall be:
    - a. Sliding, minimum of 1/4" thick clear laminated glass. All edges to be radius ground and polished.
  4. Sliding Doors shall be:
    - a. Extruded aluminum upper track with anodized finish. All tall cabinets shall receive two hanging brackets per door with two rollers per bracket. All other cabinets shall receive two hanging brackets per door with one roller per bracket. The bottom of door
  5. Pocket Doors shall be:
    - a. Zinc plated, self-closing, three-way adjustable geometric door hinge with precision steel ball bearing slides.
  6. Grille Doors shall be:
    - a. Single wide grille doors where shown or noted shall have individual, zinc plated stay-close wire door latches. The wire door latch is a robust, door/side-mounted design made of 13-gauge cold rolled steel. A self-latching lever smoothly travels over the hasp and falls into a positive latched, stay-close position. For security, the door can be locked with a padlock. This option is not available on cabinets with double door configurations.
- L. Shelves:
1. Adjustable:
    - a. Adjustable Shelf Core shall be: M-3 industrial particle board.
    - b. Adjustable shelves in closed cabinets shall be: 3/4" shelves, 1" for shelves over 30" wide.
    - c. All adjustable shelves in open cabinets shall be: 1" thick, except for special use cabinets such as mail, cubical, instrument or locker type units.
    - d. Adjustable shelf edge on open cabinets shall be: nominal 1mm PVC at front edge ; nominal 1mm PVC at back edge
    - e. Adjustable shelf edge on closed cabinets shall be: nominal 1mm PVC at front edge ; nominal 1mm PVC at back edge
    - f. Adjustable shelf shall be set back a maximum of 15mm from the front of the cabinet.

2. Fixed:
    - a. Fixed shelves shall be standard M3 particleboard. Top and bottom surfaces shall be the same.
    - b. Fixed shelves shall be 3/4" thick at closed cabinets, 1" thick at open cabinets.
    - c. Fixed shelf surfaces on closed cabinets shall be LPDL.
    - d. Fixed shelf surfaces on open cabinets shall be HPDL.
  3. Wall shelving on standards and brackets shall be:
    - a. Fixed shelves shall be standard M3 particleboard. Top and bottom surfaces shall be the same.
    - b. Edged all four edges with 3mm PVC
    - c. Surfaced with HPDL
  4. Wire Shelves shall be white, plastic coated.
  5. Hardboard Shelves shall be 1/4" thick tempered hardboard. All hardboard shall have a "S2S" surface finish.
- M. Specialty Products:
1. Music Cabinets:
    - a. Shelves:
      - 1) Core shall be M-3 industrial particleboard Top and bottom surfaces shall be finished the same.
      - 2) Heavy-Duty Shelves shall be core (specified above) with tempered hardboard top and bottom sandwich type construction. Front edge of shelves and cabinet end panels shall be: high impact radiused 3mm PVC.
    - b. Doors:
      - 1) Grille doors where shown or noted shall have individual stay-close wire door latches. This wire door latch is a robust, door/side-mounted design made of 13-gauge cold rolled steel in a zinc finish. A self-latching lever smoothly travels over the hasp and falls into a positive latched, stay-close position. For security, the door can be locked with a padlock. This option is not available on cabinets with double door configurations. Grille doors shall be powder coated with a platinum finish and shall be attached to cabinet end panels by means of thru bolting.
    - c. Instrument Cabinet Interior Surface shall be HPDL.
  2. Mobiles:
    - a. Mobile top shall have 3mm edging and shall have an overhang at front, sides and rear to act as a bumper. Mobile top shall be available in a variety of colors. Mobile unit shall be constructed of a 3/4" thick core, as specified, and platform with 3mm edging. Sides, back and casters will be securely fastened using mechanical fasteners.
    - b. Mobile units shall be available with either 4" or 6" nominal height casters.
    - c. Mobile back shall be 1" thick specified core.
    - d. Mobile unit shall have a maximum load rating of 500 pounds.
    - e. Mobiles will have a 3/4" thick finished top with material as specified below.
  3. Locker construction shall match general casework section with the exception that all fixed shelves are 3/4" thick.
    - a. Locker top finish shall include a Finished Edge and Surface.
  4. Countertops:
    - 1) For dry countertops, HPDL bonded to M-2 industrial particleboard core with PVA rigid adhesives. Core shall be balanced with backing Grade BKL.
    - 2) For wet countertops, HPDL bonded to M-2 moisture resistant particleboard core with PVA rigid adhesives. Core shall be balanced with backing Grade BKL.
    - 3) All joints shall be secured with biscuits for alignment and tight joint fasteners.
    - 4) Provide 4" high back splashes with thickness matching countertop thickness where shown and at all ends abutting walls and adjacent cabinets.
    - 5) Exposed edges shall be 3mm PVC.

## 2.04 FINISHES

- A. Plastic Laminate Casework Colors:

