

Town of DeWitt

PROJECT MANUAL FOR THE

Willis V. Carrier Park Recreation Center – Phase 3

December 16, 2024

Volume 1

OWNER

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SECTION 001113 - NOTICE TO BIDDERS

The Town of DeWitt will receive sealed bids, in duplicate, for:

- GC General Construction
- EC Electrical Construction
- PC Plumbing Construction
- SC Site Construction

SUBMISSION OF BIDS

Bids will be received in duplicate by the Owner until 2:00 pm, local time, on Tuesday, January 21, 2025, at the Town of DeWitt, Attn: Angela Epolito, Town Clerk, 5400 Butternut Drive, East Syracuse, NY 13057; Ph.: (315)-446-3901 ext. 140.

OPENING OF BIDS

Bids will be opened and read aloud at 2:05 pm, local time, on Tuesday, January 21, 2025, at the Town of DeWitt, Meeting Room B, 5400 Butternut Drive, East Syracuse, NY 13057.

EXAMINATION OF CONTRACT DOCUMENTS:

Plans, Specifications and Proposal forms may be examined at the following locations:

Syracuse Builders Exchange		
6563 Ridings Road		
Syracuse, NY 13206		
(315)-437-9936		

Town Clerk Town of DeWitt 5400 Butternut Drive East Syracuse, NY 13057-8509 (315)-446-3901 Plan & Print Systems, Inc. 6160 Eastern Avenue Syracuse, NY 13211 (315)-437-5111

Appel Osborne Landscape Architecture 102 West Division Street Suite 100 Syracuse, NY 13204 (315)-476-1022

OBTAINING ELECTRONIC CONTRACT DOCUMENTS

Contract Documents may be downloaded from the Plan and Print Systems, Inc. website for a nonrefundable cost of \$49.00. Electronic Contract Documents on a flash drive may also be obtained from Plan & Print (Telephone: 315.437.5111) upon payment of a non-refundable \$100.00 plus shipping and handling per flash drive. Contact Plan & Print for shipping and handling costs. Checks shall be made payable to Plan & Print Systems, Inc.

OBTAINING PAPER CONTRACT DOCUMENTS

Contract Documents may be obtained at Plan & Print Systems, Inc., 6160 Eastern Ave, Syracuse, NY 13211 (Telephone: 315.437.5111) upon receipt of a \$100.00 deposit per set. Checks for deposit for Contract Documents shall be made payable to Plan & Print Systems, Inc. Cash will not be accepted as a deposit. Prospective Bidders will be issued a maximum of two (2) sets each. Subcontractors, Material Suppliers, etc., will be issued a maximum of one (1) set each.

Contract documents will be delivered via UPS Ground service upon request and receipt of an additional non-refundable delivery and handling charge, payable by separate check to Plan & Print Systems, Inc. Contact Plan & Print for shipping and handling costs.

Any sets required in excess of the above-mentioned maximums are to be obtained directly by interested parties at the full cost of printing, at their cost, directly from Plan and Print Systems.

Only complete sets will be issued.

At the time the order is placed, the plan holder shall advise Plan and Print Systems of status as to prime bidder, subcontractor, or material supplier and to trade affiliation. Postal addresses, telephone numbers, and email will also be required.

ADDENDA

Addenda for this project will be emailed to each plan holder of record, except as noted. Addenda containing full sized drawings will be issued in hard copy format only and sent via UPS. It is the responsibility of each prospective bidder to submit an accurate email address when requesting Bidding/ContractDocuments and to download each addendum. Addenda will be sent to the e-mail address on record.

RETURN OF CONTRACT DOCUMENTS

Upon returning sets promptly and in <u>re-usable condition</u> to Plan & Print Systems, Inc. within 30 days after the date of the Bid opening, deposits will be refunded as follows:

- 1. Any Bidder will be refunded his or her deposit in full.
- 2. All other persons receiving any or all the Contract Documents, including Subcontractors and Material Suppliers, will be refunded their deposit in full.

All Contract Documents received (except for Documents held by Successful Bidders) must be returned to Plan & Print Systems, Inc., at the above address.

For Contract Documents which are not returned to the printer within this 30-day period, deposits will NOT be refunded.

RIGHT TO WAIVE OR REJECT

The Owner reserves the right to waive any informality in or to reject any or all Bids.

BID SECURITY

Each Bidder must deposit with its Bid, security in an amount and form subject to the conditions provided in the Contract Documents.

WITHDRAWAL OF BIDS

Withdrawal of Bids will be subject to the conditions provided in the Instructions to Bidders.

COMPLETION TIME

The work of this project shall be completed by the dates set forth in Section 011100 entitled "Summary of Work."

PRE-BID MEETING

A Pre-Bid Meeting will be held to answer questions that may arise during the bidding period. The meeting will be held at 2:00 P.M. on Tuesday, January 7, 2025, at the Town of DeWitt, Meeting Room B, 5400 Butternut Drive, East Syracuse, NY 13057.

INSPECTION OF SITE

Bidders will be able to visit the Site at the convenience of the Town of DeWitt with a minimum of forty-eight hours prior notification to Mr. Ray Goff, Town of DeWitt Parks, at (315)-761-6242.

REOUESTS FOR INFORMATION

Requests for interpretation, information or clarification (RFI) of the Contract Documents must be made in writing to Appel Osborne Landscape Architects. Responses to RFIs will not be made over the telephone. Responses to RFIs will be advisory only and will not modify the Contract Documents. The Contract Documents stand as published except as modified by written Addenda before bid and Modifications after execution of the Agreement.

RFI's may e-mailed to: Mr. Taylor Goldthwait: <u>tgoldthwait@appelosborne.com</u> or mailed to:

Mr. Taylor Goldthwait, Appel Osborne Landscape Architecture, 102 West Division Street Suite 100 Syracuse, NY 13204

END OF NOTICE TO BIDDERS

AIA Document A701° – 2018

Instructions to Bidders

for the following Project:

Town of Dewitt Willis V. Carrier Park Recreation Center - Phase 3 1035 Kinne Street East Syracuse, NY 13057

THE OWNER:

Town of Dewitt 5400 Butternut Drive East Syracuse, NY 13057-8509

THE ARCHITECT:

Appel Osborne Landscape Architecture 102 W. Division St., Suite 100 Syracuse, NY 13204 Telephone # 315-476-1022

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ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An Additions and Deletions Report that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

FEDERAL, STATE, AND LOCAL LAWS MAY IMPOSE REQUIREMENTS ON PUBLIC PROCUREMENT CONTRACTS. CONSULT LOCAL AUTHORITIES OR AN ATTORNEY TO VERIFY REQUIREMENTS APPLICABLE TO THIS PROCUREMENT BEFORE COMPLETING THIS FORM.

It is intended that AIA Document G612[™]-2017, Owner's Instructions to the Architect, Parts A and B will be completed prior to using this document.

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ARTICLE 1 DEFINITIONS

§ 1.1 Bidding Documents include the Bidding Requirements and the Proposed Contract Documents. The Bidding Requirements consist of the advertisement or invitation to bid, Instructions to Bidders, supplementary instructions to bidders, the bid form, and any other bidding forms. The Proposed Contract Documents consist of the unexecuted form of Agreement between the Owner and Contractor and that Agreement's Exhibits, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, all Addenda, and all other documents enumerated in Article 8 of these Instructions.

§ 1.2 Definitions set forth in the General Conditions of the Contract for Construction, or in other Proposed Contract Documents apply to the Bidding Documents.

§ 1.3 Addenda are written or graphic instruments issued by the Architect, which, by additions, deletions, clarifications, or corrections, modify or interpret the Bidding Documents.

§ 1.4 A Bid is a complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

§ 1.5 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents, to which Work may be added or deleted by sums stated in Alternate Bids.

§ 1.6 An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from, or that does not change, the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

§ 1.7 A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, as described in the Bidding Documents.

§ 1.8 A Bidder is a person or entity who submits a Bid and who meets the requirements set forth in the Bidding Documents.

§ 1.9 A Sub-bidder is a person or entity who submits a bid to a Bidder for materials, equipment, or labor for a portion of the Work.

ARTICLE 2 BIDDER'S REPRESENTATIONS

§ 2.1 By submitting a Bid, the Bidder represents that:

- .1 the Bidder has read and understands the Bidding Documents;
 - .2 the Bidder understands how the Bidding Documents relate to other portions of the Project, if any, being bid concurrently or presently under construction;
 - .3 the Bid complies with the Bidding Documents;
 - .4
 - .5 the Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception; and
 - .6 the Bidder has read and understands the provisions for liquidated damages, if any, set forth in the form of Agreement between the Owner and Contractor.
- § 2.2 Conditions Affecting the Work: All Bidders shall visit the site and take such other steps as may be necessary to ascertain the nature and location of the Work, and the general and local conditions which can affect the Work or the cost thereof. All visits must be made with arrangements as specified in the Advertisement or Invitation to Bid. The site visitation shall be limited to those persons or firms who are "Plan holders of Record" or accompanied by "Planholders of Record." In addition, Bidders shall examine all Contract Documents in relation to the site, the structure and condition of the ground, the obstacles which may be encountered and all other conditions having a bearing upon the performance of the Work, superintendence of the Work, requirements for heat, time of completion and all other relevant matters. Failure to take such steps shall not relieve Bidders from responsibility for estimating properly the difficulty or cost of successfully performing the work. The Owner assumes no responsibility for any understanding or representations concerning conditions made by any of its agents, representatives or employees prior to the execution of the Contract, unless included in the Contract Documents.

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§ 2.3 The Bidder's attention has been directed to the fact that all applicable state laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the Contract throughout, and they will be deemed to be included in the Contract the same as though herein written out in full.

ARTICLE 3 BIDDING DOCUMENTS

§ 3.1 Distribution

§ 3.1.1 Bidders shall obtain complete Bidding Documents, as indicated below, from the issuing office designated in the advertisement or invitation to bid, for the deposit sum, if any, stated therein. (Paragraph deleted)

§ 3.1.2 Any required deposit shall be refunded to Bidders as specified in the Notice To Bidders. The cost to replace missing or damaged paper documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the paper Bidding Documents, and the Bidder's deposit will be refunded.

§ 3.1.3 Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the advertisement or invitation to bid, or in supplementary instructions to bidders.

§ 3.1.4 Bidders shall use complete Bidding Documents in preparing Bids. Neither the Owner nor Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete Bidding Documents.

§ 3.1.5 The Bidding Documents will be available for the sole purpose of obtaining Bids on the Work. No license or grant of use is conferred by distribution of the Bidding Documents.

§ 3.2 Modification or Interpretation of Bidding Documents

§ 3.2.1 The Bidder shall carefully study the Bidding Documents, shall examine the site and local conditions, and shall notify the Architect of errors, inconsistencies, or ambiguities discovered and request clarification or interpretation pursuant to Section 3.2.2.

§ 3.2.2 Requests for clarification or interpretation of the Bidding Documents shall be submitted by the Bidder in writing and shall be received by the Architect at least ten (10)or more business days prior to the date for receipt of Bids, or earlier if more time may be required, to permit all necessary investigation and to allow sufficient time for a reply o reach all perspective Bidders before submission of their Bids.

§ 3.2.3 Modifications and interpretations of the Bidding Documents shall be made by Addendum. Modifications and interpretations of the Bidding Documents made in any other manner shall not be binding, and Bidders shall not rely upon them. Oral explanations or instructions given before award of the Contract will not be binding upon the Owner, the Architect, or their representatives.

§ 3.3 Substitutions

§ 3.3.1 The materials, products, and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance, and quality to be met by any proposed substitution.

§ 3.3.2 Substitution Process

§ 3.3.2.1 Substitutions will be considered upon written request as specified in Section 012500 "Equivalency" and shall be submitted in the same manner as that established for submitting clarifications and interpretations in Section 3.2.2.

§ 3.3.2.2 Bidders shall submit substitution requests on a Substitution Request Form if one is provided in the Bidding Documents.

§ 3.3.2.3 If a Substitution Request Form is not provided, requests shall include (1) the name of the material or equipment specified in the Bidding Documents; (2) the reason for the requested substitution; (3) a complete description of the proposed substitution including the name of the material or equipment proposed as the substitute, performance and test

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data, and relevant drawings; and (4) any other information necessary for an evaluation. The request shall include a statement setting forth changes in other materials, equipment, or other portions of the Work, including changes in the work of other contracts or the impact on any Project Certifications (such as LEED), that will result from incorporation of the proposed substitution.

§ 3.3.3 The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

§ 3.3.4 Intentionally deleted.

§ 3.3.5 No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents.

§ 3.4 Addenda

§ 3.4.1 The Architect will endeavor to mail or electronically notify every plan holder of record of any addenda issued. However, it shall be the Bidder's responsibility to make inquiry as to any addenda issued. All such addenda shall become part of the Contract Documents and shall be bound by such addenda whether or not received by the bidders.

§ 3.4.2 Addenda will be available where Bidding Documents are on file.

§ 3.4.3 Addenda will be issued no later than four days prior to the date for receipt of Bids, except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.

§ 3.4.4 Prior to submitting a Bid, each Bidder shall ascertain that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

ARTICLE 4 BIDDING PROCEDURES

§ 4.1 Preparation of Bids

§ 4.1.1 Bids shall be submitted on the forms included with or identified in the Bidding Documents.

§ 4.1.2 All blanks on the bid form shall be legibly executed. Paper bid forms shall be executed in a non-erasable medium.

§ 4.1.3 Sums shall be expressed in both words and numbers, unless noted otherwise on the bid form. In case of discrepancy, the amount entered in words shall govern.

§ 4.1.4 Edits to entries made on paper bid forms must be initialed by the signer of the Bid.

§ 4.1.5 All requested Alternates shall be bid. If no change in the Base Bid is required, enter "No Change" or as required by the bid form.

§ 4.1.6 Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder's refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall neither make additional stipulations on the bid form nor qualify the Bid in any other manner.

§ 4.1.7 Each copy of the Bid shall state the legal name and legal status of the Bidder. As part of the documentation submitted with the Bid, the Bidder shall provide evidence of its legal authority to perform the Work in the jurisdiction where the Project is located. Each copy of the Bid shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further name the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached, certifying the agent's authority to bind the Bidder.

§ 4.1.8 A Bidder shall incur all costs associated with the preparation of its Bid.

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§ 4.2 Bid Security § 4.2.1 Each Bid shall be accompanied (Paragraphs deleted) by:

Bid security in the form of a Certified Check of the Bidder or a Bid Bond duly executed by the Bidder as principal and having a Surety Company thereon qualified to do business in the State of the project, in an amount not less than 5% of the amount of the Base Bid, pledging that the Bidder will enter into a Contract with the Owner on the terms stated in the Contract Documents and will, if required, furnish Bonds as described in Article 7 covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract within 10 days after he has been offered a Contract or fails to furnish such bonds, if required, the amount of the Bid security shall be forfeited to the Owner as liquidated damages, not as penalty. The amount of the Bid security shall not be forfeited to the Owner in the event the Owner fails to comply with Subparagraph 6.2.

§ 4.2.2 The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and shall, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty. In the event the Owner fails to comply with Section 6.2, the amount of the bid security shall not be forfeited to the Owner.

§ 4.2.3 If a surety bond is required as bid security, it shall be written on AIA Document A310[™], Bid Bond, unless otherwise provided in the Bidding Documents. The attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of an acceptable power of attorney. The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 4.2.4 Retainage of Bid Security: Such check or Bid Bond will be returned to all except the three lowest Bidders within five (5) days after the opening of the Bids. The remaining security will be returned to the three lowest Bidders within forty eight (48) hours after the Owner and the accepted Bidder have executed the Contract, or if no Contract has been so executed, within forty five (45) days after formal Bid opening, so long as Bidder has not been notified of the acceptance of his Bid.

§ 4.3 Submission of Bids

§ 4.3.1 A Bidder shall submit its Bid as indicated below: (Paragraph deleted) As specified in the Notice To Bidders and Bid Forms

§ 4.3.2 Paper copies of the Bid, the bid security, and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the party receiving the Bids and shall be identified with the Project name, the Bidder's name and address, and, if applicable, the designated portion of the Work for which the Bid is submitted. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

§ 4.3.3 Bids shall be submitted by the date and time and at the place indicated in the invitation to bid. Bids submitted after the date and time for receipt of Bids, or at an incorrect place, will not be accepted.

§ 4.3.4 The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

§ 4.3.5 A Bid submitted by any method other than as provided in this Section 4.3 will not be accepted.

§ 4.4 Modification or Withdrawal of Bid

§ 4.4.1 Prior to the date and time designated for receipt of Bids, a Bidder may submit a new Bid to replace a Bid previously submitted, or withdraw its Bid entirely, by notice to the party designated to receive the Bids. Such notice shall be received and duly recorded by the receiving party on or before the date and time set for receipt of Bids. The receiving party shall verify that replaced or withdrawn Bids are removed from the other submitted Bids and not considered. Notice

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of submission of a replacement Bid or withdrawal of a Bid shall be worded so as not to reveal the amount of the original Bid.

§ 4.4.2 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids in the same format as that established in Section 4.3, provided they fully conform with these Instructions to Bidders. Bid security shall be in an amount sufficient for the Bid as resubmitted.

§ 4.4.3

(Paragraphs deleted)

Bidder shall not modify, withdraw or cancel his Bid or any part thereof for forty-five (45) days after the time designated for the receipt of Bids in the Advertisement or Invitation to Bid and the Bidder so agrees in submitting his Bid.

ARTICLE 5 CONSIDERATION OF BIDS

§ 5.1 Opening of Bids

If stipulated in an advertisement or invitation to bid, or when otherwise required by law, Bids properly identified and received within the specified time limits will be publicly opened and read aloud. A summary of the Bids may be made available to Bidders.

§ 5.2 Rejection of Bids

Unless otherwise prohibited by law, the Owner shall have the right to reject any or all Bids.

§ 5.3 Acceptance of Bid (Award)

§ 5.3.1 It is the intent of the Owner to award a Contract to the lowest responsive and responsible Bidder, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents. Unless otherwise prohibited by law, the Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's best interests.

§ 5.3.2 Unless otherwise prohibited by law, the Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the lowest responsive and responsible Bidder on the basis of the sum of the Base Bid and Alternates accepted.

ARTICLE 6 POST-BID INFORMATION

§ 6.1 Contractor's Qualification Statement

Bidders to whom award of a Contract is under consideration shall submit to the Architect, upon request and within the timeframe specified by the Architect, a properly executed AIA Document A305TM, Contractor's Qualification Statement, unless such a Statement has been previously required and submitted for this Bid.

§ 6.2 Owner's Financial Capability

A Bidder to whom award of a Contract is under consideration may request in writing, fourteen days prior to the expiration of the time for withdrawal of Bids, that the Owner furnish to the Bidder reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract. The Owner shall then furnish such reasonable evidence to the Bidder no later than seven days prior to the expiration of the time for withdrawal of Bids. Unless such reasonable evidence is furnished within the allotted time, the Bidder will not be required to execute the Agreement between the Owner and Contractor.

§ 6.3 Submittals

§ 6.3.1 After notification of selection for the award of the Contract, the Bidder shall, as soon as practicable or as stipulated in the Bidding Documents, submit in writing to the Owner through the Architect:

- .1 a designation of the Work to be performed with the Bidder's own forces;
- .2 names of the principal products and systems proposed for the Work and the manufacturers and suppliers of each; and
- .3 names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.

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§ 6.3.2 The Bidder will be required to establish to the satisfaction of the Architect and Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.

§ 6.3.2.1 Within seven (7) days of issuance of the Letter of Intent/Notice to Proceed, submit names of superintendent, project manager, or any other corporate representative that will be directly involved in execution of the project.

§ 6.3.3 Prior to the execution of the Contract, the Architect will notify the Bidder if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, withdraw the Bid or submit an acceptable substitute person or entity. The Bidder may also submit any required adjustment in the Base Bid or Alternate Bid to account for the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

§ 6.3.4 Persons and entities proposed by the Bidder and to whom the Owner and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and Architect.

§ 6.3.5 Within seven (7) days of issuance of the letter of Intent/Notice to Proceed the Contractor shall submit required Insurance certificates.

§ 6.3.6 Submission of any proposed equivalents shall follow guidelines as indicated in Specification Section 012500 -"Equivalency".

§ 6.3.7 Cost Breakdown: Within twenty-four (24) hours of receipt of bids, the three (3) low bidders shall provide a cost breakdown of their bid into Costs associated for each building.

§ 6.3.8 Submission of information in relation to subcontractors, materials, costs, etc., shall be as specified in the Supplementary General Conditions of the Contract Documents, unless directed otherwise.

ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND

§ 7.1 Bond Requirements

§ 7.1.1 If stipulated in the Bidding Documents, the Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder.

§ 7.1.2 If the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid. If the furnishing of such bonds is required after receipt of bids and before execution of the Contract, the cost of such bonds shall be added to the Bid in determining the Contract Sum.

§ 7.1.3 The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 7.1.4 The Penal Sum of the Payment and Performance Bonds shall be the amount of the Contract Sum.

§ 7.2 Time of Delivery and Form of Bonds

§ 7.2.1 The Bidder shall deliver the required bonds to the Owner not later than three days following the date of execution of the Contract. If the Work is to commence sooner in response to a letter of intent, the Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Section 7.2.1.

§ 7.2.2 Unless otherwise provided, the bonds shall be written on AIA Document A312, Performance Bond and Payment Bond.

§ 7.2.3 The bonds shall be dated on or after the date of the Contract.

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§ 7.2.4 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix to the bond a certified and current copy of the power of attorney.

ARTICLE 8 ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS

§ 8.1 Copies of the proposed Contract Documents have been made available to the Bidder and consist of the following documents:

- .1 AIA Document A101[™]–2017, Standard Form of Agreement Between Owner and Contractor, as modified.
- .2

(Paragraphs deleted)

AIA Document A201[™]–2017, General Conditions of the Contract for Construction, unless otherwise stated below.

.3 Drawings - See Drawing Index in the Project Manual

.4 Specifications – See Index in the Project Manual

.5 Addenda, if any:

.**6** (Paragraphs deleted) Other Exhibits:

> [] as indicated below: (Insert the date of the E204-2017.)

> > Bid Form

(Paragraph deleted)

.7 Other documents listed below:

NYS Prevailing Wage Schedule

Additions and Deletions Report for

AIA[®] Document A701[®] – 2018

This Additions and Deletions Report, as defined on page 1 of the associated document, reproduces below all text the author has added to the standard form AIA document in order to complete it, as well as any text the author may have added to or deleted from the original AIA text. Added text is shown underlined. Deleted text is indicated with a horizontal line through the original AIA text.

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PAGE 1

(Name, location, and detailed description) <u>Town of Dewitt</u> <u>Willis V. Carrier Park Recreation Center - Phase 3</u> <u>1035 Kinne Street</u> <u>East Syracuse, NY 13057</u>

...

(Name, legal status, address, and other information) <u>Town of Dewitt</u> <u>5400 Butternut Drive</u> <u>East Syracuse, NY 13057-8509</u>

•••

(Name, legal status, address, and other information) Appel Osborne Landscape Architecture 102 W. Division St., Suite 100 Syracuse, NY 13204 Telephone # 315-476-1022 PAGE 2

- .4 the Bidder has visited the site, become familiar with local conditions under which the Work is to be performed, and has correlated the Bidder's observations with the requirements of the Proposed Contract Documents;
- .6 the Bidder has read and understands the provisions for liquidated damages, if any, set forth in the form of Agreement between the Owner and Contractor.
- § 2.2 Conditions Affecting the Work: All Bidders shall visit the site and take such other steps as may be necessary to ascertain the nature and location of the Work, and the general and local conditions which can affect the Work or the cost thereof. All visits must be made with arrangements as specified in the Advertisement or Invitation to Bid. The site visitation shall be limited to those persons or firms who are "Plan holders of Record" or accompanied by "Planholders of Record." In addition, Bidders shall examine all Contract Documents in relation to the site, the structure and condition of the ground, the obstacles which may be encountered and all other conditions having a bearing upon the performance of the Work, superintendence of the Work, requirements for heat, time of completion and all other relevant matters. Failure to take such steps shall not relieve Bidders from responsibility for estimating properly the difficulty or cost of successfully performing the work. The Owner assumes no responsibility for any understanding or representations concerning conditions made by any of its agents, representatives or employees prior to the execution of the Contract, unless included in the Contract Documents.

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§ 2.3 The Bidder's attention has been directed to the fact that all applicable state laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the Contract throughout, and they will be deemed to be included in the Contract the same as though herein written out in full.

PAGE 3

(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall obtain Bidding Documents.)

•••

§ 3.1.2 Any required deposit shall be refunded to Bidders who submit a bona fide Bid and return the paper Bidding Documents in good condition within ten days after receipt of Bids. as specified in the Notice To Bidders. The cost to replace missing or damaged paper documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the paper Bidding Documents, and the Bidder's deposit will be refunded.

...

§ 3.2.2 Requests for clarification or interpretation of the Bidding Documents shall be submitted by the Bidder in writing and shall be received by the Architect at least seven ten (10)or more business days prior to the date for receipt of Bids.

(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall submit requests for clarification and interpretation.)Bids, or earlier if more time may be required, to permit all necessary investigation and to allow sufficient time for a reply o reach all perspective Bidders before submission of their Bids.

...

§ 3.2.3 Modifications and interpretations of the Bidding Documents shall be made by Addendum. Modifications and interpretations of the Bidding Documents made in any other manner shall not be binding, and Bidders shall not rely upon them. Oral explanations or instructions given before award of the Contract will not be binding upon the Owner, the Architect, or their representatives.

•••

§ 3.3.2.1 Written requests for substitutions shall be received by the Architect at least ten days prior to the date for receipt of Bids. Requests Substitutions will be considered upon written request as specified in Section 012500 "Equivalency" and shall be submitted in the same manner as that established for submitting clarifications and interpretations in Section 3.2.2. **PAGE 4**

§ 3.3.4 If the Architect approves a proposed substitution prior to receipt of Bids, such approval shall be set forth in an Addendum. Approvals made in any other manner shall not be binding, and Bidders shall not rely upon them. Intentionally deleted.

...

§ 3.4.1 Addenda will be transmitted to Bidders known by the issuing office to have received complete Bidding Documents.

(Indicate how, such as by email, website, host site/platform, paper copy, or other method Addenda will be transmitted.) The Architect will endeavor to mail or electronically notify every plan holder of record of any addenda issued. However, it shall be the Bidder's responsibility to make inquiry as to any addenda issued. All such addenda shall become part of the Contract Documents and shall be bound by such addenda whether or not received by the bidders..

PAGE 5

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§ 4.2.1 Each Bid shall be accompanied by the following bid security: (*Insert the form and amount of bid security.*) by:

Bid security in the form of a Certified Check of the Bidder or a Bid Bond duly executed by the Bidder as principal and having a Surety Company thereon qualified to do business in the State of the project, in an amount not less than 5% of the amount of the Base Bid, pledging that the Bidder will enter into a Contract with the Owner on the terms stated in the Contract Documents and will, if required, furnish Bonds as described in Article 7 covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract within 10 days after he has been offered a Contract or fails to furnish such bonds, if required, the amount of the Bid security shall be forfeited to the Owner in the event the Owner fails to comply with Subparagraph 6.2.

•••

§ 4.2.4 The Owner will have the right to retain the bid security of Bidders to whom an award is being eonsidered until (a) the Contract has been executed and bonds, if required, have been furnished; (b) the specified time has elapsed so that Bids may be withdrawn; or (c) all Bids have been rejected. However, if no Contract has been awarded or a Retainage of Bid Security: Such check or Bid Bond will be returned to all except the three lowest Bidders within five(5) days after the opening of the Bids. The remaining security will be returned to the three lowest Bidders within forty eight (48) hours after the Owner and the accepted Bidder have executed the Contract, or if no Contract has been so executed, within forty five(45) days after formal Bid opening, so long as Bidder has not been notified of the acceptance of its Bid, a Bidder may, beginning days after the opening of Bids, withdraw its Bid and request the return of its bid security.his Bid.

...

(Indicate how, such as by website, host site/platform, paper copy, or other method Bidders shall submit their Bid.)

As specified in the Notice To Bidders and Bid Forms PAGE 6

§ 4.4.3 After the date and time designated for receipt of Bids, a Bidder who discovers that it made a clerical error in its Bid shall notify the Architect of such error within two days, or pursuant to a timeframe specified by the law of the jurisdiction where the Project is located, requesting withdrawal of its Bid. Upon providing evidence of such error to the reasonable satisfaction of the Architect, the Bid shall be withdrawn and not resubmitted. If a Bid is withdrawn pursuant to this Section 4.4.3, the bid security will be attended to as follows: *(State the terms and conditions, such as Bid rank, for returning or retaining the bid security.)*

Bidder shall not modify, withdraw or cancel his Bid or any part thereof for forty-five (45) days after the time designated for the receipt of Bids in the Advertisement or Invitation to Bid and the Bidder so agrees in submitting his Bid.

PAGE 7

§ 6.3.2.1 Within seven (7) days of issuance of the Letter of Intent/Notice to Proceed, submit names of superintendent, project manager, or any other corporate representative that will be directly involved in execution of the project.

§ 6.3.5 Within seven (7) days of issuance of the letter of Intent/Notice to Proceed the Contractor shall submit required Insurance certificates.

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§ 6.3.6 Submission of any proposed equivalents shall follow guidelines as indicated in Specification Section 012500 - "Equivalency".

§ 6.3.7 Cost Breakdown: Within twenty-four (24) hours of receipt of bids, the three (3) low bidders shall provide a cost breakdown of their bid into Costs associated for each building.

§ 6.3.8 Submission of information in relation to subcontractors, materials, costs, etc., shall be as specified in the Supplementary General Conditions of the Contract Documents, unless directed otherwise.

•••

§ 7.1.4 Unless otherwise indicated below, the <u>The</u> Penal Sum of the Payment and Performance Bonds shall be the amount of the Contract Sum.

(If Payment or Performance Bonds are to be in an amount other than 100% of the Contract Sum, indicate the dollar amount or percentage of the Contract Sum.)

PAGE 8

.1 AIA Document A101[™]–2017, Standard Form of Agreement Between Owner and Contractor, unless otherwise stated below.

(Insert the complete AIA Document number, including year, and Document title.)as modified.

- .2 AIA Document A101[™] 2017, Exhibit A, Insurance and Bonds, unless otherwise stated below. (Insert the complete AIA Document number, including year, and Document title.)
- .3—AIA Document A201[™]–2017, General Conditions of the Contract for Construction, unless otherwise stated below.

(Insert the complete AIA Document number, including year, and Document title.).3 Drawings – See Drawing Index in the Project Manual

.4 Building Information Modeling Exhibit, if completed: Specifications - See Index in the Project Manual

DrawingsAddenda, if any: .5 Title Date Number .6 **Specifications** Title Date Pages Section 7 Addenda: Number Date Pages

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.8 Other Exhibits:

(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

[] AIA Document E204TM 2017, Sustainable Projects Exhibit, dated as indicated below:

Bid Form

[-] The Sustainability Plan:

Title	Date	Pages
[]	Supplementary and other Conditions of the Contract:	

Document	Title	Date	Pages
----------	-------	------	-------

...

...

.9 ____.7 Other documents listed below: (List here any additional documents that are intended to form part of the Proposed Contract Documents.) NYS Prevailing Wage Schedule

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Certification of Document's Authenticity

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I, , hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 11:03:24 ET on 12/11/2024 under Order No. 2114586669 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA[®] Document A701TM – 2018, Instructions to Bidders, other than those additions and deletions shown in the associated Additions and Deletions Report.

(Signed)				
(Title)	1000 (C)	entra di sinta di sin	Laboration Adaption at the	
(Dated)				

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SECTION 004113 - GENERAL CONSTRUCTION BID FORM

Submitted By:

(GENERAL CONTRACTOR)

TO: Town of DeWitt 5400 Butternut Drive East Syracuse, NY 13057-8509 FOR: Town of DeWitt Willis V. Carrier Park Recreation Center-Phase 3

The undersigned Bidder has carefully examined the form of the Contract, has examined the site of the work, and hereby proposes to furnish all necessary plant, labor, materials, equipment, and tools required to perform and complete the work in strict accordance with the Contract.

In compliance with the foregoing bid specifications and subject to all the conditions thereof, the undersigned offers and agrees, if this bid is accepted within a reasonable time from date of opening bids, to enter into a contract in accordance with the price and/or prices stated herein.

The awarding of this bid by the Town of DeWitt to the successful bidder shall constitute a binding contract between the parties with the successful bidder agreeing to comply with all the provisions of the Bid Specification.

Statement of Non-Collusion - Sec. 103-d NYS General Municipal Law, as amended:

- A. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid, each party thereto certified as to its own organization, under penalty of perjury, that to the best of knowledge and belief:
 - (1) The prices in this bid have been arrived at independently without collusion, consultation, communication or agreement of the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
 - (2) Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and
 - (3) No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not submit a bid for the purpose of restricting competition.

The undersigned Bidder agrees to submit all conditions reported, intended, or implied, both particularly and generally by the Contract at the prices herein stated.

Unit price(s) or lump-sum bid shall not include any Sales Tax levied by the following governmental agencies:

- (1) New York State
- (2) Onondaga County
- (3) Any other town or governing agency

The following EEO MWBE, SDVB goals apply to the contracts of this project (See Section 004600):

Women Goal = 12% Minority Goal = 18% Service Disabled Veteran Business = 5 %

The total contract price shall be the sum of all material and installation costs for each bid item as defined herein.

TOTAL BASE BID

All Labor and Materials

(words)

_DOLLARS (\$____

(figures)

(The above amount shall be shown in typing or written in ink in both words and figures. In case of discrepancy, the amount shown in words will govern.)

ALTERNATE BIDS: (Refer to Specifications Section 012300)

The Bidder shall submit the following Alternate Bids in accordance with Contract Documents. Alternate bids, if accepted by the Owner, shall become a part of the Contract and shall comply with all of the applicable Contract Documents. The Bidder agrees to furnish all materials, labor, and all other costs for the Alternate(s) listed below:

<u>Alternate G-1 – MAINTENANCE BUILDING</u> ADDED for Labor and Materials

	DOLLARS	(\$)
(words)			(figures)	
<u>Alternate G-2 – FAMILY RESTROOM BUILDING</u> ADDED for Labor and Materials				
	DOLLARS	(\$)
(words)			(figures)	
<u>Alternate G-3 – EXISTING PAVILION RENOVATION</u> ADDED for Labor and Materials				
	DOLLARS	(\$)
(words)			(figures)	
(The above amount shall be shown in typing or written in ink discrepancy, the amount shown in words will govern.)	in both words an	nd figures	s. In case of	
UNIT PRICES: None				
RIGHT TO WAIVE OR REJECT				

In submitting this Bid, it is understood that the right is reserved by the Owner to accept or reject any or all bids.

WITHDRAWAL OF BIDS

It is agreed that this bid may not be withdrawn for a period of forty-five (45) calendar days after closing time of same.

PERFORMANCE-PAYMENT BOND

The Bidder agrees, if awarded the Contract, to execute and deliver performance and matching payment bonds in the form bound in the Specifications, both in the amount of the Contract; and to deliver insurance certificates and endorsements for insurance required by the Specifications, upon execution of the Contract. Award of the Contract shall be contingent upon review and acceptance of bonds and insurance by the Owner.

TIME

We agree to commence work when directed by the Owner to proceed, and to complete fully said work as specified in Section 011100 "Summary of Work".

BID SECURITY

ADDENDA NUMBERS AND DATES

Number 1 - dated	
Number 2 - dated	
Number 3 - dated	

Number 4 - dated

CONTRACTOR'S QUALIFICATIONS AND EXPERIENCE REQUIREMENTS:

The undersigned Bidder hereby assures he meets or exceeds the Contractor's Qualifications and Experience Requirements (004513) pertaining to the installation of the General Construction (GC) summary of work in accordance with the Contract Documents.

REQUIRED BID FORMS AND CERTIFICATIONS:

The following shall be required to be submitted with the Bid: (The list below is for convenience and may not be complete. It is the Bidder's responsibility to verify all required documents within these Specifications to accompany his Bid)

- 1. General Construction Bid Form (004113)
- 2. Bid Security
- 3. Contractor's Qualifications and Experience Requirements (004513)
- 4. Non-Collusive Bidding Certification (004551)
- 5. Compliance with Iran Divestment Act (004552)
- 6. Contractor's Certification (004560)

PROPOSAL SUBMITTE	ED
Dated:	
Name of Bidder:	
Federal ID No.	
Bv [.]	
	(Authorized Signature, Title)
	(Printed or Typed)
Address of Bidder:	
	(Street)
	(City, State, Zip Code)
Operating as a ** ** (Insert	organized and existing under the laws of the State of Corporation, Partnership or Individual, as applicable)
Telephone No.	Email

SECTION 004115 - ELECTRICAL BID FORM

Submitted By:

(ELECTRICAL CONTRACTOR)

TO: Town of DeWitt 5400 Butternut Drive East Syracuse, NY 13057-8509 FOR: Town of DeWitt Willis V. Carrier Park Recreation Center-Phase 3

The undersigned Bidder has carefully examined the form of the Contract, has examined the site of the work, and hereby proposes to furnish all necessary plant, labor, materials, equipment, and tools required to perform and complete the work in strict accordance with the Contract.

In compliance with the foregoing bid specifications and subject to all the conditions thereof, the undersigned offers and agrees, if this bid is accepted within a reasonable time from date of opening bids, to enter into a contract in accordance with the price and/or prices stated herein.

The awarding of this bid by the Town of DeWitt to the successful bidder shall constitute a binding contract between the parties with the successful bidder agreeing to comply with all the provisions of the Bid Specification.

Statement of Non-Collusion - Sec. 103-d NYS General Municipal Law, as amended:

- A. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid, each party thereto certified as to its own organization, under penalty of perjury, that to the best of knowledge and belief:
 - (1) The prices in this bid have been arrived at independently without collusion, consultation, communication or agreement of the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
 - (2) Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and
 - (3) No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not submit a bid for the purpose of restricting competition.

The undersigned Bidder agrees to submit all conditions reported, intended, or implied, both particularly and generally by the Contract at the prices herein stated.

Unit price(s) or lump-sum bid shall not include any Sales Tax levied by the following governmental agencies:

- (1) New York State
- (2) Onondaga County
- (3) Any other town or governing agency

The following EEO MWBE, SDVB goals apply to the contracts of this project (See Section 004600):

Women Goal = 12% Minority Goal = 18% Service Disabled Veteran Business = 5 %

ELECTRICAL BID FORM

The total contract price shall be the sum of all material and installation costs for each bid item as defined herein.

TOTAL BASE BID

All Labor and Materials

	DOLLARS	(\$)
(words)			(figures)	
(The above amount shall be shown in typing or written in ink discrepancy, the amount shown in words will govern.)	t in both words an	nd figures.	In case of	
<u>ALTERNATE BIDS</u> : (Refer to Specifications Section 01230 The Bidder shall submit the following Alternate Bids in acco bids, if accepted by the Owner, shall become a part of the Co applicable Contract Documents. The Bidder agrees to furnis the Alternate(s) listed below:	rdance with Cont ontract and shall c	comply wit	h all of the	
Alternate E-1 – MAINTENANCE BUILDING INTERIOR ADDED for Labor and Materials				
	DOLLARS	(\$)
(words)			(figures)	
Alternate E-2 – FAMILY RESTROOM BUILDING INTER ADDED for Labor and Materials	IOR			
	DOLLARS	(\$)
(words)			(figures)	
Alternate E-3 – EXISTING PAVILION RENOVATION ADDED for Labor and Materials				
	DOLLARS	(\$)
(words)			(figures)	
Alternate E-4 – ATHLETIC FIELDS SPORTS LIGHTING I ADDED for Labor and Materials	POLES, FOUND	<u>ATIONS,</u>	AND FIXTURES	
	DOLLARS	(\$)
(words)			(figures)	
<u>Alternate E-5 – LIVE STREAM CAMERAS</u> ADDED for Labor and Materials				
	DOLLARS	(\$)
(words)			(figures)	
(The above amount shall be shown in typing or written in ink	t in both words a	nd figures.	In case of	

(The above amount shall be shown in typing or written in ink in both words and figures. In case discrepancy, the amount shown in words will govern.)

UNIT PRICES: None

RIGHT TO WAIVE OR REJECT

In submitting this Bid, it is understood that the right is reserved by the Owner to accept or reject any or all bids.

WITHDRAWAL OF BIDS

It is agreed that this bid may not be withdrawn for a period of forty-five (45) calendar days after closing time of same.

PERFORMANCE-PAYMENT BOND

The Bidder agrees, if awarded the Contract, to execute and deliver performance and matching payment bonds in the form bound in the Specifications, both in the amount of the Contract; and to deliver insurance certificates and endorsements for insurance required by the Specifications, upon execution of the Contract. Award of the Contract shall be contingent upon review and acceptance of bonds and insurance by the Owner.

TIME

We agree to commence work when directed by the Owner to proceed, and to complete fully said work as specified in Section 011100 "Summary of Work".

BID SECURITY

ADDENDA NUMBERS AND DATES

Number 1 - dated

Number 2 - dated

Number 3 - dated _____

Number 4 - dated _____

CONTRACTOR'S QUALIFICATIONS AND EXPERIENCE REQUIREMENTS:

The undersigned Bidder hereby assures he meets or exceeds the Contractor's Qualifications and Experience Requirements (004513) pertaining to the installation of the Electrical Construction (EC) summary of work in accordance with the Contract Documents.

REQUIRED BID FORMS AND CERTIFICATIONS:

The following shall be required to be submitted with the Bid: (The list below is for convenience and may not be complete. It is the Bidder's responsibility to verify all required documents within these Specifications to accompany his Bid)

- 1. Electrical Bid Form (004115)
- 2. Bid Security
- 3. Contractor's Qualifications and Experience Requirements (004513)
- 4. Non-Collusive Bidding Certification (004551)
- 5. Compliance with Iran Divestment Act (004552)
- 6. Contractor's Certification (004560)

PROPOSAL SUBMIT	TED
Dated:	
Name of Bidder:	
Federal ID No.	
By:	
<i>.</i>	(Authorized Signature, Title)
	(Printed or Typed)
Address of Bidder:	
	(Street)
	(City, State, Zip Code)
Operating as a ** ** (Inse	organized and existing under the laws of the State of ert Corporation, Partnership or Individual, as applicable)
Telephone No	Email

SECTION 004117 - PLUMBING BID FORM

Submitted By: _____

(PLUMBING CONTRACTOR)

TO: Town of DeWitt 5400 Butternut Drive East Syracuse, NY 13057-8509

FOR: Town of DeWitt Willis V. Carrier Park Recreation Center-Phase 3

The undersigned Bidder has carefully examined the form of the Contract, has examined the site of the work, and hereby proposes to furnish all necessary plant, labor, materials, equipment, and tools required to perform and complete the work in strict accordance with the Contract.

In compliance with the foregoing bid specifications and subject to all the conditions thereof, the undersigned offers and agrees, if this bid is accepted within a reasonable time from date of opening bids, to enter into a contract in accordance with the price and/or prices stated herein.

The awarding of this bid by the Town of DeWitt to the successful bidder, shall constitute a binding contract between the parties with the successful bidder agreeing to comply with all the provisions of the Bid Specification.

Statement of Non-Collusion - Sec. 103-d NYS General Municipal Law, as amended:

- A. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid, each party thereto certified as to its own organization, under penalty of perjury, that to the best of knowledge and belief:
 - (1) The prices in this bid have been arrived at independently without collusion, consultation, communication or agreement of the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
 - (2) Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and
 - (3) No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not submit a bid for the purpose of restricting competition.

The undersigned Bidder agrees to submit all conditions reported, intended, or implied, both particularly and generally by the Contract at the prices herein stated.

Unit price(s) or lump-sum bid shall not include any Sales Tax levied by the following governmental agencies:

- (1) New York State
- (2) Onondaga County
- (3) Any other town or governing agency

The following EEO MWBE, SDVB goals apply to the contracts of this project (See Section 004600): Women Goal = 12% Minority Goal = 18% Service Disabled Veteran Business = 5 %

The total contract price shall be the sum of all material and installation costs for each bid item as defined herein.

TOTAL BASE BID

All Labor and Materials

(words)

DOLLARS (\$_

(figures)

(The above amount shall be shown in typing or written in ink in both words and figures. In case of discrepancy, the amount shown in words will govern.)

ALTERNATE BIDS: (Refer to Specifications Section 012300)

The Bidder shall submit the following Alternate Bids in accordance with Contract Documents. Alternate bids, if accepted by the Owner, shall become a part of the Contract and shall comply with all of the applicable Contract Documents. The Bidder agrees to furnish all materials, labor, and all other costs for the Alternate(s) listed below:

Alternate P-1 – MAINTENANCE BUILDING INTERIOR

ADDED for Labor and Materials

	DOLLARS	(\$)
(words)			(figures)	
Alternate P-2 – FAMILY RESTROOM BUILDING INTERI ADDED for Labor and Materials	<u>OR</u>			
	DOLLARS	(\$)
(words)		(+	(figures)	/
Alternate P-3 – EXISTING PAVILION RENOVATION ADDED for Labor and Materials				
	DOLLARS	(\$)
(words)		(·	(figures)	/
(The above amount shall be shown in typing or written in ink discrepancy, the amount shown in words will govern.)	in both words an	nd figures	. In case of	
UNIT PRICES: None				

RIGHT TO WAIVE OR REJECT

In submitting this Bid, it is understood that the right is reserved by the Owner to accept or reject any or all bids.

WITHDRAWAL OF BIDS

It is agreed that this bid may not be withdrawn for a period of forty-five (45) calendar days after closing time of same.

PERFORMANCE-PAYMENT BOND

The Bidder agrees, if awarded the Contract, to execute and deliver performance and matching payment bonds in the form bound in the Specifications, both in the amount of the Contract; and to deliver insurance certificates and endorsements for insurance required by the Specifications, upon execution of the Contract. Award of the Contract shall be contingent upon review and acceptance of bonds and insurance by the Owner.

TIME

We agree to commence work when directed by the Owner to proceed, and to complete fully said work as specified in Section 011100 "Summary of Work".

BID SECURITY

ADDENDA NUMBERS AND DATES

 Number 1 - dated

 Number 2 - dated

Number 3 - dated

Number 4 - dated

CONTRACTOR'S QUALIFICATIONS AND EXPERIENCE REQUIREMENTS:

The undersigned Bidder hereby assures he meets or exceeds the Contractor's Qualifications and Experience Requirements (004513) pertaining to the installation of the Plumbing Construction (PC) summary of work in accordance with the Contract Documents.

REQUIRED BID FORMS AND CERTIFICATIONS:

The following shall be required to be submitted with the Bid: (The list below is for convenience and may not be complete. It is the Bidder's responsibility to verify all required documents within these Specifications to accompany his Bid)

- 1. Plumbing Bid Form (004117)
- 2. Bid Security
- 3. Contractor's Qualifications and Experience Requirements (004513)
- 4. Non-Collusive Bidding Certification (004551)
- 5. Compliance with Iran Divestment Act (004552)
- 6. Contractor's Certification (004560)

PROPOSAL SUBMIT	TED
Dated:	
Name of Bidder:	
Federal ID No.	
Bv	
	(Authorized Signature, Title)
	(Printed or Typed)
Address of Bidder:	
	(Street)
	(City, State, Zip Code)
Operating as a ** ** (Inse	organized and existing under the laws of the State of ert Corporation, Partnership or Individual, as applicable)
Telephone No	Email

SECTION 004119 – SITE BID FORM

Submitted By:

(SITE CONTRACTOR)

TO: Town of DeWitt 5400 Butternut Drive East Syracuse, NY 13057-8509 FOR: Town of DeWitt Willis V. Carrier Park Recreation Center-Phase 3

The undersigned Bidder has carefully examined the form of the Contract, has examined the site of the work, and hereby proposes to furnish all necessary plant, labor, materials, equipment, and tools required to perform and complete the work in strict accordance with the Contract.

In compliance with the foregoing bid specifications and subject to all the conditions thereof, the undersigned offers and agrees, if this bid is accepted within a reasonable time from date of opening bids, to enter into a contract in accordance with the price and/or prices stated herein.

The awarding of this bid by the Town of DeWitt to the successful bidder, shall constitute a binding contract between the parties with the successful bidder agreeing to comply with all the provisions of the Bid Specification.

Statement of Non-Collusion - Sec. 103-d NYS General Municipal Law, as amended:

- A. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid, each party thereto certified as to its own organization, under penalty of perjury, that to the best of knowledge and belief:
 - (1) The prices in this bid have been arrived at independently without collusion, consultation, communication or agreement of the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
 - (2) Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and
 - (3) No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not submit a bid for the purpose of restricting competition.

The undersigned Bidder agrees to submit all conditions reported, intended, or implied, both particularly and generally by the Contract at the prices herein stated.

Unit price(s) or lump-sum bid shall not include any Sales Tax levied by the following governmental agencies:

- (1) New York State
- (2) Onondaga County
- (3) Any other town or governing agency

The following EEO MWBE, SDVB goals apply to the contracts of this project (See Section 004600): Women Goal = 12% Minority Goal = 18% Service Disabled Veteran Business = 5 %

The total contract price shall be the sum of all material and installation costs for each bid item as defined herein.

TOTAL BASE BID

All Labor and Materials

	_DOLLARS (\$)
(words)	(figures)

DOLLARS (\$

(The above amount shall be shown in typing or written in ink in both words and figures. In case of discrepancy, the amount shown in words will govern.)

ALTERNATE BIDS: (Refer to Specifications Section 012300)

The Bidder shall submit the following Alternate Bids in accordance with Contract Documents. Alternate bids, if accepted by the Owner, shall become a part of the Contract and shall comply with all of the applicable Contract Documents. The Bidder agrees to furnish all materials, labor, and all other costs for the Alternate(s) listed below:

<u>Alternate S-1 – PORTABLE OUTFIELD FENCING</u> ADDED for Labor and Materials

ADDED for Labor and Materials

(words)		(+	(figures))
<u>Alternate S-2 – PORTABLE BLEACHER(S)</u> ADDED for Labor and Materials				
(words)	DOLLARS (figures)	(\$	(figures))
Alternate S-3 –NON-ELEVATED ANGLE FRAME BLE ADDED for Labor and Materials	<u>ACHER(S)</u>			
(words)	DOLLARS	(\$	(figures))
Alternate S-4 – ELEVATED ANGLE FRAME BLEACHE ADDED for Labor and Materials	ER(S)			
(words)	DOLLARS	(\$	(figures))

)

Alternate S-5 –SCOREBOARD(S) ADDED for Labor and Materials

(words)	DOLLARS	(\$	(figures)
Alternate S-6 – SYNTHETIC TURF ADDED for Labor and Materials			
	DOLLARS	(\$,
(words)		(+	(figures)
Alternate S-7 – BATTING CAGES ADDED for Labor and Materials			
(words)	DOLLARS	(\$	(figures)
(words)			(figures)

(The above amount shall be shown in typing or written in ink in both words and figures. In case of discrepancy, the amount shown in words will govern.)

UNIT PRICES: (Refer to Specifications Section 012200)

The Bidder shall set forth the cost of all unit prices listed below. Should the work listed below be increased or decreased from the amounts shown on the Contract Drawings and/or Specifications, upon written notice from the Architect, the undersigned Bidder agrees that the prices quoted below (including all insurance, applicable taxes, equipment, overhead and profit) shall be the basis of his compensation or deduction, as the case may be, for such increase or decrease in his work. All work added shall be at the quoted unit prices and work deleted shall be at the quoted unit prices less ten percent (10%). Changes shall be processed in accordance with Contract Documents.