1. High Pressure Laminate is available in non-premium, non-specialty and manufacturers' standard suede finishes from our select laminate manufacturers, including:
    - a. VGS HPDL selected from Formica, Wilsonart, Pionite and Nevamar non-premium, non-specialty laminates in Formica "58" finish, Wilsonart "60" or "38" matte finish and Nevamar "T" textured finish
    - b. Color: Specialty and other manufacturer finishes are available with additional cost and longer lead times.
  2. LPDL, where specified, that meets performance requirements of ANSI/NEMA 3 LD – 2005 for GP-28.
    - a. Natural Almond (Wilsonart D30)] or Fashion Grey (Wilsonart D381) or Frosty White (Wilsonart 1573) or equivalent.
  3. Cabinet Liner, where specified, high-pressure cabinet liner conforming to ANSI/NEMA 3 LD – 2005, Grade CLS. Surface texture shall be similar to exterior finish.
    - a. Almond, Grey or White closely matched to LPDL colors.
- B. Plastic Laminate Countertop Colors:
1. Full range of Formica, Wilsonart, Pionite and Nevamar laminates.
  2. Color: Specialty and other manufacturer finishes are available with additional cost and longer lead times.
- C. Accessories:
1. Hinges:
    - a. 5-Knuckle Reveal Overlay Hinge, offered in three epoxy powder coated finishes: Black, Almond, or Platinum,
  2. Pulls:
    - a. 8mm x 96mm Anodized aluminum wire pull.
    - b. Epoxy Coated Wire Pulls available in: Almond, Platinum or Black.
- D. Glazed Door Trim shall be Black, White, Almond or Grey.
- E. Metal countertop supports and miscellaneous metals shall be available in: Light Grey, Light Neutral, Black or White.
- F. Grommet shall be available in: Black, Almond, Grey or White
- G. Trash chutes shall be available in: Black.
- H. Vent grills/louvers shall be available in: Black, Almond or Grey.

## **2.05 ACCESSORIES**

- A. Hardware:
1. Hinges:
    - a. Reveal Overlay 5-Knuckle Hinges shall be: .095" thick steel five-knuckle hospital-tip, institutional Grade (Grade 1 per ANSI/BHMA A156.9) quality with .187" diameter tight pin. Each hinge shall be secured with a minimum of nine No. 8 screws. Hinge shall permit door to swing 270 degrees without binding. Doors less than 48" in height shall have two hinges. Doors over 48" in height shall have three hinges.
  2. Pulls:
    - a. One pull shall be: located at the centerline of the drawer, regardless of width, to ensure ease of operation and maximize drawer slide life.
      - 1) Anodized aluminum wire pull, 8mm diameter with 96mm O.C. mounting holes
      - 2) Epoxy coated wire pull, 8mm diameter with 96mm O.C. mounting holes.
  3. Drawer Slides:
    - a. Pencil drawers: Grade 1, bottom mount, ¾ extension, 100lb load rated, epoxy coated, roller bearing.
    - b. General purpose drawers: Grade 1, bottom mount, ¾ extension, 100lb load rated, epoxy coated, roller bearing.
    - c. Letter and legal file drawers less than 20" wide: Grade 1, bottom mount, full extension, 100lb load rated, epoxy coated, roller bearing.



- d. Lateral file drawers less than 30" wide and paper storage drawers: Grade 1, side mount full extension, 150lb load rated, zinc finish, ball bearing.
- e. Lateral file drawers 30" or wider: Grade 1, side mount full extension, 150lb load rated, zinc finish, ball bearing.
- 4. Wall Shelving Hardware:
  - a. Regular duty wall single track and heavy duty double track shelving hardware, including standards and brackets, are available in an anochrome finish.
  - b. Bracket Mounted Shelf Core shall be M-3 industrial particleboard
  - c. Bracket Mounted Shelf Edge shall be: 3mm PVC.
  - d. Bracket Mounted Shelf Surface shall be HPDL.
- 5. Shelf Clips:
  - a. Shelf clips shall be injected molded clear plastic, with a double pin engagement 32mm on center and shall have 3/4" and 1" anti-tip locking tabs. Shelf clips for all 1/4" hardboard shelves shall be: single pin plastic with anti-tip locking tabs.
- 6. Coat Hooks shall be Zinc plated, single prong and double prong as detailed on the Architectural drawings.
- 7. Closet Rods shall be Zinc plated rod, 1" diameter with captive sockets.
- 8. Mirrors:
  - a. Teacher wardrobe mirrors to be 8" x 10".
- 9. Label Holders shall be provided as detailed on the Architectural drawings.
- 10. Locks
  - a. Lock Locations:
    - 1) Locks at all doors.
    - 2) Locks at all drawers.
  - b. Lock Type:
    - 1) Manufacturer's standard 5 disc tumbler cam lock
  - c. Keying:
    - 1) Locks keyed alike within a room, keyed differently between rooms.
- 11. Casters:
  - a. Shall be available in both 4" (3" diameter wheel) and 6" (5" diameter wheel) nominal heights. 4" casters must have a minimum load rating of 165 lbs per caster and the 6" casters must have a minimum load rating of 200 lbs per caster. Shall be ball bearing with 360° swivel. Shall have non-marring wheels available in both locking and non-locking.
- 12. Catches:
  - a. Chain Pulls shall be zinc plated, spring loaded door catch used to hold door securely shut.
  - b. Chain Stops shall be zinc plated, looped chain used to limit door swing as specified, mounting plate at each end of chain shall use (4) #7 x 5/8" screws to secure to cabinet door and end panel. They shall be on cabinets at adjoining walls and where casework and countertops can interfere with the door swing of the tall cabinet.
  - c. Elbow Catch shall be chrome plated, spring loaded, used to hold non-locking door securely shut.
  - d. Roller Catch shall have a heavy-duty, spring-loaded roller, with molded plastic bumper mounted at door top to keep door securely shut.
  - e. One (1) roller catch at base and wall cabinets, two (2) roller catches at tall cabinets.
- 13. Tote Tray shall be white, high impact resistant polystyrene, with label holder permanently attached to face of tray. Supported by individual polycarbonate channels mounted to cabinet ends and partitions with two integral 5mm diameter pins and secured with one-euro style screw. Height adjustable on 32mm (1-1/4") centers.
- 14. Metal Countertop Supports:
  - a. Powder coated, formed metal supports. Must provide attachment points between countertop and wall.
- B. Goggle Sanitizer Unit: Metal cabinet with weld seams and continuous tight fitting piano hinge and double latching doors with indicator light.
  - 1. Capacity: 35 Goggles, minimum.

2. UV-Lamp Timer; unit will not operate unless cabinet doors are closed.
3. Manufacturer:
  - a. Ward's Science +.
  - b. Eisco GGSN10.

**2.06 SOURCE QUALITY TESTING**

A. Cabinet Joinery:

1. Base Cabinet:

- a. Base cabinet testing shall be: done in accordance with SEFA 8PL Recommended Practices Paragraph 4.0 Base Cabinets. All testing shall be performed by SEFA certified independent testing facilities. The following tests shall be performed: The SEFA 8 test procedures are accessible on-line at [www.sefalabs.com](http://www.sefalabs.com). The ANSI/NEMA 3 LD – 2005 test procedures are available on-line at [www.global.ihs.com](http://www.global.ihs.com):

Test	Paragraph
Cabinet Load	4.2
Cabinet Concentrated Load	4.3
Cabinet Torsion	4.4
Cabinet Submersion	4.5

2. Doors:

- a. Door testing shall be: done in accordance with SEFA 8PL Recommended Practices Paragraph 5.0 Doors. The following tests shall be performed:

Test	Paragraph
Door Hinge Test	5.1
Door Cycle Test	5.2

3. Drawers:

- a. Drawer testing shall be: done in accordance with SEFA 8PL Recommended Practices Paragraph 6.0 Drawers. The following tests shall be performed:

Test	Paragraph
Drawer Static Test	6.1
Drawer Impact Test	6.2
Drawer Internal Rolling Test	6.3
Drawer Cycle Test	6.4

4. Cabinet Surface Finish:

- a. Cabinet surface finish tests shall be: done in accordance with SEFA 8PL Recommended Practices Paragraph 8.0, Cabinet Surface Finish Tests. The following testing shall be performed:

Test	Paragraph
Chemical Spot Test	8.1
Boiling Water Resistance Test (ANSI/NEMA LD 3 -2005 Paragraph 3.5)	8.2
Ball Impact Resistance Test (ANSI/NEMA LD 3 -2005 Paragraph 3.8)	8.3
Dart Impact resistance Test (ANSI/NEMA LD 3 – 2005 Paragraph 3.9)	8.4

5. Edge Delaminating Test:

- a. Edge delaminating tests shall be: done in accordance with SEFA 8PL Recommended Practices Paragraph 8.5, Edge Delaminating Test.

6. Wall, Counter Mounted, and Tall Cabinets Load Test:

- a. The wall mounted cabinet load test shall be: done in accordance with SEFA 8PL Recommended Practices Paragraph 9.0.

## **PART 3 – EXECUTION**

### **3.01 INSTALLERS**

- A. Installation shall be: by casework manufacturer's authorized representative.

### **3.02 INSTALLATION**

- A. Casework shall not be: installed until concrete, masonry, and drywall/plaster work is dry.
  - 1. If ambient conditions are not met at the time of requested delivery, the general contractor or owner must provide Case Systems a letter that releases manufacturer from any liability and responsibility from any warranty or damage resulting from not complying with required ambient conditions.
- B. Casework shall be: installed plumb and true and is to be securely anchored in place.
- C. The casework contractor shall verify all critical building dimensions prior to fabrication of casework.
- D. Provide all labor for unloading, distribution, and installation of casework and related items as specified.
- E. All casework shall be: securely anchored to horizontal wall blocking, not to plaster lathe or wall board.
- F. The casework manufacturer shall re-configure the casework arrangements to dimensions requiring 2-1/2" or less of filler at each end of wall-to-wall elevations, and to ensure a complete and satisfactory installation.
- G. The casework installer shall remove all debris, sawdust, scraps, and leave casework spaces clean.
- H. All casework must be installed by casework installer plumb and level, adjust all doors, drawers and hardware to comply with manufacturers specifications and operate properly.

**END OF SECTION**

**SECTION 12 3551  
MUSIC EDUCATION STORAGE CASEWORK**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Music Instrument Storage Casework.
- B. Sheet Music Storage Casework.

**1.02 RELATED REQUIREMENTS**

- A. Section 05 4000-Cold-Formed Metal Framing: For reinforcements in metal-framed partitions required to anchor casework.
- B. Section 06 1000 - Rough Carpentry: Blocking and nailers for anchoring casework.
- C. Section 09 6500 - Resilient Flooring: Finish base materials applied to casework.
- D. Section 12 3201 - Manufactured Wood Casework: For standard institutional casework.

**1.03 REFERENCE STANDARDS**

- A. ANSI A208.1 - American National Standards for Particleboard.
- B. ASCE 7 - Minimum Design Loads for Buildings and Other Structures.
- C. ASTM C 423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
- D. ASTM E 488 - Standard Test Methods for Strength of Anchors in Concrete and Masonry Elements.
- E. ASTM E 795 - Standard Practices for Mounting Test Specimens During Sound Absorption Tests.
- F. AES-4id - AES information document for room acoustics and sound reinforcement systems -- Characterization and measurement of surface scattering uniformity.
- G. ANSI/BHMA A156.9 - Cabinet Hardware.
- H. NEMA LD 3 - High Pressure Decorative Laminates.
- I. DOC PS 1 - U.S. Product Standard for Construction and Industrial Plywood.

**1.04 SYSTEM DESCRIPTION**

- A. Modular instrument storage casework with integral bases, adjustable levelers, and through-bolted fastening, enabling owner reconfiguration of unit layout.
  - 1. Acoustically enhanced instrument storage casework finished with interior lining of sound-absorbent material providing sound absorption and noise reduction properties.
- B. Robe and uniform storage casework with integral bases, adjustable levelers, and through-bolted fastening, enabling owner reconfiguration of unit layout.
- C. Wenger's high-density sheet music storage units described below provide a minimum of 19 cu. ft. of storage capacity per 5.3 sq. ft. of floor area for a seven-shelf unit. This enables savings in space planning for music area storage. Coordinate flooring selection at wheeled sheet music storage casework location consistent with casework and flooring manufacturer's recommendations. Due to wheel loads when fully loaded, these units perform best on hard surfaced flooring and on some high-density carpets without cushion.
- D. Sheet music storage casework in wheeled retractable units providing high-density storage, adjustable to fit most sizes of published sheet music, enabling owner reconfiguration of unit layout.