ITEM	UNIT OF QUANTITY	TOTAL
A. L-1: 4" Storm Water Management Trenc	h Per installed linear foot	\$
B. L-2: 12" Storm Pipe	Per installed linear foot	\$
C. L-3: Undercutting	Per installed cubic yard	\$
D. L-4: Seeded Lawn	Per installed square yard	\$
E. L-5: Sodded Lawn	Per installed square yard	\$
F. L-6: Soil Stabilization Fabric	Per installed square yard	\$
G. L-7: Rock Excavation (s)	Per removed cubic yard	\$

RIGHT TO WAIVE OR REJECT

In submitting this Bid, it is understood that the right is reserved by the Owner to accept or reject any or all bids.

WITHDRAWAL OF BIDS

It is agreed that this bid may not be withdrawn for a period of forty-five (45) calendar days after closing time of same.

PERFORMANCE-PAYMENT BOND

The Bidder agrees, if awarded the Contract, to execute and deliver performance and matching payment bonds in the form bound in the Specifications, both in the amount of the Contract; and to deliver insurance certificates and endorsements for insurance required by the Specifications, upon execution of the Contract. Award of the Contract shall be contingent upon review and acceptance of bonds and insurance by the Owner.

TIME

We agree to commence work when directed by the Owner to proceed, and to con	plete fully said work as
specified in Section 011100 "Summary of Work".	

BID SECURITY

ADDENDA NUMBERS AND DATES

Number 1 - dated _____

Number 2 - dated

Number 3 - dated

Number 4 - dated

CONTRACTOR'S QUALIFICATIONS AND EXPERIENCE REQUIREMENTS:

The undersigned Bidder hereby assures he meets or exceeds the Contractor's Qualifications and Experience Requirements (004513) pertaining to the installation of the Site Construction (SC) summary of work in accordance with the Contract Documents.

REQUIRED BID FORMS AND CERTIFICATIONS:

The following shall be required to be submitted with the Bid: (The list below is for convenience and may not be complete. It is the Bidder's responsibility to verify all required documents within these Specifications to accompany his Bid)

- 1. Site Construction Bid Form (004119)
- 2. Bid Security
- 3. Contractor's Qualifications and Experience Requirements (004513)
- 4. Non-Collusive Bidding Certification (004551)
- 5. Compliance with Iran Divestment Act (004552)
- 6. Contractor's Certification (004560)

PROPOSAL SUBMIT	TED
Dated:	
Name of Bidder:	
Federal ID No.	
Bv	
	(Authorized Signature, Title)
	(Printed or Typed)
Address of Bidder:	
	(Street)
	(City, State, Zip Code)
Operating as a ** ** (Inse	organized and existing under the laws of the State of ert Corporation, Partnership or Individual, as applicable)
Telephone No	Email

SECTION 004513 - CONTRACTOR'S QUALIFICATIONS AND EXPERIENCE REQUIREMENTS

ONONDAGA COUNTY, NEW YORK

Bid Documentation

Bidders shall provide with their bid, documentation demonstrating compliance with the following requirements. Documentation shall include the following:

Check Contract Submitting Under:

[] General Construction (GC)

[] Electrical Construction (EC)

[] Plumbing Construction (PC)

[] Site Construction (SC)

The PRIME CONTRACTOR performing the aforementioned work shall meet the following experience requirements:

- 1. For (GC), (EC), and (PC) Contracts: Shall have successfully completed the construction of three (3) or more installations which required similar construction techniques, and that have been in use successfully for two (2) or more years.
- 2. For (SC) Contract: Shall have successfully completed the construction of three (3) or more multipurpose synthetic turf fields and softball fields with synthetic turf infield installations of equal complexity which required similar construction techniques, and that have been in use successfully for two (2) or more years.

Project information for similar projects completed by the CONTRACTOR and his subcontractor(s):

1. Project:

Project Location	n:	
Project Size (C	onstruction Value):	
Date Complete	d:	
Owner:		
	:	
Telephone: ()	
Design Consul	ant (Name, Email, & Phone #): (()

2.	Project	
		Project Location:
		Project Size (Construction Value):
		Date Completed:
		Owner:
		Contact Person:
		Telephone: ()
		Design Consultant (Name, Email, & Phone #): ()
3.	Project	
		Project Location:
		Project Size (Construction Value):
		Date Completed:
		Owner:
		Contact Person:
		Telephone: ()
		Design Consultant (Name, Email, & Phone #): ()

4. Resume' of the project superintendent that will be assigned to the Town of Dewitt – Willis Carrier Park Recreation Center Phase 3 Project, including the following project information of past projects for which this individual has performed in the role of project superintendent during a (3) three-year period with the same bidding Contractor:

> Project Names and Locations Project Sizes (construction value) and Dates Completed Owner Contacts and Design Consultants (names and phone no.)

SECTION 004551 - NON-COLLUSIVE BIDDING CERTIFICATION

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:

- 1) The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
- 2) Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and
- 3) No attempt has been made or will be made by the bidder to induce any other person, partnership, or corporation to submit or not to submit a bid for the purpose of restricting competition.

NAME OF FIRM

M______ Individual or Legal Name of Firm or Corporation

CITY/STATE/ZIP CODE:_____

BY:

Signature of Representative of Firm or Corporation (blue or other non-black ink)

DATED:_____

SECTION 004552 - COMPLIANCE WITH NEW YORK STATE IRAN DIVESTMENT ACT OF 2012

As a result of the Iran Divestment Act of 2012 (the "Act"), Chapter 1 of the 2012 (the "Act"), Chapter 1 of the 2012 Laws of New York, a new provision has been added to State Finance Law (SFL) § 103-g, both effective April 12, 2012. Under the Act, the Commissioner of the Office of General Services (OGS) will be developing a list of "persons" who are engaged in "investment activities in Iran" (both are defined terms in the law) "the ("Prohibited Entities List"). Pursuant to SFL § 165-a(3)(b), the initial list is expected to be issued no later than 120 days after the Act's effective date at which time it will be posted on the OGS website.

By submitting a bid in response to this solicitation or by assuming the responsibility of a Contract awarded hereunder, each Bidder/Contractor, any person signing on behalf of any Bidder/Contractor and any assignee or subcontractor and, in the case of a joint bid, each party thereto, certifies under penalty of perjury, that once the Prohibited Entities List is posted on the OGS website, that to the best of its knowledge and belief, that each Bidder/Contractor and any subcontractor or assignee is not identified on the Prohibited Entities List created pursuant to SFL § 165-a(3)(b).

Additionally, Bidder/Contractor is advised that once the Prohibited Entities List is posted on the OGS Website, any Bidder/Contractor seeking to renew or extend a Contract or assume the responsibility of a Contract awarded in response to this solicitation must certify at the time the Contract is renewed, extended or assigned that it is not included on the Prohibited Entities List.

During the term of the Contract, should the Town receive information that a Bidder/ Contractor is in violation of the above-referenced certification, the Town will offer the person or entity an opportunity to respond. If the person or entity fails to demonstrate that he/she has ceased engagement in the investment which is in violation of the Act within 90 days after the determination of such violation, then the Town shall take such action as may be appropriate including, but not limited to, imposing sanctions, seeking compliance, recovering damages or declaring the Bidder/Contractor in default. The Town reserves the right to reject any bid or request for assignment for a Bidder/Contractor that appears on the Prohibited Entities List prior to the award of a contract and to pursue a responsibility review with respect to any Bidder/Contractorthat is awarded a contract and subsequently appears on the Prohibited Entities List.

Let being duly sworn, deposes and says that he/she is

of th

of the _____ Corporation and that neither the

Bidder / Contractor nor any proposed subcontractor is identified on the Prohibited Entities List.

SWORN to before me this

(Signature)

_____day of _____

Notary Public:_____

SECTION 004560 - CONTRACTOR'S CERTIFICATION

The undersigned certifies, to the best of his/her knowledge and belief, that the CONTRACTOR and its principals:

- 1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded by any federal, state or local department or agency;
- 2. Have not within a three-year period preceding this transaction/application/proposal/contract/ agreement been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offices in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statues o commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property.
- 3. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 2 of this certification; and
- 4. Have not within a three-year period preceding this transaction/application/proposal/contract/ agreement had one or more public transactions (Federal, State or local) terminated for cause or default.

Date:

(Print Name of Contractor)

By:

(Signature)

(Print Name)

(Print Title/Office)

SECTION 004600 - SPECIAL CONDITIONS TO THE CONTRACT (MWBE/SDVB PLAN)

1.0 PART 1 - GENERAL

1.1 EQUAL OPPORTUNITY (LABOR LAW SECTION 220-3)

- A. The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor shall take affirmative action to insure that applicants are employed and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training including apprenticeship. The Contractor agrees to post, in conspicuous places available to employees and applicants for employment, notices to be provided setting forth the provisions of the non-discrimination clause.
- B. The Contractor shall, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.
- C. The Contractor shall send to each labor union or representative of workers with which he has a collective bargaining agreement or other Contract or understanding a notice to be provided advising the said labor union or worker's representatives of the Contractor's commitments under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- D. The Contractor shall comply with Executive Order 11246, Federal Equal Employment Opportunity, unless exempt, in accordance with Section 203 of this order.

1.2 SALES TAX EXEMPTION

- A. The Owner is exempt from the payment of Sales and Compensating Use Taxes of the State of New York and of cities and counties on all materials and supplies sold to the Owner pursuant to the provisions of this Contract. These taxes are not included in bids. This exemption does not, however, apply to tools, machinery, equipment, or other property leased by or to the Contractor or a Subcontractor, to materials and supplies of a kind which will not be incorporated into the completed project, and the Contractor and his Subcontractors shall be responsible for and pay any and all applicable taxes including Sales and Compensating Use Taxes on such leased tools, machinery, equipment, or property or on such incorporated materials and supplies, and provisions set forth below will not be applicable to such tools, machinery, equipment, property, and unincorporated materials and supplies.
- B. The Contractor agrees to sell, free of encumbrances, and the Owner agrees to purchase all of the materials and supplies (except as above set forth) required, necessary or proper for or incidental to the construction of the Project covered by this agreement. Title to all materials and supplies to be sold by the Contractor to the Owner, pursuant to provisions of the contract, shall immediately vest in and become the sole property of the Owner upon delivery of such materials and supplies to the Project site. The Contractor shall mark or otherwise identify all

such materials and supplies as the property of the Owner. The Contractor, at the request of the Owner, shall furnish to the Owner such confirmatory bills of sale and other instruments as may be required by it, properly executed, acknowledged and delivered, confirming to the Owner, title to such materials and supplies free of encumbrances.

- C. In the event that after title has passed to the Owner any such materials and supplies are rejected as being defective or otherwise unsatisfactory, title to such materials and supplies shall upon rejection revest in the Contractor.
- D. The sum paid under this Agreement shall be deemed to be in full consideration for the performance by the Contractor of all his duties and obligations under this Agreement in connection with said sale.
- E. The Contractor agrees to construct the Project and to furnish and perform all work and labor required, necessary or proper for or incidental thereto, except that the materials and supplies sold to the Owner under the preceding paragraph shall be furnished by the Owner to the Contractor for use in performance of said work and labor, and sum paid pursuant to this Agreement shall be deemed to be in full consideration for the performances by the Contractor of all his duties and obligations under this Agreement in connection with said work and labor.
- F. The purchase by the Contractor of the materials and supplies sold hereunder will be a purchase or procurement for resale to the Owner (an organization described in Subdivision (A) of Section 1116 of Tax Law of the State of New York) and therefore not subject to the New York State Sales or Compensating Use or any such taxes of cities or counties. The sale of such materials and supplies by the Contractor to the Owner will not be subject to the aforesaid Sales and Compensating Use Taxes.
- G. The purchase by Subcontractors of materials and supplies to be sold hereunder will also be a purchase or procurement for resale to the Contractor (either directly or through other Subcontractors), and ultimately to the Owner, and therefore not subject to the aforesaid Sales and Compensating Use Taxes, provided that the Subcontract Agreements provide for the resale of such materials and supplies prior to and separate and apart from the incorporation of such materials and supplies into the permanent construction and that such Subcontract Agreements are in a form similar to this Contract with respect to separation of the sale of materials and supplies from the work and labor to be provided.

- H. If as a result of such sale of materials and supplies (1) any claim is made against the Contractor or any Subcontractor by the State of New York or any city or county for Sales and Compensating Use Taxes on the aforementioned materials and supplies or (2) any claim is made against the Contractor or any Subcontractor by a material man or a Subcontractor on account of a claim against such material man or Subcontractor by the State of New York or any city or county for Sales or Compensating Use Taxes on the above mentioned materials and supplies, then, if the Contractor and Subcontractor have complied with the provisions of this Contract relating thereto, the Owner will reimburse the contractor or any Subcontractor, as the case may be, for an amount equal to the amount of such tax required to be paid in accordance with the requirements of law, provided that:
 - The Subcontract Agreements in connection with this Contract, provide for the resale of such materials and supplies, prior to and separate and apart from the incorporation of such materials and supplies into the permanent construction. Such Subcontract Agreements are in a form similar to this Contract with respect to the separation of the sale of materials and supplies from the other work and labor to be provided and Such separation is actually followed in practice, including the separation of payments for materials and supplies from the payments for other work and labor, and
 - 2. The Contractor and his Subcontractors and materialmen complete New York State Tax Form ST120.1 (Contractor Exempt Purchase Certificate), and furnish such certificate to all persons, firms, or corporations from which they purchase materials and supplies for the performance of the work covered by this Contract, and
 - 3. Contractor and all Subcontractors maintain and keep, for a period of six (6) years after the date of final payment for the sale, or, if a claim for Sales or Compensating Use Tax is pending or threatened at the end of such six (6) year period, until such claim is finally settled, records, which in the judgment of the Department of Taxation and Finance, adequately show (1) all materials and supplies purchased by them for resale, pursuant to the provisions of this Contract and (2) all materials and supplies sold to the Owner pursuant to this Contract, and
 - 4. The Owner is afforded the opportunity, before any payment of tax is made, to contest said claim in the manner and to the extent that the Owner may choose and to settle or satisfy said claims, and such attorney as the Owner may designate is authorized to act for the purpose of contesting, settling and satisfying said claim, and
 - 5. Contractor and Subcontractor give immediate notice to the Owner of any such claim, cooperate with the Owner and its designated attorney in contesting said claim and furnish promptly to the Owner and said attorney all information and documents necessary or convenient for contesting such claim, said information and documents to be preserved for six (6) years after date of final payment for sale, or if such a claim is pending or threatened at the end of such six (6) years, until such claim is finally settled. If the Owner elects to contest any such claim, it will bear the expense of such contest.

I. Nothing in this Article is intended or shall be construed as relieving the Contractor from his obligations under this Agreement and the Contractor shall have the full continuing responsibility to install the materials and supplies purchased in accordance with the provisions of this Contract, to protect the same, to maintain them in proper condition and to forthwith repair, replace and make good any damage thereto without cost to the Owner until such time as the work covered by the Contract is fully accepted by the Owner.

1.3 <u>MWBE / SDVB PLAN</u>

A. Statement of Policy and Assurance of Equal Opportunity

It is the policy of the Town of DeWitt that minority-owned business enterprises (MBEs), and women-owned business enterprises (WBEs), Service Disabled Veterans Business (SDVB), as defined in paragraph B, below, may not be discriminated against based on race, color, national origin or sex: (i) in the process leading to the identification of potential subcontractors; (ii) in the negotiation of terms and conditions to be included in subcontracts; and (iii) in the standards for measuring performance by subcontractors.

The contractor agrees to take the steps set forth below to assure implementation of and compliance with this policy.

- B. <u>Definitions</u>
 - <u>Minority-owned business enterprise (MBE)</u> shall mean a business that is periodically certified by the City of Syracuse Division of Contract Compliance and Minority Affairs as satisfying the following criteria: (i) at least fifty-one percent (51%) of the business is owned and controlled by minority group members who are United States citizens or permanent resident aliens, or in the case of a publicly owned business, at least fifty-one percent (51%) of the stock of the business is owned by minority group members who are United States citizens or permanent resident aliens; (ii) the management and daily operations of the business are controlled by one or more of the minority group members who own it; and (iii) the business has its principal operations, or has permanently staffed offices, located within Onondaga County.

Minority Group Members shall mean the following:

- 1) Black persons, meaning persons having origin in any of the Black African racial groups.
- 2) Hispanic Americans, meaning persons of Mexican, Puerto Rican, Cuban, Central or South American origin regardless of race.
- 3) Asian Americans, meaning persons having origin in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands.
- 4) American Indians, meaning persons having origin in any of the original

peoples of North America and who are recognized as American Indian by either a tribe, tribal organization, or a suitable authority in the community.

2.) Women-owned business enterprise (WBE) shall mean a business that is periodically certified by the City of Syracuse Division of Contract Compliance and Minority Affairs as satisfying the following criteria: (i) at least fifty-one percent (51%) of the business is owned and controlled by women who are United States citizens or permanent resident aliens, or in the case of a publicly owned business, at least fifty-one percent (51%) of the stock of the business is owned by women who are United States citizens or permanent resident aliens; (ii) the management and daily operations of the business are controlled by one or more of the women who own it; and (iii) the business has its principal operations, or has permanently staffed offices, located within Onondaga County.

Service Disability Veteran Business Compliance Guidelines (SDVB):

Service Disability Veterans Business Meaning (SDVB) shall mean: "Service-disabled veteran" shall mean (a) in the case of the United States army, navy, air force, marines, coast guard, army national guard or air national guard and/or reserves thereof, a veteran who received a compensation rating of ten percent or greater from the United States department of veterans affairs or from the United States department of defense because of a service-connected disability incurred in the line of duty, and (b) in the case of the New York guard or the New York naval militia and/or reserves thereof, a veteran who certifies, pursuant to the rules and regulations promulgated by the director, to having incurred an injury equivalent to a compensation rating of ten percent or greater from the United States department of veterans affairs or from the United States department of defense because of a service-connected disability incurred in the line of duty.

- The Service Disabled Veteran Business (SDVB) must have a serviceconnected disability as determined by the VA or Department of Defense (DoD)
- 2. The Service Disabled Veteran Business (SDVB) must be small business as defined by Small Business Administration (SBA)
- 3. One or more Service Disabled Veterans must unconditionally own 51% of the business, controlits management including long-term decision making and daily operations, and hold the highest officer position

Service Disability Veteran Business (SDVB) Threshold and

Compliance Guidelines: SDVB Compliance:

(1) In the event MWBE participation is not available for contracts awarded in excess of \$50,000-\$500,000.00 or when the Project awarded has 6 or more scopes of work available. At no time can the SDVB be utilized to exclude the MWBE requirements.

(2) When a contract is awarded in the amount of \$500,000.00 or greater, the SDVB will be a 3rd Category of contract inclusion requiring a Good Faith Effort along with the MBE and WBE categories. At no time can the SDVB be utilized to exclude the MWBE requirements.

3. <u>Subcontract</u> shall mean a contract between a contractor and any other business unrelated to the contractor, through which the other business (<u>i.e.</u>, the <u>subcontractor</u>) provides a distinct element of the work, services, goods, supplies, equipment or materials contemplated by, and required for the completion of, the public construction contract.

4. <u>Public Construction Contract or Prime Contract</u> shall mean: (a) any contract in the amount of at least \$50,000, awarded by the Town for the construction, rehabilitation, alteration, conversion, extension, repair or demolition of Town buildings, streets or other improvements to its real property whereby the Town is committed to expend or does expend its funds in return for such construction, rehabilitation, alteration, conversion, extension, repair or demolition; or (b) any contract or loan, in the amount of at least \$50,000, for the rehabilitation or construction of buildings administered by the Town of DeWitt; provided, however, that the term shall not include any contract under which federal or state authorities expressly prohibit the Town from imposing the requirements set forth herein.

C. Directory of MBEs and WBEs

The Syracuse Division of Contract Compliance and Minority Affairs compiles and keeps current a directory of certified MBEs and WBEs. Interested persons may obtain a copy by writing or calling The Division of Contract Compliance and Minority Affairs at: Department of Neighborhood and Business Development, City Hall Commons, Room 600, 201 East Washington Street, Syracuse, New York 13202, or (315) 448-8100, respectively. The directory does not purport to record all companies eligible for certification. Bidders and contractors are urged to compile their own lists of City of Syracuse MBEs and WBEs and to take steps to promote certification of such companies as MBEs and WBEs by the Division of Contract Compliance and Minority Affairs.

D. <u>MWBE/SDVB Utilization Plan.</u>

Within ten (10) days of being notified that it was the successful bidder, an officer of the contractor executed an MBE and WBE Utilization Plan. A copy of this plan is annexed hereto and made a part of this contract.

E. MWBE/SDVB Goals.

The Goals established for this contract expressed as a percentage of the total contract price. These goals represent the Town's best estimate of the level of MBE and WBE participation in the contract that will likely occur if MBEs and WBEs are given an equal opportunity to compete for subcontracts available under this contract.

F. MWBE/ SDVB/ Good Faith Efforts

The contractor agrees to satisfy these goals or document that it was unable to do so despite positive efforts. A Sincere Good Faith Efforts shall include documented proof all of the following:

(1) The identification and solicitation of City of Syracuse (Town of DeWitt) Certified MWBE's and Certified SDVB that may be able to participate on specific subcontracts. The City Syracuse (Town of DeWitt) MWBE Certification directory can be requested or found online at <u>http://www.syrgov.net/supplier_diversity.aspx</u>

a) sending appropriate representatives to pre-bid and pre-award meetings conducted by representatives of the Division of Contract Compliance and Minority Affairs, to inform prime contractors and subcontractors of MBE and WBE requirements and subcontracting opportunities; and/or

b) placing advertisements in general circulation, trade association, and minority/female focus media located within reasonable proximity to the construction project, that solicit bids for identified subcontracting opportunities; and/or

c) contacting MWBE/SDVB's organization, contractors' groups and local, state and federal minority and women business assistance offices and other organizations that provide assistance to and promote opportunities for MBEs and WBEs; and/or

d) any other methods that in fact result in the identification of MBEs and WBEs qualified to bid on subcontracting opportunities.

- (2) Where technically feasible, and consistent with the efficient performance of the prime contract, dividing the prime contract into segments that create subcontracting opportunities for qualified and available MWBEs/SDVB.
- (3) Notifying a reasonable number of specific MWBEs/SDVB in writing, that their interest in specified subcontracts is being solicited in sufficient time to allow them to participate effectively; such notice must include complete and accurate information about the plans, specifications, change orders and other requirements of a given subcontract, and must state the date bids and a response to the notice are due.
- (4) Following-up initial solicitations of interest by contacting MWBEs/SDVB to determine with certainty whether they are interested and whether they need additional information to make a bid.
- (5) Negotiating with, and considering and awarding subcontracts to interested MWBEs/SDVB in the same manner and subject to the same procedures, standards and requirements the contractor follows with companies that are not MWBEs/SDVB (e.g., it may not negotiate more demanding contract terms with MWBEs/SDVB; or, in evaluating the merits of a bid by an MWBEs/SDVB a commercially insignificant difference in price shall not be a basis for rejecting the bid).
- (6) After awarding a subcontract to an MWBEs/SDVB, imposing requirements and performance standards no more stringent than those imposed on companies that are not MBEs or WBEs.

(7) Such additional measures that assure non-discriminatory treatment of MWBEs/SDVB.

G. EEO Good Faith Effort.

The contractor agrees to satisfy these goals or document that it was unable to do so despite positive efforts. A Sincere Good Faith Efforts shall include documented proof of the following:

A) placed advertisements in general circulation, trade association, and minority/female focus media located within reasonable proximity to the construction project, that solicit bids for identified subcontracting opportunities; and/or

B) List of organization of workforce organization contacted and a copy of their response by letter or email, such as trade unions, Syracuse Build, EOC

C) Any other methods that in fact result in the identification and response of a Women or Minority worker(s) interested in performing trade work on the project

H. Reporting and Record Keeping.

The contractor will file monthly reports with the Town of DeWitt documenting that it will satisfy the MWBEs/SDVB goals or that it is unable to do so despite positive efforts. More specifically, the contractor shall on the 15th day of each month following the signing of this contract provide the following documents and information:

- A copy of each written subcontract for work or services -- including a copy of each agreement or order for goods, supplies, equipment or materials executed during the previous month;
- (2) The name of each company that was awarded a subcontract; whether the company is an MWBEs/SDVB; the date the subcontract was awarded; the dollar amount of the subcontract; the trade or specialty involved; the date work or services under the subcontract will (or has) commence(d) and will be (or has been) completed or the date the goods, supplies, equipment or materials will be or have been provided;

If the successful company is an MWBEs/SDVB not listed in the Utilization Plan, the race or ethnicity and sex of the individual(s) who own and manage the company (e.g., Black, Hispanic American, Asian- American, American Indian, Woman);

(3) In the event a contractor has not awarded a subcontract to an MWBEs/SDVB that was specifically identified in the contractor's Utilization Plan as likely to receive the subcontract, the reasons the subcontract was not awarded as originally contemplated by the Utilization Plan;

- (4) In the event a company was found by the contractor to be unqualified or unable to perform a subcontract after the subcontract had been awarded to that company, the name of each such company; the reason the company was found unqualified to perform the subcontract; whether the company is an MWBEs/SDVB and, if either an MWBEs/SDVB, the race or ethnicity and sex of the individuals who own and manage the company;
- (5) The percentage of each subcontract completed; the amount paid to each subcontractor and the balance due each subcontractor under each subcontract;
- (6) All revisions to the Utilization Plan, in the form and with all information required for the initial Utilization Plan;
- (7) If the Utilization Plan, as originally tendered or as revised, reveals that the contract goals will not be satisfied, then a detailed statement and documentary proof of the positive efforts that the contractor has made and will make to satisfy the goals. Included in the report shall be a listing of MWBEs/SDVB, if any, that were considered for each subcontracting opportunity, the race or ethnicity of the individuals who own and manage each of those companies, the name and title of the person at each of those companies with whom the contractor dealt or negotiated, and the reason(s) such companies were denied the subcontracting opportunity.

I. Retention of Records.

The contractor shall retain and make available to the Town of DeWitt upon request, for a period of three years subsequent to the completion of the contract all records relied upon for the compilation of each report. Appropriate legal action will be taken against a contractor that willfully makes false statements or that provides incorrect information.

J. Determination of Compliance or Non-Compliance.

Upon request of the Town of DeWitt shall determine whether the contractor has failed to comply with any requirement of the Equal Opportunity Provisions of this contract.

The Town of DeWitt shall give notice to the contractor of a proposed finding of noncompliance. The contractor shall be afforded a hearing, upon ten (10) days notice, to show cause why a finding of non-compliance by the Town of DeWitt should not be entered.

K. Effect of Determination of Non-Compliance.

A determination of non-compliance by the Town of DeWitt shall constitute a finding by the Town that the contractor breached the contract. The Town of DeWitt may impose appropriate remedies for non-compliance such as:

(1) directing that part or all of the payments to the contractor be withheld until non-compliance is cured;

- (2) directing that the contract be terminated;
- (3) directing that the contractor be barred from bidding on future contracting opportunities with the Town;
- (4) imposing a requirement that the contractor, in future bidding for Town contracts, guarantee that it will meet a specific MBE or WBE goal;
- (5) if it is determined that a particular MBE or WBE subcontractor has been victimized by discrimination, directing that a specific subcontract be awarded to that subcontractor;
- (6) any other remedy that the Town of DeWitt finds appropriate given the facts and circumstances of the particular case.

L. <u>MWBE/SDVB and Workforce Compliance Forms</u>

The following three pages are minority compliance Forms A, B, and C. These forms are required to be submitted by the Contractor as follows:

FORM A – Due 10 days after notice of award

FORM B – Due with final payment at completion of work

FORM C – Due with each monthly payment

- 2.0 <u>PART 2 PRODUCTS</u> (Not Applicable)
- 3.0 <u>PART 3 EXECUTION</u> (Not Applicable)

END OF SECTION 004600

Town of DeWitt Initial Minority & Women Business Participation Plan - (Form A)

Contract #:	Total Contract Amount:
MBE Dollar Goal:	WBE Dollar Goal:
	General / Prime Contractor Information
Name of General/Prime Co	ntractor:
Telephone:	
List holowy the normal of a	11 monaged Minerity/Warren Dysiness Entermises (contractors
	Ill proposed Minority/Women Business Enterprises (contractors,
	rvices they will provide, the approximate amount of money they
will receive, the date the p	roject will start and its estimated completion date.
Name:	Telephone#.
Address:	
Amount:	
Starting Date:	
Name:	Telephone #:
Address:	
Amount:	Type of work, service or supplies.
Starting Date:	
Nomo	Talambana#
Name:Address:	Telephone#:
Amount:	Type of work, service or supplies:
Starting Date:	
Total Amounts Listed in Pla	n:
I handhy contify that the dollar of	mount expended on the listed M/WBE's are at least% of the total
	hount expended on the fisted w/wBE safe at least% of the total hed project, and that the foregoing, and attached information is true, accurate,
and completed to the best of my	
	ed by the Town of DeWitt before contract will be executed.
1 11	
Print Name:	Title:
Signature:	Date:
(authorized sign	ature of General Contractor or Designee)
Notary Stamp & Signature	
	For Official Use Only

Town of DeWitt Final Minority & Women Business Utilization Report - (Form B)

Contract #:	Total Contract Amount:
Project Name:	
	en Business Participation:% §
General/Prin	me Contractor Information
Name of General/Prime Contractor: _	Tax ID #
Address:	
Telephone:	_
I hereby certify that the above listed am knowledge.	ount is correct and accurate to the best of my
Print Name:	Title:
Signature: General / Prime Contractor	Date:
Minority/Women	Business Enterprise Information
	Tax ID #
Name of M/WBE:	
Address:	
Telephone:	
Please state total amount received by the	MWBE on the above named project: \$
I hereby certify that the above listed am knowledge.	nount is correct and accurate to the best of my
Print Name:	Title:
Signature:	Date:

Notary Stamp & Signature:

Town of DeWitt Monthly Report - (Form C)

CONTRACTOR'S MINORITY AND WOMEN'S BUSINESS (MWBE) MONTHLY REPORT

YEAR_	
NTH	
MONT	

CONTRACTOR

CONTRACT #

CONTRACT AMOUNT MBE: Goal / Amount

AMOUNT PAID TO CONTRACTOR THIS MONTH \$ WBE: Goal / Amount

W. Thi	Work Status This Report Total Su	Total Sub. Contact Amt \$	Payments This Month	is Month	Previous Payments	ıyments	Total Payments Made to Date	ments Date
	MBE	WBE	MBE	WBE	MBE	WBE	MBE	WBE
- Active								
Complete								
Active Inactive								
Complete								
Active								
Inactive Complete								
- Active								
Inactive Complete								
Active Inactive								
Complete								
 Active Inactive 								
Complete								
Active								
Complete								
							r.	

Signature

Date

AIA Document A201° – 2017

General Conditions of the Contract for Construction

for the following PROJECT:

(Name and location or address)

Town of Dewitt Willis V. Carrier Park Recreation Center - Phase 3 1035 Kinne Street East Syracuse, NY 13057

THE OWNER: (Name, legal status and address)

Town of Dewitt 5400 Butternut Drive East Syracuse, NY 13057-8509

THE ARCHITECT: (Name, legal status and address)

Appel Osborne Landscape Architecture 102 W. Division St., Suite 100 Syracuse, NY 13204 Telephone # 315-476-1022

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ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An Additions and Deletions Report that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503[™], Guide for Supplementary Conditions.

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- 12 UNCOVERING AND CORRECTION OF WORK
- 13 **MISCELLANEOUS PROVISIONS**
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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions). Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

§ 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

§ 1.1.5 The Drawings

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

§ 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

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§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon written protocols governing the transmission and use of, and reliance on, Instruments of Service or any other information or documentation in digital form.

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to written protocols governing the use of, and reliance on, the information contained in the model shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

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ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

(Paragraphs deleted)

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

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ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects

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to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

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§ 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- .1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the

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Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

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§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data. Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Architect.

§ 3.13 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

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§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully

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completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work,

§ 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

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§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

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§ 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

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§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- assignment is effective only after termination of the Contract by the Owner for cause pursuant to .1 Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors

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shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

- The change in the Work; .1
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract

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Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to .1 permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

- Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, .1 workers' compensation insurance, and other employee costs approved by the Architect;
- .2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
- .5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

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§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

PAYMENTS AND COMPLETION ARTICLE 9 § 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

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§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.4 Certificates for Payment

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§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount

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certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

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§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

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§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time

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within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

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§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the

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Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents;
- .3 terms of special warranties required by the Contract Documents; or
- .4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, .2 under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

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§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

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§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 **INSURANCE AND BONDS**

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 Failure to Purchase Required Property Insurance. If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance. Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor,

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Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 11.3 Waivers of Subrogation

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

§11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK § 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

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§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

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ARTICLE 13 **MISCELLANEOUS PROVISIONS** § 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

§ 13.4 Tests and Inspections

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§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

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§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be .1 stopped;
- .2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
- .3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

- § 14.2.1 The Owner may terminate the Contract if the Contractor
 - repeatedly refuses or fails to supply enough properly skilled workers or proper materials; .1
 - .2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
 - .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
 - .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- Exclude the Contractor from the site and take possession of all materials, equipment, tools, and .1 construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

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§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

- .1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- cease operations as directed by the Owner in the notice; .1
- take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; .2 and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

CLAIMS AND DISPUTES **ARTICLE 15**

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after

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occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, .1 business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

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§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data

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from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to

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file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

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(Name, legal status and address)

Town of Dewitt 5400 Butternut Drive East Syracuse, NY 13057-8509

(Name, legal status and address)

Appel Osborne Landscape Architecture 102 W. Division St., Suite 100 Syracuse, NY 13204 Telephone # 315-476-1022 PAGE 12

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work

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materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

§ 2.2.3 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

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I, , hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 11:02:56 ET on 12/11/2024 under Order No. 2114587239 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A201™ - 2017, General Conditions of the Contract for Construction, other than those additions and deletions shown in the associated Additions and Deletions Report.

(Signed)	
/T* J)	
(Title)	
(Dated)	
(Duicu)	

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AIA Document A101° – 2017

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the day of in the year (In words, indicate day, month and year.)

BETWEEN the Owner: (Name, legal status, address and other information)

Town of Dewitt 5400 Butternut Drive East Syracuse, NY 13057-8509

and the Contractor: (Name, legal status, address and other information)

for the following Project: (Name, location and detailed description)

Town of Dewitt Willis V. Carrier Park Recreation Center - Phase 3 1035 Kinne Street East Syracuse, NY 13057

The Architect: (Name, legal status, address and other information)

Appel Osborne Landscape Architecture 102 W. Division St., Suite 100 Syracuse, NY 13204 Telephone # 315-476-1022

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An Additions and Deletions Report that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

The parties should complete A101®-2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement. AIA Document A201®-2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

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TABLE OF ARTICLES

- 1 THE CONTRACT DOCUMENTS
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- 4 CONTRACT SUM
- 5 PAYMENTS
- 6 **DISPUTE RESOLUTION**
- 7 **TERMINATION OR SUSPENSION**
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EXHIBIT A INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

THE WORK OF THIS CONTRACT **ARTICLE 2**

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be: (Check one of the following boxes.)

> The date of this Agreement. []

A date set forth in a notice to proceed issued by the Owner. []

(Paragraphs deleted)

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:

(Check one of the following boxes and complete the necessary information.)

[] Not later than () calendar days from the date of commencement of the Work.

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§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work Substantial Completion Date

§ 3.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be (\$), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 Alternates

Item

Item

§ 4.2.1 Alternates, if any, included in the Contract Sum:

§ 4.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement. (Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Price

Conditions for Acceptance § 4.3 Allowances, if any, included in the Contract Sum: (Identify each allowance.) Item Price

Price

§ 4.4 Unit prices, if any: (Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item Units and Limitations

§ 4.5 Liquidated damages, if any: (Insert terms and conditions for liquidated damages, if any.)

§ 4.6 Other:

(Insert provisions for bonus or other incentives, if any, that might result in a change to the Contract Sum.)

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

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Price per Unit (\$0.00)

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the day of the month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than () days after the Architect receives the Application for Payment. (Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 In accordance with AIA Document A201[™]-2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

- That portion of the Contract Sum properly allocable to completed Work; .1
- .2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and
- .3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

- The aggregate of any amounts previously paid by the Owner; .1
- .2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201-2017;
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- .4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201-2017; and
- .5 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:

(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

§ 5.1.7.1.1 The following items are not subject to retainage: (Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

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§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:

(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:

(Insert any other conditions for release of retainage upon Substantial Completion.)

§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201-2017.

§ 5.1.9 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A201–2017, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

§ 5.3 Interest

Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below. or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located. (Insert rate of interest agreed upon, if any.)

%

ARTICLE 6 DISPUTE RESOLUTION § 6.1 Initial Decision Maker

The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document A201–2017, unless the parties appoint below another individual, not a party to this Agreement, to serve as the Initial Decision Maker. (If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

§ 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A201–2017, the method of binding dispute resolution shall be as follows: (Check the appropriate box.)

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- [] Arbitration pursuant to Section 15.4 of AIA Document A201-2017
- [] Litigation in a court of competent jurisdiction
- [] Other (Specify)

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201-2017.

§ 7.1.1 If the Contract is terminated for the Owner's convenience in accordance with Article 14 of AIA Document A201–2017, then the Owner shall pay the Contractor a termination fee as follows: (Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner's convenience.)

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2017.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner's representative:

(Name, address, email address, and other information)

§ 8.3 The Contractor's representative: (Name, address, email address, and other information)

§ 8.4 Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.

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§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A101TM-2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A101TM-2017 Exhibit A, and elsewhere in the Contract Documents.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with a building information modeling exhibit, if completed, or as otherwise set forth below:

(If other than in accordance with a building information modeling exhibit, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)

§ 8.7 Other provisions:

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

- AIA Document A101[™]-2017, Standard Form of Agreement Between Owner and Contractor .1
- .2 AIA Document A101[™]-2017, Exhibit A, Insurance and Bonds
- .3 AIA Document A201[™]-2017, General Conditions of the Contract for Construction
- .4 Building information modeling exhibit, dated as indicated below: (Insert the date of the building information modeling exhibit incorporated into this Agreement.)
- .5 Drawings

	Number	Title	Date	
.6	Specifications			
	Section	Title	Date	Pages
.7	Addenda, if any:			
	Number	Date	Pages	

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

- Other Exhibits: 8 (Check all boxes that apply and include appropriate information identifying the exhibit where required.)
 - [] AIA Document E204TM–2017, Sustainable Projects Exhibit, dated as indicated below: (Insert the date of the E204-2017 incorporated into this Agreement.)

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[] The Sustainability Plan:

	Title		Date	Pages	
[]	Supplementary and other Conditions of the Contract:			
	Docu	ment	Title	Date	Pages

Other documents, if any, listed below: (List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201TM_2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

This Agreement entered into as of the day and year first written above.

OWNER (Signature)

.9

CONTRACTOR (Signature)

(Printed name and title)

(Printed name and title)

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PAGE 1

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...

Town of Dewitt Willis V. Carrier Park Recreation Center - Phase 3 1035 Kinne Street East Syracuse, NY 13057

...

Appel Osborne Landscape Architecture 102 W. Division St., Suite 100 Syracuse, NY 13204 Telephone # 315-476-1022 PAGE 2

> [] Established as follows:

> > (Insert a date or a means to determine the date of commencement of the Work.)

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(Signed)			
(Title)	63		
(Dated)		 	

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SECTION 005220 - STANDARD PROJECT FORMS

PART 1 - GENERAL

1.1 <u>RELATED DOCUMENTS</u>

A. The Contractor shall be held to have read all Contract Documents including Instructions to Bidders, General Conditions of the Contract, Standard Form of Agreement, all Drawings, all Divisions of the Technical Specifications, and all Addenda before submitting a bid proposal for the project, and in the execution of the work they shall be bound by all of the conditions and requirements herein.

1.2 <u>SUMMARY</u>

- A. This Section shall include all standard project forms required for use on the project. The following forms are indicated for the Contractor's reference only. The Contractor shall be solely responsible for all costs associated with acquisition of the necessary forms in accordance with all copyright laws.
- B. Contractors are required to obtain and use the following AIA documents, which can be ordered directly from the American Institute of Architects, at <u>https://shop.aiacontracts.com/</u>
 - 1. Forms required for submission of Bids:
 - a. Bid Forms Reference forms provided in the Town of DeWitt Bidding Requirements Section of the project manual.
 - b. Contractor's Qualifications and Experience Requirements.
 - c. Non-Collusive Bidding Certification
 - d. Compliance with NYS Iran Divestment Act of 2012
 - e. Contractor's Certification
 - f. AIA A310 (2010) Bid Bond
 - 2. Forms required for execution of Contract with Owner:
 - a. A101 2017, Standard Form of Agreement Between Owner and Contractor
 - b. Contractor Insurance Certifications (Provided by the Contractor in compliance with Town requirements)
 - c. A312-2010, Performance Bond and Payment Bond
 - 3. Forms for submission of Applications for Payment:
 - a. Application for Payment: AIA Document G702 and AIA Document G703 continuation sheet
 - 4. Forms to be executed with final Application for Payment:
 - a. AIA Document G706 Contractor's Affidavit of Payment of Debts and Claims
 - b. AIA Document G706A Contractor's Affidavit of Release of Liens
 - c. AIA Document G707 Consent of Surety to Final Payment
 - d. AIA Document G707A Consent of Surety to Final Reduction in or Partial Release of Retainage

5. Forms to be submitted to request information during construction:
 a. Request for Information Form (to be provided to the Prime Contractor after bid)

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 Execution shall be completed using the forms as indicated above in this specification section.

END OF SECTION 005220

SECTION 007316 - INSURANCE AND BONDS

1. Contractor's Insurance

A. The Contractor at his expense shall procure and maintain the insurance required in this section and elsewhere in the Contract to be provided by the Contractor. The Contractor shall require each subcontractor to procure and maintain similar insurance by this Contract.

The Town of DeWitt will not execute the Contract nor permit work under the Contract to commence or proceed until the successful bidder has delivered to the Town of DeWitt, three (3) copies of the Certificate of Insurance form contained herein, fully completed, signed and dated by an authorized representative of the insurance company or companies providing the insurance. In addition, the successful bidder shall deliver one (1) certified copy of the endorsements to the Comprehensive General Liability, Automobile Liability and Umbrella policies showing that the Town of DeWitt, Miller Engineers, and Appel Osborne Landscape Architecture (hereinafter called the Architect) have been named as additional insureds and the required coverages have been provided. Only the Certificate of Insurance form, specifically contained herein, will be accepted as meeting the requirements of this section. (Sufficient copies of this form will be furnished by the Town of DeWitt to the successful bidder.) Failure by the successful bidder to furnish the insurance documentation required herein, in form and content acceptable to the Town of DeWitt Attorney within ten (10) days after notification of intent to award, will be grounds for rejection of the bid and forfeiture of the bid deposit, unless such time is extended by the Town at its sole discretion. The receipt by the Town of the insurance documents offered by the successful bidder, and execution of the Contract on the basis of the documents offered, shall not relieve the Contractor of the responsibility for furnishing and maintaining all the kinds and amounts of coverages specified herein.

Before being permitted to commence work under this Contract, each Contractor shall deliver to the Town of DeWitt, one (1) Certificate of Insurance, satisfactory in form (attached) to the Town of DeWitt, showing that the Contractor has insurance in force in the kinds and amounts required herein to be provided by the Contractors. The Contractor shall be wholly responsible for the adequacy of the insurance furnished by its subcontractors. Such subcontractor insurance, where applicable, shall be delivered to the Town of DeWitt prior to being permitted to commence work under this Contract. Each subcontractor shall deliver to the Town of DeWitt one (1) certificate of insurance, satisfactory in form to the Town of DeWitt, showing that the subcontractor has insurance in force in the kinds and amounts required herein of subcontractors. The Contractor shall be wholly responsible for the adequacy of the insurance in force in the kinds and amounts required herein of subcontractors.

The Contractor and each subcontractor shall from time to time, upon the demand of the Town of DeWitt, promptly deliver to the Town of DeWitt such proof of insurance as the Town may require, including certified copies of the complete, original policies for each of the kinds of insurance required to be procured by the Contractor and/or subcontractors, if requested.

Each policy of insurance required under the Contract shall be issued by an A-Rated – Class X (according to Bests' General Ratings) insurance company authorized by the State of New York to issue such policy in this State, shall be in form and content satisfactory to the Town of DeWitt and shall provide that the coverages afforded under the policies will not expire and/or non-renew, be reduced or restricted in coverage, or canceled for any reason until at least (30) thirty days prior written notice has been given by certified mail to Town of DeWitt Attorney by the issuing insurance company. In the event the Contractor's or any Subcontractor's insurance coverages

expire or are changed or cancelled during the course of the work of this Contract, the Town of DeWitt may elect to bar the Contractor or Subcontractor from the site of work until such time as the Contractor or Subcontractor has demonstrated compliance with these insurance requirements and reinstatement of the required coverages.

Should the Contractor fail to demonstrate compliance with these insurance requirements within thirty (30) days after the effective date of any expiration, noncomplying change or cancellation, the Town of DeWitt may elect to terminate the contract in accordance with the termination and default provisions of the Contract.

All liability insurance required by this Contract shall be maintained in force during the term of the Contract, and until the later of one (1) year after the date of final acceptance or one (1) year after the contractor or any Subcontractor performs any work under the Contract.

Failure of the Contractor to procure or maintain any of the insurance coverages required herein, shall not relieve the Contractor from any liability under the contract, nor shall the insurance requirements be construed to conflict with or otherwise limit the obligations or indemnification responsibilities of the Contractor as may be stated elsewhere in this Contract.

- B. The kinds of insurance required to be procured and maintained by the Contractor (in addition to any coverage required by other sections of this Contract) shall be as follows:
 - 1. <u>Comprehensive General Liability Insurance</u>, containing the following kinds of coverage naming the Contractor as the insured and the Town of DeWitt and the Architect as additional insureds.
 - a) <u>Premises Operations Insurance</u> providing coverage for legal liability and expenses for bodily injury and property damage arising out of or resulting from the operations in connection with this Contract.
 - b) <u>Independent Contractors Liability Insurance</u> providing coverage for legal liability and expenses for bodily injury and property damage arising out of or resulting from the operations or conduct of subcontractors employed by the Contractor in connection with this Contract.
 - c) <u>Completed Operations and Products Liability Insurance</u> providing coverage for legal liability and expenses for bodily injury and property damage arising out of or occurring during the time between the date of the Certificate of Completion of the work and the date of the expiration of the guarantee period, or occurring after the work has been abandoned, or arising out of the products, materials or equipment furnished by the Contractor under this Contract after physical possession of the products, materials or equipment has been relinquished.
 - d) <u>Blanket Broad Form Contractual Liability Insurance</u> providing coverage for legal liability and expenses for bodily injury and property damage imposed by Contract upon the contractor respect to all operations under this Contract by the Contractor or by his subcontractors. The policy shall not contain an exclusion for actions on a Contract by a third party beneficiary arising out of a project for a public authority. (The Contractor is advised to refer to the Hold Harmless, Defense and Indemnification provisions of this Contract).

- 2. a) <u>Owner's Protective Liability Insurance</u> providing coverage for the Town of DeWitt as the named insured, for legal liability and expenses for bodily injury and property damage arising out of the operations under this Contract performed for the Town of DeWitt by the Contractor or any of his subcontractors, or out of acts or omissions of the Town of DeWitt in connection with the Town of DeWitt's general supervision of such operations.
 - b) <u>Owner's Contractual Liability Insurance</u> providing coverage for the Town of DeWitt as the named insured for legal liability and expenses for bodily injury and property damage assumed by the Town of DeWitt by Contract or Easement or Right-of-Way Agreement for work performed on private land in connection with this Contract. The policy shall not contain an exclusion for actions on a contract by a third party beneficiary arising out of a project for a

public authority. (This coverage shall be provided separately and independently from the Contractor's Contractual Liability Insurance.)

Separate Owner's Protective and Contractual Policies shall be issued for each separate Contract being performed for the Town of DeWitt. Endorsements to existing policies will not be accepted.

- 3. <u>Comprehensive Automobile Liability Insurance</u>, naming the Contractor as the named insured; with the Town of DeWitt and the OSR, and Architect, as additional insureds. The policy shall provide coverage for legal liability and expenses for bodily injury and property damage arising out of the ownership, maintenance, operation, use, loading or unloading of owned, nonowned, and hired automobiles. The policy shall include the MCS-90 Sudden and Accidental Pollution endorsement.
- 4. <u>Worker's Compensation, Employer's Liability and Disability Insurance</u> as required by the laws of the State of New York.

The Contractor further agrees to comply with the requirements of the New York State Workers' Compensation Board regarding proof of compliance with the New York State Workers' Compensation Law. The New York State Workers' Compensation Board requires the Town to obtain from Contractors proof of Workers' Compensation insurance coverage, self-insurance or exemption from the requirement of obtaining Workers' Compensation insurance coverage. Proof must be submitted to the Town on forms specified by the Workers' Compensation Board and that are stamped as received by the Workers' Compensation Board.

All Bodily Injury Liability Insurance, except automobile, shall specifically include Personal Injury Liability coverage for damages which are sustained by any person as a result of an offense directly related to the employment of such person by the Contractor or by another person.

All Property Damage Liability Insurance, except automobile, shall specifically include coverage for explosion, collapse and underground operations (XCU hazards) and Broad Form Property Damage.

It is understood by the parties that it is the intent of this contract to make the Contractor's insurance policies on which the Town of DeWitt is an additional insured primary with regard to any claim arising under this contract.

A cross liability endorsement or a Separation of Insured Clause, as per the Standard ISO General Liability form shall be incorporated in the General Liability Policy and Automobile Liability Policy.

The insurance provided by the Contractor, or any applicable subcontractor, shall provide coverage for all operations which are necessary or incidental to the performance of the contract or applicable subcontract. If the work of this contract involves asbestos abatement or other hazardous waste or pollution abatement operations, the Certificate of Insurance provided by the Contractor, or applicable subcontractor, shall specifically state that coverage for that operation is included.

If applicable to the work of this Contract, any exclusions referring to operations within any specified distance of railroad property and/or facilities shall be deleted.

- C. Unless otherwise specifically required, the limits of all liability insurance to be procured by the Contractor shall not be less than the following:
 - 1. For the Contractor's Comprehensive General Liability and the Automobile Liability:
 - CGL: A combined single limit of at least \$1,000,000 per occurrence/\$1,000,000 Aggregate in the primary policy
 - AUTO: A combined single limit of at least \$1,000,000 per occurrence in the primary policy

PLUS: An Umbrella in the amount of at least \$2,000,000 that follows the coverage forms of the underlying liability policies or is broader.

The Town of DeWitt and Architect shall be added to the Umbrella as additional insureds (as respects this project) and a certified copy of the Umbrella Policy (complete with the endorsements adding the additional insureds and providing 30 days' notice to the Town of change, cancellation or nonrenewal) must be submitted along with the other insurance documents required herein.

2. For the Owner's Protective Liability and the Owner's Contractual Liability:

A combined single limit of \$2,000,000 per Occurrence in the primary policy.

(An Umbrella will not be acceptable for providing the specified limits for the Owner's Protective and Owner's Contractual Liability)

D. <u>Subcontractors' Insurance</u>

The kinds of insurance and amounts required to be procured and maintained by subcontractors

(in addition to any coverage required by other sections of this Contract) shall be as follows:

- 1. <u>Comprehensive General Liability Insurance</u> providing coverage for the subcontractor, as the named insured in the form herein above required of the Contractor. (Owner's Protective and Owner's Contractual Liability Insurance is not required of subcontractors.)
- 2. <u>Comprehensive Automobile Liability Insurance providing coverage for the</u> subcontractor, as the named insured, as herein above required of the Contractor.
- 3. <u>Worker's Compensation, Employer's Liability and Disability Insurance</u> as required by the laws of the State of New York.
- 4. Unless otherwise specifically required, the limits of liability insurance to be procured by subcontractors shall not be less than the amounts required herein above to be furnished by the Prime Contractor.
- 5. If the work of the subcontract involves asbestos abatement or other hazardous waste of pollution abatement operations, the Certificate of Insurance provided by the subcontractor involved in such operations shall specifically state that coverage for that operation is included.
- E. <u>Alternative or Additional Insurance</u>

If required by the Town of DeWitt, the Contractor and any subcontractor shall provide any other alternative or additional insurance coverage, with appropriate additions or deductions from the Contract price to be made pursuant to the provisions applicable to change orders.