**1.05 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination: Coordinate installation of casework with related items.
- B. Keying Conference: Conduct conference prior to ordering keys. Incorporate conference decisions into keying submittal.

**1.06 PERFORMANCE REQUIREMENTS**

- A. Storage Casework Component Load Capacities:

1. Storage Casework Wire-Grille Door Hinge: Each weld capable of resisting 400 lbf (1779 N) pull test without visible damage or permanent deformation.
  2. Sheet Music Storage Casework: Units shall support 35 lb/lin. ft. (52 kg/m) uniform shelf loading with maximum 1/16 inch (1.6 mm) deflection.
- B. Seismic Performance: Comply with ASCE 7, "Minimum Design Loads for Buildings and Other Structures": Section 9, "Earthquake Loads" based upon seismic design criteria indicated.

#### 1.07 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data: Manufacturer's data sheets, installation instructions, and maintenance recommendations.
- C. Product Test Reports: Indicating compliance of products with requirements, from a qualified independent testing agency.
- D. Shop Drawings: Prepared by manufacturer. Include elevations showing casework components, details of each condition of installation, and types and locations of hardware and fasteners. Show fabrication and installation details. Include plans, elevations, sections, details, and attachments to other Work.
  1. Indicate seismic bracing and fastening requirements.
  2. Indicate seismic bracing and fastening requirements.
- E. Samples: For each color and finish for each exposed casework component.
- F. Operation and Maintenance Data.
- G. Warranty: Submit sample meeting warranty requirements of this Section and Section 01 7800 - Closeout Submittals.
- H. Shop Drawings: Indicate casework types, sizes, and locations, using large scale plans, elevations, and cross sections. Include rough-in and anchors and reinforcements placement dimensions and tolerances, clearances required, and utility locations, if any.
- I. Samples For Color Selection: Samples, fully finished, for color and species selection. Minimum Sample Size: 2 inches by 3 inches.
- J. Manufacturer's installation instructions.

#### 1.08 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Approved manufacturer listed in this section, with minimum 5 years experience in manufacture of similar products in use in similar environments. Obtain music education storage casework through one source from a single approved manufacturer.
  1. Approval of Comparable Products: Submit the following in accordance with project substitution requirements, within time period allowed for substitution review:
    - a. Product data, including certified independent test data indicating compliance with requirements.
    - b. Samples of each type of product specified, including but not limited to the following:
      - 1) Door and casework panels.
      - 2) Grille doors.
      - 3) Hinges with through-bolting hardware.
      - 4) Latches with through-bolting hardware.
      - 5) Project references: minimum of 5 installations not less than 5 years old, with owner contact information.
      - 6) List of successful installations of similar products available for evaluation by Architect.
      - 7) Sample warranty.
    - c. Approved manufacturers must meet separate requirements of Submittals Article.
    - d. Manufacturer shall be ISO 9001:2000 Certified.
- B. Source Limitations: Obtain the following products through one source from a single approved manufacturer in accordance with Division 01 Section "Special Project Procedures for Music Education Facilities":
  1. Sound control door assemblies.
  2. Acoustical room components.
  3. Acoustical shells.

4. Acoustical clouds.
5. Folding and portable stages and risers.
6. Orchestra pit fillers.
7. Music education storage casework.
8. Sound conditioned rooms.

C. Installer Qualifications: Company specializing in performing work of the type specified in this section, with not less than three years of documented experience and approved by manufacturer.

#### **1.09 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, store, and handle music education storage casework in accordance with manufacturer's recommendations. Ship to jobsite only after roughing-in, painting work, and other related finish work has been completed and installation areas are ready to accept casework and recommended temperature and humidity levels will be maintained during the remainder of construction.
- B. Protect items provided by this section, including finished surfaces and hardware items during handling and installation. For metal surfaces, use polyethylene film or other protective material standard with the manufacturer.
- C. Acceptance at Site:
  1. Do not deliver or install casework until the conditions specified under Part 3, Examination Article of this section have been met. Products delivered to sites that are not enclosed and/or improperly conditioned will not be accepted if warping or damage due to unsatisfactory conditions occurs.
- D. Storage:
  1. Store casework in the area of installation. If necessary, prior to installation, temporarily store in another area, meeting the environmental requirements specified under Part 3, "Site Verification of Conditions" paragraph of this section.

#### **1.10 COORDINATION**

- A. Coordinate installation of blocking and supports in frame wall assemblies under work of other sections where required for anchoring of music education storage casework.

#### **1.11 WARRANTY**

- A. Special Warranty: Manufacturer's written warranty indicating manufacturer's intent to repair or replace components of music education storage casework that fail in materials or workmanship within 10 years from date of Substantial Completion. Failures are defined to include, but are not limited to, the following:
  1. Fracturing or breaking of casework components including doors, panels, shelves, or hardware resulting from normal wear and tear and normal use other than vandalism.
  2. Delamination or other failures of glue bond of components.
  3. Warping of casework components not resulting from leaks, flooding, or other uncontrolled moisture or humidity.
  4. Failure of operating hardware.
- B. See Section 01 7800 - Closeout Submittals for additional warranty requirements.
- C. Correct defective work within a five year period after Date of Substantial Completion, at no additional cost to Owner. Defects include, but are not limited to:

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Basis of Design: Wenger Corporation, Owatonna, MN; Telephone: (800)887-7145; Email: [info@wenger.com](mailto:info@wenger.com) <mailto:info@wengercorp.com>; Website: [www.wengercorp.com](http://www.wengercorp.com)
  1. UltraStor - Storage.
  2. Acousticcabinets
  3. Instrument Racks.
- B. Or equal.
- C. Substitutions: See Section 01 6000 - Product Requirements.