5. <u>Construction (Property) Insurance</u>

- A. Unless otherwise provided in the Special Project Conditions, the Town of DeWitt agrees to include the interest of the Contractor(s), subcontractors, and sub-subcontractors in an insurance policy covering all loss to the work, material, and equipment by perils covered under the all risk Property form, including malicious mischief and vandalism. The policy will be written by an insurance company licensed to issue such policies in the State of New York. Each of the Prime Contractors on this project will be named insureds on this policy with the Town of DeWitt. Each Prime Contractor will be furnished a copy of the certificate of insurance after the Contract is executed. The Town of DeWitt will purchase, pay for and maintain this insurance throughout the life of this Contract and, therefore, the cost of Construction Insurance shall not be included in the Contractor's bid.
- B. The amount of the insurance provided hereunder shall be at all times at least equal to the full value of the work, material and equipment complete and in place and the value of material and equipment delivered to the site or approved off-site storage locations.
- C. The insurance to be furnished by the Town of DeWitt will cover only material and equipment which will become a permanent part of the completed project and scaffolding, construction forms and temporary structures, if their values are chargeable to the project.

- D. The insurance to be provided hereunder shall include coverage for materials and equipment accepted for incorporation into the completed project and stored on the site of the work, stored in an off-site location which has been approved by the Town of DeWitt or in transit between approved off-site storage locations and the project site.
- E. The insurance to be furnished by the Town of DeWitt will include a deductible of \$2,500 on all perils of loss. The deductible shall be paid by the Contractor, or Contractors in proportion to their respective portions of loss if the loss affects more than one Prime Contractor.
- F. Following any loss which the Contractor believes may be covered by the insurance to be provided hereunder, the Contractor shall immediately notify the Town of DeWitt. The Town will report losses on behalf of the Contractor. The Contractor shall cooperate with the Town and the insurer, or its authorized representatives, in their efforts to investigate and settle the claim, including providing any and all requested information, documentation and reports and providing safe access to the site for inspection. Contractors' failure to provide timely notification of loss to the Town, or Contractors' failure to provide requested and adequate information or documentation, shall not prejudice the Town in any manner whatsoever.

The Contractor is responsible for notifying law enforcement or other applicable authorities in the event of a loss and for compiling all pertinent and required information in a timely manner.

Following a loss, the Contractor shall immediately take all necessary and reasonable steps to protect the property from further damage or loss.

All costs incurred by the Contractor associated with the loss not covered by the loss settlement shall be borne by the Contractor.

- G. Any loss insured under the policy to be provided hereunder shall be adjusted with the Town of DeWitt and made payable to the Town of DeWitt as trustee for the insureds, as their interests may appear. The proceeds of any insured loss shall be credited to the capital project account out of which the Contract is funded and shall be distributed in accordance with such agreement as the parties in interest may reach. Actual disbursement of insurance proceeds in the agreed upon amounts shall be made by the Town of DeWitt to the Contractor(s) in accordance with the prevailing standard procedures of the Town of DeWitt.
- H. The Town of DeWitt reserves the right to choose and determine the manner by which any damaged work covered by the insurance provided hereunder shall be replaced or repaired and the extent to which replacement or repair shall be accomplished. In the event the Town of DeWitt chooses not to replace or repair damaged work, or chooses to have repairs or replacement accomplished by others, the Contractor(s) shall be paid in full by the Town of DeWitt for the actual value of all work accomplished on the affected portion of the damaged facility prior to the time of the loss. The Contractor(s) shall not have any claim or be entitled to any payment, including loss of profit, for the value of lost or uncompleted work. Nor shall this provision in any way release the Contractor or the Contractor's surety from obligations under the Contract to fully complete the undamaged

portions of the project. In the event the Town of DeWitt chooses to have the repair or replacement of the damaged work performed under this Contract, said work shall be paid for and accomplished in accordance with the Change Order provisions of this contract.

- I. The Town of DeWitt and the Prime Contractor(s) waive all rights against each other and the subcontractors, sub-subcontractors, officers, agents and employees of each other for damages caused by insured against perils to the extent covered by the insurance provided hereunder, except such rights as they may have to the proceeds of such insurance held by the Town of DeWitt as trustee.
- J. If the Town of DeWitt chooses to occupy or use a portion or portions of the work prior to substantial completion thereof, such occupancy shall not commence prior to a time mutually agreed to by the Town of DeWitt and Contractor(s) and to which the insurance company or companies providing the property insurance have consented by endorsement to the policy or policies. The insurance provided hereunder shall not be cancelled or lapsed on account of such partial occupancy. Consent of the Contractor(s) and of the insurance company or companies to such occupancy or use shall not be unreasonably withheld.
- K. The Town of DeWitt makes no guarantee, expressed or implied, in providing the hereunder described Property Insurance, that said insurance will cover any and all losses to the complete satisfaction of the Contractor(s), nor shall the Town of DeWitt be under any obligation whatsoever to make good any loss or portion of loss not covered by said insurance.

The Town of DeWitt assumes no liability, and the Contractor shall have no claim against the Town of DeWitt, for the amount of a loss claimed by the Contractor which exceeds the actual proceeds received from the insurance provided hereunder. The Contractor shall have no claim against the Town of DeWitt for any loss caused by perils not covered by the insurance provided by the Town of DeWitt hereunder, nor shall the Contractor have any claim against the Town of DeWitt for any loss to material, equipment or personal property not covered by the said insurance.

6. <u>Performance and Payment Bonds</u>

- A. The Contractor, at his sole cost and expense, shall furnish a Performance Bond as security for faithful performance of this Contract, and a separate Labor and Material Payment Bond for the payment of all persons performing labor or furnishing materials in connection with this Contract. Each bond is to be furnished electronically.
- B. Unless otherwise required in the General Conditions, each bond shall be in an amount at least equal to one hundred (100) percent of the accepted bid.
- C. The form of the bonds and the surety company(s) on each bond shall be acceptable to the Town of DeWitt. The surety company(s) on each bond shall be authorized to conduct business in the State of New York.
- D. Unless otherwise required in the Special Project Conditions, each bond shall remain in force during the guarantee period provided in this Contract.

- E. The Town of DeWitt reserves the right to make any additions to, omissions from, or changes in the work or material called for in the Contract Documents, without notice to the surety(s) on the bonds.
- F. The Performance Bond and Labor and Material Payment Bond shall each identify this Contract by Project Name, Contract Number and/or Name and Date of Contract. The Date of Contract shall be the date that the agreement is executed by the Town of DeWitt. The Contractor will be advised of the Date of Contract after the Contract is executed and the date is known and shall thereupon promptly submit the required bond. The Notice to Proceed with the work of the Contract will not be issued to the Contractor until the required bonds have been reviewed and approved by the Town of DeWitt Attorney.
- G. The bonds shall clearly identify the name, address and telephone number of the Surety's office and the name of the individual to whom correspondence concerning the Contract may be sent. The Town reserves the right to correspond with the Contractor's surety in the event that non-performance or non-payment on the part of the Contractor appears, in the sole judgment of the Town, to be jeopardizing successful or timely completion of the Contract. However, the Town shall have no obligation to initiate or maintain such correspondence or to otherwise notify or apprise the Contractor's surety of the progress or status of the Contract, and failure by the Town to make such notifications shall not relieve the Contractor or the Contractor's surety from any obligation it may otherwise have.

7. Other Bonds

In addition to the Performance and Payment Bonds required herein above, the Contractor shall provide at his expense such other specific bonds or special guarantees as may be called for in other sections of this Contract. Examples of special bonds which may be required include, but are not limited to, roof bonds, maintenance bonds and bonds posted in lieu of required experience.

8. <u>Additional Security</u>

If at any time the Town of DeWitt shall be or become dissatisfied with any surety or sureties then upon the surety bonds, or if for any other reason such bonds shall cease to be adequate security to the Town of DeWitt, the Contractor shall within five (5) days after notice from the Town to do so, substitute another bond or bonds and surety(s), both of which shall be acceptable to the Town. No payments on current estimates shall be deemed due nor shall be made until the new sureties shall have qualified and been accepted by the Town of DeWitt.

9. Hold Harmless/Defense and Indemnification

Delete Section 4.18.1 of AIA Document A201 General Conditions and replace with the following:

The Contractor covenants and agrees to indemnify, defend and hold harmless, to the fullest extent permitted by law, the Town of DeWitt, the Architect, its officers, agents and employees and representatives in connection with this Agreement, from and against any and all loss or expense that may arise by reason of rights, or every name and nature including but not limited to (i) claims of property damage; (ii) claims or personal injury to Contractor if self employed, Contractor's

employees, agents, or subcontractors; (iii) claims of personal injury to third parties; and (iv) reasonable attorneys' fees, whether incurred as the result of a third party claim or to enforce this contract: arising out of or resulting directly or indirectly from the performance of the work or the enforcement of this Contract, irrespective of whether there is a breach of a statutory obligation or rule or apportioned liability; and whether casual or continuing trespass or nuisance, and any other claim for damages arising at law and equity alleged to have been caused or sustained in whole or in part by or because of misfeasance, omission of duty, negligence or wrongful act on the party of the Contractor.

The Contractor further covenants and agrees to obtain the necessary as required by the General Obligations law of the State of New York and this contract to effectuate this Hold Harmless clause, and shall name the Town of DeWitt and Architects as additional insureds on all applicable insurance and indemnification. (See also insurance provision).

END OF SECTION 007316



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.								
IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).								
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	CLAIMS-MADE OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence) \$	
							MED EXP (Any one person) \$	
							PERSONAL & ADV INJURY \$	
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE \$	
	POLICY PRO- JECT LOC						PRODUCTS - COMP/OP AGG \$	
	OTHER:						\$	
1							COMBINED SINGLE LIMIT \$	
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	ALL OWNED SCHEDULED)			BODILY INJURY (Per accident) \$	
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	DESCRIPTION OF OPERATIONS below						E.L. DISEASE - POLICY LIMIT \$	
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CE	RTIFICATE HOLDER			CANC	ELLATION			
			SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.					
			AUTHORIZED REPRESENTATIVE					

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AGENCY CUSTOMER ID:

LOC #: _____

Page ____ of ___



ADDITIONAL REMARKS SCHEDULE

AGENCY		NAMED INSURED			
PÓLICY NUMBER					
CARRIER NAIC CODE					
		EFFECTIVE DATE:			
ADDITIONAL DEMADKS					

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,

FORM NUMBER: _____ FORM TITLE: ____

SECTION 007343 - PREVAILING WAGE RATES

1.0 PART 1 - GENERAL

1.1 WAGE RATE SCHEDULES

- A. The following New York State, Onondaga County schedule of prevailing wage rate and supplements have been provided by the New York State Department of Labor.
- B. This prevailing wage rate schedule is listed on the New York State Department of Labor's website:
 - 1. https://apps.labor.ny.gov/wpp/publicViewPWChanges.do?method=showIt

C. (PRC# 2024014821 - Willis V. Carrier Park Phase 3)

- D. It is each Contractor's responsibility to determine and pay the current wage rates and supplements, at the time of payment, throughout the term of the project.
- E. If the Contractor shall fail to pay the prevailing wages and supplements in accordance with the applicable articles of the New York State Labor Law, Section 220 Et Seq., and as described in this contract, it shall be considered a material breach of contract. For the breach or violation of this provision, without limiting any other rights, remedies or recovery to which the Town or any individual may be entitled or any civil or criminal penalty for which any violators may be liable, the Town shall have the right, in its discretion, to terminate this agreement immediately upon notice. In such event, the contractor shall be liable to the Town for any additional costs or expenses incurred by the Town in the completion of the project, and for any other recovery, costs and expenses to which the Town may be entitled.
- F. It is the responsibility of every prospective bidder to disclose whether the bidder has been found in willful violation of the New York State Labor Law for failure to pay prevailing wages and supplements, as those terms are defined by New York State Labor Law, within the three years immediately preceding the submission of the bid.
- 2.0 <u>PART 2 PRODUCTS</u> (Not Applicable)
- 3.0 <u>PART 3 EXECUTION</u> (Not Applicable)

END OF SECTION 007343

SECTION 011100 - SUMMARY OF WORK

PART 1 – GENERAL

1.1 <u>RELATED DOCUMENTS</u>

Drawings and general provisions of the Contract, including General Conditions and other Division 1 Specifications Sections, apply to this Section.

1.2 <u>GENERAL PROJECT DESCRIPTION</u>

A. The work includes the installation of softball and multi-purpose synthetic turf playing fields complete with storage building, press box building, bathroom facilities, storage, dugouts, bleachers, sports lighting, foundations, utilities, and various other appurtenances provide a completed stand alone athletic complex as described in the Contract Documents.

1.3 DRAWINGS INCLUDED IN CONTRACT DOCUMENTS

A. Refer to List of Drawings on the Title Sheet of the Drawings.

1.4 <u>CONTRACTS</u>

- A. The Work shall be constructed under a multi prime contract format, using AIA Document A201-2017, General Conditions of the Contract for Construction.
- B. Construction work is being accomplished by utilizing a sequentially phase multiple prime contract procedure. Separation of work into contracts will be as described in this Section.

1.5 WORK OF CONTRACTORS

- A. In each case, the Contractors agree to accept the site, as it exists and to remove any encumbrances, which interfere with proper fulfillment of the Work, without change in the Contract Sum.
- B. Accommodate the Owner's intention to occupy the new facility and be able to conduct normal operations in accordance with the whole Project schedule.

1.6 <u>OWNER FURNISHED PRODUCTS</u>

- A. Products indicated "N.I.C" (Not in Contract) or "E.O." (Equipment by Owner) will be finished and installed by the Owner. Mechanical and electrical service lines and support systems for such products shall be included under these Construction Contract Documents, if indicated. Final connections from service lines to equipment will be by the Contractor, unless otherwise indicated.
- B. The Owner will arrange and pay for delivery of Owner-furnished items in accordance with the Contractor's Construction Schedule and will inspect deliveries for damage.

- C. If Owner-furnished items are damaged, defective or missing, the Owner will arrange for replacement. The Owner will also arrange for manufacturer's field services, and the delivery of manufacturer's warranties and bonds to the Contractor.
- D. The Contractor is responsible for designating the delivery dates of Owner-furnished items in the Contractor's Construction Schedule and for receiving, unloading and handling Owner-furnished items at the site. The Contractor is responsible for protecting Ownerfurnished items from damage, including damage from exposure to the elements and to repair or replace items damaged as a result of his operations.

1.7 WORK SCHEDULES

- A. All Work: Perform in accordance with a predetermined detailed Work Schedule agreed upon by Owner and Contractors. Each Prime Contractor shall submit a detailed Work Schedule in accordance with the contract documents to the Owner.
- B. Each Prime Contractor shall coordinate work with the Owner, and other Contractors at the site, and all of its subcontractors. The GC Contractor shall prepare a Master Schedule to be updated for the duration of construction.
- C. Location of trailers, storage areas, parking areas, and staging areas shall be coordinated with the Owner and Architect and as identified on Drawings or as directed by the Architect.
- D. It is the responsibility of each Contractor to carefully interface all construction operations until they reach their final completion, and so the Owner's programs and service can be carried on without interruptions so that a smooth flow of all operations by all individual trades will be achieved within the allotted time.

1.8 <u>CODES APPLICABLE</u>

A. Construction will be governed by the New York State Uniform Fire Prevention Building Code, currently applicable edition, and its referenced codes and standards, and other applicable laws and regulations, including Municipal Regulations and Health Codes.

1.9 <u>CONTRACTOR'S USE OF PREMISES</u>

- A. Conform Operations at the Site to Areas and Methods Permitted by:
 - 1. Laws.
 - 2. Ordinances.
 - 3. Permits.
 - 4. Contract Documents.
 - 5. Owner's regulations.
- B. General:

- 1. During the construction period the Contractor's will have full use of the premises within the contract limit line for construction operations. Portions of the project will be occupied or transcend by the Owner. Coordinate and cooperate with the Owner to avoid conflicts.
- 2. Confine operations to areas within Contract limits indicated. Portions of the site beyond areas in construction operations are indicted are not to be disturbed.
- C. Site Access: Keep driveways and entrances serving the premises clear and available to the Owner, Owner's employees and emergency vehicles at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on site.
- D. Do not unreasonably encumber site with materials or equipment.
- E. Do not load structures with weight that will endanger structure.
- F. Each Contractor is responsible for delivery/receipt, unloading, protection and safekeeping of his materials, products and equipment stored on the premises or incorporated into the construction, until his contract is complete and accepted by the Owner.
- G. Move at the Contractor's/Subcontractor's cost any stored materials, products or equipment which interfere with operations of Owner or others, or as directed by the Architect.
- H. Coordination Between Contractors:
 - 1. Each Prime Contractor is responsible for furnishing and installing equipments supports for equipment required in its contract.
 - 2. Embedded items shall be furnished by Prime Contractor requiring same for proper installation of its assemblies and installed as required by Contract Documents.
- I. Special Owner Requirements:
 - 1. Partial Owner Occupancy: The Owner reserves the right to occupy and to place and install equipment in completed areas of the building and site, prior to Substantial Completions provided that such occupancy does not interfere with completion of the Work. Such placing of equipment and partial occupancy shall not constitute acceptance of the total Work.
 - 2. All activities required on the site for completion of the work shall be accomplished within the Contract limit lines as indicated on the Drawings.

1.10 LINE AND LEVELS

- A. Drawings indicate location of the Work.
- B. Contractor shall layout all work prior to construction and will be held responsible for accuracy. Layout approval of Owner and Architect is required prior to construction.

C. Contractor shall establish and maintain a datum or benchmark(s) at convenient location(s) which will remain throughout the Work, for convenience and constant reference for use of all contractors and subcontractors.

1.11 <u>TIME FOR COMPLETION</u>

- A. It is understood and mutually agreed that the time for Substantial Completion is an essential condition of this Contract.
- B. Contractor agrees that work shall be prosecuted diligently and uninterruptedly at such rates as will insure Substantial Completion of all work and certificates of occupancy before the date stated on the Contract.
- C. It is expressly understood and agreed by Contractor and Owner that the time for Substantial Completion and certificates of occupancy are reasonable, taking into consideration average climatic range, restrictions concerning user of the site, and other conditions prevailing.
- D. Contractor shall schedule Work accordingly.

1.12 WORK BY OWNER

- A. The Owner may furnish labor and materials under separate contracts for certain items of work to be selected.
- B. The Contractor shall coordinate its work with that of separate contractors as provided in article 6 of the General Conditions and as delineated in construction schedule.

1.13 COORDINATION OF CONTRACTORS' WORK

A. The following items apply to all bid packages unless otherwise clarified. The specific Scopes of Work of the bid packages follow thereafter. The bid packages are as follows:

Contract 1 - (GC) General Construction Contract 2 - (EC) Electrical Construction Contract 3 - (PC) Plumbing Construction Contract 4 - (SC) Site Construction

- B. The works under this proposal includes labor, materials, equipment, and expenses to produce the construction required by the bidding and contract documents, complete in all respects. This summary of work section takes precedence over information contained elsewhere in bid documents.
- C. Preparation of shop drawings, coordination drawings, and submittals for all systems is a specific requirement of this proposal and bidders are to include in their proposal the provisions for this requirement.
- D. Any and all surveys, layouts, etc. required to accomplish the work is to be provided by each CONTRACTOR. The Site and General Construction Contractor will coordinate bench marks and coordinates for all trades but it is a specific requirement that

CONTRACTORS provide their own layouts, surveys, etc. from those points. Damage to any existing survey points is the responsibility of the CONTRACTOR and must be replaced in a timely manner by the offending CONTRACTOR at no additional cost to the Owner.

- E. Each CONTRACTOR will be required to prepare, submit, and actively implement a proper safety program throughout the duration of the project. Each CONTRACTOR will provide all necessary signs, bracing, special lighting, etc. for his own work at all individual locations as may be applicable.
- F. Each CONTRACTOR will be responsible for providing drinking water for his own personnel.
- G. **Contract 1 General Construction (GC)** will provide temporary toilet facilities at the project site as to provide convenience and accessibility to all craft and for the use of all bid packages. **GC** will provide all dumpsters and disposal required for all building trades packages including site work, electrical, and plumbing for the duration of the project. All Contractors will be responsible for their own waste pickup, cleaning, separation and loading of waste on a daily basis.
- H. **Contract 2 Electrical Construction (EC)** will provide all temporary power and lighting including connection fees for all construction activities and staging/trailer area for the duration of the project. This is to include temporary poles, panels, meters, and sub-panels as required. Consumption charges will be paid for by Owner.
- I. **Contract 2 Electrical Construction (EC)** will provide temporary heating and ventilation during winter conditions. Consumption charges will be paid by the Owner.
- J. Each CONTRACTOR is expected to review all the plans and specifications for all PRIME CONTRACTS as it may affect their work and/or trade jurisdiction and to include in their proposal all costs necessary to make connections with or coordinate with those requirements whether expressly stated herein or implied. This is to include but not be limited to tie-ins to existing construction, field control wiring, etc. where normally claimed by trade jurisdiction of the CONTRACTOR.
- K. Each CONTRACTOR'S proposal is to be predicated on the project schedule contained in the bidding documents.
- L. Unless otherwise stated in the individual scopes of work, all cutting and patching of existing construction required to perform CONTRACTOR'S scope of work is the responsibility of CONTRACTOR performing the work. This is to include all ceilings, walls, floors, or any other system. No structural members shall be cut without the permission of the Architect.
- M. **Contract 1 General Construction (GC)** shall provide all concrete pads/slabs/footings shown on the Architectural and Structural drawings unless otherwise noted.
- N. Access doors and frames necessary and as called for in the bidding documents will be furnished by the CONTRACTOR requiring the access for his scope of work. Installation of frames and access doors shown on bidding documents will be by Contract 1 General Construction (GC). All layout and timely coordination for the installation is

the responsibility of the CONTRACTOR requiring the access door. Any access doors required by CONTRACTOR not shown on drawings shall be furnished and installed by CONTRACTOR requiring them.

- O. **Contract 4 Site Construction (SC)** shall provide all concrete walks/pads shown on site drawings unless otherwise noted.
- P. Unless otherwise stated in individual scope of work all sleeves and other embedded items are to be furnished and installed by the CONTRACTOR requiring same. This shall include any cutting and patching required.
- Q. Unless otherwise included in other scopes of work, demolition, removal, and/or relocation of any existing items that conflicts with the installation of the work is the specific responsibility of the CONTRACTOR installing new work.
- R. Structural excavation, backfill, and compaction (building area to 5'-0" outside the building) shall be the responsibility of **Contract 1 General Construction (GC)**. This is to include any necessary dewatering, shoring, temporary protection, erosion controls, etc.
- S. Site trenching, excavation, backfill, and compaction (entire site area from 5'-0" outside the building) shall be the responsibility of Contract 4 - Site Construction (SC). This is to include any necessary dewatering, shoring, temporary protection, erosion controls, etc. required to complete the scope of work. Utility trenches for electrical work and plumbing work within the site area shall be excavated, backfilled, and compacted by Contract 4 – Site Construction (SC) contract. Utility trenches for electrical and plumbing work for the building area shall be excavated, backfilled, and compacted by Contract 1 - General Construction (GC).
- T. Exterior Athletic Lighting: Contract 2 Electrical Construction (EC) shall provide layout and installation of sports and light pole foundations. Contract 4 Site Construction shall provide survey locations for Contract 2 to utilize with sports pole installation. Contract 2 Electrical Construction (EC) will provide installation of the sports lighting poles, fixtures, service, power up, and aiming. Contract 4 Site Construction (SC) will also provide stable access and laydown for Contract 2 Electrical Construction (EC) to hoist the poles into place.
- U. All electrical conduit, spacers, electric structures, and wiring will be provided by Contract 2 - Electrical Construction (EC). All plumbing piping, fittings, valves, sanitary structures, etc. shall be provided by Contract 3 - Plumbing Construction (PC). Both Contracts 2 and 3 shall coordinate trenching (site area) with Contract 4 - Site Construction. Building area trenching by Contract 1 - General Construction (GC).
- V. Where work is required within spaces occupied by the Owner and/or tenants, special precautions, procedures, and safety/security measures will be required including immediate cleanup as applicable, required, and as directed by the Architect. Bidders are to include this consideration in their bids.
- W. CONTRACTORS shall restore all areas disrupted in the performance of their Work to existing conditions prior to the start of their work.

- X. Contract 4 Site Construction (SC) will be responsible for the installation, maintenance and removal of the onsite staging area stone and construction roads as indicated on the drawings and as directed by the Architect. Onsite parking will be allowed in designated areas as available. Contract 4 – Site Construction (SC) will be responsible for the temporary fencing and temporary access roads which includes installation, maintenance, relocation, repair, and removal.
- Y. Each CONTRACTOR shall provide temporary protection of existing conditions.
- Z. Each CONTRACTOR shall identify, document and make available to Owner and Architect, through the use of photographs and videos, existing conditions prior to taking over of any areas before demolition and construction.
- AA. Each CONTRACTOR shall take into account winter conditions for this project. Each CONTRACTOR shall include in its bid all costs required to provide any and all required winter protection for this work including temporary enclosures, heat, scheduling, material, additives or protection and snow plowing as directed by the Architect.
- BB. Material deliveries and storage times are to be coordinated with the Owner so as not to interfere with the operations and/or maintenance of park facilities.

1.14 CONTRACTOR USE OF PREMISES

General: Limit use of the premises to construction activities in areas indicated.

Confine operations to areas within construction areas. Portions of the site beyond areas in which construction operations are indicated are not to be disturbed. Areas outside the contract limit line may be occupied and utilized by the Owner. Do not impede Owners use of these areas.

Schedule deliveries to minimize space and time requirements for storage of materials and equipment on site.

1.15 PROJECT SCHEDULE

A. Operations at the Town of DeWitt Willis Carrier Park Recreation Center campus facilities shall continue throughout the duration of the project. The Contractor is encouraged to complete the project in as short a period of time as is practicable. No time extensions for the facility outage shall be allowed. The Contractor shall limit work to the areas affected by this Contract and shall coordinate his work with the contiguous works of the Town of DeWitt staff. Contractor shall not block Fire Lane access through the work area. Do not impede the Owner's need to traverse through this Fire Lane area in order to effectively maintain the park facilities. The Contractor (for each Contract) shall submit a detailed bar type project schedule to include the following project milestones:

Item	Date of Completion
Construction to Begin	no later than April 1, 2025
Substantial Completion	no later than March 1, 2026
Project Closeout	no later than April 1, 2026

B. The project must be closed out and the facility turned over to the Owner for use no later than April 1, 2026.

1.16 WARRANTY/GUARANTEE

- A. General: Warranties / Guarantees specified in this Section shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and are in addition to and run concurrent with other warranties/guarantees made by the Contractor under requirements of the Contract Documents.
- B. Installer Guarantee: Provide a "Full System Guarantee" agreement. The President of each Prime Contracting Company shall sign guarantee. Provide a guarantee for repairing or replacement of the Recreation Center component materials and workmanship as indicated in these Contract Documents for the following period of time:
 - 1. All Other Components One (1) year after date of Substantial Completion.
 - 2. Mechanical Equipment Minimum one (1) year after date of Substantial Completion or Manufacturer's Warranty.
- C. Experience Requirements:

The Contractor and/or his subcontractor(s) performing the aforementioned work shall meet the following experience requirements:

1. They shall be, and have been actively and directly engaged in constructing similar facilities types and components for a minimum period of three (3) or more years.

The CONTRACTOR/subcontractor's project superintendent to be assigned to this Project who will be responsible for overseeing the work items identified above, shall possess at a minimum the following experience requirements:

1. He/she shall be, and have been, actively and directly engaged as a superintendent in constructing similar types of building and facilities construction and components for a minimum period of three (3) or more years.

1.17 STAGED STOCKPILE PROTECTION

The Site Contractor (SC) and General Contractor (GC) shall take all necessary precautions to prevent sediment migration from staged soil stockpiles. All soil stockpiles shall be surrounded by perimeter controls and covered to prevent sediment migration. Inlet protection shall also be installed at all storm structures. Stockpiles that are un-worked for greater than seven (7) calendar days shall be covered with tarps. Refer to Section 312501 - Erosion, Sediment and Pollution Control for additional information and requirements.

PART 2 – BID PACKAGE

2.1 <u>BASE BID</u>

Provide/Complete all Base Bid work as indicated on the drawings and specifications for the Town of DeWitt Willis V. Carrier Park Recreation Center – Phase 3. Refer to contract summaries of work that follows.

2.2 ALTERNATE BID(S)

See Section 012300

2.3 <u>CONTRACT 1 - GENERAL CONSTRUCTION (GC)</u>

A. Furnish all labor, materials, equipment and supervision necessary to complete all work in strict accordance with but not limited to the following specification sections:

Division 00 - Contract Documents as they pertain to this scope of work Division 01 - General Requirements as they pertain to this scope of work Division 02 thru 12 - Contract Documents as indicated on the drawings as they pertain to this scope of work. NOTE: Specifications pertaining to General Construction are also indicated on S-drawings and A-drawings, and include but are not limited to:

- Structural Excavation, Backfill, and Compaction (Building Area)
- Structural Fill
- Concrete Footings
- Anchor Bolts

As well as Sections:

	Sections.
033000	Cast In Place Concrete
035416	Hydraulic Cement Underlayment
042000	Unit Masonry System
042213	Reinforced Unit Masonry
051200	Structural Steel
053100	Steel Deck
061000	Rough Carpentry
061600	Sheathing
072100	Thermal Insulation
072726	Fluid-Applied Membrane Air Barriers
074113	Standing Seam Metal Roof Panels
074213	Formed Metal Wall Panels
074220	Metal Soffit Panels
077100	Roof Specialties
077253	Snow Guards
079200	Joint Sealants
081113	Hollow Metal Doors and Frames
081613	Fiberglass Reinforced Polyester Doors
083313	Coiling Counter Doors
083613	Sectional Doors
084113	Aluminum-Framed Entrances and Storefronts

- 085113 Aluminum Windows
- 085115 Single Swing Windows
- 088000 Glazing
- 089400 Insulated Translucent Sandwich Panel Wall Unit
- 092216 Non-Structural Metal Framing
- 092900 Gypsum Board
- 093013 Ceramic Tiling
- 095113 Acoustical Panel Ceilings
- 096513 Resilient Base and Accessories
- 096519 Tile Carpeting
- 099113 Exterior Painting
- 099123 Interior Painting
- 099300 Staining and Transparent Finishing
- 101400 Signage
- 102113 Toilet Compartments
- 102800 Toilet, Bath and Laundry Accessories
- 114000 Food Service Equipment
- 123661 Simulated Stone Countertops
- 312300 Structural Excavation, Backfill and Compaction
- B. Work to include, but not limited to the following:
 - 1. Provide all hoisting required to complete this scope of work.
 - 2. Provide all worker protection as required by OSHA and as necessary to maintain a safe work site.
 - 3. Provide all Structural Earthwork (Building Area).
 - 4. Provide all Structural Geotextile Fabric and Subbase complete (Building Area).
 - 5. Provide all Structural Concrete Work complete (Building Area).
 - 6. Provide all Structural Concrete Formwork and Concrete Reinforcement complete (Building Area).
 - 7. Provide all Structural Cast-In-Place Concrete complete.
 - 8. Provide all necessary permits, fee, inspections, approval, and coordinate with local, state, and federal government agencies.
 - 9. Provide all clean up of debris generated by this trade and place in dumpster provided by this bid package.
 - 10. Provide Final Cleaning per Specification Section 017700; in addition, each contractor responsible for the final cleaning of equipment installed by the contract.
 - 11. Protect, repair all damage, and final cleaning of all work of this scope until Owner's acceptance.

- 12. Provide all scaffolding and worker protection as required by OSHA and as necessary to maintain a safe work site.
- 13. Provide temporary protection required to protect work of other trades while performing this scope of work.
- 14. Provide all temporary pumping and dewatering equipment for building area.
- 15. Provide all necessary demolition work required to complete this scope of work.
- 16. Provide temporary doors complete including necessary hardware to provide required building security and weather tightness.
- 17. Provide all Structural Components complete.
- 18. Provide all Wood complete.
- 19. Provide all Metal Fabrications complete.
- 20. Provide all Architectural Joint Systems complete.
- 21. Provide Rough Carpentry complete.
- 22. Provide all Water Repellents complete.
- 23. Provide all Metal Wall Panels complete.
- 24. Provide all Joint Sealants complete.
- 25. Provide all Steel Doors and Frames complete.
- 26. Provide all Sectional Overhead Doors complete.
- 27. Provide all Aluminum Entrances and Storefronts complete.
- 28. Provide all Door Hardware complete.
- 29. Provide all Interior Signage complete.
- 30. Provide all Masonry Construction complete.
- C. All labor, materials, tools, equipment, submittals & material deliveries are to be made by or prior to the dated indicated in the project schedule. All overtime expenditures, special trucking deliveries, and/or cost implications required to meet these dates are to be included in this package.
- D. All work to be in strict accordance with the bidding documents and specifically this scope of work and the Instruction to Bidders.

2.4 CONTRACT 2 - ELECTRICAL CONSTRUCTION (EC)

- Furnish all labor, materials, equipment and supervision necessary to complete all work in strict accordance with the following specification sections:
 Division 0 Contract Documents as they pertain to this scope of work
 Division 1 General Requirements as they pertain to this scope of work
 Division 26 thru 28 Contract Documents as indicated on the drawings as they pertain to this scope of work. NOTE: Specifications pertaining to Electrical Construction are indicated on E-drawings and include but are not limited to the following:
 - Basic Mechanical and Electrical Requirements
 - Basic Materials and Methods
 - Grounding
 - Electric Distribution
 - Site Lighting (Complete)
 - Athletic Fields Lighting (Complete: Foundations, Poles, Fixtures, Service, Aiming)

As well as Sections:

Β.

033000	Cast In Place Concrete
260519	Low-Voltage Electrical Power Conductors And Cables
260526	Grounding And Bonding For Electrical Systems
260529	Hangers And Supports For Electrical Systems
260533	Raceways And Boxes For Electrical Systems
260543	Underground Ducts And Raceways For Electrical Systems
260544	Sleeves And Sleeve Seals For Electrical Raceways And Cabling
260553	Identification For Electrical Systems
262416	Panel boards
262726	Wiring Devices
265100	Interior Lighting
265668	Exterior Athletic Lighting
312300	Structural Excavation, Backfill and Compaction
Work to include, but not limited to the following:	

- 1. Provide all hoisting required to complete this scope of work. (Exterior Athletic Lighting)
- 2. Provide all worker protection as required by OSHA and as necessary to maintain a safe work site.
- 3. Provide all Structural Earthwork (Sports Lighting Foundations).
- 5. Provide all Structural Concrete Work complete (Sports Lighting Foundations).
- 6. Provide all Structural Concrete Formwork and Concrete Reinforcement complete (Sports Lighting Foundations).
- 7. Provide all Structural Cast-In-Place Concrete complete (Exterior Lighting and Sports Lighting Foundations).

- 8. Provide all control wiring required to complete this scope of work.
- 9. Provide all necessary permits, fees, inspections, approvals and coordination with local and state government agencies.
- 10. Provide all clean up of debris generated by this trade and place in dumpster as provided by others.
- 11. Protect, repair all damage, and final cleaning of all work of this scope until Owner's acceptance.
- 12. Provide Final Cleaning per Specification Section 017700. Each contractor responsible for the final cleaning of equipment installed by their contract.
- 13. Provide all scaffolding and worker protection as required by OSHA and as necessary to maintain a safe work site.
- 14. Provide all necessary demolition work required to complete this scope of work.
- 15. Provide temporary protection required to protect work of other trades while performing this scope of work.
- 16. Provide all Utility Conduit and Wiring for this scope of work.
- 17. Provide temporary electrical service panel, backboard and pole including telephone demark in designated staging area for all Prime Contractors.
- 18. Provide all Through-Penetrations (including but not limited to walls, floors, roof) as it pertains to this scope of work.
- 19. Provide all electrical rough in and final connections for water heater.
- 20. Provide all exterior athletic lighting complete.
- 21. Provide all Basic Electrical Requirements complete.
- 22. Provide all Communications complete.
- 23. Provide all Basic Materials and Methods complete.
- 24. Provide all Protective Device Coordination complete.
- 25. Provide all Raceways complete.
- 26. Provide all necessary Plywood Panel Backboards required for the Building Communications and electric regardless of whether or not they are shown on the contract documents. Painted as required.
- 27. Provide all Underground Conduits complete.
- 28. Provide all Concrete Encasement as required.

- 29. Provide all Boxes and Cabinets complete.
- 30. Provide all Wiring Devices complete.
- 31. Provide all Equipment Bases, Pads, and Supporting Devices complete.
- 32. Provide all Electrical Identification complete.
- 33. Provide all Grounding and Sports Lighting Grounding complete.
- 34. Provide all Panel boards complete.
- 35. Provide all Protective Devices complete.
- 36. Provide all Luminaries complete.
- 37. Provide all Conduit Rough-In for Communications/Special Systems complete.
- 38. Provide all Schedules complete.
- 39. Provide all work associated with secondary electrical service including all duct bank work. This to include all coordination with utilities for incoming primary work.
- C. All labor, materials, tools, equipment, submittals & material deliveries are to be made by or prior to the dated indicated in the project schedule. All overtime expenditures, special trucking deliveries, and/or cost implications required to meet these dates are to be included in this package.
- D. All work to be in strict accordance with the bidding documents and specifically this scope of work and the Instruction to Bidders.

2.5 <u>CONTRACT 3 - PLUMBING CONSTRUCTION (PC)</u>

A. Furnish all labor, materials, equipment and supervision necessary to complete all work in strict accordance with but not limited to the following specification sections and as listed on P-drawings:

Division 0 - Contract Documents as they pertain to this scope of work Division 1 - General Requirements as they pertain to this scope of work Division 22 - Contract Documents as indicated on the drawings as they pertain to this scope of work. NOTE: Specifications pertaining to Plumbing Construction are indicated on P-drawings and include but are not limited to the following:

- Basic Mechanical and Piping
- Valves, Sleeves, Hangers, Supports and Equipment
- Plumbing Identification
- Adjusting and Balancing
- Piping Systems and Accessories
- Water Supply

- Waste Water Systems
- Equipment
- Plumbing Fixtures and Trim
- HVAC

As well as Sections:

- 220517 Sleeves and Sleeve Seals for Plumbing Piping
- 220518 Escutcheons For Plumbing Piping
- 220519 Meters And Gages For Plumbing Piping
- 220523.12 Ball Valves For Plumbing Piping
- 220523.14 Check Valves For Plumbing Piping
- 220529 Hangers And Supports For Plumbing Piping And Equipment
- 220553 Identification For Plumbing Piping And Equipment
- 220719 Plumbing Piping Insulation
- 221113 Facility Water Distribution Piping
- 221116 Domestic Water Piping
- 221119 Domestic Water Piping Specialties
- 221313 Facility Sanitary Sewers
- 221316 Sanitary Waste And Vent Piping
- 221319 Sanitary Waste Piping Specialties
- 224213.13 Commercial Water Closets
- 224216.13 Commercial Lavatories
- 224216.16 Commercial Sinks
- 224713 Drinking Fountains
- 228239.19 Electrical Wall Heaters
- 230513 Common Motor Requirements for HVAC Equipment
- 230529 Hangers and Supports for HVAC Piping and Equipment
- 230553 Identification for HVAC Piping and Equipment
- 230593 Testing, Adjusting, and Balancing for HVAC
- 230713 Duct Insulation
- 233113 Metal Ducts
- Air Duct Accessories
- 233423 HVAC Power Ventilators
- 233713 Diffusers, Registers, and Grilles
- 235100 Breeching, Chimneys, and Stacks
- 237333.16 Indoor, Indirect, Gas-Fired Heating and Ventilating Units
- B. Work to include, but not limited to the following:
 - 1. Provide all hoisting required to complete this scope of work.
 - 2. Provide all necessary permits, fees, inspections, approvals and coordination with local and state government agencies.
 - 3. Provide all clean up of debris generated by this trade and place in dumpster as provided by others.
 - 4. Protect, repair all damage, and final cleaning of all work of this scope until Owner's acceptance.

- 5. Provide Final Cleaning per Specification Section 017700. Each contractor responsible for the final cleaning of equipment installed by their contract.
- 6. Provide all scaffolding and worker protection as required by OSHA and as necessary to maintain a safe work site.
- 7. Provide temporary protection required to protect work of other trades while performing this scope of work.
- 8. Provide all complete Water Utility Piping within building footprints and entire site area for this scope of work
- 9. Provide all cutting and patching as required for this scope inclusive of painting finish work.
- 10. Provide complete hot water and cold water distribution systems as indicated on plans including incoming water service.
- 11. Provide complete sanitary and vent piping as indicated on plans for all new plumbing fixtures and equipment.
- 12. Provide all testing, start-up, and balancing of all plumbing systems.
- 13. Provide servicing of all plumbing equipment as indicated.
- 14. Provide all temporary water for building occupants as required.
- 15. Provide all Basic Mechanical Requirements as it pertains to this scope of work.
- 16. Provide all Electrical Requirements for Mechanical Equipment as it pertains to this scope of work.
- 17. Provide all Basic Piping Materials and Methods.
- 18. Provide all Valves complete.
- 19. Provide all Expansion Compensation complete.
- 20. Provide all Gauges complete.
- 21. Provide all Supports and Anchors complete.
- 22. Provide all Mechanical Identification as it pertains to this scope of work.
- 23. Provide all Vibration Control as it pertains to this scope of work.
- 24. Provide all Mechanical Insulation as it pertains to this scope of work.
- 25. Provide all Water Distribution Piping complete.
- 26. Provide all Plumbing Fixtures complete.

- 27. Provide all Sequence of Operation as it pertains to this scope of work.
- 28. Provide all Sanitary Manholes and Piping complete.
- 29. Provide all Site Water Piping complete.
- C. All labor, materials, tools, equipment, submittals & material deliveries are to be made by or prior to the dated indicated in the project schedule. All overtime expenditures, special trucking deliveries, and/or cost implications required to meet these dates are to be included in this package.
- D. All work to be in strict accordance with the bidding documents and specifically this scope of work and the Instruction to Bidders.

2.6 CONTRACT 4 - SITE CONSTRUCTION (SC)

Furnish all labor, materials, equipment and supervision necessary to complete all work in A. strict accordance with but not limited to the following specification sections:

Division 00 - Contract Documents as they pertain to this scope of work Division 01 - General Requirements as they pertain to this scope of work Division 02 - Existing Conditions as they pertain to this scope of work Division 31 thru 33 - Contract Documents as indicated on the drawings as they pertain to this scope of work. NOTE: Specifications pertaining to Site Construction are also indicated on L-drawings and include but are not limited to:

- Site Preparation, Excavation, Grading, Backfill, and Compaction (Non-Building _ Area)
- Stormwater Pollution Prevention Plan and Erosion Controls

As well as Sections:

311201	Site Preparation
312201	Site Earthwork
312501	Erosion, Sediment and Pollution Control
321201	Asphalt Paving
321202	Porous Asphalt Pavement
321301	Site Concrete Work
321801	Synthetic Turf – Multi-Purpose Field
321802	Synthetic Turf – Softball Infield
323001	Flagpole(s)
323002	Site Elements
323003	Infield Work
323004	Portable Aluminum Bleachers
323005	Elevated Aluminum Bleachers
323006	Non-Elevated Aluminum Bleachers
323007	Scoreboard(s)
323008	Dugout(s)
323009	Wood Screen Fence
323101	Vinyl Chain Link Fence, Backstops and Gates

- 323102 Pole to Pole Tension Netting
- 329001 Plantings
- 329201 Seeded and Sodded Lawns
- 334001 Storm Drainage
- B. Work to include, but not limited to the following:
 - 1. Provide all hoisting required to complete this scope of work.
 - 2. Provide all worker protection as required by OSHA and as necessary to maintain a safe work site.
 - 3. Provide all Earthwork and Drainage. (Non-Building Area)
 - 4. Provide <u>ALL</u> Utility Trenching (water, sanitary, electric, storm), Excavation, Backfilling and Compacting for utility scope of work for all non-building area. NOTE: Any piping, sanitary manholes, valves, conduit, insulation, wiring, structures, etc. shall be by specific trade Prime Contractor.
 - 5. Provide all Pavement Sub-base complete.
 - 6. Provide all Geotextile Fabric complete.
 - 7. Provide all Soil Erosion and Water Pollution Control complete.
 - 8. Provide all Hot Mix and Porous Asphalt complete.
 - 9. Provide all Concrete Flat Work complete.
 - 10. Provide all Fencing, Gates, Backstops and Tension Netting complete.
 - 11. Provide all Topsoil and Infield work complete.
 - 12. Provide all Seeding, Sodding and Plantings complete.
 - 13. Provide all Surface Restoration and Repair complete.
 - 14. Provide all Concrete Formwork complete.
 - 15. Provide all Concrete Reinforcement complete.
 - 16. Provide all Site Concrete Work complete.
 - 19. Provide all Synthetic Turf work complete.
 - 20. Provide all necessary permits, fee, inspections, approval, and coordinate with local, state, and federal government agencies.
 - 21. Provide all clean up of debris generated by this trade and place in dumpster provided by this bid package.

- 22. Provide Final Cleaning per Specification Section 017700; in addition, each contractor responsible for the final cleaning of equipment installed by the contract.
- 23. Protect, repair all damage, and final cleaning of all work of this scope until Owner's acceptance.
- 24. Provide all scaffolding and worker protection as required by OSHA and as necessary to maintain a safe work site.
- 25. Provide temporary protection required to protect work of other trades while performing this scope of work.
- 26. Provide all necessary demolition work required to complete this scope of work.
- 27. Provide Stormwater Structures and Piping complete.
- 28. Provide Scoreboards and Bleachers complete.
- 29. Provide all Flagpoles complete.
- 30. Provide all Field Equipment and Site Elements, Portable Aluminum Bleachers, complete.
- C. All labor, materials, tools, equipment, submittals & material deliveries are to be made by or prior to the dated indicated in the project schedule. All overtime expenditures, special trucking deliveries, and/or cost implications required to meet these dates are to be included in this package.
- D. All work to be in strict accordance with the bidding documents and specifically this scope of work and the Instruction to Bidders.

PART 3 - EXECUTION (NOT USED)

END OF SECTION 011100

SECTION 011110 - GENERAL WORK CONDITIONS

1.1 WORK IN STORMS

The work shall be stopped during rainstorms, if required, and all freshly placed work shall be protected and repaired.

1.2 <u>NIGHT WORK</u>

Work after dark may be permitted to accelerate the project schedule only with special direction of the Owner's Representative. Secure permission and coordinate with the Owner's Representative Contractor shall comply with all applicable labor laws. Any additional lighting needed shall be supplied by the Contractor at no additional cost to the Owner.

1.3 <u>COLD WEATHER</u>

No materials shall be placed in freezing weather or when freezing weather is forecast by the Weather Bureau to occur within 36 hours, unless special measures and approved precautions are taken to protect the material from freezing after deposition.

In the event that freezing weather occurs before the material has acquired a sufficient set to prevent damage from freezing, the material shall be immediately protected by the Contractor in a manner fully acceptable to the Landscape Architect and such protection shall be effectively maintained until final set has been obtained. All material damaged by freezing shall be removed and replaced in satisfactory condition, at he sole expense of the Contractor.

1.4 ACCIDENT PREVENTION

Precautions shall be exercised at all times for the protection of persons and property. The safety provisions of applicable laws, building and construction codes shall be observed. Machinery, equipment, and all hazards shall be guarded or eliminated in accordance with safety provisions of the Manual of Accident Prevention in Construction, published by Associated General Contractors of America, to the extent that such provisions are not in contravention of applicable law.

The Contractor shall keep upon the site, at each location where work is in progress, a completely equipped first aid kit and shall provide ready access thereto at all times when persons are employed on the work.

1.5 <u>CLEANING SITE</u>

As the work progresses, all rubbish, refuse, unused materials and tools shall be removed from the site, and the site left in a neat and orderly condition. Whenever the clearing of rubbish from, or the repairing of streets, roadways, passageways to areas, or the repairing of fences or damages is neglected, the Landscape Architect will give notice to that effect to the Contractor, and if such rubbish is not removed or if said repair work is not done within five (5) days thereafter, or if the Contractor does not at once take the necessary precaution to insure the safety of travel, the Owner may employ other parties to do such work and the expense thereby incurred shall be deducted from any moneys due or that may become due to the Contractor.

On completion of the Contract, all structures shall be left clean and free from obstructions. All rubbish, refuse, unused materials, and contractor's equipment and tools shall be removed and the site shall be left in a neat and orderly condition for use.

1.6 <u>CONTRACTOR TO PROTECT CONTROL</u>

The Contractor shall protect and safeguard all points, stakes, grade marks, monuments, and benchmarks at the site of the work, shall re-establish, at his own expense, any marks which are moved or destroyed due to his construction operations. The Contractor shall bear the entire expense of rectifying work improperly installed due to not maintaining or protecting marks, or to removing, without the Landscape Architect's written approval, any such established points, stakes, or marks.

1.7 <u>CONTRACT DRAWINGS</u>

The locations, character, and many details of the work are shown on the Contract Drawings. The work shall be constructed in accordance with these Drawings, and such other drawings as may be furnished from time to time by the Landscape Architect.

When obtaining data and information from the Plans, large scale drawings shall be used in preference to small scale drawings. Should a dimension or detail be omitted, the Contractor shall request an interpretation from the Landscape Architect.

1.8 PREVAILING WAGE RATES

This is a prevailing wage rate project. The New York State Labor Law requires public work contractors and subcontractors to pay laborers, workers or mechanics employed in the performance of a public work contract not less than the current prevailing rate of wage and to provide supplements (fringe benefits) in accordance with the prevailing practices in the locality where the work is performed. Refer to attached wage rate schedule. NOTE: A new wage rate schedule will be in effect June 30, 2025. The Contractor shall be responsible for paying those employed by him or subcontracted to him at the current wage rate schedule in effect. Any rate changes to wage rates during the project shall be paid by the Contractor at no additional cost to the Owner.

1.9 CONTRACTOR TO CHECK DRAWINGS

The Contractor is required to check all dimensions and quantities on the Drawings or Schedules given to him and shall notify the Landscape Architect of all errors therein which he may discover by such examination and checking. He will not be allowed to take advantage of any error or omission in these Specifications or in the Drawings or Schedules, as full instructions will be furnished should such an error or omission be discovered and the Contractor shall carry out such instructions as if originally part of the Contract Documents.

1.10 INTERPRETATIONS, PLANS AND SPECIFICATIONS

The Contractor shall keep at the site of the work one copy of the Plans and Specifications and shall at all times give the Landscape Architect, and other representatives of the Owner, access thereto. Anything shown on the Plans and not mentioned in the Specifications or mentioned in the Specifications and not shown on the Plans, shall have the same effect as if shown or

mentioned, respectively, in both. In case of any conflict or inconsistency between the Plans and Specifications, the Specifications shall govern.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 011110

SECTION 012200 - UNIT PRICES

PART 1 - GENERAL

1.1 <u>RELATED DOCUMENTS</u>

Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.2 <u>SUMMARY</u>

- A. This Section specifies administrative and procedural requirements for unit prices.
- B. Related Sections: Divisions 31, 32, 33 of the Specifications contain requirements that relate to this section.
- C. <u>Definitions</u>: A unit price is an amount proposed by Bidders and stated on the Bid Form as a price per unit of measurement for materials and/or services that will be added to or deducted from the Contract Sum by Change Order in the event the estimated quantities of Work required by the Contract Documents are increased or decreased.
- D. Unit prices include all necessary material plus cost for delivery, installation, overhead, profit, insurance and applicable taxes.
- E. Refer to individual Specification Sections for construction activities requiring the establishment of unit prices.
- F. <u>Schedule</u>: A "Unit Price Schedule" is included in this Section. Specification Sections referenced in the Schedule contain requirements for materials and methods described under each unit price.
- G. The Owner reserves the right to reject the Contractor's measurement of work-in-place that involves use of established unit prices, and to have this Work measured by an independent surveyor acceptable to the Contractor at the Owner's expense.
- H. The Owner reserves the right to accept or reject any or all unit prices and to negotiate same after receipt of bids, before award of contract, if deemed to be in the Owner's best interest.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 <u>UNIT PRICE SCHEDULES</u>

- A. <u>UNIT PRICE NO. L-1 4" STORM WATER MANAGEMENT TRENCH (SMT)</u>:
 - 1. <u>Description</u>: 4" storm water management trench (SMT) piping, filter fabric and drainage stone, furnished and placed as described in Section 33 4001. This includes trenching and removals.
 - 2. <u>Unit of Measurement</u>: Linear foot, installed.

B. <u>UNIT PRICE NO. L-2</u> 12" STORM PIPE (ST):

- 1. <u>Description</u>: 12" storm pipe (ST) piping and backfill, furnished and placed as described in Section 33 4001. This includes trenching and removals.
- 2. <u>Unit of Measurement</u>: Linear foot, installed.

C. <u>UNIT PRICE NO. L-3 UNDERCUTTING</u>:

- 1. <u>Description</u>: Undercutting where unsatisfactory soils are discovered. This includes excavation, removal and haul away of unsuitable material, backfill and compaction with suitable granular material as specified in Section 31 1201. Note: 1,000 cubic yards of undercutting to be included in the Base Bid.
- 2. <u>Unit of Measurement</u>: Cubic yard, installed.

D. <u>UNIT PRICE NO. L-4 SEEDED LAWN</u>:

- 1. <u>Description</u>: Seeded lawn as described in Section 32 9201. This includes fine grading, seeding, and mulching.
- 2. <u>Unit of Measurement</u>: Square yard, installed.

E. <u>UNIT PRICE NO. L-5 SODDED LAWN</u>:

- 1. <u>Description</u>: Sodded lawn as described in Section 329201. This includes fine grading and sodding.
- 2. <u>Unit of Measurement</u>: Square yard, installed.

F. <u>UNIT PRICE NO. L-6 SOIL STABILIZATION FABRIC</u>:

- 1. <u>Description</u>: Woven soil stabilization fabric furnished and installed as described in Section 321201.
- 2. <u>Unit of Measurement</u>: Square yard, installed.

G. <u>UNIT PRICE NO. L-7 ROCK EXCAVATION (S)</u>:

- 1. <u>Description</u>: Rock excavation and removal off site as described in Section 312201. Note: 50 cubic yards are included in Base Bid.
- 2. <u>Unit of Measurement</u>: Cubic yard, removed.

END OF SECTION 012200

SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 <u>SUMMARY</u>

A. This Section includes administrative and procedural requirements for alternates.

1.3 <u>DEFINITIONS</u>

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if the Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.4 **PROCEDURES**

- A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
 - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, reject, or deferred for later consideration.
- C. Execute accepted alternates under the same conditions as other work of the Contract.
- D. Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS - (Not Used)

PART 3 - EXECUTION

3.1 <u>SCHEDULE OF ALTERNATES</u>

GENERAL CONTRACT (GC)

- G-1 <u>Maintenance Building</u>: The Bidder shall state the amount to be <u>ADDED</u> to the Base Bid to furnish and install the maintenance building in its entirety.
- G-2 <u>Family Restroom</u>: The Bidder shall state the amount to be <u>ADDED</u> to the Base Bid to furnish and install the family restroom in its entirety.
- G-3 <u>Existing Pavilion Renovation</u>: The Bidder shall state the amount to be <u>ADDED</u> to the Base Bid to furnish and install the existing pavilion renovation in its entirety.

ELECTRICAL CONTRACT (EC)

- E-1 <u>Maintenance Building</u>: The Bidder shall state the amount to be <u>ADDED</u> to the Base Bid to furnish and install the maintenance building interior electric work in its entirety.
- E-2 <u>Family Restroom</u>: The Bidder shall state the amount to be <u>ADDED</u> to the Base Bid to furnish and install the family restroom building interior electric work in its entirety.
- E-3 <u>Existing Pavilion Renovation</u>: The Bidder shall state the amount to be <u>ADDED</u> to the Base Bid to furnish and install the existing pavilion renovation electric work in its entirety.
- E-4 <u>Athletic Fields Sports Lighting Poles, Foundations, and Fixtures</u>: The Bidder shall state the amount to be <u>ADDED</u> to the Base Bid to furnish and install the exterior athletic field lighting foundations, poles and fixtures around the multi-purpose turf field and separate softball field.
- E-5 <u>Live Stream Cameras</u>: The Bidder shall state the amount to be <u>ADDED</u> to the Base Bid to furnish and install the Live Stream Cameras in its entirety.

PLUMBING CONTRACT (PC)

- P-1 <u>Maintenance Building</u>: The Bidder shall state the amount to be <u>ADDED</u> to the Base Bid to furnish and install the maintenance building interior plumbing / hvac in its entirety.
- P-2 <u>Family Restroom</u>: The Bidder shall state the amount to be <u>ADDED</u> to the Base Bid to furnish and install the family restroom building interior plumbing / hvac in its entirety.
- P-3 <u>Existing Pavilion Renovation</u>: The Bidder shall state the amount to be <u>ADDED</u> to the Base Bid to furnish and install the existing pavilion renovation interior plumbing / hvac in its entirety.

SITE CONTRACT (SC)

S-1 <u>Portable Outfield Fencing</u>: The Bidder shall state the amount to be <u>ADDED</u> to the Base Bid to furnish and install 1,400 linear feet of portable outfield fencing as specified.

- S-2 <u>Portable Aluminum Bleachers</u>: The Bidder shall state the amount to be <u>ADDED</u> to the Base Bid to furnish and install the Portable Aluminum Bleachers as shown on the plans and as specified.
- S-3 <u>Non-Elevated Angle Frame Bleachers</u>: The Bidder shall state the amount to be <u>ADDED</u> to the Base Bid to furnish and install the Non-Elevated Angle Frame Bleachers as shown on the plans and as specified.
- S-4 <u>Elevated Angle Frame Bleachers</u>: The Bidder shall state the amount to be <u>ADDED</u> to the Base Bid to furnish and install the Elevated Angle Frame Bleachers as shown on the plans and as specified.
- S-5 <u>Scoreboards</u>: The Bidder shall state the amount to be <u>ADDED</u> to the Base Bid to furnish and install the Scoreboards as shown on the plans and as specified. Note: If this Alternate is NOT accepted by the Owner, furnishing and installing the scoreboards footings and steel columns shall remain in the Base Bid.
- S-6 <u>Synthetic Turf</u>: The Bidder shall state the amount to be <u>ADDED</u> to the Base Bid to furnish and install the Synthetic Turf as shown on the plans and as specified for both the multi-purpose field and the individual softball infield.
- S-7 <u>Batting Cages</u>: The Bidder shall state the amount to be <u>ADDED</u> to the Base Bid to furnish and install the Batting Cages as shown on the plans and as specified in their entirety. Note: If this Alternate is NOT accepted by the Owner, site preparation, earthwork, grading and drainage in the areas of the Batting Cages shall remain in the Base Bid.

END OF SECTION 012300

SECTION 012500 - EQUIVALENCY

1.0 PART 1 - GENERAL

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-01 Specification Sections, apply to this Section.

1.2 <u>DEFINITIONS</u>

- A. "APPROVED EQUIVALENTS" refers to manufacturers, materials, products, systems or equipment approved by the Architect for use in place of those specified, prior to contract award.
- B. "APPROVED SUBSTITUTIONS" refer to manufacturers, materials, products, systems or equipment approved by the Architect for use in place of those specified, after contract award.
- C. Standard of Quality: Specified materials, products and equipment establish the standard of function, dimension, appearance and quality.
- D. Burden of Proof of Equivalency rests with the entity submitting the proposed equivalent.
- E. Acceptance: The Owner and the Architect shall determine a product's acceptability.

1.3 <u>RELATED SECTIONS</u>

- A. Instructions to Bidders.
- B. General Conditions.
- C. Division 01 Section 013323 "Shop Drawings, Product Data, and Samples."

1.4 **PRODUCT OPTIONS**

- A. Where products are specified by reference standards or by description only; select any product meeting those standards or description.
- B. Where products are specified by "or equal", or by naming one or more products or manufacturers:
 - 1. Select one of the products or manufacturers named which complies with the requirements of the Specifications; or
 - 2. Submit an equivalent product that has been approved by addenda. Bidders shall follow procedures as described in Article "EQUIVALENTS PROPOSED OR CONSIDERED DURING THE BIDDING PHASE".

3. Submit a product that, in the Bidder's opinion, is equal in all respects, which product shall be subject to post award approval by the Architect. Bidder shall follow procedures for approval of substitutions as described in Article "SUBSTITUTIONS PROPOSED AS "OR EQUALS" AFTER CONTRACT AWARD".

1.5 <u>CONTRACTOR'S CERTIFICATION</u>

- A. The Contractor shall provide certification as follows for all proposed equivalents and substitutions made under any of the procedures specified herein.
 - 1. The Contractor has investigated the proposed product and determined that it is equal to or superior in all respects to the product specified, and that it will perform adequately in the application indicated.
 - 2. The Contractor will provide the same warranties or bonds for the equivalent/substitute as for the product specified.
 - 3. For equivalents, the Contractor certifies that it waives all claims for additional costs related to the substitution which subsequently become apparent or become necessary because of the failure of the substitution to perform adequately.
 - 4. For substitutions, the Contractor certifies that the cost data presented is complete and includes all related costs under this Contract except the Architect's redesign costs and waives all claims for additional costs related to the substitution which subsequently become apparent or become necessary because of the failure of the substitution to performance adequately.
 - 5. The Contractor will coordinate the installation of an accepted substitution in the work and make such other changes in the work as may be required for installation to make the work complete in all respects, at no additional cost to the Owner.
 - 6. The Contractor agrees to reimburse the Owner for additional costs from claims by other Prime Contractors resulting from incorporation of requested equivalents and substitutions.
 - 7. The Contractor agrees to reimburse the Owner for all additional costs billed by the Architect or his consultants for the review of the substitution request(s), any redesign of the Work of this Contractor or associated Contractors, additional site visits related to the substitution request and for the work to prepare Change Directives or Change Orders."

1.6 EQUIVALENTS PROPOSED OR CONSIDERED DURING THE BIDDING PHASE

- A. If a Bidder desires to obtain pre-bid approval of a product they deem equivalent to a specified product rather than bidding "at risk", the Bidder may do so during the bidding process by the procedure described herein; procedure as follows:
 - 1. Form of Request: Use enclosed "Equivalency Request" form.

- 2. Request Submitted To: Architect.
- 3. Request Made By: Prime Contract Bidders of Record only; in writing.
- 4. Deadline: Requests received fourteen (14) or more calendar days prior to date of receipt of Bids.
- 5. Notification of Approved Products: By Addendum.
- 6. Specifies: Incomplete information will be rejected and not reviewed. The burden of proof is on the submitter. Provide complete information.
- 7. Separate Requests: Use separate request form for each product request.
- B. Product Equivalency: Answers to the following questions, prefaced by "(How) does (the use of) the proposed equivalent product or its manufacturer," shall be addressed by the submitter:
 - 1. Serve the same function?
 - 2. Affect other products and the Project as a whole? If so, what?
 - 3. Have the same dimensions?
 - 4. Have the same appearance?
 - 5. Comply with the same codes and conform to the same standards?
 - 6. Have same life expectancy?
 - 7. How long has the product been produced as currently manufactured?
 - 8. Where has the product been used locally? List Projects and Architects.
 - 9. Have a history of past problems, and if so what was the remedy?
 - 10. Affect other aspects of the construction?
 - 11. Affect any details? What needs to be changed?
 - 12. Require license fee or royalties.
 - 13. Affect construction time?
 - 14. Have a product warranty equal to the specified warranty?
 - 15. Have a track record of standing behind the product and the warranty?

- 16. Vary or differ from specified product?
- 17. Benefit the Owner?
- C. Any "equivalent" not approved by addenda (which action shall be at the contractor's risk) must be submitted to the Architect no later than 48 hours after receipt of bids.
 - 1. The Bidder shall use the Equivalency Request form and shall respond in writing to all the concerns noted above.
 - 2. After the 48 hour limit described above, similar submittals shall be deemed to be substitution requests.

1.7 SUBSTITUTIONS PROPOSED AS "OR EQUALS" AFTER CONTRACT AWARD

- A. The following procedures apply after contract award.
- B. For a period not to exceed fourteen (14) calendar days following the date of Contract Award, the Architect will consider written requests from the Prime Contractor (only) for product substitutions. The date of Contract Award shall establish the start of the fourteen (14) day period.
- C. The materials, products and equipment described in the Contract Documents establish a standard of function, dimension, appearance and quality to be met by any proposed substitution.
- D. Submit separate request for substitution on the "Substitution Request" form for each product which is proposed, supported with complete data, drawings and/or samples as appropriate, including written responses to the following concerns:
 - 1. Justification of need for substitution.
 - 2. Complete data substantiating compliance of proposed substitution with Contract Documents (five copies).
 - 3. Comparison of the qualities of the proposed substitution with that specified, including size, weight, durability, performance and visual effect.
 - 4. Changes and coordination required in other elements of work because of the substitution.
 - 5. Effect on the construction schedule, including other Contracts.
 - 6. Cost data comparing the proposed substitution with the product specified.
 - 7. Any required license fees or royalties.
 - 8. Availability of maintenance service and source of replacement materials.

- 9. Samples when requested.
- 10. Statement explaining how use of product is beneficial to Owner.
- E. Provide Contractor's Certification as specified above.
- F. The Architect will review requests for substitutions with reasonable promptness, and notify the Contractor, in writing, of the decision to accept or reject the requested substitution.

1. When substitution is not accepted, provide specified product.

1.8 <u>PRODUCT LIST</u>

A. After the substitution period has ended and the Architect has reviewed requests and responded in writing, the Contractor shall develop the Approved Product List.

1.9 <u>SUBSTITUTIONS PROPOSED DURING THE CONSTRUCTION PHASE</u>

- A. The following procedures apply beyond fourteen (14) calendar days after Contract Award.
- B. Requests for substitutions made during the construction period shall be considered only if needed to replace unavailable products.
- C. Substitutions not properly approved and not authorized shall be considered defective and shall be replaced by specified products.
- D. All costs for review, research and modification of details on the part of the Architect or any consultants shall be borne by the Contractor.
- E. If substitute products are used, any and all associated costs shall be paid by the Contractor, including additional compensation to the Architect for redesign and evaluation services, increased cost of other construction by the Owner or separate Prime Contractors, and similar considerations.
- F. Submittal process described in this Section of the Specifications shall be followed. Submit the following:
 - 1. Substitution Request Form. See the form included at the end of this section.
 - 2. Written response to Architect's questions / concerns.
 - 3. All data requested.
 - 4. Samples requested.

1.10 ARCHITECT'S REVIEW

A. Conditions: The Architect will receive and consider the Contractor's equivalent/substitution request when all or most of the following conditions are satisfied, as determined by the

Architect; otherwise requests will be returned without action except to record noncompliance with these requirements.

- 1. Extensive revisions to Contract Documents are not required.
- 2. Proposed changes are in keeping with the general intent of Contract Documents.
- 3. The request is timely, fully documented and properly submitted.
- 4. The request is directly related to an "or equal" clause or similar language in the Contract Documents.
- 5. The specified product or method of construction cannot be provided within the Contract Time. The request will not be considered if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.
- 6. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
- 7. A substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear. Additional responsibilities for the Owner may include additional compensation to the Architect for redesign and evaluation services, increased cost of other construction by the Owner or separate Contractors, and similar considerations.
- 8. The specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Contractor certifies that the substitution will overcome the incompatibility.
- 9. The specified product or method of construction cannot be coordinated with other materials, and where the Contractor certifies that the proposed substitution can be coordinated.
- 10. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provide the required warranty.
- 11. Where a proposed substitution involves more than one prime Contractor, each Contractor shall cooperate with the other Contractors involved to coordinate the Work, provide uniformity and consistency, and to assure compatibility of products.
- B. Architect's Action: After receipt of the request for equivalent/substitution, the Architect will request additional information or documentation if necessary for evaluation of the request. Within two weeks of receipt of the request, or one week of receipt of the additional information or documentation, which ever is later, the Architect will notify the Contractor of acceptance or rejection of the proposed substitution.

- 1. If a decision on use of a proposed substitute cannot be made or obtained within the time allocated, use the product specified by name.
- 2. If a substitution changes the cost and/or schedule of the project, acceptance will be in the form of a Change Order.
- 2.0 <u>PART 2 PRODUCTS (Not Applicable).</u>
- 3.0 PART 3 EXECUTION (Not Applicable).

END OF SECTION 012500

	Equivalency Re	quest		🛛 Substi	tutions Requ	uest (c	heck one)	
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Remarks:_____

EQUIVALENCY

012500-9

SECTION 013119 - MEETINGS

1.0 PRECONSTRUCTION MEETING

Prior to the start of construction by the successful bidder, a general information meeting shall be held with all Prime Contractors and other interested parties. The meeting shall cover procedural requirements, general features of the project, the schedule and any special requirements.

2.0 PROGRESS MEETINGS, REPORTING

- 2.1 In addition to specific coordination and preconstruction meetings, the Owner shall schedule and hold regular progress meetings. It is required that all sub-contractors then involved in planning, coordination or performance of work to be properly represented at each meeting. The general format shall be as follows.
 - a. Review each work to be properly represented at each meeting.
 - b. Review each contractor's present and future needs including interface requirements, time, sequences, deliveries, access, site utilization, temporary facilities and services, hours of work, hazards and risks, housekeeping, change orders, and documentation of information for payment request.
 - c. Discuss whether each element of current work is ahead of schedule, on time, or behind schedule in relation with integrated and updated progress schedule.
 - d. Determine how behind-schedule work will be expedited, and secure commitments from each contractor on how the work involved will be brought back on schedule.
 - e. Discuss whether schedule revisions are required to ensure that current work and subsequent work will be completed within Contract Time.
 - f. Review everything of significance which could affect progress of the work.
- 2.2 Within 2 days after each progress meeting date, the Owner shall distribute copies of minutes-of-the-meeting to each entity present and to others who should have been present. Include a brief summary (in narrative form) of progress of the work since previous meeting and report.
- 2.3 Immediately following each progress meeting, where revisions to progress schedule have been made or recognized, the General Contractor shall revise the integrated progress schedule. Reissue revised schedule within two (2) days of each meeting.
- 2.4 The schedule and intervals of these meetings shall be determined at the pre-construction meeting. It is anticipated, due to the volume of work to be completed within the projected schedule, that weekly meetings will be schedule.

SECTION 013323 - SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

1.1 <u>DESCRIPTION</u>

- A. Submit to the Landscape Architect shop drawings, product data, certified test reports and samples required by the Specification sections.
- B. A Submittal Log indicating what submittals are required for each section of the Specifications will be sent to each Contractor. This schedule is a courtesy and is solely for the convenience of the Contractor. The Contractor is responsible for reviewing each section to determine if additional items are required.
- C. One copy of the Submittal Log is to be returned to the Landscape Architect with submittal date column filled in indicating anticipated dates for making each submittal. This log shall be completed and submitted before first application for payment will be approved.
- D. Make submittals to allow for checking, resubmittal and rechecking, if required, without causing delay of the project schedule.
- E. Schedule all submittals to be completed within 10 days after Contract execution unless otherwise specified. Indicate items requiring more than 10 days with an explanation for the additional time and on what dates they will be submitted. The dates indicated for each submittal shall take into account the lead time required for ordering and fabricating of the various items.

1.2 <u>SHOP DRAWINGS</u>

- A. Original drawings, prepared by Contractors, subcontractors, suppliers or distributors, which illustrate some portions of the Work showing fabrications, layout, setting or erection details.
 - 1. Identify details for reference to sheet and detail numbers shown on shop drawings.
 - 2. Sheet size, multiple of 8-1/2 x 11 inches, not to exceed size of Contract Drawings when unfolded.
 - 3. Photographic / Scan reproductions of Contract Drawings will not be accepted as shop drawings and will be rejected.

1.3 PRODUCT DATA

- A. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts and other standard descriptive data.
 - 1. Modify product data to delete information that is not applicable to Project.
 - 2. Supplement standard to provide additional information applicable to Project.
 - 3. Clearly mark each copy to identify applicable materials, products or models.

- 4. Show dimensions and clearances required.
- 5. Show performance characteristics and capacities.
- 6. Show wiring diagrams and controls.

1.4 <u>SAMPLES</u>

- A. Physical examples to illustrate materials, equipment or workmanship, and to establish standards by which completed Work is judged.
 - 1. Office samples to be of sufficient size and quantity to clearly illustrate:
 - a. Functional characteristics of product or material, with related parts and method of attachment.
 - b. Full range of color samples.
 - 2. Field samples and mock-ups:
 - a. Erect at project site or location acceptable to Landscape Architect/Engineer.
 - b. Construct samples or mock-up complete, including Work of all trades required in finish Work.

1.5 CONTRACTOR RESPONSIBILITIES

- A. Do not start, fabricate or install Work requiring submittals until submittals meeting Contract Requirements have been returned to the responsible Contractor.
- B. Review, approve, stamp and sign shop drawings, product data and samples prior to submission to Landscape Architect.
- C. Verify:
 - 1. Field measurements
 - 2. Field construction criteria
 - 3. Catalog numbers and other data
- D. Coordinate each submittal with requirements in Summary of Work and Contract Documents.
- E. Contractor's responsibility for errors and omissions in submittals is not relieved by Architect/Landscape Architect/Engineer's review of submittals.
- F. Contractor's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by Architect/Landscape Architect/Engineer's review of submittals unless Architect/Engineer acknowledges said specific deviations and gives written acceptance of the specific deviations.
- G. Notify Architect/Landscape Architect/Engineer in writing, at time of submission, of deviations in submittals from requirements of Contract Documents.

H. Contractors shall reproduce and distribute copies of approved submittals to parties requiring same for coordination of Work. Contractors shall cooperate with Architect/Landscape Architect/Engineer and provide additional samples and non-reproducible items as necessary and without charge.

1.6 <u>SUBMISSION REQUIREMENTS</u>

- A. Schedule submissions to allow ten (10) working days for review. Large submissions may take longer.
- B. For shop drawings: submit .pdfs (to scale as needed) to the Architect/Landscape Architect/ Engineer.
- C. For product data: submit .pdfs (to scale as needed) to the Architect/Landscape Architect/ Engineer.
- D. Submit at least the number of samples specified in each technical section and no less than two each, plus the number that such Contractor needs returned.
- E. Submittals shall be bound adequately so as to remain intact during use in job site environment and shall be indexed with labeled dividers if they include more than one product or material.
- F. Shop drawings shall be accompanied by a the Contractor's transmittal, and shall be suitably identified with the name of the project, contract number, Contractor's name, date and initials indicating approval of such submittal by the Contractor under the applicable specification. Partial submittals will not be acceptable and will be returned without review.
- G. Submissions shall include:
 - 1. Date and revision dates
 - 2. Clearly indicate the exact specification section to which each submittal applies.
 - 3. Relationship to all adjacent structure or materials
 - 4. Field dimensions, clearly identified as such
 - 5. Applicable standards
 - 6. Notification and identification of deviations from Contract Documents via cover letter and clear markings on the submission.
 - 7. Contractor's stamp, initialed or signed, certifying the review of submittal, verification of field measurements and compliance with Contract Documents.
 - a. Submittals without Contractor's stamp will be returned without being reviewed.
 - 8. Additional pertinent data

9. Work or item represented by submittal.

1.7 <u>RESUBMISSION REQUIREMENTS</u>

- A. Shop Drawings
 - 1. Revise initial drawings as required and resubmit as specified for initial submittal.
 - 2. Indicate on drawings changes that have been made other than those requested by the Landscape Architect/Engineer.
- B. Product Data and Samples: Submit new data and samples as required for approval.

1.8 CONTRACTOR'S INTERNAL DISTRIBUTION OF SUBMITTALS

- A. Distribute copies of shop drawings and product data which carry the Landscape Architect/Engineer stamp to all that apply:
 - 1. Contractor's office file
 - 2. Contractor's job site file
 - 3. Record document file
 - 4. Contractor's subcontractor's, as required for coordination
 - 5. Suppliers
 - 6. Fabricators
- B. Distribute samples as directed by Landscape Architect/Engineer.

1.9 <u>ARCHITECT/ENGINEERS</u>

- A. Review design concept of Project.
- B. Review of separate items does not constitute review of an assembly in which item functions.
- C. Stamp and initial or sign, certifying the review of submittal.
- D. ACTION STAMP: The Architect/Landscape Architect/Engineer will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked as follows to indicate the action taken:
 - 1. NO EXCEPTIONS TAKEN: When submittals are marked "No Exceptions Noted", the part of the Work covered by the submittals may proceed provided it complies with requirements of the Contract Documents, final acceptance will depend upon that compliance.

- 2. MAKE CORRECTIONS AS NOTED: When submittals are marked "Make Corrections Noted", that part of the Work covered by the submittals may proceed provided that the noted exceptions are incorporated into the Work and all the Work covered by the submittals complies with the requirements of the Contract Documents. Final acceptance depends upon that compliance. Contractors have the option of revising their submittal with the marked exceptions for re-submittal.
- 3. REVISE AND RESUBMIT: When submittal is marked "Revise and Resubmit", do not proceed with that part of the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations, resubmit without delay. Repeat if necessary to obtain a different action mark.

Do not permit submittals marked "Revise and Resubmit" to be used at the Project site, or elsewhere Work is in progress.

4. REJECTED: When submittal is marked "Rejected", do not proceed with that part of the Work covered by the submittal, including purchasing, fabrications, delivery or other activity. Prepare a new submittal in accordance with the Contract Documents and Architect's comments; resubmit promptly. Repeat if necessary to obtain a different action mark.

Do not permit submittals marked "Rejected" to be used at the Project Site or elsewhere the work of this Project is in progress.

5. OTHER ACTION: Where a submittal is primarily for information or record purposes, special processing or other activity, the submittal will be returned, marked "Action Not Required".

1.10 ADDITIONAL INSTRUCTIONS

A. The Architect/Landscape Architect/Engineer may from time-to-time issue additional instructions to the Contractors as may be necessary to amplify, augment, modify or clarify the Contract Documents. These may be in the form of drawings, specifications, interpretations, orders and supplemental agreement, change order, or minor change. Submittals shall be resubmitted and otherwise kept up to date as required by Additional Instructions.

SECTION 014533 - SPECIAL INSPECTIONS

PART 1 - GENERAL

1.1 <u>RELATED DOCUMENTS</u>

Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.2 <u>SUMMARY</u>

- A. This Section specifies special inspection services and materials testing activities required during project construction to be provided by Special Inspectors and Testing Laboratory retained by the Owner.
 - 1. See technical specification sections for other testing services to be provided by the Contractor.
- B. Owner Responsibility: Where special inspections and testing requirements are indicted in this specification section as Owner's responsibility, Owner will engage qualified special inspectors and testing agencies to perform these services.
 - 1. Owner will furnish Contractor with names, addresses, and telephone numbers of special inspectors and testing agencies engaged and a description of the types of testing and inspecting they are engaged to perform.
- C. Contractor Responsibility:
 - 1. Prepare samples for testing by the Owner's testing agency where indicated and as directed by the Owner's Special Inspector.
 - 2. Submit manufacturer and fabricator certifications and related documentation specified in this Section or requested by the Special Inspector.
 - 3. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor and the Contract Sum will be adjusted by Change Order.
- D. The Contractor shall provide all testing services not specified to be the Owner's responsibility.
 - 1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality control services. A qualified testing agency is an agency with experience and capability to conduct testing and inspection indicated, as documented by ASTM E 548, and that specialize in types of tests and inspections to be performed.
 - 2. Notify the Architect and Testing Agency at least 72 hours in advance of time when work that requires testing or inspection will be performed.

- 3. Submit three copies of certified written testing report to the Architect.
- 4. Testing and inspecting requested/required by Contractor and not required by Contract Documents are Contractor's responsibility.
- E. All tests shall be scheduled and witnessed by the Architect.

1.3 <u>GENERAL</u>

- A. Report Requirements: Special inspectors shall keep records of inspections. The Special Inspector shall furnish inspection reports to the Code Enforcement Officer, the Owner and the Architect. Reports shall indicate that work inspected was done in conformance with the construction documents.
 - 1. Discrepancies shall be brought to the immediate attention of the Contractor for correction and to the Architect. If the discrepancies are not corrected, the discrepancies shall be brought to the attention of the Code Enforcement Officer and Architect prior to the completion of that phase of work.
 - 2. A final report of inspections documenting required special inspections and correction of any discrepancies noted in the inspections shall be submitted periodically at a frequency agreed upon by the Owner and the Code Enforcement Officer prior to the start of work.
- B. Inspection of Fabricators: Where fabrication of structural load-bearing members and assemblies is being performed on the premises of a fabricator's shops, special inspections of the fabricated items shall be as specified in this section.
 - 1. Fabrication and Implementation Procedures: The Special Inspector verifies that the fabricator maintains detailed fabrication and quality control procedures that provide a basis for inspection control of the workmanship and the fabricator's ability to conform to approved construction documents and referenced standards. The Special Inspector shall review the procedures for completeness and adequacy relative to the code requirements of the fabricated scope of work.
 - 2. Exception: Special inspections of a fabricator will not be required where the fabricator is approved and registered as follows:
 - a. Fabricator Approval: Special inspections are not required where the work is done on the premises of the fabricator registered and approved to perform such work without special inspection. Approval shall be based upon review of the fabricator's written procedural and quality control manuals and periodic auditing of fabrication practices by an approved special inspection agency. At completion of fabrication, the approved fabricator shall submit a certificate of compliance to the Code Enforcement Officer stating that the work was performed in accordance with the Construction Documents.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 CONTRACTOR'S RESPONSIBILITY

- A. To facilitate special inspection and testing services, the Contractor shall:
 - 1. Furnish to the Special Inspector such samples of materials as may be necessary for testing purposes.
 - 2. Furnish such casual labor, equipment and facilities as is necessary to obtain and handle samples at the project.
 - 3. Advise the Special Inspector sufficiently in advance of operations to allow for completion of tests and for the assignment of personnel.
 - 4. Provide and maintain, for the sole use of the Special Inspector, adequate facilities for safe storage and proper curing of concrete test cylinders on the project site for the first 24 hours as required by ASTM C31-69.
 - 5. Maintain records at the project site showing the date and extent of each concrete placement.
 - 6. Provide safe access to items to be inspected and/or tested. This includes sheeting and ladders for deep excavation; scaffolding and ladders for inspection and testing of superstructure items.
- B. If any portion of the work shows low test results, evidence of detrimental placing and curing conditions, the Owner may require additional testing, compaction, cored samples or re-welding at the Contractor's expense. In no case shall the inspector prescribe the method of repair of the defect.

3.2 STEEL CONSTRUCTION INSPECTIONS

- A. The special inspections for steel elements of buildings and structures shall be as required by this Article.
 - 1. Exceptions: Special inspection of the steel fabrication process shall not be required where the fabricator does not perform any welding, thermal cutting or heating operation of any kind as part of the fabrication process. In such cases, the fabricator shall be required to submit a detailed procedure for material control that demonstrates the fabricator's ability to maintain suitable records and procedures such that, at any time during the fabrication process, the material specification, grade and mill test reports for the main stress-carrying elements are capable of being determined.
- B. Welding inspections shall be in compliance with AWS D1.1. The basis for welding inspector qualifications shall be AWD D1.1.
- C. Details: The special inspector shall perform an inspection of the steel frame to verify compliance with the details as shown on the Construction Documents, such as bracing, stiffening, member locations and proper application of joint details at each connection.

- D. Structural Steel: Material verification required as follows:
 - 1. Identification markings to conform to ASTM standards specified in the approved Construction Documents.
 - a. Reference standard: ASTM A 6 or ASTM A 568.
 - 2. Manufacturer's certified mill test reports.
 - a. Reference standard: ASTM A 6 or ASTM A 568.
 - 3. BC-NYS Reference: Section 1708.4.
- E. Weld Filler Materials: Material verification required as follows:
 - 1. Identification markings to conform to AWS specification referenced in the Construction Documents.
 - 2. Manufacturer's certificate of compliance required.
 - 3. Referenced standards: AISC, ASD, Section A3.6; and AISC LRFD, Section.
- F. Welding inspections required as follows:
 - 1. Structural steel:
 - a. Complete and partial penetration groove welds: Continuous inspections.
 - b. Multi-pass fillet welds: Continuous inspections.
 - c. Single-pass fillet welds greater than 5/16 inch: Continuous inspections.
 - d. Single-pass fillet welds less than 5/16 inch: Periodic inspections.
 - e. Floor and deck welds: Periodic inspections.
 - 2. Reinforcing Steel:
 - a. Verification of weldability of reinforcing steel other than ASTM A708. Periodic inspections.
 - b. Reinforcing steel-resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special reinforced concrete shear walls and sheer reinforcement.
 - c. Shear reinforcement: Continuous inspections.
 - d. Other reinforcing steel: Periodic inspections.

- 3. Referenced standards: AWS D1.1; AWS D1.3 for floor and deck welds; AWS D1.4 for reinforcing steel; and ACI 318: 3.5.2 for reinforcing steel weldability.
- 4. BC-NYS reference: Section 1704.3.1 for welding inspections, and Section 1903.5.2 for reinforcing steel.
- G. Inspection of steel frame joint details for compliance with approved Construction Documents: Periodic inspections for each of the following:
 - 1. Details such as bracing and stiffening: Periodic inspection.
 - 2. Member locations: Periodic inspection.
 - 3. Application of joint details at each connection: Periodic inspection.
 - 4. BC-NYS Reference: Section 1704.3.2.

3.3 MASONRY INSPECTIONS (LEVEL 1)

- A. Masonry Construction: Masonry construction shall be inspected and evaluated in accordance with the requirements of this Article.
- B. As masonry construction begins, the following shall be verified to ensure compliance:
 - 1. Proportions of site-prepared mortar: Periodic inspections during task.
 - a. Reference: ACI 530.1/ASCE 6/TMS 602; Art. 2.6A.
 - 2. Construction of mortar joints: Periodic inspections during task.
 - a. Reference: ACI 530.1/ASCE 6/TMS 602; Art. 3.3B.
 - 3. Location of reinforcement and connectors: Periodic inspections during task.
 - a. Reference: ACI 530.1/ASCE 6/TMS 602; Art. 3.4 and Art. 3.6A.
- C. The inspection program shall verify the following:
 - 1. Size and location of structural elements: Periodic inspections during task.
 - a. Reference: ACI 530.1/ASCE 6/TMS 602; Art. 3.3G.
 - 2. Type, size, and location of anchors, including other details of anchorage of masonry to structural members, frame or other construction: Periodic inspections during task.
 - a. Reference: ACI 530/ASCE 5/TMS 402; Sec. 1.15.4, 2.1.2.
 - 3. Specified size, grade and type reinforcement: Periodic inspections during task.

- a. Reference: ACI 530/ASCE 5/TMS 402; Sec. 1.12 and ACI 530.1/ASCE 6/TMS 602; Art. 2.4, 3.4.
- 4. Welding of reinforcing bars: Continuous inspections during task.
 - a. Reference: ACI 530/ASCE 5/TMS 402; Sec. 2.1.8.6, Sec. 2.1.8.6.2.
 - b. BC-NYS Reference: Section 2108.9.2.11, Item 2.
- 5. Protection of masonry during cold weather (temperature below 40° F.) or hot weather (temperature above 90° F.): Periodic inspections during task.
 - a. Reference: ACI 530.1/ASCE 6/TMS 602; Art. 1.8.
 - b. BC-NYS Reference: Section 2104.3, 2104.4.
- D. Prior to grouting, the following shall be verified to ensure compliance:
 - 1. Grout space is clean: Periodic inspections during task.
 - a. Reference: ACI 530.1/ASCE 6/TMS 602; Art. 3.2D.
 - 2. Placement of reinforcement and connectors: Periodic inspections during task.
 - a. Reference: ACI 520/ASCE 5/TMS 402; Sec. 1.12 and ACI 530.1/ASCE 6/TMS 602; Art. 3.4.
 - 3. Grout space is clean: Periodic inspections during task.
 - a. Reference: ACI 530.1/ASCE 6/TMS 602; Art. 3.3B.
- E. Grout:
 - 1. Grout shall be verified to ensure compliance with code and Construction Document provisions: Continuous inspections during task.
 - a. Reference: ACI 530.1/ASCE 6/TMS 602; Art. 3.5.
- F. Preparation of any required grout specimens, mortar specimens and/or prisms shall be observed: Continuous inspections during task.
 - 1. Reference: ACI 530.1/ASCE 6/TMS 602; Art. 1.5.
 - 2. BC-NYS Reference: Section 2105.3, 2105.4 and 2105.5.
- G. Compliance with required inspection provisions of the Construction Documents and the approved submittals shall be verified observed: Continuous inspections during task.
 - 1. Reference: ACI 530.1/ASCE 6/TMS 602; Art. 1.5.

Statement of Special Inspections

Project: Willis V. Carrier Park Recreation Center – Phase 3

Location: Carrier Park, East Syracuse, New York

Owner: Town of Dewitt

Design Professional in Responsible Charge: Appel Osborne Landscape Architecture

This Statement of Special Inspections is submitted as a condition for permit issuance in accordance with the Special Inspection and Structural Testing requirements of the Building Code. It includes a schedule of Special Inspection services applicable to this project as well as the name of the Special Inspection Coordinator and the identity of other approved agencies to be retained for conducting these inspections and tests. This Statement of Special Inspections encompass the following disciplines:

Structural Architectural

Mechanical/Electrical/Plumbing

Architectural

Other:

The Special Inspection Coordinator shall keep records of all inspections and shall furnish inspection reports to the Building Official and the Registered Design Professional in Responsible Charge. Discovered discrepancies shall be brought to the immediate attention of the Contractor for correction. If such discrepancies are not corrected, the discrepancies shall be brought to the attention of the Building Official and the Registered Design Professional in Responsible Charge. The Special Inspection program does not relieve the Contractor of his or her responsibilities.

Interim reports shall be submitted to the Building Official and the Registered Design Professional in Responsible Charge.

A *Final Report of Special Inspections* documenting completion of all required Special Inspections, testing and correction of any discrepancies noted in the inspections shall be submitted prior to issuance of a Certificate of Use and Occupancy.

Job site safety and means and methods of construction are solely the responsibility of the Contractor.

Interim Report Frequency: Weekly

Prepared by:

Robert C. Palucci, P.E.

(type or print name)

Owner's Authorization:





Building Official's Acceptance:

12/16/2024

Date

Signature			Date S	ignature			Date	
	CASE Form 101	•	Statement of Specia	al Inspections	•	©CASE 2004		

Schedule of Inspection and Testing Agencies

This Statement of Special Inspections / Quality Assurance Plan includes the following building systems:

Soils and Foundations Cast-in-Place Concrete Precast Concrete Masonry	Spray Fire Resistant Material Wood Construction Exterior Insulation and Finish System Mechanical & Electrical Systems
Structural Steel Cold-Formed Steel Framing	Architectural Systems Special Cases

Sp	ecial Inspection Agencies	Firm	Address, Telephone, e-mail
1.	Special Inspection Coordinator	Kenney Geotechnical Engineering Services, Inc.	7246 State Fair Blvd. Syracuse, NY 13209 Tel. (315)638-2706 cmkekenneygeotechnical.com
2.	Inspector	Kenney Geotechnical Engineering Services, Inc.	7246 State Fair Blvd. Syracuse, NY 13209 Tel. (315)638-2706 cmkekenneygeotechnical.com
3.	Inspector	Kenney Geotechnical Engineering Services, Inc.	7246 State Fair Blvd. Syracuse, NY 13209 Tel. (315)638-2706 cmkekenneygeotechnical.com
4.	Testing Agency	Kenney Geotechnical Engineering Services, Inc.	7246 State Fair Blvd. Syracuse, NY 13209 Tel. (315)638-2706 cmkekenneygeotechnical.com
5.	Testing Agency	Kenney Geotechnical Engineering Services, Inc.	7246 State Fair Blvd. Syracuse, NY 13209 Tel. (315)638-2706 cmkekenneygeotechnical.com
6.	Other		

Note: The inspectors and testing agencies shall be engaged by the Owner or the Owner's Agent, and not by the Contractor or Subcontractor whose work is to be inspected or tested. Any conflict of interest must be disclosed to the Building Official, prior to commencing work.

Quality Assurance Plan

Quality Assurance for Seismic Resistance

Seismic Design Category	1
Quality Assurance Plan Required (Y/N)	N

Description of seismic force resisting system and designated seismic systems:

Quality Assurance for Wind Requirements

Basic Wind Speed (3 second gust)

Wind Exposure Category

Quality Assurance Plan Required (Y/N)N

Description of wind force resisting system and designated wind resisting components:

Statement of Responsibility

Each contractor responsible for the construction or fabrication of a system or component designated above must submit a Statement of Responsibility.

Qualifications of Inspectors and Testing Technicians

The qualifications of all personnel performing Special Inspection and testing activities are subject to the approval of the Building Official. The credentials of all Inspectors and testing technicians shall be provided if requested.

Key for Minimum Qualifications of Inspection Agents:

When the Registered Design Professional in Responsible Charge deems it appropriate that the individual performing a stipulated test or inspection have a specific certification or license as indicated below, such designation shall appear below the *Agency Number* on the Schedule.

 PE/SE
 Structural Engineer – a licensed SE or PE specializing in the design of building structures

 PE/GE
 Geotechnical Engineer – a licensed PE specializing in soil mechanics and foundations

 EIT
 Engineer-In-Training – a graduate engineer who has passed the Fundamentals of

 Engineering examination
 Engineering examination

American Concrete Institute (ACI) Certification

ACI-CFTT	Concrete Field Testing Technician – Grade 1
ACI-CCI	Concrete Construction Inspector
ACI-LTT	Laboratory Testing Technician – Grade 1&2
ACI-STT	Strength Testing Technician

American Welding Society (AWS) Certification

AWS-CWI Certified Welding Inspector AWS/AISC-SSI Certified Structural Steel Inspector

American Society of Non-Destructive Testing (ASNT) Certification

ASNT Non-Destructive Testing Technician – Level II or III.

International Code Council (ICC) Certification

ICC-SMS1	Structural Masonry Special Inspector
ICC-SWSI	Structural Steel and Welding Special Inspector
ICC-SFS1	Spray-Applied Fireproofing Special Inspector
ICC-PCSI	Prestressed Concrete Special Inspector
ICC-RCSI	Reinforced Concrete Special Inspector

National Institute for Certification in Engineering Technologies (NICET)

NICET-CT	Concrete Technician – Levels I, II, III & IV
NICET-ST	Soils Technician - Levels I, II, III & IV
NICET-GET	Geotechnical Engineering Technician - Levels I, II, III & IV

Exterior Design Institute (EDI) Certification

EDI-EIFS EIFS Third Party Inspector

Other

Soils and Foundations

Item	Agency # (Qualif.)	Scope
1. Shallow Foundations	PE/GE	Inspect soils below footings for adequate bearing capacity and consistency with geotechnical report. Inspect removal of unsuitable material and preparation of subgrade prior to placement of controlled fill
2. Controlled Structural Fill	PE/GE	Perform sieve tests (ASTM D422 & D1140) and modified Proctor tests (ASTM D1557) of each source of fill material. Inspect placement, lift thickness and compaction of controlled fill. Test density of each lift of fill by nuclear methods (ASTM D2922) Verify extent and slope of fill placement.
3. Deep Foundations	PE/GE	Inspect and log pile driving operations. Record pile driving resistance and verify compliance with driving criteria. Inspect piles for damage from driving and plumbness. Verify pile size, length and accessories. Inspect installation of drilled pier foundations. Verify pier diameter, bell diameter, lengths, embedment into bedrock and suitability of end bearing strata.
 Load Testing 4. Other: 		

Cast-in-Place Concrete

Item	Agency # (Qualif.)	Scope
1. Mix Design	ACI-CCI ICC-RCSI	Review concrete batch tickets and verify compliance with approved mix design. Verify that water added at the site does not exceed that allowed by the mix design.
2. Material Certification		
3. Reinforcement Installation	ACI-CCI ICC-RCSI	Inspect size, spacing, cover, positioning and grade of reinforcing steel. Verify that reinforcing bars are free of form oil or other deleterious materials. Inspect bar laps and mechanical splices. Verify that bars are adequately tied and supported on chairs or bolsters
4. Post-Tensioning Operations	ICC-PCSI	Inspect placement, stressing, grouting and protection of post- tensioning tendons. Verify that tendons are correctly positioned, supported, tied and wrapped. Record tendon elongations.
5. Welding of Reinforcing	AWS-CWI	Visually inspect all reinforcing steel welds. Verify weldability of reinforcing steel. Inspect preheating of steel when required.
6. Anchor Rods		Inspect size, positioning and embedment of anchor rods. Inspect concrete placement and consolidation around anchors.
7. Concrete Placement	ACI-CCI ICC-RCSI	Inspect placement of concrete. Verify that concrete conveyance and depositing avoids segregation or contamination. Verify that concrete is properly consolidated.
8. Sampling and Testing of Concrete	ACI-CFTT ACI-STT	Test concrete compressive strength (ASTM C31 & C39), slump (ASTM C143), air-content (ASTM C231 or C173) and temperature (ASTM C1064).
9. Curing and Protection	ACI-CCI ICC-RCSI	Inspect curing, cold weather protection and hot weather protection procedures.
10. Other:		

Masonry

lte	m	Agency # (Qualif.)	Scope
1.	Material Certification		
2.	Mixing of Mortar and Grout	ICC-SMSI	Inspect proportioning, mixing and retempering of mortar and grout.
3.	Installation of Masonry	ICC-SMSI	Inspect size, layout, bonding and placement of masonry units.
4.	Mortar Joints	ICC-SMSI	Inspect construction of mortar joints including tooling and filling of head joints.
5.	Reinforcement Installation	ICC-SMSI AWS-CWI	Inspect placement, positioning and lapping of reinforcing steel. Inspect welding of reinforcing steel.
6.	Prestressed Masonry	ICC-SMSI	Inspect placement, anchorage and stressing of prestressing bars.
7.	Grouting Operations	ICC-SMSI	Inspect placement and consolidation of grout. Inspect masonry clean-outs for high-lift grouting.
7.	Weather Protection	ICC-SMSI	Inspect cold weather protection and hot weather protection procedures. Verify that wall cavities are protected against precipitation.
9.	Evaluation of Masonry Strength	ICC-SMSI	Test compressive strength of mortar and grout cube samples (ASTM C780). Test compressive strength of masonry prisms (ASTM C1314).
10.	Anchors and Ties	ICC-SMSI	Inspect size, location, spacing and embedment of dowels, anchors and ties.
11.	Other:		

Structural Steel

Item		Agency # (Qualif.)	Scope
	Fabricator Certification/ Quality Control Procedures] Fabricator Exempt	AWS/AISC- SSI ICC-SWSI	<i>Review shop fabrication and quality control procedures.</i>
2. N	Material Certification	AWS/AISC- SSI ICC-SWSI	Review certified mill test reports and identification markings on wide-flange shapes, high-strength bolts, nuts and welding electrodes
3. (Dpen Web Steel Joists		Inspect installation, field welding and bridging of joists.
4. E	Bolting	AWS/AISC- SSI ICC-SWSI	Inspect installation and tightening of high-strength bolts. Verify that splines have separated from tension control bolts. Verify proper tightening sequence. Continuous inspection of bolts in slip- critical connections.
5. V	Welding	AWS-CWI ASNT	Visually inspect all welds. Inspect pre-heat, post-heat and surface preparation between passes. Verify size and length of fillet welds. Ultrasonic testing of all full-penetration welds.
6. 5	Shear Connectors	AWS/AISC- SSI ICC-SWSI	Inspect size, number, positioning and welding of shear connectors. Inspect suds for full 360 degree flash. Ring test all shear connectors with a 3 lb hammer. Bend test all questionable studs to 15 degrees.
7. \$	Structural Details	PE/SE	Inspect steel frame for compliance with structural drawings, including bracing, member configuration and connection details.
8. 1	Metal Deck	AWS-CWI	Inspect welding and side-lap fastening of metal roof and floor deck.
9. (Other:		

SECTION 015000 - TEMPORARY FACILITIES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Each Contractor shall provide its own temporary facilities in areas designed by the Landscape Architect unless noted otherwise.
- B. Contractor shall pay costs for providing, maintaining, moving, and removing temporary facilities unless otherwise indicated.

PART 2 - FACILITIES

2.1 <u>TEMPORARY SANITARY FACILITIES</u>

- A. The Contractors will utilize a portable toilet, provided and maintained by the General Construction Contractor (GC).
 - 1. Use only those designated.
- B. Maintain in a sanitary and clean condition at all times.
- C. Portable toilet shall be locked when Contractors are not working.

2.2 GARBAGE / DUMPSTERS / RECYCLING

- A. The Contractors will utilize dumpsters / recycling containers, provided and maintained by the General Construction Contractor (GC).
 - 1. Use only those designated.
- B. Maintain in a neat and clean condition at all times.
- C. Site Garbage / Dumpsters / Recycling containers shall be picked up and replaced on the regular basis.

2.3 <u>TEMPORARY WATER</u>

- A. Drinking Water: Each Contractor to provide potable drinking water for drinking purposes for their own personnel on the site. Furnish disposable drinking cups. Dispose of properly.
- B. Each Contractor is responsible to adapt existing water sources at the site for their own use.

2.4 <u>TEMPORARY FIRE PROTECTION</u>

- A. Each Contractor shall provide and maintain portable fire-extinguishers for area of its operations. Number to conform to applicable codes.
- B. Fire Extinguishers: Multi-purpose (ABC) dry chemical.

- C. U.L. Labeled.
- D. Current inspection tags affixed.
- E. Take all necessary precautions to insure against fire during construction and be responsible that the area within the contract limit is kept orderly and clean on a daily basis.
 - 1. No fires shall be built on the premises nor shall open flame devices of any kind be employed within the building except for field welding with supervised fire watch.
 - 2. Contractor shall provide shielding for heat and smoke detectors from accidentally going off. Contractors will be back charged for all fines imposed for false fire alarms.

2.5 <u>TEMPORARY FENCING, BARRICADING</u>

- A. The Site Contractor (SC) shall provide and maintain temporary fencing, covers and/or barricading as required for maintenance and protection of traffic and to keep unauthorized persons away from excavations and hazardous areas for which each Contractor is responsible.
 - 1. Covers over openings. Contractors shall provide protection acceptable to Owner and/or as specified in the Specifications.
 - 2. Contractors are responsible for the security of their materials and/or equipment.
- B. Any Contractor that creates or contributes to an unsafe condition, such as but not limited to a fall hazard, shall correct same immediately.

2.6 <u>DUST AND EROSION PROTECTION</u>

A. Erect and maintain dust and erosion protection whenever operations will produce unreasonable amounts of dust, dirt or erosion. For further elaboration refer to Section 312501.

2.7 <u>TEMPORARY STORAGE</u>

- A. Storage space is limited and will be permitted only in areas designated by the Owner or indicated on the drawings.
- B. The Owner will not provide security for Contractor's material and/or equipment.
- C. Each Contractor is responsible for the protection, oversight and use of their own equipment.

2.8 <u>TEMPORARY POWER AND LIGHTING</u>

A. Contractors to provide generators for power when necessary.

2.9 <u>TEMPORARY CONSTRUCTION AND SUPPORT FACILITIES</u>

A. Locate field office, trailers, storage sheds, sanitary facilities, dumpsters and other temporary construction and support facilities for easy access. Coordinate with Owner. Maintain temporary construction and support facilities until near Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.