- D. Obtain casework from single source and manufacturer, unless otherwise indicated.

## **2.02 MATERIALS**

- A. Materials Meeting Sustainable Design Requirements:
  - 1. Formaldehyde-free Products: Provide music education storage casework made with composite products and adhesives with no urea formaldehyde added.
  - 2. Rapidly-renewable-sourced Products: Provide music education storage casework made with composite products composed of from rapidly-renewable sources.
- B. Particleboard: ANSI A208.1, minimum 43 lb/cu. ft. (689 kg/cu. m) density.
- C. Particleboard: ANSI A208.1, minimum 43 lb/cu. ft. (689 kg/cu. m) density, [composite products and adhesives,] with no urea formaldehyde added.
- D. Softwood Plywood: DOC PS-1.
- E. Particleboard Thermoset Panels: Particleboard finished with thermally-fused polyester surfacing on both sides meeting performance properties of NEMA LD 3 for VGS grade, edge-banded, including the following:
  - 1. Surface Abrasion Resistance: Taber Wheel, 400 cycles, for solid colors.
- F. Plywood Thermoset Panels: Plywood finished with thermally-fused polyester surfacing on both sides meeting performance requirements of NEMA LD 3 for VGS grade, edge-banded, including the following:
  - 1. Surface Abrasion Resistance: Taber Wheel, 400 cycles, for solid colors.
- G. Polyethylene Shelves: High-density, one-piece, blow-molded or formed, with radiused front edge, for abuse-resistant shelves.
- H. PVC Edge Banding: Radiused PVC extrusions, 3 mm thick.

## **2.03 INSTRUMENT STORAGE CASEWORK**

- A. General: Provide through-ventilating instrument storage casework meeting requirements in System Description and Performance Requirements Articles.
- B. Side Panels and Divider Panels: Particleboard thermoset panel, 3/4 inch (19 mm) thick. Side panels machined to accept unit-to-unit through-bolting.
- C. Grille Doors: Bright basic steel wire, 5/16 and 3/16 inch (7.9 and 4.8 mm) diameter, or 5/16 and 1/4 inch (7.9 and 6.3 mm) diameter for AcoustiCabinets, with full 360 degree welds at T-joints.
  - 1. Provide for Instrument Storage Casework and Casework indicated.
- D. Panel Doors: Particleboard thermoset panel, 3/4 inch (19 mm) thick, inset-type. Color: As scheduled.
  - 1. Provide for Instrument Storage Casework, full height, Instrument Storage Casework, compartment height, and casework indicated.
- E. Open Casework: Provide casework without doors.
  - 1. Provide for Instrument Storage Casework and casework indicated.
- F. Panel Edge Banding: 3 mm thick, heat-bonded, with beveled and profiled edges and corners.
- G. Shelving: Sized with adequate gap between shelving and casework side panels to allow air movement inside casework.
  - 1. Up to 27 inches (686 mm) wide: Removable molded polyethylene shelf, with impact-resistant, radiused front edge, mounted to cabinet wall with self-locking clip.
  - 2. Over 27 inches (686 mm) wide: For large instrument casework: Removable formed polyethylene shelf, ribbed, with high-impact-resistant, radiused front edge, supported by steel tube frame.
  - 3. Corner cabinet revolving shelving: 0.053 inch (1.3 mm) min. thickness steel sheet bolted to revolving steel center post, with radiused hardboard deflector panel.
- H. Flag Storage and Garment Ring: 5/16 inch (8 mm) diameter steel rod bolted to steel center post with 10 gauge steel brackets.
- I. Flag Storage Bottom Shelf Pad: Carpet pad, adhered to steel shelf.
- J. Casework Panel Color: As selected by Architect from manufacturer's standard colors.

## **2.04 SHEET MUSIC STORAGE CASEWORK**

- A. General: Provide sheet music storage casework meeting requirements in System Description and Performance Requirements Articles.
- B. End Panels: Particleboard thermoset panel, 3/4 inch (19 mm) thick.
- C. Shelving: Plywood thermoset panel, 3/4 inch (19 mm) thick. 7-shelf unit with 4 adjustable and 3 fixed shelves, with metal book supports.
- D. Exposed End Cover Panels: Particleboard thermoset panel, 3/4 inch (19 mm) thick.
- E. Top Closure/Storage Panels: Plywood thermoset panel matching end panels.
- F. Casters: 4 rigid 8 inch (203 mm) diameter casters.
- G. Guide Frame: 1 by 1 inch by 16 gauge/0.053 inch (25.4 by 25.4 by 1.3 mm) steel tubes, factory finished, with limiting cable, bumpers, and hat channel wall anchor.

## **2.05 ACCESSORIES**

- A. Filler Panels and Closure Kits: 3/4 inch (19 mm) thick particleboard thermoset panels matching cabinet side panels. Provide the following, cut to fit field conditions, where indicated:
  - 1. Wall filler between cabinet side and wall.
  - 2. Top filler between cabinet top and wall.
  - 3. Top of cabinet closure panel between cabinet and finished ceiling or soffits.
  - 4. Finished back panel for exposed cabinet backs.