PART 3 - EXECUTION

3.1 <u>GENERAL</u>

- A. Temporary facilities shall be installed in accordance with applicable codes.
- B. Maintain temporary facilities throughout the construction period.
- C. Remove temporary facilities when they are no longer required or when directed by the Architect/Landscape Architect.
- D. Repair damage to the project site caused by the installation of temporary facilities.
- E. Contractors performing welding, cutting or other activities with an open flame or producing sparks shall do the following as a minimum:
 - 1. Protect the surrounding areas from fire and damage.
 - 2. Provide fire extinguishers within reach of the activity and the area where sparks may land.
 - 3. Provide a fire watch during activity and ½ hours after the activity is completed at the locations of the activity and the area where sparks may land.
- F. Notification of all utility interruptions is to be received by the Owner in writing 72 hours prior to interruption.

SECTION 017700 - CLEANING UP & PROJECT CLOSEOUT

1.1 <u>GENERAL</u>

- A. All applicable provisions of the Contract Documents shall govern all work of this Section.
- B. During the progress of the Work and at the completion thereof, Contractors and subcontractors shall comply with the requirements set forth below.

1.2 <u>CLEANING UP</u>

- A. The job site shall be maintained in a reasonably neat and orderly condition and kept free from accumulations of waste materials and rubbish during the entire construction period. Remove all crates, cartons and other flammable waste materials or trash from the work areas at the end of each working day.
- B. The Contractor shall be responsible for the general cleaning up work of all trades, except as otherwise specified. If the premises and job site are not maintained properly, the removed and charge such cost to the Contractor.
- C. All areas inside and outside the work area shall be cleaned and left free from rubbish, mortar drippings, extraneous construction materials, dirt, dust, mud, etc.
- D. Care shall be taken by workmen not to mark, soil or otherwise deface any finished surfaces. In the event that any finished surface becomes defaced in any way, the Contractor causing damage shall be responsible for cleaning and restoring such surfaces to their original condition.
- E. Clean up immediately upon completion of each trades work and as directed by the Architect.
- F. Upon completion of the work, the Contractor shall remove all temporary work and structures, scaffolding, surplus materials and rubbish of every kind from the site of the work.

1.3 PROJECT CLOSEOUT

- A. Prior to the final payment, and before the issuance of a final certificate for payment in accordance with the provisions of the Contract Documents, the Contractors shall comply with the requirements set forth herein.
- B. The work under this section shall include but is not limited to the execution of the following principal items as they apply to Prime Contractors and all Contractors for Project Closeout:
 - 1. Cleaning up as specified and directed.
 - 2. Guarantees and Warranties required by the General Conditions and any other extended guaranties or warranties stated in the Technical Sections of the Specifications.

- 3. Release of Liens.
- 4. Project Record Documents including reproducible As Built Drawings.
- 5. Final Payment: See Agreement
- 6. Final Application for & Certificate for Final Payment: See General Conditions and supplements.
- 7. Consent of Surety Company to make final payment
- 8. Submittals A Complete and Full Set of Required Submittals
- 9. O&M Manuals A complete and fullest of all operations and maintenance requirements of equipment and materials installed.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

SECTION 023200 - SUBSURFACE INVESTIGATION INFORMATION

PART 1 - GENERAL

1.1 <u>RELATED DOCUMENTS</u>

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 <u>SUMMARY</u>

- A. The Location Plan of the Subsurface Exploration and Geotechnical Engineering Report shows the locations on the site at which borings have been made.
- B. All information furnished in the subsurface investigation reports is solely for the information of the Bidder and is not a part of the Contract. The Owner and Architect accept no responsibility for their contents nor will any adjustments be made in the contract price if such data is at variance with actual conditions encountered, except as may otherwise be specified in the various Sections of the specifications or in the Special Conditions.
- C. If the bidder desires to make his own investigation of sub-soil conditions at the site, he may do so after permission of the Owner is granted. Any work performed by the Bidder prior to the signing of the Contract shall be at his own expense and risk, it being understood that any services, excavations, or existing conditions disrupted by the Bidder during the time of investigation shall be immediately restored to conditions existing prior to the investigation at the expense of the Bidder and to the satisfaction of the Owner.
- D. Prior to submission of his bid, the Contractor shall be assumed to have familiarized himself with the nature of the subsurface and ground water conditions to his own satisfaction. The Contractor will provide all material and workmanship necessary to account for those onsite conditions at no additional cost to the Owner.

1.3 <u>SUBSURFACE INVESTIGATION REPORTS</u>

A. The Subsurface Exploration and Geotechnical Reports prepared by Kenny Geotechnical Engineering Services, is included.

Kenney Geotechnical Engineering Services, PLLC

P.O. Box 156 Baldwinsville, New York 13027 Phone: (315) 638-2706 Fax: (315) 638-1544 cmk@kenneygeotechnical.com



October 29, 2012

Appel Osborne Landscape Architecture 102 W. Division Street Suite 400 Syracuse, NY 13204 **<VIA EMAIL>**

- Attn.: Mr. Timothy D. Bonaparte, RLA, CPESC, LEED AP Partner
- Re.: **Geotechnical Investigation Report** Willis Carrier Park East Syracuse, NY

Dear Tim,

The attached report presents the results of the geotechnical engineering study for the referenced project. Please review the report thoroughly and address any questions or concerns to me at your earliest convenience.

Thank you for the opportunity to be of service!

Respectfully submitted, **KENNEY GEOTECHNICAL ENGINEERING SERVICES, PLLC**

Christopher M. P.E. DN: cn=Christopher M. Kenney, P.E., Kenney, P.E.

o=Kenney Geotechnical Engineering Services, PLLC, ou, email=cmk@kenneygeotechnical.com, c=US Date: 2012.10.29 16:47:08 -04'00'

Digitally signed by Christopher M. Kenney,

Christopher M. Kenney, P.E. President





GEOTECHNICAL INVESTIGATION REPORT

WILLIS CARRIER PARK IMPROVEMENTS 600 ROBY AVE. EAST SYRACUSE, NEW YORK

Prepared For:

APPEL OSBORNE LANDSCAPE ARCHITECTURE 102 W. DIVISION STREET SUITE 400 SYRACUSE, NY 13204

Prepared By:

KENNEY GEOTECHNICAL ENGINEERING SERVICES, PLLC 7246 STATE FAIR BLVD. SYRACUSE, N.Y. 13209 (315) 638-2706 Fax: (315) 638-1544

OCTOBER 29, 2012

GEOTECHNICAL INVESTIGATION REPORT WILLIS CARRIER PARK IMPROVEMENTS 600 ROBY AVE. EAST SYRACUSE, NEW YORK

I. INTRODUCTION

A. Purpose and Scope of Services

Kenney Geotechnical Engineering Services, PLLC, was retained by Appel Osborne Landscape Architecture to perform a geotechnical investigation for the proposed Willis Carrier Park Improvements project in East Syracuse, New York. The purpose of the geotechnical investigation was to explore subsurface conditions at the project site. This geotechnical report evaluates the data developed during the subsurface investigation and provides analysis and recommendations for the proposed construction.

No environmental services are included in this study. No conclusions have been drawn regarding environmental conditions of the site, potential contaminants, potential special treatment or disposal of site materials, or other environmental considerations.

B. Information Provided by Others

The following information was provided for our use for this study:

• "Carrier Park Soil Boring Locations" developed by Appel Osborne Landscape Architecture (attached as Figure 1)

We also utilized the following publically-available geological literature:

- "Surficial Geologic Map of New York Finger Lakes Sheet", New York State Museum, 1986
- "Bedrock Map of New York Finger Lakes Sheet", New York State Museum, 1970.

We have also referenced nearby subsurface investigations performed for others in developing the opinions presented in this report.

C. Site and Project Description

The project site is located between the Carrier Corporation facility and residential areas in East Syracuse (see Figure 2). The majority of the site is currently a park and is primarily open lawn area and woods. The northern end of the site is dilapidated asphalt parking area. It appears that a building may have occupied this area in the past

It is our understanding that the proposed construction will include a one-story, slab-on-grade structure (Gateway Building) and athletic field improvements that will include numerous light towers. No loading information for the building or towers was available at the time of this report.

D. Local Geologic Conditions

The site is located with the Ontario Lowland physiographic province. Major topographic and geologic features in this area were formed during the last glacial advance and retreat, which ended approximately 12,000 years ago.

Regional surficial geologic mapping indicates that soils in the site vicinity generally consist of glacio-lacustrine sediment. Bedrock mapping suggests that Vernon Formation shale underlies soil at the site.

II. SUBSURFACE EXPLORATION

A. Investigation Methods

The subsurface investigation consisted of the performance of seven test borings and one infiltration test. Borings were advanced using a Diedrich D-25 drill rig. Borings were advanced to depths of 25 feet to 30 feet below the ground surface. Borings were performed during the period of October 12, 2012 to October 26, 2012.

Investigation locations were positioned in the field by representatives of Kenney Geotechnical Engineering Services, PLLC using a tape measure and the boring location plan prepared by Appel Osborne Landscape Architecture. Surface elevations at the investigation locations were interpolated from the topographic mapping provided for this study.

The boring logs and related information depict subsurface conditions only at the specific locations and times indicated. Subsurface conditions and water levels at other locations may differ from conditions at the locations where sampling was conducted. The passage of time also may result in changes in the conditions interpreted to exist at the locations where sampling was conducted.

B. Subsurface Conditions Encountered

Soil samples obtained during the subsurface investigation were classified by a Geotechnical Engineer using the Unified Soil Classification System in accordance with ASTM D 2487. The attached boring logs illustrate an interpretation of subsurface conditions based on our review of the recovered samples, drilling observations, and professional experience. A Geologic Profile that summarizes the subsurface conditions encountered is also attached to this report.

The subsurface conditions encountered by the test borings generally consisted of:

- A surficial layer of topsoil, with the exception of boring location SB-1 and SB-2, where asphalt pavement underlain by concrete was encountered;
- Brown silty or clayey SAND to a depth of approximately 7 feet (Stratum A);
- Gray saturated silty fine SAND with interbedded lean CLAY and SILT layers from beneath the Stratum A to the bottom of borings 25 feet to 30 feet below the ground surface (**Stratum B**); and
- Red-brown GLACIAL TILL, encountered at a depth of 18 feet at boring location SB-4 only (**Stratum C**).

In general, the subsurface conditions encountered are typical of the local area. Test borings performed for other nearby projects suggest that Stratum C materials are typically encountered 30 feet to 35 feet below the ground surface.

<u>Stratum A</u>

Stratum A generally consisted of brown, moist, medium stiff to stiff clayey sand that extended to a depth of approximately 7 to 8 feet below the ground surface. In some areas the clayey sand also included layers of silty sand. Overall, the stratum is more cohesive than cohesionless. Standard penetration test "N" values ranged from

<u>Stratum B</u>

Stratum B generally consisted of saturated loose fine silty sand with interbedded layers of medium stiff lean clay and silt. Overall the stratum was

more cohesionless than cohesive. Standard penetration test "N" values recorded in Stratum B ranged from 1 to 16 blows per foot (bpf), with typical values of approximately 5 blows per foot.

<u>Stratum C</u>

Stratum C consisted of hard red glacial till derived from the local Vernon shale formation. Stratum C was only encountered at boring location SB-4 at a depth of 18 feet. Experience gained on nearby projects suggests that this layer, or the Vernon shale formation, will be encountered approximately 35 feet below the ground surface.

C. Groundwater Conditions Encountered

Groundwater was encountered approximately 7.5 feet to 8 feet below the ground surface across the site. Although not encountered during the subsurface investigation, artesian groundwater conditions are sometimes encountered in the project area.

The groundwater table will vary with the seasons and changes in precipitation patterns and may be higher during the wetter seasons. Subsurface conditions and water levels at other locations may differ from conditions at the locations where sampling was conducted. The passage of time also may result in changes in the conditions interpreted to exist at the locations where sampling was conducted.

D. Infiltration Testing

Infiltration testing was performed at test location IT-1. The infiltration test holes were augered to a depth of 4 feet and a temporary PVC casing was set to maintain borehole stability. The infiltration tests were performed in accordance with NYSDEC guidelines as outlined in the Stormwater Management Design Manual.

Infiltration testing results were as follows:

Location	Soil Conditions	Percolation Rate (min./inch)
IT-1	Clayey SAND	No infiltration in 48 hours

It was noted that standing water was observed at the ground surface in the area of the infiltration test following rain events during the period of drilling.

III. FINDINGS AND RECOMMENDATIONS

A. Gateway Building Foundation Analysis and Recommendations

The subsurface conditions encountered are only capable of supporting lightly loaded structures on shallow foundations. Although structural loading information was not available at the time of this report, we anticipate that the Gateway Building will be lightly loaded (exterior wall loads of 2 kips/l.f. or less, and interior column loads of 30 kips or less).

An allowable bearing pressure of 2,500 pounds per square foot (psf) is recommended for the Gateway Building. Even if loadings would allow for smaller sizes, square and continuous footings should be no less than 24 and 18 inches wide, respectively. All exterior footings should bear at least 48 inches below finished exterior grade for frost protection.

Drainage should be maintained away from foundations both during and after construction. Concrete should be placed in footing excavations within 24 hours of their initial excavation. Each footing excavation should be inspected by qualified geotechnical personnel and approved prior to placing reinforcing steel and concrete.

B. Light Tower Foundations

The subsurface conditions encountered suggest that large diameter drilled shafts will be required to support the proposed light towers. Table 1 (attached) summarizes the subsurface conditions encountered and presents geotechnical design parameters that can be utilized for drilled shaft design. Depending on the light tower loading, it may be necessary to extend the drilled shafts into Stratum C (glacial till or Vernon shale) to control tower settlement.

Groundwater was encountered below a depth of approximately 8 feet, and zones of perched groundwater were encountered above that depth. Temporary casing should be utilized during drilled shaft construction to maintain the integrity of the shaft during concrete placement.

C. Earthwork

It is anticipated that the subsurface materials to be encountered during earthwork can be excavated with standard equipment to a depth of approximately 7 feet from the current ground surface. The groundwater table will be encountered below this depth, which will require shoring and dewatering to stabilize excavations. Temporary excavation slopes must be evaluated by the Contractor's on-site Responsible Person. We anticipate that site soils above a depth of 7 feet will be classified as a Type C material in accordance with OSHA standards. Type C materials must be graded to slopes no greater than 1.5:1 (horizontal to vertical) during excavation.

Areas to receive fill and new structures should be stripped of vegetation, topsoil, and existing pavement. Sideslopes receiving fill should be benched to allow for drainage and the placement of horizontal lifts of backfill. Fill should be placed in loose lifts with a maximum thickness of 12 inches and compacted to at least 95% of the maximum dry density as established by testing performed in accordance with ASTM D-1557 (Modified Proctor).

The site soils will be prone to erosion during heavy precipitation. The Contractor must continually re-evaluate slopes to ensure safe conditions exist for on-site personnel. Consideration should be given to applying sheets of polyethylene to cuts slopes in soil to prevent washouts during rain events.

Earthwork must be performed using methods that will result in a stable excavations and fills. Typical temporary earthwork measures such as temporary drainage swales, stabilized haul roads, and the use of protective layers of crushed stone can be employed at this site. Additional recommendations are as follows.

- 1. Strip existing pavement,topsoil, roots and organics from all areas that will receive new construction to establish subgrade.
- 2. Proof-roll exposed subgrade with a fully loaded dump truck, or accepted alternative equipment, under the observation of geotechnical personnel. Areas that rut, weave, or deflect should be over-excavated and replaced with compacted structural fill (see below for structural fill characteristic requirements).
- Utilize structural fill to raise site grades to the desired elevation. Structural fill should consist of imported granular material conforming to NYSDOT Specification Item 203-2.02 Type C, NYSDOT Item No. 304.03, Subbase Course, Type 2 crushed rock, or approved equal. Existing on-site soil can be re-utilized as structural fill pending field approval by geotechnical personnel.
- 4. Field moisture contents for structural fill should be maintained within 2 percentage points of the optimum moisture content established by laboratory testing to provide adequate compaction. All fill should be placed in level lifts having a loose thickness no greater than 12 inches and should be compacted with vibratory rollers to at least the following

minimum percentages of the Modified Proctor (ASTM D-1557) maximum dry density:

Below footings:	95%
 Beneath slab-on-grade or pavements: 	95%
Utility trench backfill:	95%
Beneath landscape areas:	90%
• Beneath sidewalks and exterior slabs:	95%

- 5. In-place density testing should be performed at a frequency of one test per 500 square feet per lift in open areas and one test per 25 feet per lift in trenches.
- 6. For utility trenches or other confined areas, small compaction equipment may be necessary such as a vibratory plate, jumping jack or walk-behind vibratory roller. In these cases, lift heights no greater than 6 inches should be maintained.
- 7. If the structure is to be constructed during the winter months, or if the building interiors will be subjected to freezing temperatures after footer construction, adequate frost cover and protection must be provided. Earthwork cannot be performed with frozen material.

D. Concrete Slab- On- Grade

It is anticipated that the subgrade for concrete slabs-on-grade will consist of silty or clayey sand. All topsoil, organic matter, roots, etc. must be removed from beneath the subgrade. All subgrade areas should be proof-rolled as discussed in the Earthwork recommendations.

If necessary for grading, place structural fill over stripped ground in order to achieve new floor slab elevations. Structural fill placed to establish floor slab subgrade should conform to the recommendations for materials and compaction presented in the Earthwork recommendations.

The subbase for the slab-on-grade should consist of a minimum of 6 inches of gravel or crushed stone conforming to NYSDOT specifications for Item 304-2.02 Type 2 or 4. Follow compaction requirements presented for earthwork. Provide a vapor barrier beneath the slab-on-grade if impermeable floor finishes are used.

E. Seepage and Drainage

Groundwater was encountered approximately 7 or 8 feet below the ground surface across the site. Low permeability soils were encountered above this depth, and permeable soils were encountered below a depth of 8 feet. Contractors should anticipate the need to control and manage subsurface water during earthwork following rain events and snowmelt. Excavations extending below a depth of 7 or 8 feet will require dewatering and temporary shoring.

F. Seismic Hazard Analysis

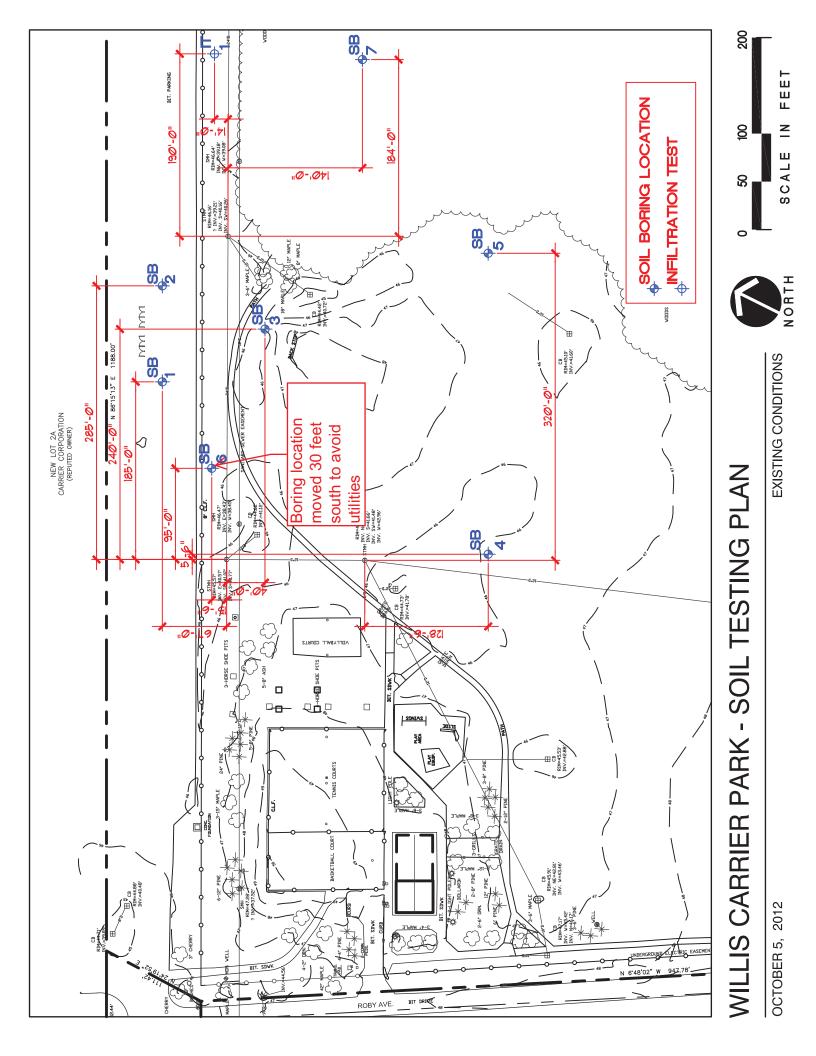
Liquefaction, surface rupture from faulting or lateral spreading is estimated to have a low probability of occurrence given the soil conditions encountered and typical regional seismicity.

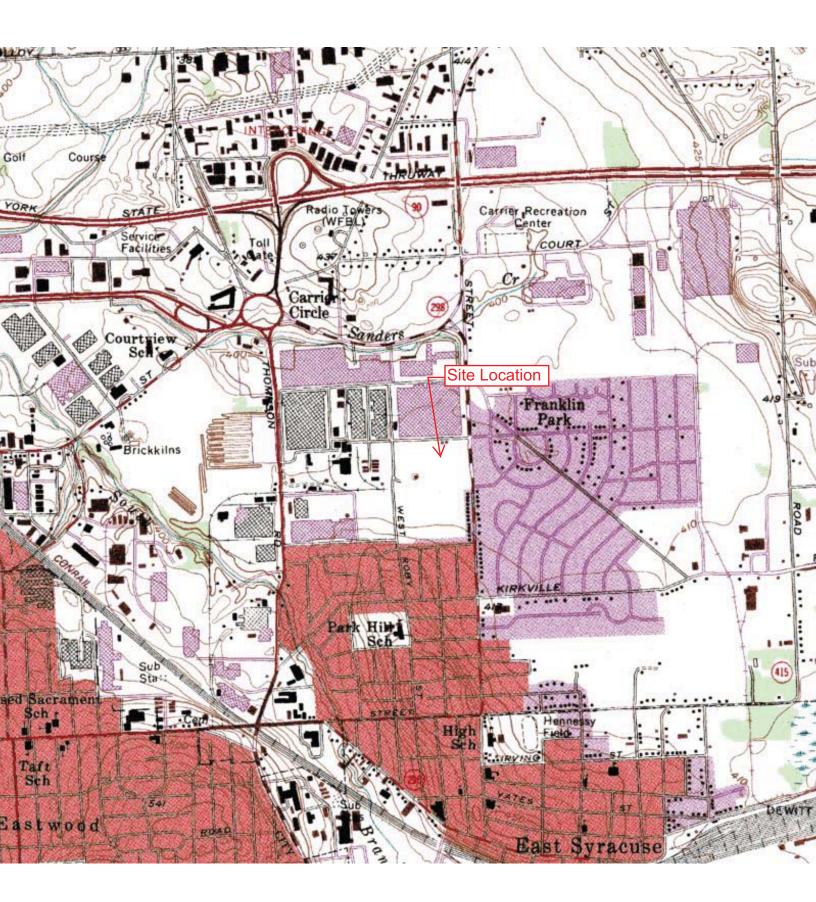
Based upon the data generated during this investigation, it is our opinion that **Site Class D** is appropriate for the project site. Please note that the site class may have to be modified if changed subsurface conditions are encountered during construction. The estimated design spectral response acceleration parameters are $S_{DS} = .192g$ and $S_{D1} = .098g$.

G. Construction Monitoring

The foundation and earthwork recommendations presented in this report are predicated on the performance of construction observation and testing by geotechnical personnel. We request continued involvement with this project so that we may assess subsurface conditions exposed during construction to determine if modifications to our recommendations are necessary.

	Table 1 - Willis Carri	Carrier Park Light Towers - Correlated Geotechnical Parameters	owers - Co	rrelated G	sotechnic	al Param	eters	
		Representative			Ult. Skin Friction	Total Unit Weight		
Depth (ft)	Typical Soil Conditions	"N" Value	ф	c (psf)	(psf)	(Pcf)	Кр	k (pci)
1	Clayey SAND	9	26	100	800	120	2.4	25
7	Clayey SAND	12	30	100	950	120	3.2	70
8	Silty SAND	7	27	0	750	120	4.4	25
30	Silty SAND	7	27	0	750	120	3.1	25
35 (typ.)	35 (typ.) Vernon Shale (typical local)	40	43	300	2000	140	3.2	250





Kenney Geotechnical 7246 St Baldwin Telepho	y Geotechnical Services ate Fair Blvd sville, N.Y. 13209 one: 315-638-2706 5-638-1544	KEY TO SYMBOLS
CLIENT Appel Osbo	prne LA	PROJECT NAME Willis Carrier Park
PROJECT NUMBER	2012-086	PROJECT LOCATION East Syracuse, NY
(Unified Sol ASPH CL: L CL: MI CONC FILL:	ALC SYMBOLS bil Classification System) ALT: Asphalt JSCS Low Plasticity Clay L: USCS Low Plasticity Silty Clay CRETE: Concrete Fill (made ground)	SAMPLER SYMBOLS Split Spoon
SC-SI SM: U SP: U SW: U	JSCS Clayey Sand M: USCS Clayey Sand USCS Silty Sand JSCS Poorly-graded Sand USCS Well-graded Sand SOIL: Topsoil	WELL CONSTRUCTION SYMBOLS
PI - PLAST W - MOIST DD - DRY D NP - NON P -200 - PERCE	D LIMIT (%) TC INDEX (%) TURE CONTENT (%) ENSITY (PCF)	EVIATIONS TV - TORVANE PID - PHOTOIONIZATION DETECTOR UC - UNCONFINED COMPRESSION ppm - PARTS PER MILLION ✓ Water Level at Time Drilling, or as Shown Water Level at End of ✓ Water Level After 24 Hours, or as Shown V

KEY TO SYMBOLS - GINT STD US LAB.GDT - 10/29/12 15:31 - C:/PROGRAM FILES (X86)/GINT/PROJECTS/2012-086 CARRIER PARK BORINGS/GPJ

TERMS DESCRIBING CONSISTENCY OR CONDITION

COARSE-GRAINED SOILS (major portions retained on No. 200 sieve): includes (1) clean gravel and sands and (2) silty or clayey gravels and sands. Condition is rated according to relative density as determined by laboratory tests or standard penetration resistance tests.

Descriptive Terms	Relative Density	SPT Blow Count
Very loose	0 to 15 %	< 4
Loose	15 to 35 %	4 to 10
Medium dense	35 to 65 %	10 to 30
Dense	65 to 85 %	30 to 50
Very dense	85 to 100 %	> 50

FINE-GRAINED SOILS (major portions passing on No. 200 sieve): includes (1) inorganic and organic silts and clays, (2) gravelly, sandy, or silty clays, and (3) clayey silts. Consistency is rated according to shearing strength, as indicated by penetrometer readings, SPT blow count, or unconfined compression tests.

Descriptive Terms	Strength kPa	SIVE SPT Blow Count
Very soft	< 25	< 2
Soft	25 to 50	2 to 4
Medium stiff	50 to 100	4 to 8
Stiff	100 to 200	8 to 15
Very stiff	200 to 400	15 to 30
Hard	> 400	> 30

For example; GW-GC, well-graded gravel-sand mixture with clay binder.

Key to Soil Symbols and Terms

GENERAL NOTES

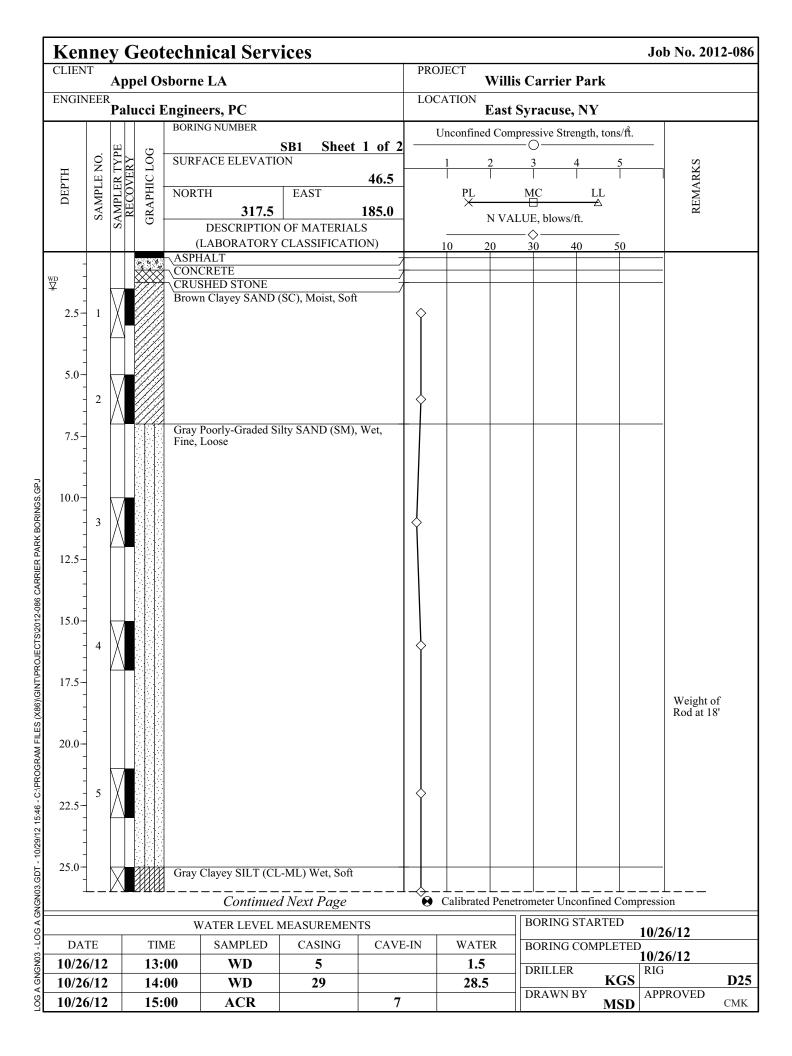
1. Classifications are based on the United Soil Classification System and include consistency, moisture, and color. Field descriptions have been modified to reflect results of laboratory tests where deemed appropriate.

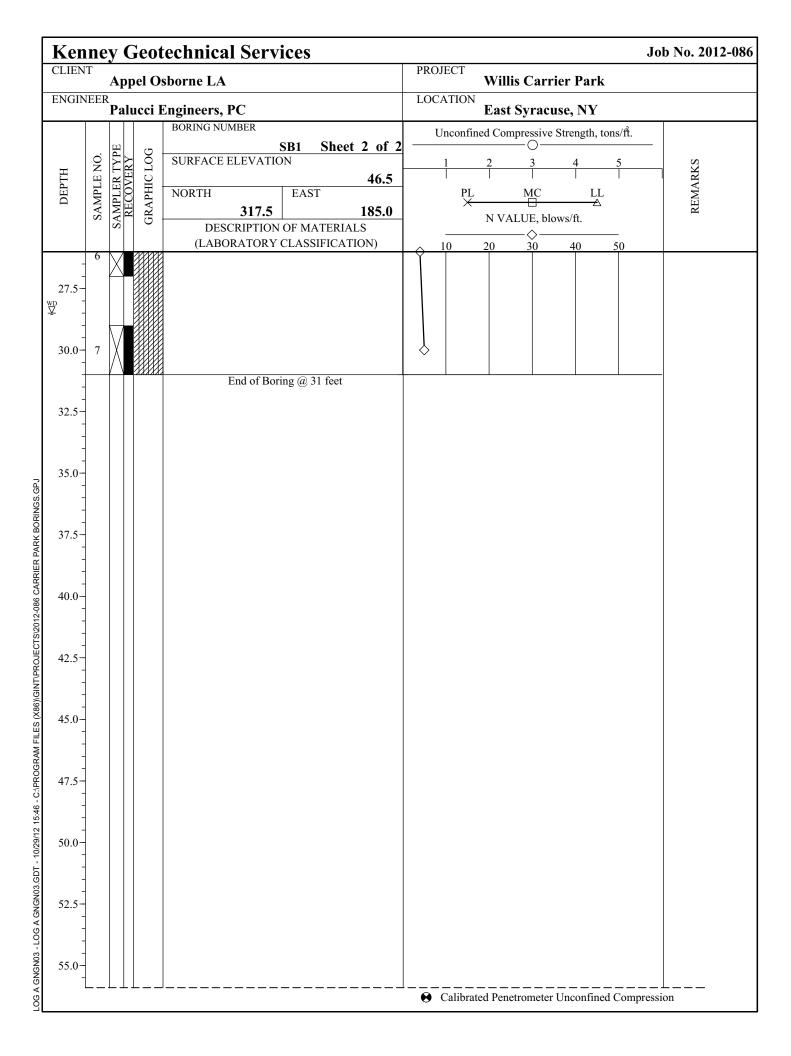
2. Surface elevations are based on topographic maps and estimated locations.

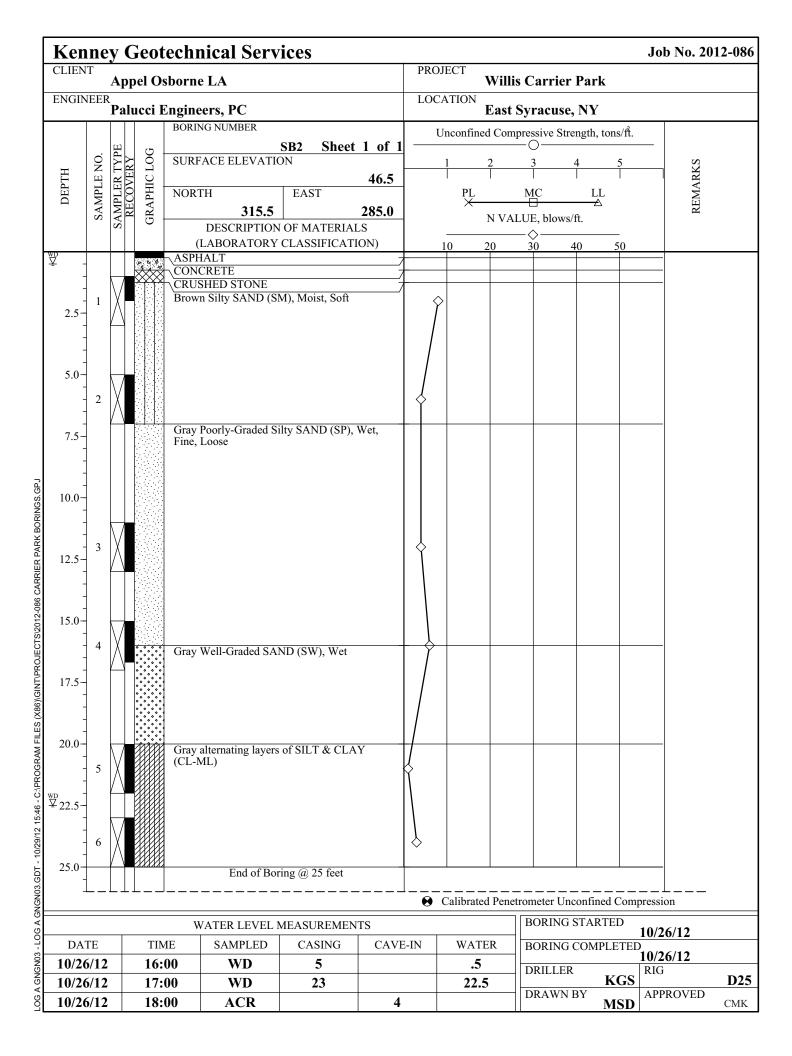
3. Descriptions on these boring logs apply only at the specific boring locations and at the time the borings were made. They are not guaranteed to be representative of subsurface conditions at other locations or times.

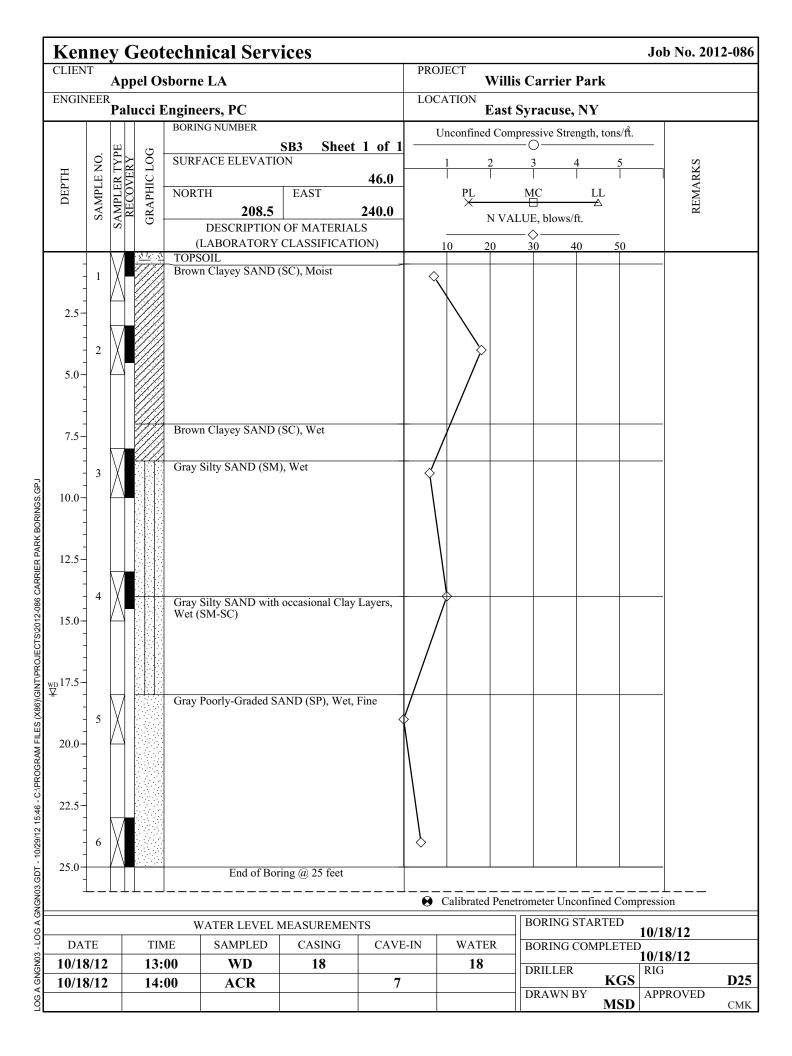
Group ymbols GW GP GP	Typical Names Well-graded gravels, gravel-sand mixtures, little or no fines Poorly-graded gravels, gravel-sand mixtures, little or no fines		Laboratory Classification $C_{U} = \frac{D_{60}}{D_{10}}$ greater than 4; $C_{c} = -\frac{D_{60}}{D_{10}}$		-					
GP GM*	mixtures, little or no fines Poorly-graded gravels, gravel-sand		$C_{\mu} = \frac{D_{60}}{D_{10}}$ greater than 4; $C_{c} = -$	$(D_{30})^2$ between 1 and 3						
M*		-		$D_{10} \times D_{60}$		Sieve sizes	< #200	#200 to #40	#40 to #10	#10 to #4
SM*		200 200 bols**	Not meeting all gradation require	ements for GW		Sieve	# V	#200	#40 t	#10
u	Silty gravels, gravel-sand-silt mixtures	ain size cu than No. : s: 1 dual sym	Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are border-	icle Size					
GC	Clayey gravels, gravel-sand-silt mixtures	/el from gr on smaller d as follows SM, SP SM, SC s requirinç	Atterberg limits above "A" line or P.I. greater than 7	line cases requiring use of dual symbols	Particle			5	0	9
sw	Well-graded sands, gravelly sands, little or no fines	Ind and gravines (fraction intext) and gravines (fraction intext) and gravines (fraction intext) and gravines (fraction cased fraction cased	$C_{U} = \frac{D_{60}}{D_{10}}$ greater than 6; $C_{C} = .$	$\frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3		шш	< 0.074	.074 to 0.∕	0.42 to 2.0	2.00 to 4.7
SP	Poorly-graded sands, gravelly sands, little or no fines	Iges of san iges of san antage of f ed soils arr scentG	Not meeting all gradation require	ements for SW				0	C	
M* d u	Silty sands, sand-silt mixtures	e percenta g on percenta arse-grain than 5 perc than 12 per 2 percent	Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are border-			clay		m	se
SC	Clayey sands, sand-clay mixtures	Determin Dependir Dependir sieve) co Less 1 More 6 to 1	Atterberg limits above "A" line or P.I. greater than 7	line cases requiring use of dual symbols	Mate	IMIALE	Silt or	Sand Fine	Med	Coarse
ML	Inorganic silts and very fine sands, rock floor, silty or clayey fine sands or clayey silts with slight plasticity	80 FOR CLA	RIFICATION OF FINE-GRAINED SOIL AND					i i	Ŀ	3 in.
CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	70 - 60 -	AINED FRACTION OF COARSE-GRAINED SOILS	"U "LINE	e	Sieve		#4 to 3/4 3/4 in. to 3	3 in. to 12	12 in. to 36 in.
OL	Organic silts and organic silty clays of low plasticity	- (Ia) - 000	/ J		icle Size				╞	
ΜН	Inorganic silts, micaceous or disto- maceous fine sandy or silty soils, organic silts	240 - US2110 			Par			to 19.1 to 76.2	o 304.8	304.8 to 914.4
СН	Inorganic clays of high plasticity, fat clays	20-		2		4.761 19.11	76.2 t	304.81		
ОН	Organic clays of medium to high plasticity, organic silts		CL-ML OR OL 1620 30 40 50 60 7 LIQUID LIMIT (LL)	70 80 90 100 110			_	es	le	ers
Pt	Peat and other highly organic soils]	Plasticity Cha	rt	Moto	IMIALE	Grave	Fine	Cobt	Boulders
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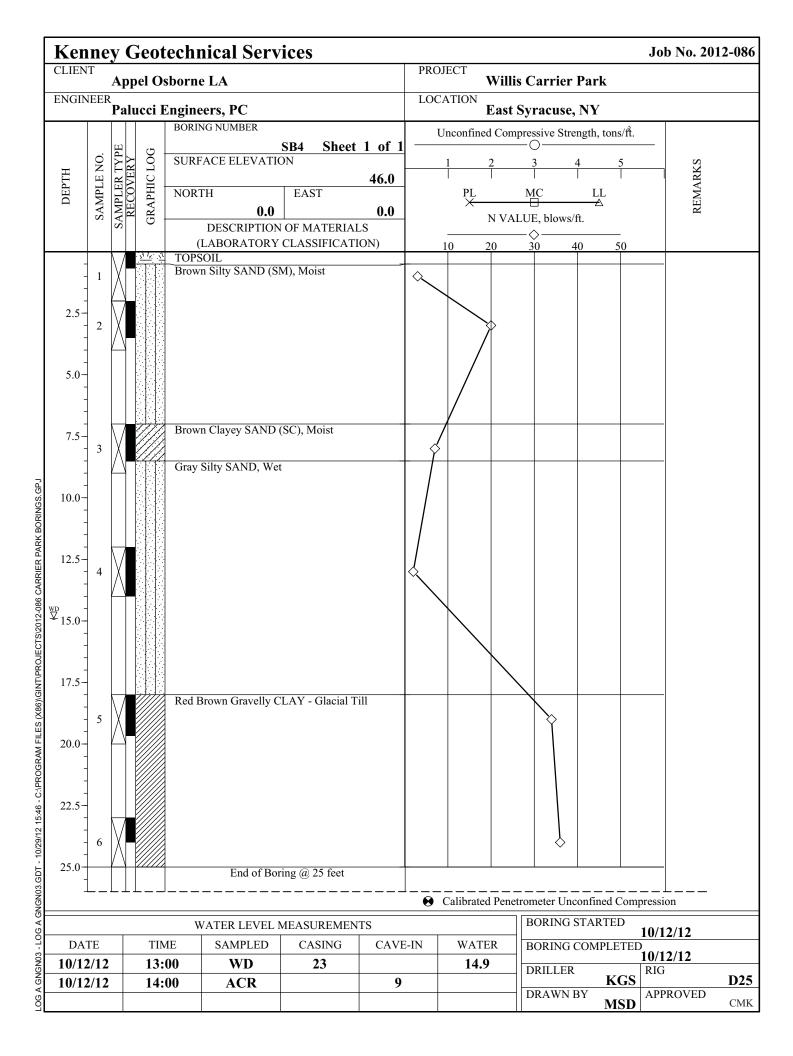
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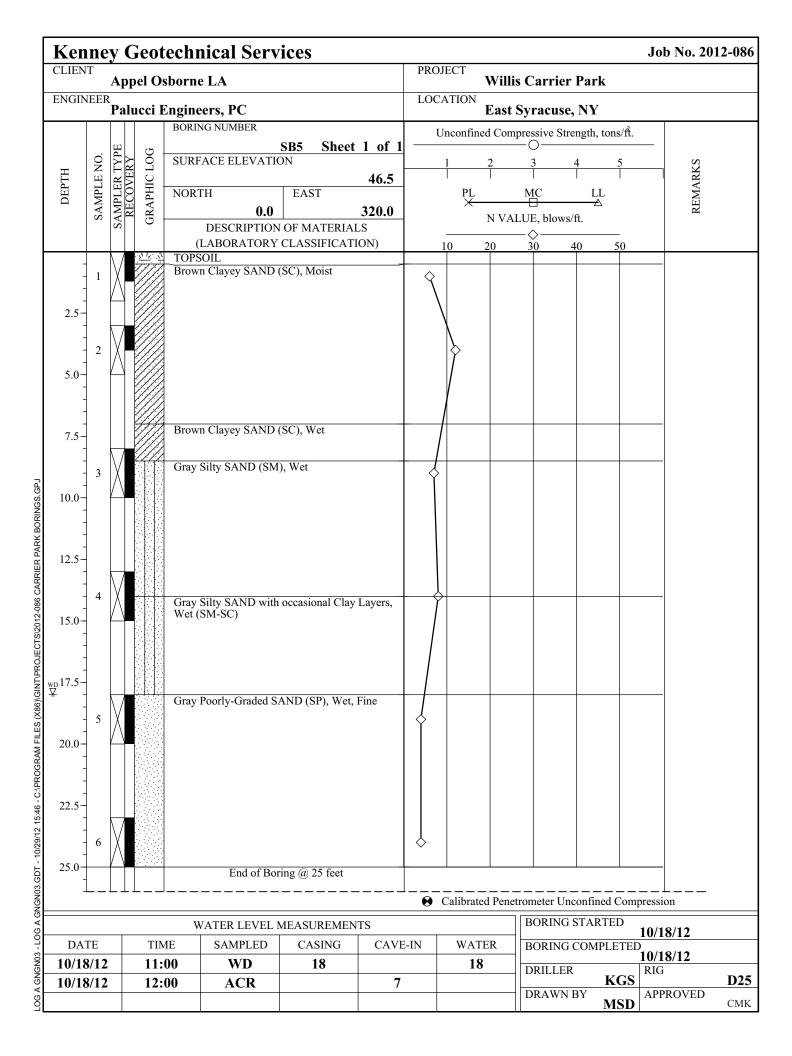


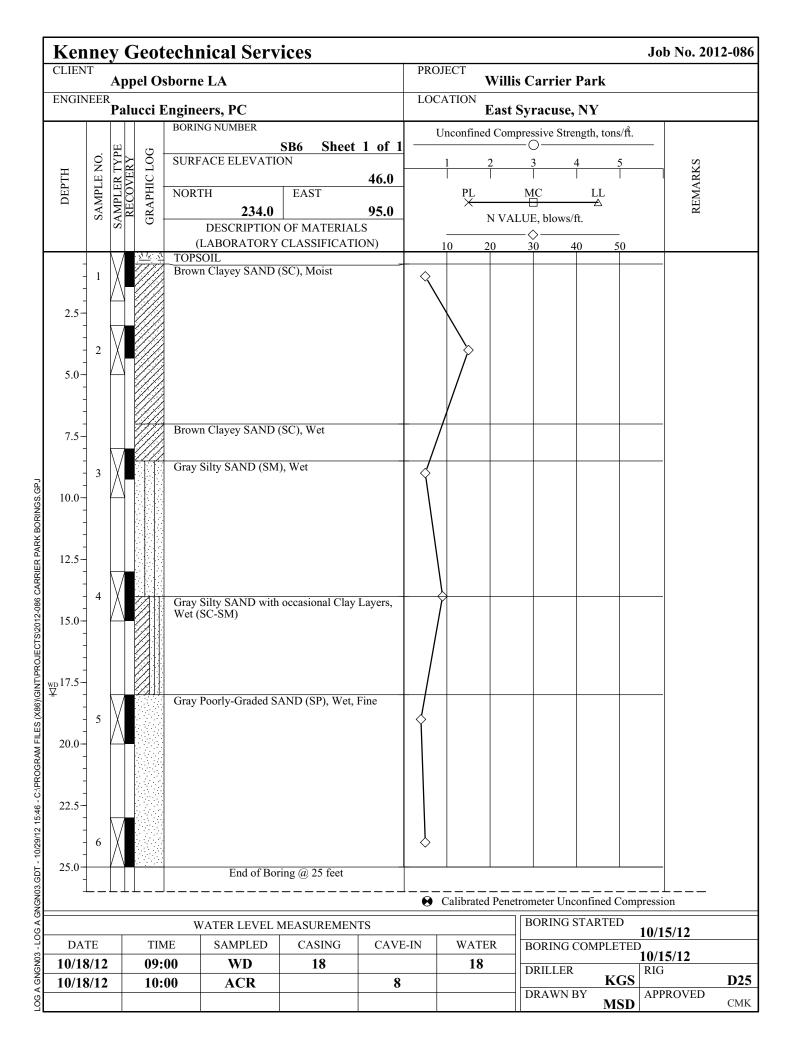


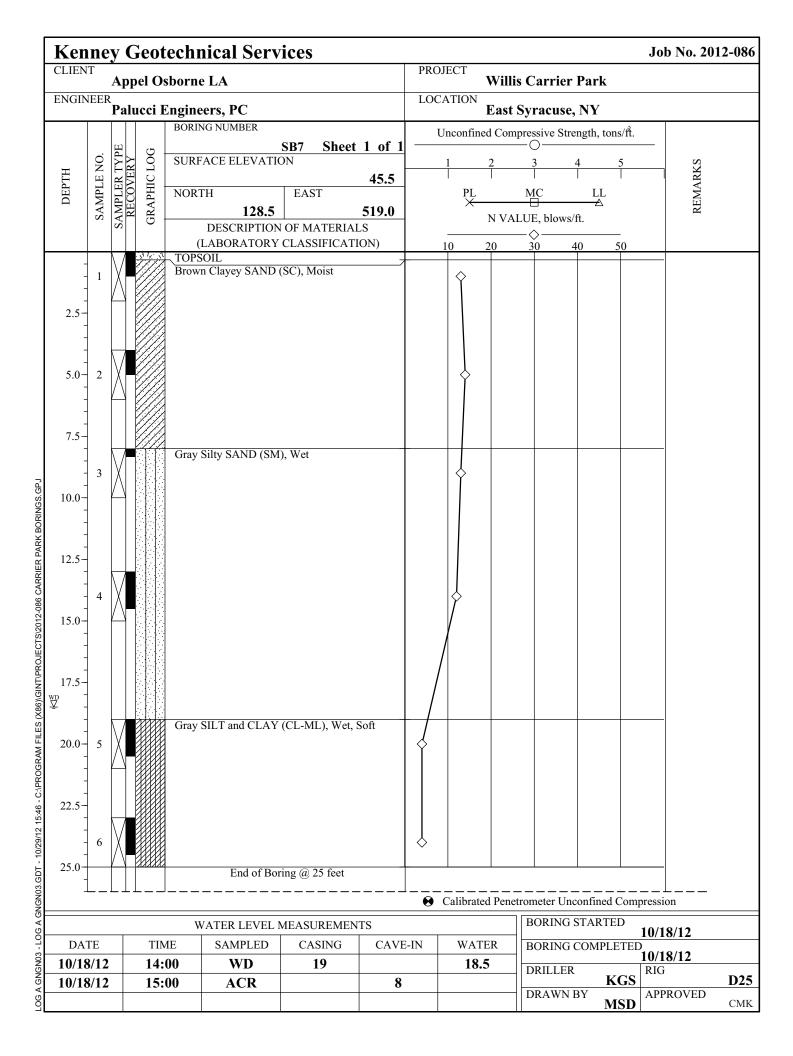


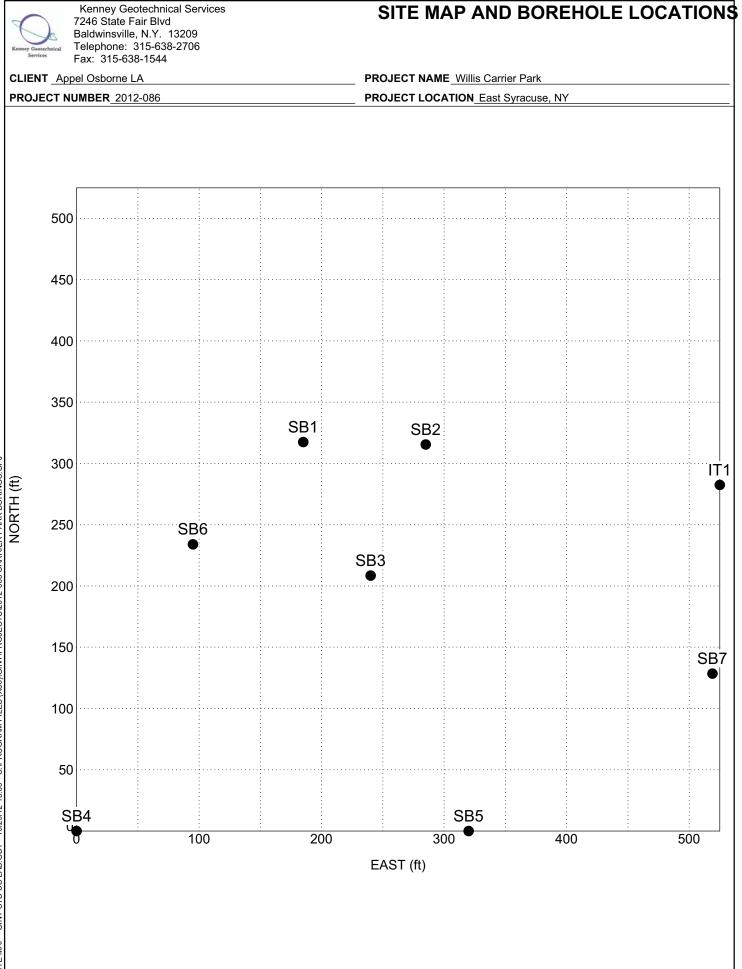




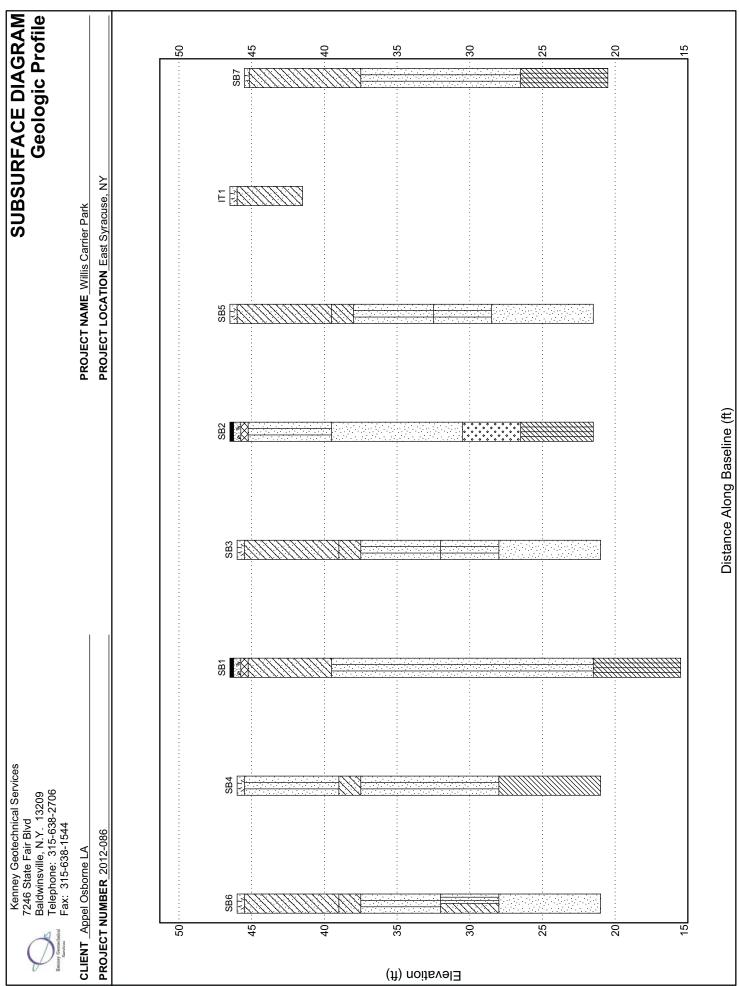












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TOWN OF DEWITT WILLIS V. CARRIER PARK RECREATION CENTER – PHASE 3

SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 <u>SUMMARY</u>

- A. The CONDITIONS OF CONTRACT and DIVISION 1 of the Project Specifications are a part of this section as is contained herein.
- B. This Section specifies cast-in-place concrete, including formwork, reinforcing, mix design, placement procedures, and finishes, required by the contract. Specifically, principal items of work include, but are not limited to, the following:
 - 1. Formwork for cast in place concrete.
 - 2. Build in sleeves, frames, angles, anchors, bolts, and items furnished under other Sections and by other Division to be built into the concrete.
 - 3. Hand excavation required for placing forms and concrete.
 - 4. Install and grout all steel leveling plates and install anchor bolts for structural steel framing, plates and bolts furnished under Section for Structural Steel.
 - 5. Cast in place concrete for building, plain and reinforced, as shown, indicated and specified.
 - 6. Perimeter insulation.
 - 7. Vapor barrier under slabs on grade.
 - 8. Reinforcing and accessories for cast in place concrete.