## **2.06 HARDWARE**

- A. Butt Hinges: 2-3/4 inch (70 mm), 5-knuckle steel hinges made from 0.090 inch (2.29 mm) thick metal, ANSI/BHMA A156.9, Grade 1, with powder-coated finish, through-bolted to door and side panels [and welded to grille door frames]. Provide 2 hinges on compartment doors, and 4 hinges on full-height doors.
- B. Slide Latch: 0.105 inch (2.67 mm) min. thickness steel, with padlock eye, powder-coat finish, through-bolted to panel door and side panel [and welded to grille door frames]. Latches securely without padlock. Provide with clear plastic label holder with numbering system. Padlocks furnished by Owner.
- C. Panel Connectors: 1/4-20 by 1.77 inch (45 mm) panel connectors, with steel thread inserts, powder coated to match panels.
- D. Cabinet Levelers: Leveling glides with 3/8 inch (9.5 mm) diameter threaded steel rod in steel corner brackets, minimum two each per cabinet side, accessible from within unit, and concealed in completed installation.
- E. Fasteners: Manufacturer-recommended fasteners as required for casework substrate and project performance requirements, consisting of one or more of the following:
  - 1. Sheet Metal Screws: SAE J78, corrosion-resistant-coated, self-drilling, self-tapping steel drill screws.
  - 2. Wood Screws: ASME B18.6.1.
  - 3. Expansion Anchors in Concrete and Concrete Masonry Units: Carbon-steel, zinc plated.

## **2.07 FINISHES**

- A. Steel Sheet, Steel Wire, and Exposed Fasteners: Urethane-based electrostatic powder coating, color as indicated.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Examine casework installation areas for compliance with requirements for installation tolerances, location of blocking and other anchoring reinforcements, and other existing conditions affecting installation and performance of casework. Proceed with casework installation upon correction of unsatisfactory conditions.
- B. Site Verification of Environmental Conditions:
  - 1. Do not deliver casework until the following conditions have been met:



- a. An operational HVAC system that maintains temperature and humidity at occupancy levels has been put in place.
  - b. Ceiling, overhead ductwork, piping, and lighting have been installed.
  - c. Installation areas do not require further “wet work” construction.
- C. Verify adequacy of support framing and anchors.

### **3.02 CASEWORK INSTALLATION**

- A. Install plumb, level, and true; using integral levelers. Install in accordance with manufacturer's recommendations and approved submittals.
  - 1. Install seismic bracing and fastening in accordance with approved shop drawings.
- B. Install hardware uniformly and precisely. Set hinges snug and flat. Adjust and align hardware so moving parts operate freely and contact points meet accurately. Allow for final adjustment after installation.
- C. Adjust casework and hardware so doors and drawers operate smoothly without warp or bind and close with uniform reveals.
- D. Large Components: Ensure that large components can be moved into final position without damage to other construction.
- E. Use anchoring devices to suit conditions and substrate materials encountered. Use concealed fasteners to the greatest degree possible. Use exposed fasteners only where allowed by approved shop drawings, or where concealed fasteners are impracticable.
- F. Set casework items plumb and square, securely anchored to building structure.
- G. Align cabinets to adjoining components, install filler and/or scribe panels where necessary to close gaps.
- H. Fasten together cabinets in continuous runs, with joints flush, uniform and tight. Misalignment of adjacent units not to exceed 1/16 inch. In addition, do not exceed the following tolerances:
  - 1. Variation of Tops of Base Cabinets from Level: 1/16 inch in 10 feet.
  - 2. Variation of Bottoms of Upper Cabinets from Level: 1/8 inch in 10 feet.
  - 3. Variation of Faces of Cabinets from a True Plane: 1/8 inch in 10 feet.
  - 4. Variation of Adjacent Surfaces from a True Plane (Lippage): 1/32 inch.
  - 5. Variation in Alignment of Adjacent Door and Drawer Edges: 1/16 inch.
- I. Separate dissimilar metals to prevent galvanic action.

### **3.03 ADJUSTING**

- A. Adjust operating parts, including doors, drawers, hardware, and fixtures to function smoothly.

### **3.04 CLEANING AND PROTECTING**

- A. Repair or replace defective work as directed by Architect upon inspection.
- B. Clean casework surfaces. Touch up, refinish, or replace damaged components in a manner acceptable to Architect.
- C. Turn over operation and maintenance instructions to Owner.
- D. Clean casework and other installed surfaces thoroughly.

### **3.05 PROTECTION**

- A. Do not permit finished casework to be exposed to continued construction activity.
- B. Protect casework and countertops from ongoing construction activities. Prevent installers from standing on or storing tools and materials on casework or countertops.
- C. Repair damage that occurs prior to Date of Substantial Completion, including finishes, using methods prescribed by manufacturer; replace units that cannot be repaired to like-new condition.

**SECTION 12 4813  
ENTRANCE FLOOR MATS AND FRAMES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Extruded aluminum entrance floor grilles and frames.

**1.02 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data indicating properties of walk-off surface, component dimensions and recessed frame characteristics.
- C. Shop Drawings: Indicate dimensions and details for recessed frame.
  - 1. For recessed frames located within a dimensionally restricted area, show dimensions of space within which the frame will be installed.
- D. Closeout Submittals:
  - 1. Maintenance Data: Include cleaning instructions, and stain removal procedures.
  - 2. See Section 01 7800 - Closeout Submittals, for additional requirements.

**1.03 QUALITY ASSURANCE**

- A. Flammability: Critical radiant flux 0.45 watts/m<sup>2</sup> or greater, in accordance with ASTM E648. Life Safety Code® NFPA 101, Class 1 Interior Floor Finish Testing and Classification.
- B. Slip Resistance: Coefficient of friction 0.60 or greater, in accordance with ASTM D2047 tested in wet conditions.
- C. Rolling Load: No deformation with 350 lb/wheel and minimum of 2,500 passes. Load applied to a 5" diameter, 2" wide solid polyurethane wheel.
- D. Maximum deflection of 0.080 inch with 1000 pound uniform load, assembled with vibration resistant aircraft industry fasteners; snap-fit assembly not permitted.
- E. Single Source: Obtain entrance grating and frames from a single source to ensure dimensional compatibility.