1.02 <u>SUBMITTALS</u>

- A. Refer to the requirements outlined in the Supplementary Requirements and DIVISION 1 of the Project Specifications.
- B. Product data for proprietary materials and items, including reinforcement and form liner panel,

forming accessories, admixtures, patching compounds, waterstops, joint systems, curing compounds, dry-shake finish materials, and others as requested by Architect.

- C. Shop drawings for reinforcement, fabrication, bending, and placement of concrete reinforcement. Comply with ACI SP-66 (88), "ACI Detailing Manual," showing bar schedules, stirrup spacing, diagrams of bent bars, and arrangement of concrete reinforcement. Include special reinforcement required for openings through concrete structures.
- D. Laboratory test reports for concrete materials and mix design test for each type of concrete to be used including special mixes for concrete to be pumped.
- E. Materials certificates in lieu of materials laboratory test reports when permitted by Engineer. Materials certificates shall be signed by manufacturer and Contractor, certifying that each material item complies with or exceeds specified requirements.

CAST-IN-PLACE CONCRETE

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TOWN OF DEWITT WILLIS V. CARRIER PARK RECREATION CENTER – PHASE 3

Provide certification from admixture manufacturers that chloride content complies with specification requirements.

- F. LEED Submittals
 - 1. Design mixes for Concrete mixture containing Fly Ash.

1.03 QUALITY ASSURANCE

- A. Codes and Standards: Comply with provisions of following codes, specifications, and standards, except where more stringent requirements are shown or specified:
 - 1. ACI 318, "Building Code Requirements for Reinforced Concrete."
 - 2. Concrete Reinforcing Steel Institute (CRSI), "Manual of Standard Practice.
 - 3. ACI 347 "Recommended Practice for Concrete Formwork".
- B. Concrete Testing Service: Owner will engage a testing laboratory acceptable to Engineer to perform material evaluation tests and to design concrete mixes.
- C. Materials and installed work may require testing and retesting at any time during progress of work. Tests, including retesting of rejected materials for installed work, shall be done at Contractor's expense.

PART 2 - PRODUCTS

2.01 FORM MATERIALS

- A. Forms for Exposed Finish Concrete: Plywood, metal, metal-framed plywood faced, or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings.
 - 1. Use overlaid plywood complying with U.S. Product Standard PS-1 "A-C or B-B High Density Overlaid Concrete Form," Class I.
 - 2. Use plywood complying with U.S. Product Standard PS-1 "B-B (Concrete Form) Plywood," Class I, Exterior Grade or better, mill-oiled and edge-sealed, with each piece bearing legible inspection trademark.
- B. Forms for Unexposed Finish Concrete: Plywood, lumber, metal, or other acceptable material. Provide lumber dressed on at least 2 edges and one side for tight fit.
- C. Form Coatings: Provide commercial formulation form-coating compounds with a maximum VOC of 350 mg/l that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
- D. Form Ties: Factory-fabricated, adjustable-length, removable or snap-off metal

CAST-IN-PLACE CONCRETE

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TOWN OF DEWITT WILLIS V. CARRIER PARK RECREATION CENTER – PHASE 3

form ties, designed to prevent form deflection and to prevent spalling concrete upon removal. Provide units that will leave no metal closer than 1-1/2 inches to exposed surface.

E. Provide ties that, when removed, will leave holes not larger than 1-inch diameter in concrete surface.

2.02 <u>REINFORCING MATERIALS</u>

- A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.
- B. Steel Wire: ASTM A 82, plain, cold-drawn steel.
- C. Welded Wire Fabric: ASTM A 185, welded steel wire fabric.
- D. Supports for Reinforcement: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Use wire-bar-type supports complying with CRSI specifications.
- E. For slabs-on-grade, use supports with sand plates or horizontal runners where base material will not support chair legs.

2.03 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, Type I.
 - 1. Use one brand of cement throughout project unless otherwise acceptable to Architect and Engineer.
 - 2. Fly Ash:: ASTM C 618.
- B. Normal Weight Aggregates: ASTM C 33 and as herein specified. Provide aggregates from a single source for exposed concrete.

For exterior exposed surfaces, do not use fine or coarse aggregates containing spalling-causing deleterious substances. Local aggregates not complying with ASTM C 33 but that special tests or actual service have shown to produce concrete of adequate strength and durability may be used when acceptable to Architect.

- C. Water: Drinkable.
- D. Admixtures, General: Provide admixtures for concrete that contain not more than 0.1 percent chloride ions.
- E. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.
- F. Products: Subject to compliance with requirements, provide one of the following:

CAST-IN-PLACE CONCRETE 033000 - 3

- a. "Air-Tite," Cormix.
- b. "Air-Mix" or "Perma-Air," Euclid Chemical Co.
- c. "Darex AEA" or "Daravair," W.R. Grace & Co.
- d. "MB-VR" or "Micro-Air," Master Builders, Inc.
- e. "Sealtight AEA," W.R. Meadows, Inc.
- f. "Sika AER," Sika Corp.
- G. Water-Reducing Admixture: ASTM C 494, Type A.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. "Chemtard," ChemMasters Corp.
 - b. "PSI N," Cormix.
 - c. "Eucon WR-75," Euclid Chemical Co.
 - d. "WRDA," W.R. Grace & Co.
 - e. "Pozzolith Normal" or "Polyheed," Master Builders, Inc.
 - f. "Prokrete-N," Prokrete Industries.
 - g. "Plastocrete 161," Sika Corp.
- H. High-Range Water-Reducing Admixture (Super Plasticizer): ASTM C 494, Type F or Type G.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. "Super P," Anti-Hydro Co., Inc.
 - b. "PSI Super," Cormix.
 - c. "Eucon 37," Euclid Chemical Co.
 - d. "WRDA 19" or "Daracem," W.R. Grace & Co.
 - e. "Rheobuild," Master Builders, Inc.
 - f. "PSP," Prokrete Industries.
 - g. "Sikament 300," Sika Corp.

2.04 <u>RELATED MATERIALS</u>

- A. Granular Base: Evenly graded mixture of fine and coarse aggregates to provide, when compacted, a smooth and even surface below slabs on grade.
- B. Vapor Retarder: Provide vapor retarder and insultarp cover over prepared base material where indicated below slabs on grade. Use only materials that are resistant to deterioration when tested in accordance with ASTM E 154, as follows:
 - 1. Polyethylene sheet not less than 8 mils thick Stego Wrap, Stego Industries, LLC.
- C. Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately 9 oz. per sq. yd., complying with AASHTO M 182, Class 2.

CAST-IN-PLACE CONCRETE

- D. Moisture-Retaining Cover: One of the following, complying with ASTM C 171.
 - 1. Waterproof paper.
 - 2. Polyethylene film.
 - 3. Polyethylene-coated burlap.
- E. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.
- 1. Products:
 - a. Burke by Edoco; Cureseal 1315 WB.
 - b. ChemMasters; Polyseal WB.
 - c. Conspec Marketing & Manufacturing Co., Inc., a Dayton Superior Company; Sealcure 1315 WB.
 - d. Euclid Chemical Company (The); Super Diamond Clear VOX.
 - e. Kaufman Products, Inc.; Sure Cure 25 Emulsion.
 - f. Lambert Corporation; UV Safe Seal.
 - g. L&M Construction Chemicals, Inc.; Lumiseal WB Plus.
 - h. Meadows, W. R., Inc.; Vocomp-30.
 - i. Metalcrete Industries; Metcure 30.
 - j. Symons Corporation, a Dayton Superior Company; Cure & Seal 31 Percent E.
 - k. Tamms Industries, Inc.; LusterSeal WB 300.
 - l. Unitex; Hydro Seal 25.
 - m. US Mix Products Company; US Spec Radiance UV-25.
 - n. Vexcon Chemicals, Inc.; Vexcon Starseal 1315.
- F. Underlayment Compound: Free-flowing, self-leveling, pumpable, cement-based compound for applications from one inch thick to feathered edges.
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated in the work include, but are not limited to, the following:
 - 2. Products: Subject to compliance with requirements, provide one of the following:
 - a. "K-15," Ardex, Inc.
 - b. "Conflow," Conspec Marketing and Mfg. Co.
 - c. "LevelLayer II," Dayton Superior Corp.
 - d. "Flo-Top," Euclid Chemical Co.
 - e. "Levelex," L&M Construction Chemicals, Inc.
 - f. "Pourcrete," Master Builders, Inc.
 - g. "Stoncrete UL1," Stonhard, Inc.
 - h. "Thoro Underlayment Self-Leveling," Thoro System Products.
- G. Bonding Compound: Polyvinyl acetate or acrylic base.
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated in the work include, but are not limited to, the following:
 - 2. Products: Subject to compliance with requirements, provide one of the

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following:

- a. Polyvinyl Acetate (Interior Only):
- b. "Superior Concrete Bonder," Dayton Superior Corp.
- c. "Euco Weld," Euclid Chemical Co.
- d. "Weld-Crete," Larsen Products Corp.
- e. "Everweld," L&M Construction Chemicals, Inc.
- f.. Acrylic or Styrene Butadiene:
- g. "Acrylic Bondcrete," The Burke Co.
- h. "Strongbond," Conspec Marketing and Mfg. Co.
- i. "Day-Chem Ad Bond," Dayton Superior Corp.
- j. "SBR Latex," Euclid Chemical Co.
- k. "Daraweld C," W.R. Grace & Co.
- 1. "Hornweld," A.C. Horn, Inc.
- m. "Everbond," L & M Construction Chemicals, Inc.
- n. "Acryl-Set," Master Builders Inc.
- o. "Intralok," W.R. Meadows, Inc.
- p. "Sonocrete," Sonneborn-Rexnord.
- q. "Stonlock LB2," Stonhard, Inc.
- H. Nonmetallic Shrinkage-Resistant Grout: Pre-mixed, nonmetallic, noncorrosive, non-staining product containing selected silica sands, Portland cement, shrinkage compensating agents, plasticizing and water-reducing agents, complying with CE-CRD-C621.
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated in the work include, but are not limited to, the following:
 - 2. Products: Subject to compliance with requirements, provide one of the following:
 - a. 100 Non-Shrink Grout (Non-Metallic); Conspec, Inc.
 - b. Supreme Grout; Cormix, Inc.
 - c. Sure Grip Grout; Dayton Superior.
 - d. Euco N.S.; Euclid Chemical Co.
 - e. Crystex; L & M Construction Chemicals, Inc.
 - f. Masterflow 713; Master Builders.
 - g. Sealtight 588 Grout; W. R. Meadows.
- I. Surface hardener and dustproofing compound.
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated in the work include, but are not limited to, the following:
 - a. Lopidolith of Sonneborn, Inc.
 - b. Armortop of Antihydro Co., Inc.
 - c. Somiseal of Master Builders, Inc.
 - d. Euco Sil of Euclid Chemical Co.
 - e. Sikagard Care/Hard of Sika Corp.
 - f. "Conolith," Conspec Marketing and Mfg.

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J. Joint Filter - Premoulded, resilient non-extruding type 1/2" thick unless noted otherwise on drawings; full depth of concrete section - ASTM D994.

2.05 PROPORTIONING AND DESIGN OF MIXES

A. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. If trial batch method used, use an independent testing facility acceptable to Architect for preparing and reporting proposed mix designs. The testing facility shall not be the same as used for field quality control testing.

Cementitious materials – Fly Ash: max. 20%. Fly Ash not allowed in light weight concrete mix for suspended slabs.

- B. Submit written reports to Engineer of each proposed mix for each class of concrete at least 15 days prior to start of work. Do not begin concrete production until proposed mix designs have been reviewed by Architect.
- C. Design mixes to provide normal weight concrete with the following properties, as indicated on drawings and schedules:

 4000-psi, 28-day compressive strength; W/C ratio, 0.44 maximum (non-air-entrained), m (air-entrained). (Class 1)
 3000-psi, 28-day compressive strength; W/C ratio, 0.58 maximum (non-air-entrained), 0.46 maximum (air-entrained). (Class 2)

D. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant, as accepted by Architect. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Architect before using in work.

2.06 ADMIXTURES

- A. Use water-reducing admixture or high-range water-reducing admixture (Superplasticizer) in concrete as required for placement and workability.
- B. Use high-range water-reducing admixture (HRWR) in pumped concrete, concrete for industrial slabs, architectural concrete, parking structure slabs, concrete required to be watertight, and concrete with water/cement ratios below 0.50.
- C. Use air-entraining admixture in exterior exposed concrete unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having total air content with a tolerance of plus or minus 1-1/2 percent within following limits:

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- 1. Concrete structures and slabs exposed to freezing and thawing, deicer chemicals, or hydraulic pressure:
 - a. 4 percent 6 percent air.
- 2. Other concrete (not exposed to freezing, thawing, or hydraulic pressure) or to receive a surface hardener: 2 percent to 4 percent air.
- D. Use admixtures for water reduction and set control in strict compliance with manufacturer's directions.
- E. Water-Cement Ratio: Provide concrete for following conditions with maximum water-cement (W/C) ratios as follows:
 - 1. Subjected to freezing and thawing; W/C 0.45.
 - 2. Subjected to deicers/watertight; W/C 0.40.
 - 3. Subjected to brackish water, salt spray, or deicers; W/C 0.40.
- F. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:
 - 1. Ramps, slabs, and sloping surfaces: Not less than 3 inches and not more than 4 inches.
 - 2. Reinforced foundation systems: Not less than 2 inch and not more than 4 inches.
 - 3. Concrete containing HRWR admixture (Superplasticizer): Not more than 8
 - inches after addition of HRWR to site-verified 2-inch to 3-inch slump concrete.4. Other concrete: Not less than 3 inches and not more than 4 inches.

2.07 <u>CONCRETE MIXING</u>

- A. Job-Site Mixing: Mix materials for concrete in appropriate drum-type batch machine mixer. For mixers of one cu. yd. or smaller capacity, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released. For mixers of capacity larger than one cu. yd., increase minimum 1-1/2 minutes of mixing time by 15 seconds for each additional cu. yd. or fraction thereof.
- B. Provide batch ticket for each batch discharged and used in work, indicating project identification name and number, date, mix type, mix time, quantity, and amount of water introduced.
- C. Ready-Mix Concrete: Comply with requirements of ASTM C 94, and as specified.
 - 1. When air temperature is between 85 deg F (30 deg C) and 90 deg F (32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

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3.01 <u>GENERAL</u>

A. Coordinate the installation of joint materials and vapor retarders with placement of forms and reinforcing steel.

3.02 <u>PREPARATION</u>

- A. Perform all hand excavation required to trim excavations and trenches for placing forms and concrete.
 - 1. Bearing surfaces, clean, solid, true to line and grade, level or stepped as required, free from loose earth, debris and water.
 - 2. Foundations and footings to bear on undisturbed soil prior to placing concrete.
 - 3. Excess excavation under foundations and footings, fill with concrete at no extra cost to Owner.
 - 4. Protect sides of excavations where necessary to prevent sliding or caving of banks.
 - 5. Maintain excavations free of water from any source at all times.
 - 6. Added or omitted hand excavation, payment of credit on basis of unit price quoted, if no price quoted as specified in Contract Documents.

3.03 <u>FORMS</u>

- A. General: Design, erect, support, brace, and maintain formwork to support vertical and lateral, static and dynamic loads that might be applied until concrete structure can support such loads. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation, and position. Maintain formwork construction tolerances complying with ACI 347.
- B. Construct forms to sizes, shapes, lines, and dimensions shown and to obtain accurate alignment, location, grades, level, and plumb work in finished structures. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustication's, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in work. Use selected materials to obtain required finishes. Solidly butt joints and provide backup at joints to prevent leakage of cement paste.
- C. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses, and the like, for easy removal.
- Provide temporary openings where interior area of formwork is inaccessible for cleanout, for inspection before concrete placement, and for placement of concrete.
 Securely brace temporary openings and set tightly to forms to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- E. Chamfer exposed corners and edges as indicated, using wood, metal, PVC, or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.

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- F. Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses, and chases from trades providing such items. Accurately place and securely support items built into forms.
- G. Notify all Contractors and Subcontractors to place an secure all items specified or required to be built into the concrete work.
- H. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, or other debris just before concrete is placed. Retighten forms and bracing before concrete placement as required to prevent mortar leaks and maintain proper alignment.

3.04 VAPOR RETARDER/BARRIER INSTALLATION

- A. General: Following leveling and tamping of granular base for slabs on grade, place vapor retarder/barrier sheeting with longest dimension parallel with direction of pour.
- B. Lap joints 6 inches and tape per Stego liner guidelines and insultarp recommendations.

3.05 PLACING REINFORCEMENT

- A. General: Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars," for details and methods of reinforcement placement and supports and as herein specified.
 - 1. Avoiding cutting or puncturing vapor retarder during reinforcement placement and concreting operations.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials that reduce or destroy bond with concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as approved by Engineer. Wet sticking of reinforcing "not allowed".
- D. Place reinforcement to obtain at least minimum coverage for concrete protection. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire fabric in as long lengths as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.
- F. Minimum concrete covering reinforcing, as specified in ACI Building Code Requirements for Reinforced Concrete as follows:

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- 1. Footings and structural members in which concrete deposited against the ground not less than 3".
- 2. Concrete surface exposed to weather or in contact with ground, not less than 2" for bars larger than No. 5, and 1-1/2" for No. 5 and smaller bars.
- 3. Concrete surfaces not exposed directly to weather or in contact with ground, not less than 3/4" for slabs and walls and not less than 1-1/2" for beams, girders and columns.
- G. Minimum clear distance between parallel bars, except in columns, nominal diameter of bar, 1-1/3 times maximum size of aggregate of 1".
- H. Splices to conform to ACI 318.
 - 1. Minimum lap splice lengths as per appropriate CRSI latest issue of Reinforcing Bar Splices.
 - 2. Fabric lapped splices shall be so made that the overlap measured between outer most cross wires of each fabric sheet is not less than the spacing of the cross wires plus 2 inches.
 - 3. All splices securely wire tied.
- I. Dowels from walls to slabs may be installed straight and field bent provided ACI bend radius is maintained. Straightening and rebending of dowels is prohibited.
- J. Reinforcing inspected prior to placing concrete. Notify Architect in ample time for inspection before placing concrete.
- K. Electrical conduit which has to be placed in concrete slabs, install after and above bottom reinforcing, but before and under the top reinforcing.
 - 1. Cross-over of conduit, where necessary, locate so that reinforcing is not displaced from its specified position.
 - 2. No conduit of outlet boxes placed in concrete columns.

3.06 JOINTS

- A. Construction Joints: Locate and install construction joints as indicated or, if not indicated, locate so as not to impair strength and appearance of the structure, as acceptable to Architect.
- B. Provide keyways at least 1-1/2 inches deep in construction joints in walls and slabs and between walls and footings. Accepted bulkheads designed for this purpose may be used for slabs.
- C. Place construction joints perpendicular to main reinforcement. Continue reinforcement strip placements.
- D. Use bonding agent on existing concrete surfaces that will be joined with fresh concrete.

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- E. Isolation Joints in Slabs-on-Ground: Construct isolation joints in slabs-on-ground at points of contact between slabs-on-ground and vertical surfaces, such as column pedestals, foundation walls, grade beams, and elsewhere as indicated.
 - 1. Joint filler and sealant materials are specified in Division 7 Sections of these specifications.
- F. Contraction (Control) Joints in Slabs-on-Ground: Construct contraction joints in slabs-on-ground to form panels of patterns as shown. Use saw cuts 1/8 inch wide by 1/4 slab depth or inserts 1/4 inch wide by 1/4 of slab depth, unless otherwise indicated. Joint pattern to be reviewed by Engineer prior to installation
 - 1. Form contraction joints by inserting premolded plastic, hardboard, or fiberboard strip into fresh concrete until top surface of strip is flush with slab surface. Tool slab edges round on each side of insert. After concrete has cured, remove inserts and clean groove of loose debris.
 - 2. Contraction joints in unexposed floor slabs may be formed by saw cuts as soon as possible after slab finishing as may be safely done without dislodging aggregate.
 - 3. If joint pattern not shown, provide joints not exceeding 15 feet in either direction and located to conform to bay spacing wherever possible (at column centerline, half bays, third bays).
 - 4. Joint sealant material is specified in Division 7 Sections of these specifications.

3.07 INSTALLATION OF EMBEDDED ITEMS

- A. General: Set and build into work anchorage devices and other embedded items required for other work that is attached to or supported by cast-in-place concrete. Use setting drawings, diagrams, instructions, and directions provided by suppliers of items to be attached thereto.
- B. Install built-in work in strict accordance with directions of manufacturer of items, instructions of Contractor furnishing items, details shown on drawings, and approved shop drawings.
 - 1. After all items are placed and secured in forms by the respective Contractors and Subcontractors, the General Contractor shall be responsible for any displacement of such items and for any rebuilding made necessary by the displacement, except for items omitted or improperly location.
 - 2. Vertical and horizontal sleeves 3" and over in diameter shall not be placed through concrete beams unless detailed on structural drawings.
- C. Forms for Slabs: Set edge forms, bulkheads, and intermediate screed strips for slabs to obtain required elevations and contours in finished surfaces. Provide and secure units to support screed strips using strike-off templates or compacting-type screeds.

3.08 PREPARATION OF FORM SURFACES

A. General: Coat contact surfaces of forms with an approved, nonresidual, low-VOC, form-coating compound before reinforcement is placed.

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- B. Do not allow excess form-coating material to accumulate in forms or to come into contact with in-place concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.
- C. Coat steel forms with a nonstaining, rust-preventative material. Rust-stained steel formwork is not acceptable.

3.09 <u>CONCRETE PLACEMENT</u>

- A. Footings, Foundation Walls Class 2 Concrete formed and reinforced as shown.
- B. Slabs on ground, structural slabs Class 1 Concrete, continuous molithic, reinforced, full thickness shown.
- C. Exposed exterior concrete Class 1.
- D. Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast in. Notify other crafts to verify installation of their work; cooperate with other trades in setting such work.
- E. General: Comply with ACI 304, "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete," and as herein specified.
- F. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete that has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified
- G. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers not deeper than 24 inches and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.
 - 1. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI 309.
 - 2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine. Place vibrators to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.
- H. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.

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- 1. Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.
- 2. Bring slab surfaces to correct level with straightedge and strike off. Use bull floats or derbies to smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.
- 3. Maintain reinforcing in proper position during concrete placement.
- I. Cold-Weather Placing: Comply with provisions of ACI 306 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
- J. When air temperature has fallen to or is expected to fall below 40 deg F (4 degrees C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F (10 deg C) and not more than 80 deg F (27 deg C) at point of placement.
 - 1. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 - 2. Do not use calcium chloride, salt, and other materials containing antifreeze agents or chemical accelerators unless otherwise accepted in mix designs.
 - 3. Provide necessary equipment for heating and protecting concrete during freezing and near freezing weather.
 - 4. Temperature of concrete maintained above 50 degrees F. for not less than five days after placing and for thin slabs full seven days after placing.
 - 5. Housing, covering and other protection, remain in place twenty four hours after heating discontinued.
 - 6. Methods of heating, protection methods and enclosures subject to approval of Architect for weather protection.
 - 7. When concrete placed in severe cold weather, Architect may require job stored test cylinders cured under identical conditions, to be tested before supporting forms and shores are removed in accordance with ACI Standard 306.
- K. Hot-Weather Placing: When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACI 305 and as herein specified.
 - Cool ingredients before mixing to maintain concrete temperature at time of placement below 90 deg F (32 deg C). Mixing water may be chilled, or chopped ice may be used to control temperature provided water equivalent of ice is calculated to total amount of mixing water. Use of liquid nitrogen to cool concrete is Contractor's option.

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- 2. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.
- 3. Fog spray forms, reinforcing steel, and subgrade just before concrete is placed.
- 4. Use water-reducing retarding admixture when required by high temperatures, low humidity, or other adverse placing conditions, when acceptable to Architect.

3.10 FINISH OF FORMED SURFACES

- A. Rough Form Finish: For formed concrete surfaces not exposed to view in he finish work or concealed by other construction. This is the concrete surface having texture imparted by form-facing material used, with the holes and defective areas repaired and patched and fins and other projections exceeding 1/4 inch in height rubbed down or chipped off.
- B. Smooth Form Finish: For formed concrete surfaces exposed to view or to be covered such as waterproofing, dampproofing, veneer plaster, painting, or other similar system. This is an as-cast concrete surface obtained with selected form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch defective areas with fins and other projections completely removed and smoothed.
- C. Smooth Rubbed Finish: Provide smooth rubbed finish to scheduled concrete surfaces, which have received smooth form finish treatment, not later than one day after form removal.
 - 1. Moisten concrete surfaces and rub with carborundum brick or other abrasive until a uniform color and texture is produced. Do not apply cement grout other than that created by the rubbing process.
- D. Grout-Cleaned Finish: Provide grout-cleaned finish to scheduled concrete surfaces that have received smooth form finish treatment.
 - 1. Combine one part portland cement to 1-1/2 parts fine sand by volume, and a 50:50 mixture of acrylic or styrene butadiene-based bonding admixture and water to consistency of thick paint. Blend standard portland cement and white portland cement, amounts determined by trial patches, so that final color of dry grout will match adjacent surfaces.
 - 2. Thoroughly wet concrete surfaces, apply grout to coat surfaces, and fill small holes. Remove excess grout by scraping and rubbing with clean burlap. Keep damp by fog spray for at least 36 hours after rubbing.
- E. 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 texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.11 MONOLITHIC SLAB FINISHES

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- A. Scratch Finish: Apply scratch finish to monolithic slab surfaces to receive concrete floor topping or mortar setting beds for tile, portland cement terrazzo, and other bonded applied cementitious finish flooring material, and as otherwise indicated.
- B. After placing slabs, plane surface to tolerances for floor flatness (Ff) of 15 and floor levelness (Fl) of 13. Slope surfaces uniformly to drains where required. After leveling, roughen surface before final set with stiff brushes, brooms, or rakes Laser level to ASTM E 1155-96 2008.
- C. Float Finish: Apply float finish to monolithic slab surfaces to receive trowel finish and other finishes as hereinafter specified; slab surfaces to be covered with membrane or elastic waterproofing, membrane or elastic roofing, or sand-bed terrazzo; and as otherwise indicated.
 - 1. After screeding, consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating, using float blades or float shoes only, when surface water has disappeared, when concrete has stiffened sufficiently to permit operation of power-driven floats, or both. Consolidate surface with power-driven floats or by hand-floating if area is small or inaccessible to power units. Check and level surface plane to tolerances of Ff 25 - Fl 20. Cut down high spots and fill low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.
- D. Trowel Finish: Apply trowel finish to monolithic slab surfaces to be exposed to view and slab surfaces to be covered with resilient flooring, carpet, ceramic or quarry tile, paint, or other thin film finish coating system.
 - 1. After floating, begin first trowel finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance, and with surface leveled to tolerances of Ff 35 - Fl 25. Grind smooth surface defects that would telegraph through applied floor covering system.
- E. Trowel and Fine Broom Finish: Where ceramic or quarry tile is to be installed with thin-set mortar, apply trowel finish as specified, then immediately follow with slightly scarifying surface by fine brooming.
- F. Nonslip Broom Finish: Apply nonslip broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.
 - 1. Immediately after float finishing, slightly roughen concrete surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.
- G. Nonslip Aggregate Finish: Apply nonslip aggregate finish to concrete stair treads, platforms, ramps, sloped walks, and elsewhere as indicated.

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- H. After completion of float finishing and before starting trowel finish, uniformly spread 25 lbs. of dampened nonslip aggregate per 100 sq. ft. of surface. Tamp aggregate flush with surface using a steel trowel, but do not force below surface. After broadcasting and tamping, apply trowel finishing as herein specified.
- I. After curing, lightly work surface with a steel wire brush, or an abrasive stone, and water to expose nonslip aggregate.
- J. Exposed concrete floors, apply min. 3 coats of hardener and dustproofing compound.

3.12 CONCRETE CURING AND PROTECTION

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. In hot, dry, and windy weather, protect concrete from rapid moisture loss before and during finishing operations with an evaporation-control material. Apply in accordance with manufacturer's instructions after screeding and bull floating, but before power floating and troweling.
- B. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 7 days.
- C. Curing Methods: Perform curing of concrete by moist curing, by moisture-retaining cover curing, and by combinations thereof, as herein specified.
- D. Provide moisture curing by following methods.
 - 1. Keep concrete surface continuously wet by covering with water.
 - 2. Use continuous water-fog spray.
 - 3. Cover concrete surface with specified absorptive cover, thoroughly saturate cover with water, and keep continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with 4-inch lap over adjacent absorptive covers.
- E. Provide moisture-cover curing as follows:
 - 1. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
- F. Curing Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces, by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.

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- G. Curing Unformed Surfaces: Cure unformed surfaces, such as slabs, floor topping, and other flat surfaces, by wet curing method.
- H. Final cure concrete surfaces to receive liquid floor hardener unless otherwise directed. Product to be compatible with final floor finishes.

3.13 <u>REMOVAL OF FORMS</u>

- A. General: Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 48 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form-removal operations, and provided curing and protection operations are maintained.
- B. Formwork supporting weight of concrete, such as beam soffits, joists, slabs, and other structural elements, may not be removed in less than 14 days and until concrete has attained at least 75 percent of design minimum compressive strength at 28 days. Determine potential compressive strength of in-place concrete by testing field-cured specimens representative of concrete location or members.
- C. Form-facing material may be removed 4 days after placement only if shores and other vertical supports have been arranged to permit removal of form-facing material without loosening or disturbing shores and supports.

3.14 <u>REUSE OF FORMS</u>

- A. Clean and repair surfaces of forms to be reused in work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-coating compound as specified for new formwork.
- B. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use "patched" forms for exposed concrete surfaces except as acceptable to Architect.

3.15 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Mix, place, and cure concrete as herein specified, to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- C. Reinforced Masonry: Provide concrete grout for reinforced masonry lintels and bond beams where indicated on drawings and as scheduled. Maintain accurate location of

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reinforcing steel during concrete placement.

3.16 CONCRETE SURFACE REPAIRS

- A. Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removal of forms, when acceptable to Architect.
 - Cut out honeycomb, rock pockets, voids over 1/4 inch in any dimension, and holes left by tie rods and bolts, down to solid concrete but in no case to a depth of less than 1 inch. Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water, and brush-coat the area to be patched with specified bonding agent. Place patching mortar before bonding compound has dried.
 - 2. For exposed-to-view surfaces, blend white portland cement and standard portland cement so that, when dry, patching mortar will match color surrounding. Provide test areas at inconspicuous location to verify mixture and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.
- B. Repair of Formed Surfaces: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Architect. Surface defects, as such, include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets, fins and other projections on surface, and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes, fill with dry-pack mortar, or precast cement cone plugs secured in place with bonding agent.
 - 1. Repair concealed formed surfaces, where possible, that contain defects that affect the durability of concrete. If defects cannot be repaired, remove and replace concrete.
- C. Repair of Unformed Surfaces: Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface plane to tolerances specified for each surface and finish. Correct low and high areas as herein specified. Test unformed surfaces sloped to drain for trueness of slope and smoothness by using a template having required slope.
 - 1. Repair finished unformed surfaces that contain defects that affect durability of concrete. Surface defects, as such, include crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through nonreinforced sections regardless of width, spalling, popouts, honeycomb, rock pockets, and other objectionable conditions.
 - 2. Correct high areas in unformed surfaces by grinding after concrete has cured at least 14 days.
 - 3. Correct low areas in unformed surfaces during or immediately after completion of surface finishing operations by cutting out low areas and replacing with

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patching compound. Finish repaired areas to blend into adjacent concrete. Proprietary underlayment compounds may be used when acceptable to Architect.

- 4. Repair defective areas, except random cracks and single holes not exceeding 1 inch in diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts and expose reinforcing steel with at least 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding compound. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
- Repair isolated random cracks and single holes not over 1 inch in diameter by dry-pack method. Groove top of cracks and cut out holes to sound concrete and clean of dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding compound. Mix dry-pack, consisting of one part portland cement to 2-1/2 parts fine aggregate passng a No. 16 mesh sieve, using only enough water as required for handling and placing. Place dry-pack before bonding compound has dried. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched area continuously moist for not less than 72 hours.
- E. Perform structural repairs with prior approval of Architect for method and procedure, using specified epoxy adhesive and mortar.
- F. Repair methods not specified above may be used, subject to acceptance of Architect.

3.17 QUALITY CONTROL TESTING DURING CONSTRUCTION

- A. General: The Owner will employ a testing laboratory to perform tests and to submit test reports.
- B. Sampling and testing for quality control during placement of concrete may include the following, as directed by Architect.
- C. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.
 - 1. Slump: ASTM C 143; one test at point of discharge for each day's pour of each type of concrete; additional tests when concrete consistency seems to have changed.
 - 2. Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231 pressure method for normal weight concrete; one for each day's pour of each type of air-entrained concrete.
 - 3. Concrete Temperature: Test hourly when air temperature is 40 deg F (4 deg C) and below, when 80 deg F (27 deg C) and above, and each time a set of compression test specimens is made.

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- 4. Compression Test Specimen: ASTM C 31; one set of 4 standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory-cured test specimens except when field-cure test specimens are required.
- 5. Compressive Strength Tests: ASTM C 39; one set for each day's pour exceeding 5 cu. yds. plus additional sets for each 50 cu. yds. of each concrete class placed in any one day; two specimen tested at 7 days, two specimens tested at 28 days.
- 6. When frequency of testing will provide fewer than 5 strength tests for a given class of concrete, conduct testing from at least 5 randomly selected batches or from each batch if fewer than 5 are used.
- 7. When total quantity of a given class of concrete is less than 50 cu. yds., Architect may waive strength test if adequate evidence of satisfactory strength is provided.
- 8. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.
- 9. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength, and no individual strength test result falls below specified compressive strength by more than 500 psi.
- D. Test results will be reported in writing to Owner, Structural Engineer, Ready-Mix Producer, and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-day tests and 28-day tests.
- E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.
- F. Additional Tests: The testing service will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Architect. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed. Contractor shall pay for such tests when unacceptable concrete is verified.

END OF SECTION 03 30 00

CAST-IN-PLACE CONCRETE

SECTION 035416 - HYDRAULIC CEMENT UNDERLAYMENT

1.0 PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes hydraulic-cement-based, polymer-modified, self-leveling underlayment for application below interior floor coverings.
 - 1. Refer to Part 4 "Extent of Work," at the end of this Section, for work areas.
- B. Related Sections:
 - 1. Division 09 Sections for patching and leveling compounds applied with floor coverings.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Include plans indicating substrates, locations, and average depths of underlayment based on survey of substrate conditions.
- C. Qualification Data: For qualified Installer.
- D. Product Certificates: Signed by manufacturers of underlayment and floor-covering systems certifying that products are compatible.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Installer who is approved by manufacturer for application of underlayment products required for this Project.
- B. Product Compatibility: Manufacturers of underlayment and floor-covering systems certify in writing that products are compatible.
- C. Fire-Resistance Ratings: Where indicated, provide hydraulic-cement underlayment systems identical to those of assemblies tested for fire resistance per ASTM E 119 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.

- D. Sound Transmission Characteristics: Where indicated, provide hydraulic-cement underlayment systems identical to those of assemblies tested for STC and IIC ratings per ASTM E 90 and ASTM E 492 by a qualified testing agency.
- E. Pre-installation Conference: Conduct conference at Project site.
- 1.5 DELIVERY, STORAGE, AND HANDLING
 - A. Store materials to comply with manufacturer's written instructions to prevent deterioration from moisture or other detrimental effects.
- 1.6 PROJECT CONDITIONS
 - A. Environmental Limitations: Comply with manufacturer's written instructions for substrate temperature, ventilation, ambient temperature and humidity, and other conditions affecting underlayment performance.
 - 1. Place hydraulic-cement-based underlayments only when ambient temperature and temperature of substrates are between 50 and 80 deg F (10 and 27 deg C).

1.7 COORDINATION

- A. Coordinate application of underlayment with requirements of floor-covering products and adhesives, specified in Division 09 Sections, to ensure compatibility of products.
- 2.0 PART 2 PRODUCTS
- 2.1 MANUFACTURERS
 - A. Products: Subject to compliance with requirements, provide one primer and underlayment from the following (do not mix manufacturers):
 - 1. Primer as recommended by underlayment manufacturer:
 - a. Primer: Ardex P82 Ultra Prime.
 - b. Primer; CMP, AS-100 All-Purpose Bonding Agent.
 - 2. Self-Leveling Underlayment:
 - a. Ardex; K10 Reactivable, High Flow, Self-Leveling Underlayment
 - b. CMP; Level-1, Cement Based Self-Leveling Underlayment.

2.2 PRODUCTS AND MATERIALS

- A. Underlayment: Hydraulic-cement-based, polymer-modified, self-leveling product that can be applied in minimum uniform thickness of 1/4 inch (6 mm) and that can be feathered at edges to match adjacent floor elevations.
 - 1. Cement Binder: ASTM C 150, portland cement, or hydraulic or blended hydraulic cement as defined by ASTM C 219.

- 2. Compressive Strength: Not less than 4000 psi (27.6 MPa) at 28 days when tested according to ASTM C 109/C 109M.
- 3. Underlayment Additive: Resilient-emulsion product of underlayment manufacturer, formulated for use with underlayment when applied to substrate and conditions indicated.
- B. Water: Potable and at a temperature of not more than 70 deg F (21 deg C).
- C. Primer and Moisture Control System: Product of underlayment manufacturer recommended in writing for substrate, conditions, and application indicated.
- 3.0 PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for conditions affecting performance.
 - 1. Proceed with application only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. General: Prepare and clean substrate according to manufacturer's written instructions.
 - 1. Treat nonmoving substrate cracks according to manufacturer's written instructions to prevent cracks from telegraphing (reflecting) through underlayment.
 - 2. Fill substrate voids to prevent underlayment from leaking.
- B. Concrete Substrates: Mechanically remove, (by grinding or shot blasting) laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants that might impair underlayment bond.
 - 1. After abrading, clean surfaces as required for satisfactory bond and as directed by manufacturer.
 - 2. Acid edging is not permitted
- C. Alkalinity and Adhesion Testing: Perform tests recommended by flooring material manufacturer and in no case less than those indicated below. Proceed with installation only after substrates pass testing.
 - a. Perform all other tests as recommended by flooring material manufacturer including PH and Adhesion testing. Proceed with installation only after acceptance of substrate by finish flooring manufacturer.
 - 1) Floor finish manufacturer to certify the acceptability of the moisture mitigation with manufacturers adhesive and moisture

testing requirements

D. Adhesion Tests: After substrate preparation, test substrate for adhesion with underlayment according to manufacturer's written instructions.

3.3 APPLICATION

- A. General: Mix and apply underlayment components according to manufacturer's written instructions.
 - 1. Close areas to traffic during underlayment application and for time period after application recommended in writing by manufacturer.
 - 2. Coordinate application of components to provide optimum underlayment-tosubstrate and intercoat adhesion.
 - 3. At substrate expansion, isolation, and other moving joints, allow joint of same width to continue through underlayment.
- B. Apply primer over prepared substrate at manufacturer's recommended spreading rate.
- C. Apply underlayment to produce uniform, level surface.
 - 1. Feather edges to match adjacent floor elevations.
- D. Cure underlayment according to manufacturer's written instructions. Prevent contamination during application and curing processes.
- E. Do not install floor coverings over underlayment until after time period recommended in writing by underlayment manufacturer.
- F. Remove and replace underlayment areas that evidence lack of bond with substrate, including areas that emit a "hollow" sound when tapped.

3.4 **PROTECTION**

- A. Protect underlayment from concentrated and rolling loads for remainder of construction period.
- 4.0 PART 4 EXTENT OF WORK

4.1 WORK AREAS

A. Contractor shall coordinate the scope of work of this Section with architectural drawings. Contractor shall provide and install primer system at all existing floors scheduled to receive new tile floor finish. Contractor shall level all existing floors prior to installation of new tile floor finish.

END OF SECTION 035416

SECTION 042000 - UNIT MASONRY

1.0 PART 1 - GENERAL

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Concrete masonry units.
 - 2. Decorative concrete masonry units.
 - 3. Architectural Concrete Caps.
 - 4. Mortar and grout.
 - 5. Steel reinforcing bars.
 - 6. Masonry joint reinforcement.
 - 7. Ties and anchors.
 - 8. Embedded flashing.
 - 9. Miscellaneous masonry accessories.
- B. Related Sections:
 - 1. Division 05 Section "Structural Steel Framing" for installing anchor sections of adjustable masonry anchors for connecting to structural steel frame.
 - 2. Division 05 Section "Metal Fabrications" for furnishing steel lintels for unit masonry.

1.3 <u>DEFINITIONS</u>

- A. CMU(s): Concrete masonry unit(s).
- B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.4 <u>ACTION SUBMITTALS</u>

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For the following:
 - 1. Masonry Units: Show sizes, profiles, coursing, and locations of special shapes.
 - 2. Reinforcing Steel: Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315, "Details and Detailing of Concrete Reinforcement." Show elevations of reinforced walls.
 - 3. Fabricated Flashing: Detail corner units, end-dam units, and other special applications.
- C. Samples for Initial Selection:
 - 1. Decorative CMUs, in the form of small-scale units.
 - 2. Colored mortar.
- D. Samples for Verification: For each type and color of the following:
 - 1. Decorative CMUs.
 - 2. Colored-aggregate mortar. Make Samples using same sand and mortar ingredients to be used on Project.
 - 3. Weep holes and vents.
 - 4. Accessories embedded in masonry.

1.5 INFORMATIONAL SUBMITTALS

- A. List of Materials Used in Constructing Mockups: List generic product names together with manufacturers, manufacturers' product names, model numbers, lot numbers, batch numbers, source of supply, and other information as required to identify materials used. Include mix proportions for mortar and grout and source of aggregates.
 - 1. Submittal is for information only. Neither receipt of list nor approval of mockup constitutes approval of deviations from the Contract Documents unless such deviations are specifically brought to the attention of Architect and approved in writing.

- B. Qualification Data: For testing agency.
- C. Material Certificates: For each type and size of the following:
 - 1. Masonry units.
 - a. Include material test reports substantiating compliance with requirements.
 - b. For masonry units, include data and calculations establishing average net-area compressive strength of units.
 - 2. Cementitious materials. Include brand, type, and name of manufacturer.
 - 3. Preblended, dry mortar mixes. Include description of type and proportions of ingredients.
 - 4. Grout mixes. Include description of type and proportions of ingredients.
 - 5. Reinforcing bars.
 - 6. Joint reinforcement.
 - 7. Anchors, ties, and metal accessories.
- D. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.
 - 1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C 109/C 109M for compressive strength, ASTM C 1506 for water retention, and ASTM C 91 for air content.
 - 2. Include test reports, according to ASTM C 1019, for grout mixes required to comply with compressive strength requirement.
- E. Cold-Weather and Hot-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with requirements.

1.6 **QUALITY ASSURANCE**

- A. Testing Agency Qualifications: Qualified according to ASTM C 1093 for testing indicated.
- B. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.
- C. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.

UNIT MASONRY

- D. Masonry Standard: Comply with ACI 530.1/ASCE 6/TMS 602 unless modified by requirements in the Contract Documents.
- E. Sample Panels: Build sample panels to verify selections made under sample submittals and to demonstrate aesthetic effects. Comply with requirements in Division 01 Section "Quality Requirements" for mockups.
 - 1. Build sample panels for typical exterior wall in sizes approximately 60 inches (1500 mm) long by 60 inches (1500 mm) high by full thickness.
 - 2. Clean exposed faces of panels with masonry cleaner indicated.
 - 3. Protect approved sample panels from the elements with weather-resistant membrane.
 - 4. Approval of sample panels is for color, texture, and blending of masonry units; relationship of mortar and sealant colors to masonry unit colors; tooling of joints; aesthetic qualities of workmanship; and other material and construction qualities specifically approved by Architect in writing.
 - a. Approval of sample panels does not constitute approval of deviations from the Contract Documents contained in sample panels unless such deviations are specifically approved by Architect in writing.
- F. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Build mockup of typical wall area. Area to be determined by the Architect and Owner.
 - 2. Build mockups for typical exterior wall in sizes approximately 96 inches (2400 mm) long by 72 inches (1830 mm) high by full thickness, including face and backup materials and accessories.
 - a. Include a sealant-filled joint at least 16 inches (400 mm) long in mockup.
 - b. Include lower corner of window opening at upper corner of exterior wall mockup. Make opening approximately 12 inches (300 mm) wide by 16 inches (400 mm) high.
 - c. Include through-wall flashing installed for a 24-inch (600-mm) length in corner of exterior wall mockup approximately 16 inches (400 mm) down from top of mockup, with a 12-inch (300-mm) length of flashing left exposed to view (omit masonry above half of flashing).
 - d. Include sheathing, building wrap, air barrier, veneer anchors, flashing, cavity drainage material, and weep holes in exterior masonry-veneer wall mockup.

- 3. Clean exposed faces of mockups with masonry cleaner as indicated.
- 4. Protect accepted mockups from the elements with weather-resistant membrane.
- 5. Approval of mockups is for color, texture, and blending of masonry units; relationship of mortar and sealant colors to masonry unit colors; tooling of joints; and aesthetic qualities of workmanship.
 - a. Approval of mockups is also for other material and construction qualities specifically approved by Architect in writing.
 - b. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless such deviations are specifically approved by Architect in writing.
- 6. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 <u>DELIVERY, STORAGE, AND HANDLING</u>

- A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Deliver preblended, dry mortar mix in moisture-resistant containers designed for use with dispensing silos. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in covered weatherproof dispensing silos.
- E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.8 PROJECT CONDITIONS

- A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
 - 1. Extend cover a minimum of 24 inches (600 mm) down both sides of walls and hold cover securely in place.
 - 2. Where one wythe of multiwythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches (600 mm) down face next to unconstructed wythe and hold cover in place.