**1.04 DELIVERY, STORAGE AND HANDLING**

- A. Deliver materials in unopened original factory packaging, labeled to identify product and manufacturer. Store in controlled environment. To avoid damage do not stack other material on top of matting or frames.

**1.05 PROJECT CONDITIONS**

- A. Coordinate installation of recess frame with concrete construction. Install frames to ensure dimensions provided in shop drawings are maintained. Finished recess must be flat and level. Defer frame installation until related interior finish work is in progress.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Entrance Floor Grilles and Gratings:
  - 1. Pawling Corporation; RG-300-AA Drain Well: [www.pawling.com/#sle](http://www.pawling.com/#sle).
  - 2. Or approved equal.
  - 3. Substitutions: See Section 01 6000 - Product Requirements.

**2.02 ENTRANCE FLOOR GRILLES AND GRATINGS**

- A. Entrance Floor Grilles (Type REM-1): High strength aluminum alloy, structural tube, tread-rail extrusions spaced at 1.5" centers, fastened to high strength aluminum alloy cross-support channels spaced at 12" centers perpendicular to tread rails. Cross-support and tread rails shall be mechanically assembled with vibration resistant, high strength steel, blind rivets. Tread rails to include continuous tread rail insert (selected from options listed below) for exposed walking surface. Support rails to include continuous dual-durometer vinyl cushion for contact with substrate.

1. Recess Depth: 1-1/2 inches.
  2. Tread Surfaces: Mill finish aluminum base with #405 abrasive insert.
  3. Color: Black Anodized.
  4. Length in Direction of Traffic Flow: 72 inches.
  5. Width Perpendicular to Traffic Flow: Full width of entrance door opening.
- B. Tread Inserts:
1. Abrasive Aluminum "AA": Alloy 6105-T5 extruded aluminum with applied medium grit abrasive for maximum slip resistance.
- C. Frame: Anodized aluminum for embedding in concrete; minimal exposed trim; stud or hook concrete anchors.
- D. Mounting: Top of non-resilient members level with adjacent floor.
- E. Structural Capacity: Capable of supporting rolling load of 300 lb without permanent deformation or noticeable deflection.
- F. Vibration Resistant Fabrication: Welded, riveted, or bolted members; no snap or friction connections.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that floor opening for frame and grilles are ready to receive work.

#### **3.02 INSTALLATION**

- A. Install products in accordance with manufacturer's installation instructions.
- B. Recessed opening must be flat, 1/8" in 10'-0", and free of debris before grating is installed

#### **3.03 PROTECTION**

- A. Protect installed frames from damage by using temporary plywood filler in recess opening. Cover exposed frames with similar materials until construction traffic is minimized. Install gratings when project is near substantial completion and no further wheeled traffic or major construction operations will affect grating.

#### **3.04 CLEANING**

- A. Include grating and recess in a routine cleaning and maintenance program. Regular cleaning will maximize functionality, appearance, and life span of the product. Refer to manufacturer's cleaning and maintenance instructions for additional information.

**END OF SECTION**

**SECTION 12 7000**  
**SWING AWAY SEAT AND TABLE SYSTEMS**

**PART 1 – GENERAL**

**1.01 SUMMARY**

- A. Section includes: Swing away seat and table systems
  - 1. Basis of Design: Sedia Systems Swing Away Seating/Table type; M60 Series
  - 2. Extent of Seating/Table systems as indicated on drawings and as specified herein including product data sheets.

**1.02 PRODUCT DESCRIPTION**

- A. Seat/Table Requirements:
  - 1. Pedestal: provide modular seating which allows two (2) independently movable chairs to mount to a single pedestal along with a section of table.
  - 2. Chair: Provide a chair which swivels and pivots on a horizontal plane, returning to a uniform position at the edge of the table when unoccupied.
  - 3. Power and Data Distribution System: Modular data and electrical system housed in flexible conduit.

**1.03 SUBMITTALS**

- A. General: Submit listed submittals in accordance with “Conditions of the Contract” and Division 1 Submittals Procedures section.
- B. Product Data: Submit manufacturer’s product data, including product specification sheets, for specific products.
- C. Shop Drawings: Submit shop drawings showing seating layout, seat-numbering scheme, chair sizes and aisle widths.
- D. Samples: Submit selection and verification samples of finishes, colors and textures for each exposed material.
- E. Quality Assurance Submittals; Submit the following;
  - 1. Certificates: Product certificates signed by manufacturer certifying materials comply with specify performance characteristics and criteria and physical requirements.
  - 2. Installer Qualifications: Submit certification indicating installer is qualified to install manufacturers seating.
  - 3. Bidder Qualifications: Submit certification, prior to drawing completion, indicating site has been inspected for any conditions that may affect the assembly or installation of products required.

**1.04 WARRANTY**

- A. Manufacturer’s Warranty; Submit, for Owners acceptance, manufacturer’s standard warranty documents executed by authorized company official. Manufacturer’s warranty is in addition to, and not a limitation of, other rights Owners may have under Contract Documents.
  - 1. Warranty period; (10) year warranty on understructure and shells from manufacture defect and workmanship, commencing on Date of Substantial Completion.
  - 2. Warranty will be null and void if Sedia Systems products are installed on flooring not meeting minimum structural requirements as stated in separate document, Sedia Systems Fixed Seating Guide/Requirements.