- B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least three days after building masonry walls or columns.
- C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
 - 1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
 - 2. Protect sills, ledges, and projections from mortar droppings.
 - 3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
 - 4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.
- D. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.
 - 1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F (4 deg C) and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.
- E. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

2.0 PART 2 - PRODUCTS

2.1 MASONRY UNITS, GENERAL

- A. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not use units where such defects will be exposed in the completed Work.
- B. Fire-Resistance Ratings: Where indicated, provide units that comply with requirements for fire-resistance ratings indicated as determined by testing according to ASTM E 119, by equivalent masonry thickness, or by other means, as acceptable to authorities having jurisdiction.

2.2 <u>CONCRETE MASONRY UNITS</u>

A. Regional Materials: CMUs shall be manufactured within 500 miles (800 km) of Project site from aggregates and cement that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles (800 km) of Project site.

- B. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.
 - 1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
 - 2. Provide square-edged units for outside corners unless otherwise indicated.
- C. Integral Water Repellent: Provide units made with integral water repellent for exposed units.
- D. CMUs: ASTM C 90.
 - 1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2800 psi (19.3 MPa).
 - 2. Density Classification: Normal weight.
 - 3. Size (Width): Manufactured to dimensions 3/8 inch less than nominal dimensions.
- E. Decorative CMUs: ASTM C 90.
 - 1. Basis of Design Products: Subject to compliance with requirements, provide one of the following to match adjacent Phase I building:
 - a. Barnes & Cone, Inc. (Basis of Design)
 - 1) **CMU-1**: Style: Ground Face; Color: Stony Shore.
 - 2) CMU-2: Style: Ground Face; Color: Beamish.
 - 3) **CMU-3**: Style: Artisan Roc Split Face; Color: Beamish.
 - b. New Holland Concrete
 - 2. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2800 psi (19.3 MPa).
 - 3. Density Classification: Normal weight.
 - 4. Size (Width): Manufactured to dimensions specified in "CMUs" Paragraph.

- 5. Pattern and Texture:
 - a. **CMU-1** Standard pattern, ground-face finish.
 - 1) Mix Design (Color): Stony Shore.
 - 2) Mortar Color: 010412 Ampresand
 - b. **CMU-2** Standard pattern, ground-face finish.
 - 1) Mix Design (Color): Beamish
 - 2) Grout Color: 111711 Beamish
 - c. **CMU-3** Standard pattern, Artisan Roc split-face finish.
 - 1) Mix Design (Color): Beamish
 - 2) Grout Color: 1117110 Beamish
- F. Field Applied Coating:
 - 1. Basis of Design: Aquaseal by Monochem, and shall be used on CMU-1, CMU-2 and CMU-3. After masonry has been cleaned to the approval of the Architect, coat all exterior Architectural CMU surfaces and mortar joints with a clear water repellent equal to *Aquaseal ME12 from Monochem*, according to the manufacturers instructions. The coating shall be applied to the sample panel for Architectural approval and to establish the acceptable standard of quality. Follow manufacturer's installation instructions.
- G. Field Applied Coating (Ground Face):
 - 1. After the masonry has been cleaned to the approval of the Architect, coat all ground-face surfaces and mortar joints with Phylon WB as manufactured by Chemprobe, according to manufacturer's instructions. This water based, acrylic/epoxy formulation imparts a protective, high gloss "wet look" to treated surfaces.

2.3 <u>ARCHITECTURAL CONCRETE CAPS</u>

- A. General: Comply with ASTM C 1364 and the following:
- B. Portland Cement: ASTM C 150, Type I or Type III, containing not more than 0.60 percent total alkali when tested according to ASTM C 114. Provide natural color or white cement as required to produce color indicated.
- C. Coarse Aggregates: Granite, quartz, or limestone complying with ASTM C 33; gradation and colors as needed to produce required textures and colors.
- D. Fine Aggregates: Natural sand or crushed stone complying with ASTM C 33, gradation and colors as needed to produce required textures and colors.

- E. Color Pigment: ASTM C 979, synthetic mineral-oxide pigments or colored waterreducing admixtures; color stable, nonfading, and resistant to lime and other alkalis.
- F. Admixtures: Use only admixtures specified or approved in writing by Architect.
 - 1. Do not use admixtures that contain more than 0.1 percent water-soluble chloride ions by mass of cementitious materials. Do not use admixtures containing calcium chloride.
 - 2. Use only admixtures that are certified by manufacturer to be compatible with cement and other admixtures used.
 - 3. Air-Entraining Admixture: ASTM C 260. Add to mixes for units exposed to the exterior at manufacturer's prescribed rate to result in an air content of 4 to 6 percent, except do not add to zero-slump concrete mixes.
 - 4. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
 - 5. Water-Reducing, Retarding Admixture: ASTM C 494/C 494M, Type D.
 - 6. Water-Reducing, Accelerating Admixture: ASTM C 494/C 494M, Type E.
- G. Reinforcement: Deformed steel bars complying with ASTM A 615/A 615M, Grade 60 (Grade 420). Use galvanized or epoxy-coated reinforcement when covered with less than 1-1/2 inches (38 mm) of material.
 - 1. Epoxy Coating: ASTM A 775/A 775M.
 - 2. Galvanized Coating: ASTM A 767/A 767M.
 - 3. Embedded Anchors and Other Inserts: Fabricated from stainless steel complying with ASTM A 240/A 240M, ASTM A 276, or ASTM A 666, Type 304.
- H. Provide architectural concrete sills and caps from the same manufacturer as decorative CMUs.
 - 1. Match CMUs in color, and density classification.

2.4 MORTAR AND GROUT MATERIALS

- A. Regional Materials: Aggregate for mortar and grout, cement, and lime shall be extracted, harvested, or recovered, as well as manufactured, within 500 miles (800 km) of Project site.
- B. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for coldweather construction. Provide natural color or white cement as required to produce mortar color indicated.
- C. Hydrated Lime: ASTM C 207, Type S.

- D. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.
- E. Aggregate for Mortar: ASTM C 144.
 - 1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
 - 2. For joints less than 1/4 inch (6 mm) thick, use aggregate graded with 100 percent passing the No. 16 (1.18-mm) sieve.
 - 3. White-Mortar Aggregates: Natural white sand or crushed white stone.
 - 4. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.
- F. Aggregate for Grout: ASTM C 404.
- G. Cold-Weather Admixture: Non-chloride, noncorrosive, accelerating admixture complying with ASTM C 494/C 494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Euclid Chemical Company (The); Accelguard 80.
 - b. Grace Construction Products, W. R. Grace & Co. Conn.; Morset.
 - c. Sonneborn Products, BASF Aktiengesellschaft; Trimix-NCA.
- H. Water-Repellent Admixture: Liquid water-repellent mortar admixture intended for use with CMUs containing integral water repellent by same manufacturer.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. ACM Chemistries; RainBloc for Mortar.
 - b. BASF Aktiengesellschaft; Rheopel Mortar Admixture.
 - c. Grace Construction Products, W. R. Grace & Co. Conn.; Dry-Block Mortar Admixture.
- I. Water: Potable.

2.5 <u>REINFORCEMENT</u>

- A. Galvanized Steel Reinforcing Bars: ASTM A 615/A 615M or ASTM A 996/A 996M, Grade 60 (Grade 420), hot-dip galvanized to comply with ASTM A 153/A 153M.
- B. Masonry Joint Reinforcement, General: ASTM A 951/A 951M.

UNIT MASONRY

- 1. Interior Walls: Hot-dip galvanized, carbon steel.
- 2. Exterior Walls: Stainless steel.
- 3. Wire Size for Side Rods: 0.148-inch (3.77-mm) diameter.
- 4. Wire Size for Cross Rods: 0.148-inch (3.77-mm) diameter.
- 5. Wire Size for Veneer Ties: 0.148-inch (3.77-mm) diameter.
- 6. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches (407 mm) o.c.
- 7. Provide in lengths of not less than 10 feet (3 m), with prefabricated corner and tee units.
- C. Masonry Joint Reinforcement for Single-Wythe Masonry: Either ladder or truss type with single pair of side rods.
- D. Masonry Joint Reinforcement for Multi-wythe Masonry:
 - 1. Adjustable (two-piece) type, either ladder or truss design, with one side rod at each face shell of backing wythe and with separate adjustable ties with pintleand-eye connections having a maximum adjustment of 1-1/4 inches (32 mm). Size ties to extend at least halfway through facing wythe but with at least 5/8inch (16-mm) cover on outside face.
- E. Masonry Joint Reinforcement for Veneers Anchored with Seismic Masonry-Veneer Anchors: Single 0.187-inch- (4.76-mm-) diameter, stainless-steel continuous wire.

2.6 <u>TIES AND ANCHORS</u>

- A. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated.
 - 1. Stainless-Steel Wire: ASTM A 580/A 580M, Type 304.
 - 2. Stainless-Steel Sheet: ASTM A 666, Type 304.
- B. Adjustable Anchors for Connecting to Structural Steel Framing: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.
 - 1. Anchor Section for Welding to Steel Frame: Crimped 1/4-inch- (6.35-mm-) diameter, stainless-steel wire.
 - 2. Tie Section: Triangular-shaped wire tie, sized to extend within 1 inch (25 mm) of masonry face, made from 0.187-inch- (4.76-mm-) stainless-steel wire.
- C. Partition Top anchors: 0.105-inch- (2.66-mm-) thick metal plate with 3/8-inch- (9.5-mm-) diameter metal rod 6 inches (152 mm) long welded to plate and with closed-end plastic

tube fitted over rod that allows rod to move in and out of tube. Fabricate from stainless steel.

- A. Rigid Anchors: Fabricate from steel bars 1-1/2 inches (38 mm) wide by 1/4 inch (6.35 mm) thick by 24 inches (610 mm) long, with ends turned up 2 inches (51 mm) or with cross pins unless otherwise indicated.
 - 1. Corrosion Protection: Hot-dip galvanized to comply with ASTM A 153/A 153M.
- B. Adjustable Masonry-Veneer Anchors:
 - 1. General: Provide anchors that allow vertical adjustment but resist tension and compression forces perpendicular to plane of wall, for attachment over sheathing to wood or metal studs, and as follows:
 - a. Structural Performance Characteristics: Capable of withstanding a 100lbf (445-N) load in both tension and compression without deforming or developing play in excess of 0.05 inch (1.3 mm).
 - 2. Screw-Attached, Masonry-Veneer Anchors: Units consisting of a wire tie and a metal anchor section.
 - a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Heckmann Building Products Inc.; 315-D with 316.
 - 2) Hohmann & Barnard, Inc.; DW-10.
 - 3) Wire-Bond; 1004, Type III.
 - a. Anchor Section: Sheet metal plate, 1-1/4 inches (32 mm) wide by 6 inches (152 mm) long, with screw holes top and bottom and with raised rib-stiffened strap, 5/8 inch (16 mm) wide by 3-5/8 inches (92 mm)] long, stamped into center to provide a slot between strap and plate for inserting wire tie.
 - b. Fabricate sheet metal anchor sections and other sheet metal parts from 0.078-inch- (1.98-mm-) thick, stainless-steel sheet.
 - c. Wire Ties: Triangular-, rectangular-, or T-shaped wire ties fabricated from 0.187-inch- (4.76-mm-) diameter, stainless-steel wire.

2.7 <u>MISCELLANEOUS ANCHORS</u>

- A. Unit Type Inserts in Concrete: Cast-iron or malleable-iron wedge-type inserts.
- B. Dovetail Slots in Concrete: Furnish dovetail slots with filler strips, of slot size indicated, fabricated from 0.034-inch (0.86-mm), galvanized steel sheet.

A. Anchor Bolts: Headed or L-shaped steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153/A 153M, Class C; of dimensions indicated.

2.8 EMBEDDED FLASHING MATERIALS

- A. Metal Flashing: Provide metal flashing complying with SMACNA's "Architectural Sheet Metal Manual" and as follows:
 - 1. Stainless Steel: ASTM A 240/A 240M, Type 304, 0.016 inch (0.40 mm) thick.
 - 2. Copper: ASTM B 370, Temper H00, cold-rolled copper sheet, 16-oz./sq. ft. (4.9-kg/sq. m) weight or 0.0216 inch (0.55 mm) thick or ASTM B 370, Temper H01, high-yield copper sheet, 12-oz./sq. ft. (3.7-kg/sq. m) weight or 0.0162 inch (0.41 mm) thick.
 - 3. Fabricate continuous flashings in sections 96 inches (2400 mm) long minimum, but not exceeding 12 feet (3.7 m). Provide splice plates at joints of formed, smooth metal flashing.
 - 4. Fabricate through-wall metal flashing embedded in masonry from copper, with ribs at 3-inch (76-mm) intervals along length of flashing to provide an integral mortar bond.
 - a. Products: Subject to compliance with requirements, provide one of the following:
 - 1) Cheney Flashing Company; Cheney Flashing (Dovetail).
 - 2) Keystone Flashing Company, Inc.; Keystone 3-Way Interlocking Thruwall Flashing.
 - 3) Sandell Manufacturing Co., Inc.; Mechanically Keyed Flashing.
 - 5. Fabricate through-wall flashing with snaplock receiver on exterior face where indicated to receive counterflashing.
 - 6. Fabricate through-wall flashing with drip edge unless otherwise indicated. Fabricate by extending flashing 1/2 inch (13 mm) out from wall, with outer edge bent down 30 degrees and hemmed.
 - 7. Fabricate metal drip edges for ribbed metal flashing from plain metal flashing of same metal as ribbed flashing and extending at least 3 inches (76 mm) into wall with hemmed inner edge to receive ribbed flashing and form a hooked seam. Form hem on upper surface of metal so that completed seam will shed water.
 - 8. Metal Drip Edge: Fabricate from stainless steel. Extend at least 3 inches (76 mm) into wall and 1/2 inch (13 mm) out from wall, with outer edge bent down 30 degrees and hemmed.

- 9. Metal Expansion-Joint Strips: Fabricate from copper to shapes indicated.
- B. Flexible Flashing: Use the following unless otherwise indicated:
 - 1. Copper-Laminated Flashing: 7-oz./sq. ft. (2-kg/sq. m) copper sheet bonded between 2 layers of glass-fiber cloth. Use only where flashing is fully concealed in masonry.
 - a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Hohmann & Barnard, Inc.; H & B C-Fab Flashing.
 - 2) Phoenix Building Products; Type FCC-Fabric Covered Copper.
 - 3) Sandell Manufacturing Co., Inc.; Copper Fabric Flashing.
 - 4) York Manufacturing, Inc.; Multi-Flash 500.
- C. Solder and Sealants for Sheet Metal Flashings:
 - 1. Solder for Stainless Steel: ASTM B 32, Grade Sn60, with acid flux of type recommended by stainless-steel sheet manufacturer.
 - 2. Solder for Copper: ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead.
- D. Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.

2.9 MISCELLANEOUS MASONRY ACCESSORIES

- A. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene or urethane.
- B. Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D 2000, Designation M2AA-805 or PVC, complying with ASTM D 2287, Type PVC-65406 and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.
- C. Bond-Breaker Strips: Asphalt-saturated, organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).

- D. Weep/Vent Products: Use the following unless otherwise indicated:
 - 1. Cellular Plastic Weep/Vent: One-piece, flexible extrusion made from UVresistant polypropylene copolymer, full height and width of head joint and depth 1/8 inch (3 mm) less than depth of outer wythe, in color selected from manufacturer's standard.
 - a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Heckmann Building Products Inc.; No. 85 Cell Vent.
 - 2) Hohmann & Barnard, Inc.; Quadro-Vent.
 - 3) Wire-Bond; Cell Vent.
- E. Cavity Drainage Material: Free-draining mesh, made from polymer strands that will not degrade within the wall cavity.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Mortar Net USA, Ltd.; Mortar Net.
 - 2. Provide the following configurations:
 - a. Strips, full-depth of cavity and 10 inches (250 mm) high, with dovetail shaped notches 7 inches (175 mm) deep that prevent clogging with mortar droppings.
- F. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells and hold reinforcing bars in center of cells. Units are formed from 0.148-inch (3.77-mm) steel wire, hot-dip galvanized after fabrication. Provide units designed for number of bars indicated.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Heckmann Building Products Inc.; No. 376 Rebar Positioner.
 - b. Hohmann & Barnard, Inc.; #RB or #RB-Twin Rebar Positioner.
 - c. Wire-Bond; O-Ring or Double O-Ring Rebar Positioner.

2.10 MASONRY CLEANERS

- A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.
 - 1. Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Diedrich Technologies, Inc.
 - b. EaCo Chem, Inc.
 - c. ProSoCo, Inc.

2.11 MORTAR AND GROUT MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
 - 1. Do not use calcium chloride in mortar or grout.
 - 2. Use portland cement-lime mortar unless otherwise indicated.
 - 3. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.
- B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.
- C. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated or needed to provide required compressive strength of masonry.
 - 1. For masonry below grade or in contact with earth, use Type M.
 - 2. For reinforced masonry, use Type S.
 - 3. For exterior, above-grade, load-bearing and non-load-bearing walls and parapet walls; for interior load-bearing walls; for interior non-load-bearing partitions; and for other applications where another type is not indicated, use Type N.
 - 4. For interior non-load-bearing partitions, use Type N.

- D. Colored-Aggregate Mortar: Produce required mortar color by using colored aggregates and natural color or white cement as necessary to produce required mortar color.
 - 1. Mix to match Architect's sample.
 - 2. Application: Use colored aggregate mortar for exposed mortar joints with the following units:
 - a. Decorative CMUs.
- E. Grout for Unit Masonry: Comply with ASTM C 476.
 - 1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with Table 1.15.1 in ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height.
 - 2. Proportion grout in accordance with ASTM C 476, Table 1 or paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 2000 psi (14 MPa).
 - 3. Provide grout with a slump of 8 to 11 inches (203 to 279 mm) as measured according to ASTM C 143/C 143M.

3.0 PART 3 - EXECUTION

3.1 <u>EXAMINATION</u>

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
 - 1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.
 - 2. Verify that foundations are within tolerances specified.
 - 3. Verify that reinforcing dowels are properly placed.
- B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Thickness: Build cavity and composite walls and other masonry construction to full thickness shown. Build single-wythe walls to actual widths of masonry units, using units of widths indicated.
- B. Build chases and recesses to accommodate items specified in this and other Sections.

- C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to opening.
- D. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
- E. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.
 - 1. Mix units from several pallets or cubes as they are placed.
- F. Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in. (30 g/194 sq. cm) per minute when tested per ASTM C 67. Allow units to absorb water so they are damp but not wet at time of laying.

3.3 <u>TOLERANCES</u>

- A. Dimensions and Locations of Elements:
 - 1. For dimensions in cross section or elevation do not vary by more than plus 1/2 inch (12 mm) or minus 1/4 inch (6 mm).
 - 2. For location of elements in plan do not vary from that indicated by more than plus or minus 1/2 inch (12 mm).
 - 3. For location of elements in elevation do not vary from that indicated by more than plus or minus 1/4 inch (6 mm) in a story height or 1/2 inch (12 mm) total.
- B. Lines and Levels:
 - 1. For bed joints and top surfaces of bearing walls do not vary from level by more than 1/4 inch in 10 feet (6 mm in 3 m), or 1/2 inch (12 mm) maximum.
 - 2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2 inch (12 mm) maximum.
 - 3. For vertical lines and surfaces do not vary from plumb by more than 1/4 inch in 10 feet (6 mm in 3 m), 3/8 inch in 20 feet (9 mm in 6 m), or 1/2 inch (12 mm) maximum.
 - 4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2 inch (12 mm) maximum.

- 5. For lines and surfaces do not vary from straight by more than 1/4 inch in 10 feet (6 mm in 3 m), 3/8 inch in 20 feet (9 mm in 6 m), or 1/2 inch (12 mm) maximum.
- 6. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet (6 mm in 3 m), or 1/2 inch (12 mm) maximum.
- 7. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch (1.5 mm) except due to warpage of masonry units within tolerances specified for warpage of units.
- C. Joints:
 - 1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm), with a maximum thickness limited to 1/2 inch (12 mm).
 - 2. For exposed bed joints, do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch (3 mm).
 - 3. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch (9 mm) or minus 1/4 inch (6 mm).
 - 4. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm). Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch (3 mm).
 - 5. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16 inch (1.5 mm) from one masonry unit to the next.

3.4 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
- B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less than nominal 4-inch (100-mm) horizontal face dimensions at corners or jambs.
- C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 4-inches (100-mm). Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch (100-mm) horizontal face dimensions at corners or jambs.
- D. Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.
- E. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.

- F. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.
- G. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below and rod mortar or grout into core.
- H. Fill cores in hollow CMUs with grout 24 inches (600 mm) under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.
- I. Build non-load-bearing interior partitions full height of story to underside of solid floor or roof structure above unless otherwise indicated.
 - 1. Wedge non-load-bearing partitions against structure above with small pieces of tile, slate, or metal. Fill joint with mortar after dead-load deflection of structure above approaches final position.
 - 2. At fire-rated partitions, treat joint between top of partition and underside of structure above to comply with Division 07 Section "Fire-Resistive Joint Systems."

3.5 MORTAR BEDDING AND JOINTING

- A. Lay hollow CMUs as follows:
 - 1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints.
 - 2. With webs fully bedded in mortar in all courses of piers, columns, and pilasters.
 - 3. With webs fully bedded in mortar in grouted masonry, including starting course on footings.
 - 4. With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.
- B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

3.6 <u>CAVITY WALLS</u>

- A. Bond wythes of cavity walls together using one of the following methods:
 - 1. Individual Metal Ties: Provide ties as shown installed in horizontal joints, but not less than one metal tie for 2.67 sq. ft. (0.25 sq. m) of wall area spaced not to exceed 24 inches (610 mm) o.c. horizontally and 16 inches (406 mm) o.c. vertically. Stagger ties in alternate courses. Provide additional ties within 12 inches (305 mm) of openings and space not more than 36 inches (915 mm) apart around perimeter of openings. At intersecting and abutting walls, provide ties at no more than 24 inches (610 mm) o.c. vertically.

UNIT MASONRY

- a. Where bed joints of wythes do not align, use adjustable (two-piece) type ties.
- b. Where one wythe is of clay masonry and the other of concrete masonry, use adjustable (two-piece) type ties to allow for differential movement regardless of whether bed joints align.
- 2. Masonry Joint Reinforcement: Installed in horizontal mortar joints.
 - a. Where bed joints of both wythes align, use ladder-type reinforcement extending across both wythes.
 - b. Where bed joints of wythes do not align, use adjustable (two-piece) type reinforcement.
- 3. Masonry Veneer Anchors: Comply with requirements for anchoring masonry veneers.
- B. Keep cavities clean of mortar droppings and other materials during construction. Bevel beds away from cavity, to minimize mortar protrusions into cavity. Do not attempt to trowel or remove mortar fins protruding into cavity.

3.7 MASONRY JOINT REINFORCEMENT

- A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch (16 mm) on exterior side of walls, 1/2 inch (13 mm) elsewhere. Lap reinforcement a minimum of 6 inches (150 mm).
 - 1. Space reinforcement not more than 16 inches (406 mm) o.c.
 - 2. Space reinforcement not more than 8 inches (203 mm) o.c. in foundation walls and parapet walls.
 - 3. Provide reinforcement not more than 8 inches (203 mm) above and below wall openings and extending 12 inches (305 mm) beyond openings in addition to continuous reinforcement.
- B. Interrupt joint reinforcement at control and expansion joints unless otherwise indicated.
- C. Provide continuity at wall intersections by using prefabricated T-shaped units.
- D. Provide continuity at corners by using prefabricated L-shaped units.

3.8 ANCHORING MASONRY TO STRUCTURAL STEEL AND CONCRETE

- A. Anchor masonry to structural steel and concrete where masonry abuts or faces structural steel or concrete to comply with the following:
 - 1. Provide an open space not less than 2 inches (50 mm) wide between masonry and structural steel or concrete unless otherwise indicated. Keep open space free of mortar and other rigid materials.

- 2. Anchor masonry with anchors embedded in masonry joints and attached to structure.
- 3. Space anchors as indicated, but not more than 24 inches (610 mm) o.c. vertically and 36 inches (915 mm) o.c. horizontally.

3.9 ANCHORING MASONRY VENEERS

- A. Anchor masonry veneers to wall framing and concrete and masonry backup with masonry-veneer anchors to comply with the following requirements:
 - 1. Fasten screw-attached anchors to concrete and masonry backup with metal fasteners of type indicated. Use two fasteners unless anchor design only uses one fastener.
 - 2. Embed tie sections in masonry joints. Provide not less than 2 inches (50 mm) of air space between back of masonry veneer and face of sheathing.
 - 3. Locate anchor sections to allow maximum vertical differential movement of ties up and down.
 - 4. Space anchors as indicated, but not more than 16 inches (406 mm) o.c. vertically and 24 inches (610 mm) o.c. horizontally with not less than 1 anchor for each 2.67 sq. ft. (0.25 sq. m) of wall area. Install additional anchors within 12 inches (305 mm) of openings and at intervals, not exceeding 36 inches (914 mm), around perimeter.

3.10 CONTROL AND EXPANSION JOINTS

- A. General: Install control and expansion joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall or partition movement.
- B. Form control joints in concrete masonry using one of the following methods:
 - 1. Fit bond-breaker strips into hollow contour in ends of CMUs on one side of control joint. Fill resultant core with grout and rake out joints in exposed faces for application of sealant.
 - 2. Install preformed control-joint gaskets designed to fit standard sash block.
 - 3. Install interlocking units designed for control joints. Install bond-breaker strips at joint. Keep head joints free and clear of mortar or rake out joint for application of sealant.
 - 4. Install temporary foam-plastic filler in head joints and remove filler when unit masonry is complete for application of sealant.

3.11 <u>LINTELS</u>

- A. Install steel lintels where indicated.
- B. Provide minimum bearing of 8 inches (200 mm) at each jamb unless otherwise indicated.

3.12 FLASHING, WEEP HOLES, CAVITY DRAINAGE, AND VENTS

- A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated. Install vents at shelf angles, ledges, and other obstructions to upward flow of air in cavities, and where indicated.
- B. Install flashing as follows unless otherwise indicated:
 - 1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.
 - 2. At multiwythe masonry walls, including cavity walls, extend flashing through outer wythe, turned up a minimum of 8 inches (200 mm), and 1-1/2 inches (38 mm) into the inner wythe.
 - 3. At masonry-veneer walls, extend flashing through veneer, across air space behind veneer, and up face of sheathing at least 8 inches (200 mm); with upper edge tucked under building paper or building wrap, lapping at least 4 inches (100 mm).
 - 4. At lintels and shelf angles, extend flashing a minimum of 6 inches (150 mm) into masonry at each end. At heads and sills, extend flashing 6 inches (150 mm) at ends and turn up not less than 2 inches (50 mm) to form end dams.
 - 5. Interlock end joints of ribbed sheet metal flashing by overlapping ribs not less than 1-1/2 inches (38 mm) or as recommended by flashing manufacturer, and seal lap with elastomeric sealant complying with requirements in Division 07 Section "Joint Sealants" for application indicated.
 - 6. Install metal drip edges with ribbed sheet metal flashing by interlocking hemmed edges to form hooked seam. Seal seam with elastomeric sealant complying with requirements in Division 07 Section "Joint Sealants" for application indicated.
 - 7. Install metal drip edges beneath flashing at exterior face of wall. Stop flashing 1/2 inch (13 mm) back from outside face of wall and adhere flexible flashing to top of metal drip edge.

- C. Install weep holes in head joints in exterior wythes of first course of masonry immediately above embedded flashing and as follows:
 - 1. Use specified weep/vent products to form weep holes.
 - 2. Space weep holes 24 inches (600 mm) o.c. unless otherwise indicated.
- D. Place cavity drainage material in cavities to comply with configuration requirements for cavity drainage material in "Miscellaneous Masonry Accessories" Article.
- E. Install vents in head joints in exterior wythes at 48-inches o.c. Use specified weep/vent products to form vents.

3.13 REINFORCED UNIT MASONRY INSTALLATION

- A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.
 - 1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
 - 2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other loads that may be placed on them during construction.
- B. Placing Reinforcement: Comply with requirements in ACI 530.1/ASCE 6/TMS 602.
- C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.
 - 1. Comply with requirements in ACI 530.1/ASCE 6/TMS 602 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
 - 2. Limit height of vertical grout pours to not more than 60 inches (1520 mm).

3.14 FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage special inspectors to perform tests and inspections and prepare reports. Allow inspectors access to scaffolding and work areas, as needed to perform tests and inspections. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.

3.15 <u>REPAIRING, POINTING, AND CLEANING</u>

A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.

- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
 - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
 - 2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
 - 3. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
 - 4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
 - 5. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.
 - 6. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.

3.16 MASONRY WASTE DISPOSAL

- A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.
- B. Waste Disposal as Fill Material: Dispose of clean masonry waste, including excess or soil-contaminated sand, waste mortar, and broken masonry units, by crushing and mixing with fill material as fill is placed.
 - 1. Crush masonry waste to less than 4 inches (100 mm) in each dimension.
 - Mix masonry waste with at least two parts of specified fill material for each part of masonry waste. Fill material is specified in Division 31 Section "Earth Moving."
 - 3. Do not dispose of masonry waste as fill within 18 inches (450 mm) of finished grade.

C. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above, and other masonry waste, and legally dispose of off Owner's property.

END OF SECTION 042000

SECTION 042213 - REINFORCED UNIT MASONRY

PART 1 - GENERAL

1.01 <u>SUMMARY</u>

- A. The CONDITIONS OF CONTRACT and DIVISION 1 of the Project Specifications are a part of this section as is contained herein.
- B. The extent of each type of reinforced unit masonry work is indicated on the drawings and in the schedules.

1.02 <u>SUBMITTALS</u>

- A. Mill Certificates: Submit steel producers certificates of mill analysis, tensile and bend tests for reinforcement steel required for project.
- B. Shop Drawings: Submit shop drawings for fabrication, bending and placement of reinforcement bars. Comply with ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures". Show bar schedules, diagrams of bent bars, stirrup spacing, lateral ties and other arrangements and assemblies as required for fabrication and placement of reinforcement for unit masonry work.

PART 2 - PRODUCTS

2.01 <u>MATERIALS</u>

- A. General: Refer to Section "Unit Masonry" for masonry materials and accessories not included in this section.
- B. Reinforcement Bars: Provide deformed bars of following grades complying with ASTM A 615, except as otherwise indicated.
 - 1. Provide Grade 60 for bars No. 3 to No. 18, except as otherwise indicated.
 - 2. Shop-fabricate reinforcement bars which are shown to be bent or hooked.

PART 3 - EXECUTION

3.01 PLACING REINFORCEMENT

- A. Clean reinforcement of loose rust, mill scale, earth, ice or other materials, which will reduce bond to mortar or grout. Do not use reinforcement bars with kinks or bends not shown on drawings or final shop drawings, or bars with reduced cross-section due to excessive rusting or other causes.
- B. Position reinforcement accurately at the spacing indicated. Support and secure vertical bars against displacement. Horizontal reinforcement may be placed as the masonry work progresses. Where vertical bars are shown in close proximity, provide a clear distance between bars of not less than the nominal bar diameter or 1" (whichever is greater).

- 1. For columns, piers and pilasters, provide a clear distance between vertical bars as indicated, but not less than 1-1/2 times the nominal bar diameter or 1-1/2", whichever is greater. Provide lateral ties as indicated.
- C. Splice reinforcement bars where shown; do not splice at other points unless acceptable to the Architect. Provide lapped splices, unless otherwise indicated. In splicing vertical bars or attaching to dowels, lap ends, place in contact and wire tie.
 - 1. Provide not less than minimum lap indicated, or if not indicated, as required by governing code.
- D. Embed metal ties in mortar joints as work progresses, with a minimum mortar cover of 5/8" on exterior face of walls and 1/2" at other locations.
- E. Embed prefabricated horizontal joint reinforcement as the work progresses, with a minimum cover of 5/8" on exterior face of walls and 1/2" at other locations. Lap units not less than 6" at ends. Use prefabricated "L" and "T" units to provide continuity at corners and intersections. Cut and bend units as recommended by manufacturer for continuity at returns, offsets, column fire-proofing, pipe enclosures and other special conditions.
- F. Anchoring: Anchor reinforced masonry work to supporting structure as indicated.
 - 1. Anchor reinforced masonry wall to non-reinforced masonry where they intersect.

3.02 INSTALLATION, GENERAL

- A. Refer to Section "Unit Masonry" for general installation requirements of unit masonry.
- B. Temporary Formwork: Provide formwork and shores as required for temporary support of reinforced masonry elements.
 - 1. Construct formwork to conform to shape, line and dimensions shown. Make sufficiently tight to prevent leakage of mortar, grout, or concrete (if any). Brace, ties and support as required to maintain position and shape during construction and curing or reinforced masonry.

3.03 INSTALLATION OF REINFORCED CONCRETE UNIT MASONRY

- A. General:
 - 1. Do not wet concrete masonry units (CMU).
 - 2. Lay CMU units with full-face shell mortar beds. Fill vertical head joints (end joints between units) solidly with mortar from face of unit to a distance behind face equal to not less than the thickness of longitudinal face shells. Solidly bed cross-webs of starting courses in mortar. Maintain head and bed joint widths shown, or if not shown, provide 3/8" joints.
 - a. Where solid CMU units are shown, lay with full mortar head and bed joints.

REINFORCED UNIT MASONRY 042213 - 2

B. Walls:

- 1. Pattern Bond: Lay CMU wall units in 1/2 running bond with vertical joints in each course centered on unit sin courses above and below, unless otherwise indicated. Bond and interlock each course at corners and intersections. Use special-shaped units where shown, and as required for corners, jambs, sash, control joints, lintels, bond beams and other special conditions.
- 2. Maintain vertical continuity of core or cell cavities, which are to be reinforced and grouted, to provide minimum clear dimension indicated and to provide minimum clearance and grout coverage for vertical reinforcement bars. Keep cavities free of mortar. Solidly bed webs in mortar where adjacent to reinforced cores or cells.
- 3. Where horizontal reinforced beams (bond beams) are shown, use special units or modify regular units to allow for placement of continuous horizontal reinforcement bars. Place small mesh expanded metal lath or wire screening in mortar joints under bond beam courses over cores or cells of non-reinforced vertical cells, or provide unit with solid bottoms.
 - a. Option: Where all vertical cores are not shown to be grouted, Contractor may elect to fill all vertical cores with grout. In which case, requirements for mortar bedding of cross-webs and closing of core spaces below bond beams do not apply.
- C. Columns, Piers and Pilasters:
 - 1. Use CMU units of the site, shape and number of vertical core spaces shown. If not shown, use units which provide minimum clearances and grout coverage for number and size of vertical reinforcement bars shown.
 - 2. Provide pattern bond shown, or it not shown, alternate head joints in vertical alignment.
 - 3. Where bonded pilaster construction is shown, lay wall and pilaster units together to maximum pour height specified.
- D. Grouting:
 - 1. Use "Fine Grout" per ASTM C 476 for filling spaces less than 4" in one or both horizontal directions.
 - 2. Use "Coarse Grout' per ASTM C 476 for filling 4" spaces or larger in both horizontal directions.
 - 3. Grouting Technique: At the Contractor's option, use either low-lift or high-lift grouting techniques subject to requirements which follow.
- E. Low-Lift Grouting:
 - 1. Provide minimum clear dimension of 2" and clear area of 8 sq. in. in vertical cores to be grouted.

- 2. Place vertical reinforcement prior to laying of CMU. Extend above elevation of maximum pour height as required for splicing. Support tin position at vertical intervals not exceeding 192 bars diameters nor 10 ft.
 - 3. Lay CMU to maximum pour height. Do not excess 5' height of if bond beam occurs below 5' height stop pour st course below bond beam.
 - 4. Pour grout using chute or container with spout. Rod or vibrate grout during placing. Place grout continuously; do not interrupt pouring of grout for more than one hour. Terminate grout pours 1-1/2' below top course of pour.
 - 5. Bond Beams: Stop grout in vertical cells 1-1/2" below bond beam course. Place horizontal reinforcing in bond beams; lap at corners and intersections as shown. Place grout in bond beam course before filling vertical cores above bond beam.
- F. High-Lift Grouting:
 - 1. Do not use high-lift grouting technique for grouting of CMU unless minimum cavity dimension and area is 3' and 10 sq. in., respectively..
 - 2. Provide cleanout holes in first course at all vertical cells which are to be filled with grout.
 - a. Use units with one face shell removed and provide temporary supports for units above, or use header units with concrete brick supports, or cut openings in one face shell.
 - 3. Construct masonry to full height of maximum grout pour specified, prior to placing grout.
 - a. Limit grout lifts to a maximum height of 5' and grout pour to a maximum height of 24', for single wythe hollow concrete masonry walls, unless otherwise indicated.
 - 4. Place vertical reinforcement before grouting. Place before or after laying masonry units, as required by job conditions. Tie vertical reinforcement to dowels at base of masonry where shown and thread CMU over or around reinforcement. Support vertical reinforcement at intervals not exceeding 192 bars diameters nor 10'.
 - a. Where individual bars are placed after laying masonry, place wire loops extending into cells as masonry is laid and loosen before mortar sets. After insertion of reinforcement bar, pull loops and bar to proper position and tie free ends.
 - 5. Where reinforcement is prefabricated into cage units before placing, fabricate units with vertical reinforcement bars and lateral ties of size and spacing indicated.
 - 6. Place horizontal beam reinforcement as the masonry units are laid.

- 7. Embed lateral tie reinforcement in mortar joints where indicated. Place as masonry units are laid, at vertical spacing shown.
 - a. Where lateral ties are shown in contact with vertical reinforcement bars, embed additional lateral tie reinforcement in mortar joints. Place as shown, or if not shown, provide as required to prevent grout blowout or rupture of CMU face shells, but provide not less than No. 2 bars or 8gauge wire ties spaced 16" o.c. for members with 20" or less side dimensions, and 8" o.c. for members with side dimensions exceeding 20".
- 8. Preparation of Grout Spaces: Prior to grouting, inspect and clean grout spaces. Remove dust, dirt, mortar droppings, loose pieces of masonry and other foreign materials from grout spaces. Clean reinforcement and adjust to proper position. Clean top surface of structural members supporting masonry to ensure bond. After final cleaning and inspection, close cleanout holes and brace closures to resist grout pressures.
- 9. Do not place grout until entire height of masonry to be grouted has attained sufficient strength to resist displacement of masonry units and breaking of mortar bond. Install shores and bracing, if required, before starting grouting operations.
- 10. Place grout by pumping into grout spaces unless alternate methods are acceptable to the Architect.
- 11. Limit grout pours to sections which can be completed in one working day with not more than one hour interruption of pouring operation. Place grout in lifts which do not exceed 5'. Allow not less than 30 minutes, nor more than one hour between lifts of a given pour. Rod or vibrate each grout lift during pouring operation.
 - a. Place grout in lintels or beams over openings in one continuous pour.
- 12. Where bond occurs more than one course below top of pour, fill bond beam course to within 1" of vertical reinforced cavities, during construction of masonry.
- 13. When more than one pour is required to complete a given section of masonry, extend reinforcement beyond masonry as required for splicing. Pour grout to within 1-1/2" of top course of first pour. After grouted masonry is cured, lay masonry units and place reinforcement for second pour section before grouting. Repeat sequence if more pours are required.

END OF SECTION 042213

SECTION 051200 - STRUCTURAL STEEL

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 2 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. The CONDITIONS OF CONTRACT and DIVISION 1 of the Project Specifications are a part of this section as is contained herein.
- B. This section includes fabrication and erection of structural steel work, as shown on drawings including schedules, notes, and details showing size and location of members, typical connections, and types of steel required. Specifically, principal items of work include, but are not limited to, the following:
 - 1. Structural steel framing including columns, girders, beams, purlins, etc. as shown and indicated on the drawings.
 - 2. Furnish, fabricate and deliver anchor bolts, loose leveling plates, lintels and frames to be built in under Section for Concrete Formwork.
 - 3. Furnish, fabricate and deliver all loose lintels for exterior walls as shown and detailed on structural and architectural drawings, to be built in under Section for Cold Formed Metal Framing.
 - 4. Furnish and install eave angles and clips attached to structural steel for attaching blocking for gravel stops and fascia.
 - 5. Installation of OSHA safety railings at perimeter walls all floors
- C. Related Work:
 - 1. Eave angles and clips attached to steel joist and to light metal framing, under Sections for Steel Joist and for Light Metal Framing.

1.03 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Shop drawings prepared under supervision of a licensed Structural Engineer, including complete details and schedules for fabrication and assembly of structural steel members, procedures, and diagrams.
 - 1. Include details of cuts, connections, camber, holes, and other pertinent data. Indicate welds by standard AWS symbols and show size, length, and type of each weld.
 - 2. Provide setting drawings, templates, and directions for installation of anchor bolts and other anchorages to be installed as work of other sections.

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1.04 QUALITY ASSURANCE

- A. Codes and Standards: Comply with provisions of following, except as otherwise indicated:
 - 1. American Institute of Steel Construction (AISC) "Code of Standard Practice for Steel Buildings and Bridges."
 - a. Paragraph 4.2.1 of the above code is hereby modified by deletion of the following sentence:
 - (1) "This approval constitutes the owner's acceptance of all responsibility for the design adequacy of any detail configuration of connections developed by the fabricator as a part of his preparation of these shop drawings."
 - 2. AISC "Specifications for Structural Steel Buildings," including "Commentary."
 - 3. "Specifications for Structural Joints using ASTM A 325 or A 490 Bolts" approved by the Research Council on Structural Connections.
 - 4. American Welding Society (AWS) D1.1 "Structural Welding Code Steel."
 - 5. ASTM A 6 "General Requirements for Delivery of Rolled Steel Plates, Shapes, Sheet Piling and Bars for Structural Use."
- B. Qualifications for Welding Work: Qualify welding procedures and welding operators in accordance with AWS "Qualification" requirements.
 - 1. Provide certification that welders to be employed in work have satisfactorily passed AWS qualification tests.
 - 2. If re-certification of welders is required, retesting will be Contractor's responsibility.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site at such intervals to ensure uninterrupted progress of work.
- B. Deliver anchor rods and anchorage devices, which are to be embedded in cast-in-place concrete or masonry, in ample time to not to delay work.
- C. Store materials to permit easy access for inspection and identification. Keep steel members off ground by using pallets, platforms, or other supports. Protect steel members and packaged materials from erosion and deterioration. If bolts and nuts become dry or rusty, clean and relubricate before use.
 - 1. Do not store materials on structure in a manner that might cause distortion or damage to members or supporting structures. Repair or replace damaged materials or structures as directed.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Metal Surfaces, General: For fabrication of work that will be exposed to view, use only materials that are smooth and free of surface blemishes including pitting, rust and scale seam marks, roller marks, rolled trade names, and roughness. Remove such blemishes by grinding, or by welding and grinding, prior to cleaning, treating, and applying surface finishes.

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- B. Structural Steel WShapes: ASTM A 992, Angles, Channels, Plates, and Bars: ASTM A 36.
- C. Cold-Formed Steel Tubing: ASTM A 500, Grade B.
- B. Hot-Formed Steel Tubing: ASTM A 501.
- C. Steel Pipe: ASTM A 53, Type E or S, Grade B; or ASTM A 501.
 - 1. Finish: Black, except where indicated to be galvanized.
- D. Steel Castings: ASTM A 27, Grade 65-35, medium-strength carbon steel.
- E. Headed Stud-Type Shear Connectors: ASTM A 108, Grade 1015 or 1020, cold-finished carbon steel with dimensions complying with AISC Specifications.
- F. Anchor Rods: ASTM F1554, nonheaded type unless otherwise indicated.
- G. Unfinished Theraded Fasteners: ASTM A 307, Grade A, regular low-carbon steel bolts and nuts.
 - 1. Provide hexagonal heads and nuts for all connections
 - 2. Provide either hexagonal or square heads and nuts, except use only hexagonal units for exposed connections.
- J. High-Strength Threaded Fasteners: Heavy hexagon structural bolts, heavy hexagon nuts, and hardened washers, as follows:
 - 1. Quenched and tempered medium-carbon steel bolts, nuts, and washers, complying with ASTM A 325.
 - a. Where indicated as galvanized, provide units that are zinc coated, either mechanically deposited complying with ASTM B 695, Class 50, or hot-dip galvanized complying with ASTM A 153.
 - 2. Quenched and tempered alloy steel bolts, nuts, and washers, complying with ASTM A 490.
- K. Direct Tension Indicateors: ASTM F 959, type as required.
 - 1. Use on all A325 and A 490 bolts on connections that are slip critical.
 - 2. Use at Contractor's option.
- L. Electrodes for Welding: Comply with AWS Code.
- M. All structural steel surfaces shall be clean and compatible with spray on fire proofing material for adhesion.

2.02 FABRICATION

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- A. Shop Fabrication and Assembly: Fabricate and assemble structural assemblies in shop to greatest extent possible. Fabricate items of structural steel in accordance with AISC Specifications and as indicated on final shop drawings. Provide camber in structural members where indicated.
 - 1. Properly mark and match-mark materials for field assembly. Fabricate for delivery sequence that will expedite erection and minimize field handling of materials.
 - 2. Where finishing is required, complete assembly, including welding of units, before start of finishing operations. Provide finish surfaces of members exposed in final structure free of markings, burrs, and other defects.
- B. Connections: Weld or bolt shop connections, as indicated.
- C. Bolt field connections, except where welded connections or other connections are indicated.
 - 1. Provide high-strength threaded fasteners for principal bolted connections, except where unfinished bolts are indicated.
 - 2. Provide unfinished threaded fasteners for only bolted connections of secondary framing members to primary members (including purlins, girts, and other framing members taking only nominal stresses) and for temporary bracing to facilitate erection.
- D. High-Strength Bolted Construction: Install high-strength threaded fasteners in accordance with AISC "Specifications for Structural Joints using ASTM A 325 or A 490 Bolts."
- E. Welded Construction: Comply with AWS Code for procedures, appearance and quality of welds, and methods used in correcting welding work.
- F. Assemble and weld built-up sections by methods that will produce true alignment of axes without warp.
- G. Steel Wall framing: Select members that are true and straight for fabrication of steel wall framing. Straighten as required to provide uniform, square, and true members in completed wall framing.
- H. Build up welded door frames attached to structural steel framing. Weld exposed joints continuously and grind smooth. Plug-weld steel bar stops to frames, except where shown removable. Secure removable stops to frames with countersunk, cross-recessed head machine screws, uniformly spaced not more than 10 inches o.c., unless otherwise indicated.
- I Holes for Other Work: Provide holes required for securing other work to structural steel framing and for passage of other work through steel framing members, as shown on final shop drawings.
- J. Provide threaded nuts welded to framing and other specialty items as indicated to receive other work.

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- K. Cut, drill, or punch holes perpendicular to metal surfaces. Do not flame-cut holes or enlarge holes by burning. Drill holes in bearing plates.
- L. Expansion Joints: Provide expansion joints in steel shelf angles when part of structural steel frame; locate at vertical brick expansion joints as indicated on drawings.

2.03. SOURCE QUALITY CONTROL

- A. General: Materials and fabrication procedures are subject to inspection and tests in mill, shop, and field, conducted by a qualified inspection agency. Such inspections and tests will not relieve Contractor of responsibility for providing materials and fabrication procedures in compliance with specified requirements.
 - 1. Promptly remove and replace materials or fabricated components that do not comply.
- B. Design of Members and Connections: Details shown are typical; similar details apply to similar conditions, unless otherwise indicated. Verify dimensions at site whenever possible without causing delay in the work.
 - 1. Promptly notify Architect whenever design of members and connections for any portion of structure are not clearly indicated.

PART 3 - EXECUTION

3.01 ERECTION

- A. Temporary Shoring and Bracing: Provide temporary shoring and bracing members with connections of sufficient strength to bear imposed loads. Remove temporary members and connections when permanent members are in place and final connections are made. Provide temporary guy lines to achieve proper alignment of structures as erection proceeds.
- B. Temporary Planking: Provide temporary planking and working platforms as necessary to effectively complete work.
- C. Field Assembly: Set structural frames accurately to lines and elevations indicated. Align and adjust various members forming part of complete frame or structure before permanently fastening. Clean bearing surfaces and other surfaces that will be in permanent contact before assembly. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
- D. Level and plumb individual members of structure within specified AISC tolerances.
- E. Establish required leveling and plumbing measurements on mean operating temperature of structure. Make allowances for difference between temperature at time of erection and mean temperature at which structure will be when completed and in service.
- F. Splice members only where indicated and accepted on shop drawings.
- G. Erection Bolts: On exposed welded construction, remove erection bolts, fill

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holes with plug welds, and grind smooth at exposed surfaces.

- 1. Comply with AISC Specifications for bearing, adequacy of temporary connections, alignment, and removal of paint on surfaces adjacent to field welds.
- 2. Do not enlarge unfair holes in members by burning or by using drift pins, except in secondary bracing members. Ream holes that must be enlarged to admit bolts.
- H. Gas Cutting: Do not use gas cutting torches in field for correcting fabrication errors in primary structural framing. Cutting will be permitted only on secondary members that are not under stress, as acceptable to Architect. Finish gas-cut sections equal to a sheared appearance when permitted.

3.02 QUALITY CONTROL

- A. Shop-Bolted Connections: Inspect or test in accordance with AISC specifications.
 - 1. Verify that gaps of installed Direct Tension Indicators are less than gaps specified in ASTM F 959, Table 2.
- B. Shop Welding: Inspect and test during fabrication of structural steel assemblies, as follows:
 - 1. Certify welders and conduct inspections and tests as required. Record types and locations of defects found in work. Record work required and performed to correct deficiencies.
 - 2. Perform visual inspection of all welds.
 - a. Liquid Penetrant Inspection: ASTM E 165.
 - b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration not acceptable.
 - c. Radiographic Inspection: ASTM E 94 and ASTM E 142; minimum quality level "2-2T."
 - d. Ultrasonic Inspection: ASTM E 164.
- I. Field-Bolted Connections: Inspect in accordance with AISC specifications.
 - 1. For Direct Tension Indicators, comply with requirements of ASTM F 959. Verify that gaps are less than gaps specified in Table 2.
- J. Field Welding: Inspect and test during erection of structural steel as follows:
 - 1. Certify welders and conduct inspections and tests as required. Record types and locations of defects found in work. Record work required and performed to correct deficiencies.
 - 2. Perform visual inspection of all welds.
 - a. Liquid Penetrant Inspection: ASTM E 165.
 - b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration not acceptable.

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- c. Radiographic Inspection: ASTM E 94 and ASTM E 142; minimum quality level "2-2T."
- d. Ultrasonic Inspection: ASTM E 164.

END OF SECTION 051200

SECTION 053100 - STEEL DECK

1.0 PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.02 <u>SUMMARY</u>

- A. This Section includes steel deck units for floor and roof applications, and in general includes but is not limited to the following items:
 - 1. Steel roof deck and accessories.
 - 2. Field touch-up.

1.03 <u>SUBMITTALS</u>

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
 - 1. Product data including manufacturer's specifications and installation instructions for each type of decking and accessories.
 - a. Provide test data for mechanical fasteners used in lieu of welding for fastening deck to supporting structures.
 - 2. Shop drawings showing layout and types of deck units, anchorage details, and conditions requiring closure strips, supplementary framing, sump pans, cant strips, cut openings, special jointing, and other accessories.

1.04 **QUALITY ASSURANCE**

- A. Codes and Standards: Comply with provisions of the following codes and standards, except as otherwise indicated:
 - 1. American Iron and Steel Institute (AISI), "Specification for the Design of Cold-Formed Steel Structural Members."
 - 2. American Welding Society (AWS), D1.3 "Structural Welding Code Sheet Steel."
 - 3. Steel Deck Institute (SDI), "Design Manual for Composite Decks, Form Decks and Roof Decks."
- B. Qualification of Field Welding: Use qualified welding processes and welding operators in accordance with "Welder Qualification" procedures of AWS.
 - 1. Welded decking in place is subject to inspection and testing. Remove work found to be defective and replace with new acceptable work.