**PART 2 – PRODUCTS**

**2.01 SEATING/TABLE SYSTEM**

- A. Manufacturer: Sedia Systems, Inc.
- B. Contact; 1820 W. Hubbard Suite 300, Chicago, IL 60622
  - 1. Phone 312-212-8010 Fax 312-226-1199
- C. Proprietary Seating Systems; Sedia Systems. Provide chairs with manufacturers features specified in Part 2 Products Description herein.
  - 1. Sedia Systems Fixed Seat/Table Systems, M Series

## 2.02 PRODUCT DESCRIPTION

- A. Table Top: Table top shall be continuous surface 18"-24" Deep, no less than 1-1/4" finished thickness with 1 1/2" radius corners. Top surface can be either of a straight, radius, mitered and combinations design. Core shall be industrial grade particleboard. Particleboard physical minimums: Density 45.0 lb./cu.ft. Top surface shall be high-pressure laminate minimum .050" thick and meeting NEMA Specifications. Laminate backing to be .020" thick phenolic. Edge surface is standard with either extruded "T" vinyl molding 1-1/4" wide or 3mm PVC edging. A variety of solid wood bullnose and urethane edging is also available. Urethane edge to be applied on front or front/back with the remaining sides finished in 3MM PVC. Table top is secured to each pedestal by eight (8) six 1/4" x 1" lag bolts. Two (2) mechanical bar tie fasteners used to join the table top core. Manufacturer must be FSC Chain of Custody Certified.

## 2.03 SEAT SPECIFICATIONS

- A. Tecton features a fully upholstered seat and perforated copolymer plastic back. Seat and back are connected with heavy duty cold rolled J-Bar to provide comfort flex. CAL 117 Fire Retardant foam standard.
  - 1. Copolymer plastic back with upholstery.
- B. Turandot two-piece injection molded copolymer plastic seat joined by heavy steel tubing and finished with powder coat. Seat understructure consists of heavy gauge tubular steel for seat support and protective cover. Featuring a standard tilt mechanism.
- C. Ply one piece molded 7/16" multiply Baltic birch plywood. Standard maple/birch face with clear coat lacquer. Optional stains and laminate surface available. Upholstery utilizing 3/4" foam seat and 1/2" foam back cushions available with standard fabric and/or vinyl, all C.O.M fabrics require factory approval.
- D. Pedestal/ Base Plate Structure/Chair Support: The main support pedestals are installed at a minimum of 48" (Tecton and 2Thrive Shell Only) to 60" on-center dimension. Each pedestal is constructed of 1.5" x 3.5" flat oval 11 gauge steel tubing. Pedestal shall have a full perimeter weld to a base plate. The 5" X 7 3/4" .25" steel base plate is designed with four (4) slotted holes which accepts anchor bolts. M Series will include injection molded escutcheon cover for base plate without visible fasteners. Auto-height auto-return seat cylinder allowing seat height adjustment, chair rotation and center return. Seat control and cylinder utilize precision taper fit and do not require set screws. Minimum arm height clearance of 9". Must meet independent static load test requirements of 600 lbs.
- E. Seat Support Arm Assembly: Each pedestal will receive (2) two seat support arms. The seat support arms are constructed of 1" X 2" flat oval 11 gauge steel tubing. Support arms shall be supported at the pedestal and work independently of each other. Return spring system should consist of a factory loaded heavy gauge torsion spring fully enclosed and field adjustable without removal of arm assembly.
- F. Table Top Support Plates: The table top support plates of the pedestal assembly shall be made of 11 gauge carbon steel finished in powder coat and is power/data ready. Support brackets are adjustable for ease of installation. Support plate features six (6) for securing top to base.
- G. Paint: All metal parts are cleaned and multi-stage DuPont Alesta Powder Coated.
- H. Modesty Panels:
  - 1. Modesty panels shall be 14 gauge perforated metal with a hem on the top and bottom. Perforations are standard .25" round or square holes stacked .75" on center. Customized patterns are available upon request.
- I. Under-mount Dual Power, Dual Data or Power Data Module: This module attaches to the bottom the table to maximize writing surface. Each module includes two 15 amp simplex outlets or two voice/data ports or combination Power Date. Entire system is UL1286 Listed and CSA certified. Voice/data adapter kit accommodates most common couplers and jacks produced by seven manufacturers.
- J. Power Harness: Shall be UL-Listed harness of flexible conduit designed to distribute power between the Power/Data module and room power infeed. The harness and data wiring enclosed in a raceway to separate data and power and is attached to the table bottom.
- K. Removable Shroud Cover: Shroud cover shall be made of ABS vacuum-formed to house the 4 wire harness and power data module.

- L. Power & Data Pedestals: Pedestal assembly shall be made of 1.5" x 3.5" flat oval 11 gauge carbon steel finished in powder coat enamel. Base plate is made from 11 gauge steel and is raised in center measuring 2.75" x 4.75" x .5" to allow ease of wire entry without moving stubbed facility wiring. Includes 2 piece ABS escutcheon cover for base plate affixed with (2) two 8/32" screws.

**PART 3 – INSTALLATION, EXECUTION AND WORKMANSHIP**

**3.01 MANUFACTURERS INSTRUCTIONS**

- A. Comply with bulletins, product catalog, installation instructions and product carton instructions for installation

**3.02 EXAMINATION**

- A. Site Verification: Prior to installation verify, with installer present, that substrates and conditions comply with the requirements for construction tolerances, materials properties as they affect anchors and fasteners and location of junction boxes.
- B. Repair: Do not proceed until unsatisfactory conditions have been corrected.

**3.03 INSTALLATION**

- A. Installation: Install following manufacturers printed instructions for installation and using manufacturer recommended hardware and fasteners. Chair and tables in curbed rows shall be installed at smooth radius.
- B. Adjustments: Adjust seat mechanism to ensure seats in each row are aligned when in the upright position.
- C. Repair: Repair minor abrasions and imperfections in painted surfaces with a coating that matches the factory- applied finish.
- D. Replace: Replace any fabric damaged during installation.

**3.04 CLEANING AND PROTECTION**

- A. Cleaning: Clean Product in accordance with manufacturer instruction prior to Owner's acceptance. Remove construction debris, including cartons from project site and legally dispose of debris.
- B. Protection: Protect installed product and finished surfaces from damage during construction.

**END OF SECTION**