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- C. Underwriters' Label: Provide metal floor deck units listed in Underwriters' Laboratories "Fire Resistance Directory", with each deck unit bearing the UL label and marking for specific system detailed.
- D. FM Listing: Provide steel roof deck units that have been evaluated by Factory Mutual System and are listed in "Factory Mutual Approval Guide" for "Class I" fire-rated construction.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include but are not limited to the following:
- B. Manufacturers: Subject to compliance with requirements, provide products of one of the following:
 - 1. Bowman Metal Deck Div., Cyclops Corp.
 - 2. Epic Metals Corp..
 - 3. United Steel Deck, Inc.
 - 4. Vulcraft Div., Nucor Corp.
 - 5. Wheeling Corrugating Co.

2.02 <u>MATERIALS</u>

- A. Steel for Galvanized Metal Deck Units: ASTM A 446, grade as required to comply with SDI specifications.
- B. Miscellaneous Steel Shapes: ASTM A 36.
- C. Sheet Metal Accessories: ASTM A 526, commercial quality, galvanized.
- D. Galvanizing: ASTM A 525, G60.
- E. Galvanizing Repair: Where galvanized surfaces are damaged, prepare surfaces and repair in accordance with procedures specified in ASTM A 780.
- F. Flexible Closure Strips: Manufacturer's standard vulcanized, closed-cell, synthetic rubber.

2.03 FABRICATION

- A. General: Form deck units in lengths to span three or more supports, with flush, telescoped, or nested 2-inch laps at ends and interlocking or nested side laps, of metal thickness, depth, and width as indicated.
- B. Roof Deck Units: Provide deck configurations that comply with SDI "Specifications and Commentary for Steel Roof Deck."

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- C. Composite Steel Floor Deck: Fabricate deck units with integral embossing or raised pattern to furnish mechanical bond with concrete slabs. Fabricate open-beam deck units with fluted section having interlocking side laps.
- C. Metal Cover Plates: Fabricate metal cover plates for end-abutting floor deck units of not less than same thickness as decking. Form to match contour of deck units and approximately 6 inches wide.
- D. Metal Closure Strips: Fabricate metal closure strips, for cell reaceways and openings between decking and other construction, of not less than 0.045-inch min. (18 gage) sheet metal. Form to provide tight-fitting closures at open ends of cells or flutes and sides of decking.
- F. Roof Sump Pans: Fabricate from single piece of 0.071-inch min. (14 gage) galvanized sheet steel with level bottoms and sloping sides to direct water flow to drain. Provide sump pans of adequate size to receive roof drains and with bearing flanges not less than 3 inches wide. Recess pans not less than 1-1/2 inches below roof deck surface unless otherwise shown or required by deck configuration. Holes for drains will be cut in the field by plumbing contractor.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. General: Install deck units and accessories in accordance with manufacturer's recommendations, shop drawings, and as specified herein.
- B. Place deck units on supporting steel framework and adjust to final position with ends accurately aligned and bearing on supporting members before being permanently fastened. Do not stretch or contract side lap interlocks.
- C. Align deck units for entire length of run of cells and with close alignment between cells at ends of abutting units.
- D. Place deck units flat and square, secured to adjacent framing without warp or deflection.
- E. Do not place deck units on concrete supporting structure until concrete has cured and is dry.
- F. Coordinate and cooperate with structural steel erector in locating decking bundles to prevent overloading of structural members.
- G. Do not use floor deck units for storage or working platforms until permanently secured.
- H. Fastening Deck Units:
 - 1. Tack weld or use self-tapping No. 8 or larger machine screws at 4 feet o.c. for fastening end closures.
 - Fasten roof deck units to steel supporting members by not less than 1/2-inch-diameter puddle welds or elongated welds of equal strength, spaced not STEEL DECK 053100-3

more than 12 inches at every support, and at closer spacing where indicated. In addition, secure deck to each supporting member in ribs where side laps occur.

- 3. Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used in correcting welding work.
 - a. Use welding washers where recommended by deck manufacturer.
- 4. Mechanical fasteners, either powder-actuated or pneumatically driven, may be used in lieu of welding. Locate mechanical fasteners and installed in accordance with deck manufacturer's instructions.
- 5. Mechanically fasten side laps of adjacent deck units between supports, at intervals not exceeding 36 inches o.c., using self-tapping No. 8 or larger machine screws.
- 6. Uplift Loading: Install and anchor roof deck units to resist gross uplift loading 30 lbs. psf for roof areas.
 - a. Keep the interiors of cells that will be used as raceways free of welds having sharp points or edges.
- I. Cutting and Fitting: Cut and neatly fit deck units and accessories around other work projecting through or adjacent to the decking, as shown.
- J. Reinforcement at Openings: Provide additional metal reinforcement and closure pieces as required for strength, continuity of decking, and support of other work shown.
- K Joint Covers: Provide metal joint covers at abutting ends and changes in direction of floor deck units, except where taped joints are required.
- L. Roof Sump Pans: Place over openings provided in roof decking and weld to top decking surface. Space welds not more than 12 inches o.c. with at least one weld at each corner..
- M. Touch-Up Painting: After decking installation, wire brush, clean, and paint scarred areas, welds, and rust spots on top and bottom surfaces of decking units and supporting steel members.
 - 1. Touch-up galvanized surfaces with galvanizing repair paint applied in accordance with manufacturer's instructions.
- N. In areas where shop-painted surfaces are to be exposed, apply touch-up paint to blend into adjacent surfaces.

END OF SECTION 053100

SECTION 061000 - ROUGH CARPENTRY

1.0 PART 1 - GENERAL

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Framing with dimension lumber.
 - 2. Wood blocking and nailers.

1.3 <u>DEFINITIONS</u>

- A. Exposed Framing: Framing not concealed by other construction.
- B. Dimension Lumber: Lumber of 2 inches nominal (38 mm actual) or greater but less than 5 inches nominal (114 mm actual) in least dimension.
- C. Timber: Lumber of 5 inches nominal (114 mm actual) or greater in least dimension.
- D. Lumber grading agencies, and the abbreviations used to reference them, include the following:
 - 1. NeLMA: Northeastern Lumber Manufacturers' Association.
 - 2. NLGA: National Lumber Grades Authority.
 - 3. RIS: Redwood Inspection Service.
 - 4. SPIB: The Southern Pine Inspection Bureau.
 - 5. WCLIB: West Coast Lumber Inspection Bureau.
 - 6. WWPA: Western Wood Products Association.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
 - 1. Product Data for adhesives, documentation including printed statement of VOC content.
 - 2. For composite wood products, documentation indicating that product contains no urea formaldehyde.

3. Laboratory Test Reports for adhesives and composite-wood products, documentation indicating that products comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

1.5 INFORMATIONAL SUBMITTALS

- A. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.
- B. Evaluation Reports: For the following, from ICC-ES:
 - 1. Engineered wood products.
 - 2. Shear panels.
 - 3. Power-driven fasteners.
 - 4. Powder-actuated fasteners.
 - 5. Expansion anchors.
 - 6. Metal framing anchors.

1.6 **QUALITY ASSURANCE**

A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

2.0 <u>PART 2 - PRODUCTS</u>

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
 - 1. Factory mark each piece of lumber with grade stamp of grading agency.

- 2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
- 3. Provide dressed lumber, S4S, unless otherwise indicated.
- B. Maximum Moisture Content of Lumber: 15 percent unless otherwise indicated.
- C. Engineered Wood Products: Provide engineered wood products acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.
 - 1. Allowable Design Stresses: Provide engineered wood products with allowable design stresses, as published by manufacturer, that meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.
- 2.2 <u>Insert other items that require treatment but are not likely to be indicated on Drawings.</u>
- 2.3 Insert other items that require treatment but are not likely to be indicated on Drawings.

2.4 <u>DIMENSION LUMBER FRAMING</u>

- A. Non-Load-Bearing Interior Partitions: Construction or No. 2 grade.
 - 1. Application: All interior partitions.
 - 2. Species:
 - a. Hem-fir (north); NLGA.
 - b. Southern pine or mixed southern pine; SPIB.
 - c. Spruce-pine-fir; NLGA.
 - d. Hem-fir; WCLIB, or WWPA.
- B. Load-Bearing Partitions: Construction or No. 2 grade.
 - 1. Application: Exterior walls.
 - 2. Species:
 - a. Hem-fir (north); NLGA.
 - b. Southern pine or mixed southern pine; SPIB.
 - c. Spruce-pine-fir; NLGA.
 - d. Hem-fir; WCLIB, or WWPA.

2.5 <u>MISCELLANEOUS LUMBER</u>

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
 - 1. Blocking.
 - 2. Nailers.
- B. For items of dimension lumber size, provide Construction or No. 2 grade lumber and the following species:
 - 1. Hem-fir (north); NLGA.
 - 2. Mixed southern pine; SPIB.
 - 3. Spruce-pine-fir; NLGA.
 - 4. Hem-fir; WCLIB or WWPA.
 - 5. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.
 - 6. Western woods; WCLIB or WWPA.
 - 7. Northern species; NLGA.
 - 8. Eastern softwoods; NeLMA.
- C. For concealed boards, provide lumber with 15 percent maximum moisture content and any of the following species and grades:
 - 1. Mixed southern pine; No. 2 grade; SPIB.
 - 2. Hem-fir or hem-fir (north); Construction or No. 2 Common grade; NLGA, WCLIB, or WWPA.
 - 3. Spruce-pine-fir (south) or spruce-pine-fir; Construction or No. 2 Common grade; NeLMA, NLGA, WCLIB, or WWPA.
 - 4. Eastern softwoods; No. 2 Common grade; NeLMA.
 - 5. Northern species; No. 2 Common grade; NLGA.
 - 6. Western woods; Construction or No. 2 Common grade; WCLIB or WWPA.
- D. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.
- E. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

F. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

2.6 <u>FASTENERS</u>

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
 - 1. Where rough carpentry is exposed to weather, in ground contact, pressurepreservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: NES NER-272.
- D. Wood Screws: ASME B18.6.1.
- E. Lag Bolts: ASME B18.2.1 (ASME B18.2.3.8M).
- F. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.
- G. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry assemblies and equal to four times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
 - 1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.

3.0 PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
- B. Do not splice structural members between supports unless otherwise indicated.
- C. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
- D. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

- E. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 - 1. NES NER-272 for power-driven fasteners.
 - 2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
 - 3. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.
- F. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.
- G. For exposed work, arrange fasteners in straight rows parallel with edges of members, with fasteners evenly spaced, and with adjacent rows staggered.
 - 1. Comply with approved fastener patterns where applicable. Before fastening, mark fastener locations, using a template made of sheet metal, plastic, or cardboard.
 - 2. Use finishing nails unless otherwise indicated. Countersink nail heads and fill holes with wood filler.

3.2 WALL AND PARTITION FRAMING INSTALLATION

- A. General: Provide single bottom plate and double top plates using members of 2-inch nominal (38-mm actual) thickness whose widths equal that of studs, except single top plate may be used for non-load-bearing partitions. Fasten plates to supporting construction unless otherwise indicated.
 - 1. For exterior walls, provide 2-by-6-inch nominal size wood studs spaced 16 inches o.c. unless otherwise indicated.
 - 2. For interior partitions and walls, provide 2-by-4-inch nominal size wood studs spaced 16 inches o.c. unless otherwise indicated.
 - 3. Provide continuous horizontal blocking at midheight of partitions more than 96 inches (2438 mm) high, using members of 2-inch nominal (38-mm actual) thickness and of same width as wall or partitions.
- B. Construct corners and intersections with three or more studs.
- C. Frame openings with multiple studs and headers. Provide nailed header members of thickness equal to width of studs. Support headers on jamb studs.
 - 1. For non-load-bearing partitions, provide double-jamb studs and headers not less than 4-inch nominal (89-mm actual) depth for openings 48 inches (1200 mm) and

less in width, 6-inch nominal (140-mm actual) depth for openings 48 to 72 inches (1200 to 1800 mm) in width, 8-inch nominal (184-mm actual) depth for openings 72 to 120 inches (1800 to 3000 mm) in width, and not less than 10-inch nominal (235-mm actual) depth for openings 10 to 12 feet (3 to 3.6 m) in width.

2. For load-bearing walls, provide double-jamb studs for openings 60 inches (1500 mm) and less in width, and triple-jamb studs for wider openings. Provide headers of depth indicated.

3.3 WOOD GROUND, SLEEPER, BLOCKING, AND NAILER INSTALLATION

- A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.
- C. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches (38 mm) wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

3.4 <u>PROTECTION</u>

A. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes sufficiently wet that moisture content exceeds that specified, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061000

SECTION 061600 - SHEATHING

1.0 PART 1 - GENERAL

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 <u>SUMMARY</u>

- A. Section Includes:
 - 1. Glass mat gypsum wall sheathing.
 - 2. Sheathing joint and penetration treatment.
- B. Related Requirements:
 - 1. Division 06 Section "Rough Carpentry" for plywood backing panels.
 - 2. Division 07 Section "Fluid Applied Membrane Air Barriers" fluid applied air barriers and accessories.
 - 3. Division 07 Section "Standing Seam Metal Roof Panels" for wood sheathing applied as part of roof system.

1.3 <u>ACTION SUBMITTALS</u>

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1.4 QUALITY ASSURANCE

A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant-treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Stack panels flat with spacers beneath and between each bundle to provide air circulation. Protect sheathing from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

2.0 PART 2 - PRODUCTS

2.1 <u>WALL SHEATHING</u>

- A. Glass-Mat Gypsum Wall Sheathing: ASTM C 1177/1177M.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. CertainTeed Corporation; GlasRoc.
 - b. G-P Gypsum Corporation; Dens-Glass Gold.
 - c. National Gypsum Company; Gold Bond e(2)XP.
 - d. United States Gypsum Co.; Securock.
 - 2. Type and Thickness: Type X, 5/8 inch (15.9 mm) thick.
 - 3. Size: 48 by 120 inches (1219 by 3048 mm) for vertical installation.

2.2 <u>FASTENERS</u>

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
- B. Power-Driven Fasteners: NES NER-272.
- C. Screws for Fastening Gypsum Sheathing to Cold-Formed Metal Framing: Steel drill screws, in length recommended by sheathing manufacturer for thickness of sheathing to be attached, with organic-polymer or other corrosion-protective coating having a salt-spray resistance of more than 800 hours according to ASTM B 117.
 - 1. For steel framing less than 0.0329 inch (0.835 mm) thick, use screws that comply with ASTM C 1002.
 - 2. For steel framing from 0.033 to 0.112 inch (0.84 to 2.84 mm) thick, use screws that comply with ASTM C 954.

2.3 <u>SHEATHING JOINT-AND-PENETRATION TREATMENT MATERIALS</u>

- A. Sealant for Glass-Mat Gypsum Sheathing: Silicone emulsion sealant complying with ASTM C 834, compatible with sheathing tape and sheathing and recommended by tape and sheathing manufacturers for use with glass-fiber sheathing tape and for covering exposed fasteners.
 - 1. Sheathing Tape: Self-adhering glass-fiber tape, minimum 2 inches (50 mm) wide, 10 by 10 or 10 by 20 threads/inch (390 by 390 or 390 by 780 threads/m), of type recommended by sheathing and tape manufacturers for use with silicone emulsion sealant in sealing joints in glass-mat gypsum sheathing and with a history of successful in-service use.

SHEATHING

2.4 <u>MISCELLANEOUS MATERIALS</u>

- A. Adhesives for Field Gluing Panels to Framing: Formulation complying with ASTM D 3498 that is approved for use with type of construction panel indicated by manufacturers of both adhesives and panels.
 - 1. Adhesives shall have a VOC content of 70 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

3.0 PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.
- B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.
- C. Securely attach to substrate by fastening as indicated, complying with the following:
 - 1. NES NER-272 for power-driven fasteners.
 - 2. Table 2304.9.1, "Fastening Schedule," in ICC's "International Building Code."
- D. Coordinate sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.
- E. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.
- F. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

3.2 <u>GYPSUM SHEATHING INSTALLATION</u>

- A. Comply with GA-253 and with manufacturer's written instructions.
 - 1. Fasten gypsum sheathing to cold-formed metal framing with screws.
 - 2. Install boards with a 3/8-inch (9.5-mm) gap where non-load-bearing construction abuts structural elements.
 - 3. Install boards with a 1/4-inch (6.4-mm) gap where they abut masonry or similar materials that might retain moisture, to prevent wicking.
- B. Apply fasteners so heads bear tightly against face of sheathing, but do not cut into facing.

SHEATHING

- C. Vertical Installation: Install board vertical edges centered over studs. Abut ends and edges of each board with those of adjacent boards. Attach boards at perimeter and within field of board to each stud.
 - 1. Space fasteners approximately 8 inches (200 mm) o.c. and set back a minimum of 3/8 inch (9.5 mm) from edges and ends of boards.
- D. Seal sheathing joints according to sheathing manufacturer's written instructions.
 - 1. Apply glass-fiber sheathing tape to glass-mat gypsum sheathing joints and apply and trowel silicone emulsion sealant to embed entire face of tape in sealant. Apply sealant to exposed fasteners with a trowel so fasteners are completely covered. Seal other penetrations and openings.

END OF SECTION 061600

SECTION 072100 - THERMAL INSULATION

1.0 PART 1 - GENERAL

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Foam-plastic board insulation.
 - 2. Spray polyurethane foam insulation.
 - 3. Mineral-wool blanket insulation.
- B. Related Sections:
 - 1. Division 04 Section "Unit Masonry" for insulation installed in cavity walls.
 - 2. Division 07 Section "Fluid Applied Membrane Air Barriers" fluid applied air barriers and accessories.

1.3 <u>ACTION SUBMITTALS</u>

- A. Product Data: For each type of product indicated.
- B. Product data for adhesives, including printed statement of VOC content.

1.4 INFORMATIONAL SUBMITTALS

A. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each product.

1.5 **QUALITY ASSURANCE**

- A. Source Limitations: Obtain each type of building insulation through one source from a single manufacturer.
- B. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration due to moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.
- B. Protect foam-plastic board insulation as follows:
 - 1. Do not expose to sunlight except to necessary extent for period of installation and concealment.
 - 2. Protect against ignition at all times. Do not deliver foam-plastic board materials to Project site before installation time.
 - 3. Quickly complete installation and concealment of foam-plastic board insulation in each area of construction.

2.0 PART 2 - PRODUCTS

2.1 FOAM-PLASTIC BOARD INSULATION

- A. Extruded-Polystyrene Board Insulation: ASTM C 578, of type and minimum compressive strength indicated below, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E 84.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Dow Chemical Company (The).
 - b. Owens Corning.
 - 2. Type IV, 25 psi (173 kPa).
 - 3. Type VII, 60 psi (414 kPa) below concrete slabs.

2.2 SPRAY POLYURETHANE FOAM INSULATION

- A. Closed-Cell Polyurethane Foam Insulation: ASTM C 1029, Type II, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E 84.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. BASF Corporation.
 - b. BaySystems NorthAmerica, LLC.
 - c. Dow Chemical Company (The).

- d. Henry Company.
- e. Icynene.
- 2. Minimum density of 1.5 lb/cu. ft. (24 kg/cu. m), thermal resistivity (R-VALUE) of 6.2 deg F x h x sq. ft./Btu x in. at 75 deg F (43 K x m/W at 24 deg C).

2.3 <u>MINERAL-WOOL BLANKET INSULATION</u>

- A. Mineral-Wool Blanket Insulation, Unfaced: ASTM C665, Type IA (blankets without membrane facing); consisting of fibers; passing ASTM E136 for combustion characteristics.
 - 1. <u>Manufacturers:</u> Subject to compliance with requirements, provide products by one of the following:
 - 1. Johns Manville; a Berkshire Hathaway company.
 - 2. Rockwool International.
 - 3. Thermafiber, Inc.; an Owens Corning company.
 - 2. Flame-Spread Index: Not more than 25 when tested in accordance with ASTM E84.
 - 3. Smoke-Developed Index: Not more than 50 when tested in accordance with ASTM E84.
 - 4. Labeling: Provide identification of mark indicating R-value of each piece of insulation 12 inches (305 mm) and wider in width.

2.4 <u>AUXILIARY INSULATING MATERIALS</u>

A. Adhesive for Bonding Insulation: Product with demonstrated capability to bond insulation securely to substrates indicated without damaging insulation and substrates.

3.0 PART 3 - EXECUTION

3.1 <u>PREPARATION</u>

A. Clean substrates of substances that are harmful to insulation or vapor retarders, including removing projections capable of puncturing vapor retarders, or that interfere with insulation attachment.

3.2 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and applications indicated.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.

- C. Extend insulation to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. Water-Piping Coordination: If water piping is located within insulated exterior walls, coordinate location of piping to ensure that it is placed on warm side of insulation and insulation encapsulates piping.
- E. Provide sizes to fit applications indicated and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units to produce thickness indicated unless multiple layers are otherwise shown or required to make up total thickness.

3.3 INSTALLATION OF BELOW-GRADE INSULATION

- A. On vertical surfaces, set insulation units in adhesive applied according to manufacturer's written instructions. Use adhesive recommended by insulation manufacturer.
- B. If not otherwise indicated, extend insulation a minimum of 48 inches below exterior grade line. Protect below-grade insulation on vertical surfaces from damage during backfilling by applying protection course with joints butted. Set in adhesive according to insulation manufacturer's written instructions.
- C. On horizontal surfaces, loosely lay insulation units according to manufacturer's written instructions. Stagger end joints and tightly abut insulation units.

3.4 INSTALLATION OF INSULATION FOR FRAMED CONSTRUCTION

A. Spray-Applied Insulation: Apply spray-applied insulation according to manufacturer's written instructions. Do not apply insulation until installation of pipes, ducts, conduits, wiring, and electrical outlets in walls is completed and windows, electrical boxes, and other items not indicated to receive insulation are masked. After insulation is applied, make flush with face of studs by using method recommended by insulation manufacturer.

3.5 <u>PROTECTION</u>

A. Protect installed insulation and vapor retarders from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 072100

SECTION 072726 - FLUID-APPLIED MEMBRANE AIR BARRIERS

1.0 PART 1 - GENERAL

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 <u>SUMMARY</u>

- A. Section includes fluid-applied, vapor-retarding membrane air barriers.
- B. Related Requirements:
 - 1. Section 061600 "Sheathing" for wall sheathings and wall sheathing jointand-penetration treatments.
 - 2. Division 07 Section "Water-Drainage Exterior Insulation and Finish System (EIFS)" for air barriers specified as part of these systems.
 - 3. Division 07 Section(s) "Ethylene-Propylene-Diene-Monomer (EPDM) Roofing" for air barriers specified as part of roofing construction.

1.3 <u>DEFINITIONS</u>

- A. Air-Barrier Material: A primary element that provides a continuous barrier to the movement of air.
- B. Air-Barrier Accessory: A transitional component of the air barrier that provides continuity.
- C. Air-Barrier Assembly: The collection of air-barrier materials and accessory materials applied to an opaque wall, including joints and junctions to abutting construction, to control air movement through the wall.

1.4 <u>ACTION SUBMITTALS</u>

- A. Product Data: For each type of product.
 - 1. Include manufacturer's written instructions for evaluating, preparing, and treating substrate; technical data; and tested physical and performance properties of products.
- B. Shop Drawings: For air-barrier assemblies.

- 1. Show locations and extent of air barrier. Include details for substrate joints and cracks, counterflashing strips, penetrations, inside and outside corners, terminations, and tie-ins with adjoining construction.
- 2. Include details of interfaces with other materials that form part of air barrier.

1.5 INFORMATIONAL SUBMITTALS

- A. Product Certificates: From air-barrier manufacturer, certifying compatibility of air barriers and accessory materials with Project materials that connect to or that come in contact with the barrier.
- B. Product Test Reports: For each air-barrier assembly, for tests performed by a qualified testing agency.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
 - 1. Installer shall be licensed by ABAA according to ABAA's Quality Assurance Program and shall employ ABAA-certified installers and supervisors on Project.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Remove and replace liquid materials that cannot be applied within their stated shelf life.
- B. Protect stored materials from direct sunlight.

1.8 FIELD CONDITIONS

- A. Environmental Limitations: Apply air barrier within the range of ambient and substrate temperatures recommended by air-barrier manufacturer.
 - 1. Protect substrates from environmental conditions that affect air-barrier performance.
 - 2. Do not apply air barrier to a damp or wet substrate or during snow, rain, fog, or mist.

2.0 <u>PART 2 - PRODUCTS</u>

2.1 MATERIALS, GENERAL

- A. Source Limitations: Obtain primary air-barrier materials and air-barrier accessories from single source from single manufacturer.
- B. VOC Content: < 10 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24) and complying with VOC content limits of authorities having jurisdiction.

2.2 <u>PERFORMANCE REQUIREMENTS</u>

- A. General: Air barrier shall be capable of performing as a continuous vaporretarding air barrier and as a liquid-water drainage plane flashed to discharge to the exterior incidental condensation or water penetration. Air-barrier assemblies shall be capable of accommodating substrate movement and of sealing substrate expansion and control joints, construction material changes, penetrations, and transitions at perimeter conditions without deterioration and air leakage exceeding specified limits.
- B. Air-Barrier Assembly Air Leakage: Maximum 0.003 L/s x sq. m of surface area at 75 Pa), when tested according to ASTM E 2178.

2.3 VAPOR-RETARDING MEMBRANE AIR BARRIER

- A. Fluid-Applied, Vapor-Retarding Membrane Air Barrier: Elastomeric, modified bituminous or synthetic polymer membrane.
 - 1. Basis of Design Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. <u>Elastomeric, Modified Bituminous Membrane</u>:
 - 1) <u>Carlisle Coatings & Waterproofing Inc.</u>; Barriseal S.
 - 2) <u>Henry</u>; Air-Bloc 06.
 - 2. Physical and Performance Properties:
 - a. Air Permeance: Maximum 0.003 L/s x sq. m of surface area at 75 Pa), when tested according to ASTM E 2178.
 - b. Vapor Permeance: Maximum 0.05 perm; ASTM E 96A.
 - c. Ultimate Elongation: Minimum 1,000 percent; ASTM D 412, Die C.

2.4 ACCESSORY MATERIALS

- A. General: Accessory materials recommended by air-barrier manufacturer to produce a complete air-barrier assembly and compatible with primary air-barrier material.
- B. Primer: Liquid primer recommended for substrate by air-barrier material manufacturer.
- C. Sheet Detail Flashing: Foil composite faced rubberized asphalt flashing, minimum 0.040 inch (40 mils) thickness.
 - 1. As approved by air barrier membrane manufacturer as part of whole air barrier system.
- D. Contact Adhesive:
 - 1. As approved by air barrier membrane manufacturer as part of whole air barrier system.
- E. Liquid Detail Flashing. Silane-terminated polyether, minimum 90% solids. ASTM C 920 Type S, Grade NS, Class 25, Use NT. 0.040 inch (40 mil) thickness application.
 - 1. As approved by air barrier membrane manufacturer as part of whole air barrier system.
- F. Detail Sealant:
 - 1. As approved by air barrier membrane manufacturer as part of whole air barrier system.
- G. Transition Membrane:
 - 1. Pressure-Sensitive Elastoform as approved by air barrier membrane manufacturer as part of whole air barrier system.
- H. Transition Membrane Primer:
 - 1. As approved by air barrier membrane manufacturer as part of whole air barrier system.
- I. Reinforcing Fabric: Woven, synthetic polymer fabric
 - 1. As approved by air barrier membrane manufacturer as part of whole air barrier system.

- J. Glass Mat: Randomly-oriented glass strands held in binder soluble in wet air barrier membrane. Offered in rolls of various widths.
 - 1. As approved by air barrier membrane manufacturer as part of whole air barrier system.
- K. Fill Compound: 2-part, non-sag polyurethane sealant
 - 1. As approved by air barrier membrane manufacturer as part of whole air barrier system.
- L. Sprayed Polyurethane Foam Sealant: One- or two-component, foamed-in-place, polyurethane foam sealant, 1.5- to 2.0-lb/cu. ft (24- to 32-kg/cu. m) density; flame-spread index of 25 or less according to ASTM E 162; with primer and noncorrosive substrate cleaner recommended by foam sealant manufacturer.
- M. Joint Sealant: ASTM C 920, single-component, neutral-curing silicone; Class 100/50 (low modulus), Grade NS, Use NT related to exposure, and, as applicable to joint substrates indicated, Use O. Comply with Section 079200 "Joint Sealants."

3.0 PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
 - 1. Verify that substrates are sound and free of oil, grease, dirt, excess mortar, or other contaminants.
 - 2. Verify that concrete has cured and aged for minimum time period recommended by air-barrier manufacturer.
 - 3. Verify that concrete is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D 4263.
 - 4. Verify that masonry joints are flush and completely filled with mortar.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 SURFACE PREPARATION

- A. Clean, prepare, treat, and seal substrate according to manufacturer's written instructions. Provide clean, dust-free, and dry substrate for air-barrier application.
- B. Mask off adjoining surfaces not covered by air barrier to prevent spillage and overspray affecting other construction.

- C. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.
- D. Remove fins, ridges, mortar, and other projections and fill honeycomb, aggregate pockets, holes, and other voids in concrete with substrate-patching membrane.
- E. Remove excess mortar from masonry ties, shelf angles, and other obstructions.
- F. At changes in substrate plane, apply sealant or termination mastic beads at sharp corners and edges to form a smooth transition from one plane to another.
- G. Cover gaps in substrate plane and form a smooth transition from one substrate plane to another with stainless-steel sheet mechanically fastened to structural framing to provide continuous support for air barrier.

3.3 JOINT TREATMENT

- Concrete and Masonry: Prepare, treat, rout, and fill joints and cracks in substrate according to ASTM C 1193 and air-barrier manufacturer's written instructions.
 Remove dust and dirt from joints and cracks complying with ASTM D 4258 before coating surfaces.
 - 1. Prime substrate and apply a single thickness of air-barrier manufacturer's recommended preparation coat extending a minimum of 3 inches (75 mm) along each side of joints and cracks. Apply a double thickness of fluid air-barrier material and embed a joint reinforcing strip in preparation coat.
- B. Gypsum Sheathing: Fill joints greater than 1/4 inch (6 mm) with sealant according to ASTM C 1193 and air-barrier manufacturer's written instructions. Apply first layer of fluid air-barrier material at joints. Tape joints with joint reinforcing strip after first layer is dry. Apply a second layer of fluid air-barrier material over joint reinforcing strip.

3.4 TRANSITION STRIP INSTALLATION

- A. General: Install strips, transition strips, and accessory materials according to airbarrier manufacturer's written instructions to form a seal with adjacent construction and maintain a continuous air barrier.
 - 1. Coordinate the installation of air barrier with installation of roofing membrane and base flashing to ensure continuity of air barrier with roofing membrane.
 - 2. Install strip on roofing membrane or base flashing so that a minimum of 3 inches (75 mm) of coverage is achieved over each substrate.

- B. Apply primer to substrates at required rate and allow it to dry. Limit priming to areas that will be covered by fluid air-barrier material on same day. Reprime areas exposed for more than 24 hours.
 - 1. Prime glass-fiber-surfaced gypsum sheathing with number of prime coats needed to achieve required bond, with adequate drying time between coats.
- C. Connect and seal exterior wall air-barrier material continuously to roofingmembrane air barrier, concrete below-grade structures, floor-to-floor construction, exterior glazing and window systems, glazed curtain-wall systems, storefront systems, exterior louvers, exterior door framing, and other construction used in exterior wall openings, using accessory materials.
- D. At end of each working day, seal top edge of strips and transition strips to substrate with termination mastic.
- E. Apply joint sealants forming part of air-barrier assembly within manufacturer's recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- F. Wall Openings: Prime concealed, perimeter frame surfaces of windows, curtain walls, storefronts, and doors. Apply modified bituminous transition strip so that a minimum of 3 inches (75 mm) of coverage is achieved over each substrate. Maintain 3 inches (75 mm) of full contact over firm bearing to perimeter frames with not less than 1 inch (25 mm) of full contact.
 - 1. Modified Bituminous Transition Strip: Roll firmly to enhance adhesion.
- G. Fill gaps in perimeter frame surfaces of windows, curtain walls, storefronts, and doors, and miscellaneous penetrations of air-barrier material with foam sealant.
- H. Seal strips and transition strips around masonry reinforcing or ties and penetrations with termination mastic.
- I. Seal top of through-wall flashings to air barrier with an additional 6-inch- (150mm-) wide, strip.
- J. Seal exposed edges of strips at seams, cuts, penetrations, and terminations not concealed by metal counterflashings or ending in reglets with termination mastic.
- K. Repair punctures, voids, and deficient lapped seams in strips and transition strips. Slit and flatten fishmouths and blisters. Patch with transition strips extending 6 inches (150 mm) beyond repaired areas in strip direction.

3.5 FLUID AIR-BARRIER MEMBRANE INSTALLATION

- A. General: Apply fluid air-barrier material to form a seal with strips and transition strips and to achieve a continuous air barrier according to air-barrier manufacturer's written instructions. Apply fluid air-barrier material within manufacturer's recommended application temperature ranges.
 - 1. Apply primer to substrates at required rate and allow it to dry.
 - 2. Limit priming to areas that will be covered by fluid air-barrier material on same day. Reprime areas exposed for more than 24 hours.
 - 3. Prime glass-fiber-surfaced gypsum sheathing with number of prime coats needed to achieve required bond, with adequate drying time between coats.
- B. Membrane Air Barriers: Apply a continuous unbroken air-barrier membrane to substrates according to the following thickness. Apply air-barrier membrane in full contact around protrusions such as masonry ties.
 - 1. Vapor-Retarding Membrane Air Barrier: Total dry film thickness as recommended in writing by manufacturer to meet performance requirements, but not less than 40-mil (1.0-mm) dry film thickness applied in one coat.
- C. Apply strip and transition strip over cured air-barrier material overlapping 3 inches (75 mm) onto each surface according to air-barrier manufacturer's written instructions.
- D. Do not cover air barrier until it has been tested and inspected by Owner's testing agency.
- E. Correct deficiencies in or remove air barrier that does not comply with requirements; repair substrates and reapply air-barrier components.

3.6 FIELD QUALITY CONTROL

- A. Inspections: Air-barrier materials, accessories, and installation are subject to inspection for compliance with requirements. Inspections may include the following:
 - 1. Continuity of air-barrier system has been achieved throughout the building envelope with no gaps or holes.
 - 2. Continuous structural support of air-barrier system has been provided.

- 3. Masonry and concrete surfaces are smooth, clean, and free of cavities, protrusions, and mortar droppings.
- 4. Site conditions for application temperature and dryness of substrates have been maintained.
- 5. Maximum exposure time of materials to UV deterioration has not been exceeded.
- 6. Surfaces have been primed, if applicable.
- 7. Laps in strips and transition strips have complied with minimum requirements and have been shingled in the correct direction (or mastic has been applied on exposed edges), with no fishmouths.
- 8. Termination mastic has been applied on cut edges.
- 9. Strips and transition strips have been firmly adhered to substrate.
- 10. Compatible materials have been used.
- 11. Transitions at changes in direction and structural support at gaps have been provided.
- 12. Connections between assemblies (air-barrier and sealants) have complied with requirements for cleanliness, surface preparation and priming, structural support, integrity, and continuity of seal.
- 13. All penetrations have been sealed.
- B. Air barriers will be considered defective if they do not pass inspections.
 - 1. Apply additional air-barrier material, according to manufacturer's written instructions, where inspection results indicate insufficient thickness.
 - 2. Remove and replace deficient air-barrier components for retesting as specified above.
- C. Repair damage to air barriers caused by testing; follow manufacturer's written instructions.

3.7 CLEANING AND PROTECTION

- A. Protect air-barrier system from damage during application and remainder of construction period, according to manufacturer's written instructions.
 - 1. Protect air barrier from exposure to UV light and harmful weather exposure as required by manufacturer. If exposed to these conditions for more than 30 days, remove and replace air barrier or install additional, full-thickness, air-barrier application after repairing and preparing the overexposed membrane according to air-barrier manufacturer's written instructions.
 - 2. Protect air barrier from contact with incompatible materials and sealants not approved by air-barrier manufacturer.
- B. Clean spills, stains, and soiling from construction that would be exposed in the completed work using cleaning agents and procedures recommended by manufacturer of affected construction.
- C. Remove masking materials after installation.

END OF SECTION 072726

SECTION 074113 - STANDING-SEAM METAL ROOF PANELS

1.0 <u>PART 1 – GENERAL</u>

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 <u>SUMMARY</u>

- A. Section includes:
 - 1. Standing-seam metal roof panels.
 - 2. Polyisocyanurate rigid insulation used in roof system.
 - 3. Vapor barrier used in roof system.
 - 4. Roof sheathing.
- B. Related Sections:
 - 1. Section 077253 "Snow Guards" for prefabricated devices designed to hold snow on the roof surface, allowing it to melt and drain off slowly.

1.3 <u>SUBMITTALS</u>

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.
- B. Shop Drawings:
 - 1. Include fabrication and installation layouts of metal panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details.
 - 2. Accessories: Include details of the flashing, trim, and anchorage systems, at a scale of not less than 1-1/2 inches per 12 inches (1:10).
- C. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below.
 - 1. Metal Panels: 12 inches (305 mm) long by actual panel width. Include clips, fasteners, closures, and other metal panel accessories.
- D. Qualification Data: For Installer.

- E. Product Test Reports: For each product, for tests performed by a qualified testing agency.
- F. Field quality-control reports.
- G. Sample Warranties: For special warranties.

1.4 <u>CLOSEOUT SUBMITTALS</u>

A. Maintenance Data: For metal panels to include in maintenance manuals.

1.5 **QUALITY ASSURANCE**

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
- B. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
 - 1. Build mockup of typical roof area and eave[, including fascia, and soffit as shown on Drawings; approximately 12 feet (3.5 m) square by full thickness, including attachments, underlayment, and accessories.
 - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver components, metal panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.
- B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.
- C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.
- D. Retain strippable protective covering on metal panels during installation.

1.7 <u>COORDINATION</u>

- A. Coordinate sizes and locations of roof penetrations with actual equipment provided.
- B. Coordinate metal panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leak-proof, secure, and noncorrosive installation.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including rupturing, cracking, or puncturing.
 - b. Deterioration of metals and other materials beyond normal weathering.
 - 2. Warranty Period: Two years from date of Substantial Completion.
- B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 - 2. Finish Warranty Period: 20 years from date of Substantial Completion.
- C. Special Weathertightness Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace standing-seam metal roof panel assemblies that fail to remain weathertight, including leaks, within specified warranty period.
 - 1. Warranty Period: 20 years from date of Substantial Completion.

2.0 PART 2 - PRODUCTS

2.1 <u>PERFORMANCE REQUIREMENTS</u>

- A. Air Infiltration: Air leakage of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) when tested according to ASTM E 1680 at the following test-pressure difference:
 - 1. Test-Pressure Difference: 4.00 lbf/sq. ft.
- B. Water Penetration under Static Pressure: No water penetration when tested according to ASTM E 1646 at the following test-pressure difference:
 - 1. Test-Pressure Difference: 9.2 lbf/sq. ft.
- C. Hydrostatic-Head Resistance: No water penetration when tested according to ASTM E 2140.
- D. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift-resistance class indicated.
 - 1. Uplift Rating: UL 90.
- E. FM Global Listing: Provide metal roof panels and component materials that comply with requirements in FM Global 4471 as part of a panel roofing system and that are listed in FM Global's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Global markings.
 - 1. Fire/Windstorm Classification: Class 1-90.

2.2 STANDING-SEAM METAL ROOF PANELS

- A. General: Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed clips in side laps. Include clips, cleats, pressure plates, and accessories required for weathertight installation.
 - 1. Steel Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E 1514.

- B. Vertical-Rib, Seamed-Joint, Standing-Seam Metal Roof Panels: Formed with vertical ribs at panel edges and a planked stiffening pan between ribs; designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of panels, engaging opposite edge of adjacent panels, and snapping panels together.
 - 1. <u>Basis-of-Design Product</u>: Subject to compliance with requirements, provide Morin (A Kingspan Company) SRR-18 Standing Seam Metal Roof, or comparable product by one of the following:
 - a. CENTRIA.
 - Metallic-Coated Steel Sheet: Zinc-coated (galvanized) steel sheet complying with ASTM A 653/A 653M, G90 (Z275) coating designation, or aluminum-zinc alloy-coated steel sheet complying with ASTM A 792/A 792M, Class AZ50 (Class AZM150) coating designation; structural quality. Prepainted by the coilcoating process to comply with ASTM A 755/A 755M.
 - a. Nominal Thickness: 0.034 inch (0.86 mm), 22 Gauge.
 - b. Exterior Finish: Mica two coat fluoropolymer.
 - c. Color: Silversmith
 - 3. Clips: Two-piece floating to accommodate thermal movement.
 - a. Material: 0.064-inch- (1.63-mm-) nominal thickness, zinc-coated (galvanized) steel sheet.
 - 4. Panel Coverage: 18 inches (457 mm).
 - 5. Panel Height: 2.5 inch.

2.3 FOAM-PLASTIC BOARD INSULATION

- A. General: Preformed roof insulation boards manufactured or approved by standing seam metal roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated.
- B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 1, Grade 2, felt or glass-fiber mat facer on both major surfaces.
 - 1. Provide thickness and R-Value as shown on drawings.

2.4 VAPOR BARRIER

- A. Basis of Design Carlisle 725TR Vapor Retarder with CavGrip Low-VOC aerosol contact adhesive/primer or comparable product compatible with approved manufacturer roof system.
 - 1. Vapor retarders for use in an adhered system shall meet identified code and/or insurance requirements.
 - 2. Vapor retarders are to be approved in writing by vapor retarder manufacturer for intended use.
 - 3. Vapor retarders are to be compatible with insulation and other accessories.
 - 4. Vapor retarders shall be accepted by the roofing manufacturer.
 - 5. Adhesives shall meet identified code and/or insurance requirements.
 - 6. Adhesives shall be supplied or approved by vapor retarder manufacturer.
 - 7. Adhesives shall be Factory Mutual approved and provide adequate uplift resistance.
 - 8. Adhesives shall be accepted by the membrane manufacturer.

2.5 <u>ROOF SHEATHING</u>

- A. Fire Rated Plywood Sheathing: Exterior, Structural I sheathing.
 - 1. Span Rating: Not less than 32/16.
 - 2. Nominal Thickness: Not less than 1/2 inch (13 mm).

2.6 <u>MISCELLANEOUS MATERIALS</u>

- A. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.
 - 1. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal panels.
 - 2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
 - 3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- (25mm-) thick, flexible closure strips; cut or premolded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.

- B. Flashing and Trim: Provide flashing and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.
- C. Panel Fasteners: Self-tapping screws designed to withstand design loads.
- D. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are nonstaining, and do not damage panel finish.
 - 1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.
 - 2. Joint Sealant: ASTM C 920; elastomeric polyurethane or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended in writing by metal panel manufacturer.
 - 3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C 1311.

2.7 FABRICATION

- A. General: Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.
- B. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.
- C. Fabricate metal panel joints with factory-installed captive gaskets or separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.
- D. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.
 - 1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
 - 2. Seams for Other Than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
 - 3. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate sealant and to comply with SMACNA standards.

- 4. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
- 5. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.
 - a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal panel manufacturer for application, but not less than thickness of metal being secured.

3.0 PART 3 - EXECUTION

3.1 <u>EXAMINATION</u>

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal panel supports, and other conditions affecting performance of the Work.
 - 1. Examine primary and secondary roof framing to verify that rafters, purlins, angles, channels, and other structural panel support members and anchorages have been installed within alignment tolerances required by metal roof panel manufacturer.
 - 2. Examine solid roof sheathing to verify that installation is within flatness tolerances required by metal roof panel manufacturer.
 - a. Verify that air- or water-resistive barriers have been installed over decking to prevent air infiltration or water penetration.
- B. Examine roughing-in for components and systems penetrating metal panels to verify actual locations of penetrations relative to seam locations of metal panels before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.
- D. General:
 - 1. Roofing applicators installing roof, flashing and related work must be factory trained and approved by the manufacturer they are representing. All work is to be of the highest quality and in strict accordance with manufacturer's requirements and to the satisfaction of the owner's representative and the owners. There shall be a supervisor on the job site at all times while work is in progress.
 - 2. Only as much of the roofing as can be made weather tight each day, including all flashing work, shall be installed.
 - 3. All surfaces to receive insulation, membrane or flashings shall be thoroughly dry. Should surface moisture occur, the contractor shall provide the necessary equipment to dry the surface prior to application.

- 4. All new and temporary construction, including equipment and accessories, shall be secured in such a manner, at all times, as to preclude wind blow-off or damage.
- 5. Temporary waterstops shall be installed at the end of each day's work, and shall be removed before proceeding with the next day's work. Waterstops shall be compatible with all materials and shall not emit dangerous or incompatible fumes.
- 6. Arrange work sequence to avoid use of newly constructed roofing for storage, walking surface, and equipment movement. Where such access is absolutely required, the contractor shall provide all necessary protection and barriers to segregate the work area and to prevent damage to adjacent areas. Both plywood and polyester felt protection shall be provided for all new and existing roof areas, which receive traffic during construction.
- 7. Prior to and during application, all dirt, debris and dust shall be removed from surfaces either by vacuuming, sweeping, blowing with compressed air and/or similar methods.
- 8. All roofing, insulation, flashings, and metal work removed for construction shall be removed off of the site daily.
- 9. The manufacturer's authorized roofing applicator must comply with the requirements of the owner's representative during application and storage that overloading of deck and structure does not occur.
- 10. Liquid materials such as solvents and adhesives shall be stored and used away from open flames, sparks, and excessive heat.
- 11. If any unusual or concealed conditions are discovered, notify the architect prior to commencing work in the area affected.
- 12. All landscaped areas affected by construction activities shall be raked clean and seeded, if required.
- 13. The roofing contractor shall run pullout tests of fasteners to verify condition of deck/substrate and confirm pullout values where required by the manufacturer.
- 14. Material Safety Data Sheets (MSDS) should be on location at all times during transportation, storage and application of materials.

3.2 <u>PREPARATION</u>

A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages according to ASTM C 754 and metal panel manufacturer's written recommendations.

3.3 VAPOR-RETARDER INSTALLATION

- A. Apply approved adhesive to the substrate in a uniform manner avoiding puddles, globs or thin spots. Apply by spray, brush or with a long nap roller at thickness required by manufacturer for approved gypsum substrate board.
- B. Install sheet membrane vapor barrier per manufacturer's recommendation.

3.4 INSULATION INSTALLATION

- A. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
- B. Comply with membrane roofing system and insulation manufacturer's written instructions for installing roof insulation.
- C. Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2.7 inches (68 mm) or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches (150 mm) in each direction.
- D. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.
- E. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6 mm) with insulation.
 - 1. Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.
- F. Adhered Insulation: Install each layer of insulation and adhere to substrate as follows:
 - 1. Set each layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place. Maximum bead spacing shall be 6".
 - 2. Insulation shall be neatly cut to fit around penetrations and projections.
 - 3. Insulation attachment shall be accepted by the roofing manufacturer.
 - 4. Do not install more insulation board than can be covered with the roofing membrane by the end of the day or onset of inclement weather.
 - 5. Insulation shall be 4' x 4' maximum.
- G. Install sheathing over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches (150 mm) in each direction.
 - 1. Mechanically fasten roof sheathing through insulation to existing wood deck below to meet the required design wind loads.

3.5 WOOD STRUCTURAL PANEL INSTALLATION

- A. General: Comply with applicable recommendations in APA Form No. E30, "Engineered Wood Construction Guide," for types of structural-use panels and applications indicated.
- B. Fastening Methods: Fasten panels as indicated below:
 - 1. Roof Sheathing:
 - a. Screw through insulation to wood decking @ 24" O.C.
 - b. Space panels 1/8 inch (3 mm) apart at edges and ends.

3.6 METAL PANEL INSTALLATION

- A. General: Install metal panels according to manufacturer's written instructions in orientation, sizes, and locations indicated. Install panels perpendicular to supports unless otherwise indicated. Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.
 - 1. Shim or otherwise plumb substrates receiving metal panels.
 - 2. Flash and seal metal panels at perimeter of all openings. Fasten with self-tapping screws. Do not begin installation until air- or water-resistive barriers and flashings that will be concealed by metal panels are installed.
 - 3. Install screw fasteners in predrilled holes.
 - 4. Locate and space fastenings in uniform vertical and horizontal alignment.
 - 5. Install flashing and trim as metal panel work proceeds.
 - 6. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.
 - 7. Align bottoms of metal panels and fasten with blind rivets, bolts, or self-tapping screws. Fasten flashings and trim around openings and similar elements with self-tapping screws.
 - 8. Provide weathertight escutcheons for pipe- and conduit-penetrating panels.
- B. Fasteners:
 - 1. Steel Panels: Use stainless-steel fasteners for surfaces exposed to the exterior; use galvanized-steel fasteners for surfaces exposed to the interior.
- C. Anchor Clips: Anchor metal roof panels and other components of the Work securely in place, using manufacturer's approved fasteners according to manufacturers' written instructions.
- D. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by metal panel manufacturer.

- E. Standing-Seam Metal Roof Panel Installation: Fasten metal roof panels to supports with concealed clips at each standing-seam joint at location, spacing, and with fasteners recommended in writing by manufacturer.
 - 1. Install clips to supports with self-tapping fasteners.
 - 2. Install pressure plates at locations indicated in manufacturer's written installation instructions.
 - 3. Seamed Joint: Crimp standing seams with manufacturer-approved, motorized seamer tool so clip, metal roof panel, and factory-applied sealant are completely engaged.
 - 4. Watertight Installation:
 - a. Apply a continuous ribbon of sealant or tape to seal joints of metal panels, using sealant or tape as recommend in writing by manufacturer as needed to make panels watertight.
 - b. Provide sealant or tape between panels and protruding equipment, vents, and accessories.
 - c. At panel splices, nest panels with minimum 6-inch (152-mm) end lap, sealed with sealant and fastened together by interlocking clamping plates.
- F. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.
 - 1. Install components required for a complete metal panel system including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items. Provide types indicated by metal roof panel manufacturers; or, if not indicated, types recommended by metal roof panel manufacturer.
- G. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
 - 1. Install exposed flashing and trim that is without buckling and tool marks, and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and achieve waterproof and weather-resistant performance.
 - 2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (610 mm) of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges,

not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).

H. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to metal roof panels as recommended by manufacturer.

3.7 <u>ERECTION TOLERANCES</u>

A. Installation Tolerances: Shim and align metal panel units within installed tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines as indicated and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

3.8 CLEANING AND PROTECTION

- A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.
- B. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 074113

SECTION 074213 - FORMED METAL WALL PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Concealed-fastener, lap-seam metal wall panels.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.
- B. Shop Drawings:
 - 1. Include fabrication and installation layouts of metal panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details.
 - 2. Accessories: Include details of the flashing, trim, and anchorage systems, at a scale of not less than 1-1/2 inches per 12 inches (1:10).
- C. Samples for Initial Selection: For each type of metal panel indicated with factory-applied finishes.
 - 1. Include Samples of trim and accessories involving color selection.
- D. Samples for Verification: For each type of exposed finish, prepared on Samples of size indicated below:
 - 1. Metal Panels: 12 inches (305 mm) long by actual panel width. Include fasteners, closures, and other metal panel accessories.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Test Reports: For each product, for tests performed by a qualified testing agency.

FORMED METAL WALL PANELS

C. Sample Warranties: For special warranties.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For metal panels to include in maintenance manuals.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver components, metal panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.
- B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.
- C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.
- D. Retain strippable protective covering on metal panels during installation.

1.8 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal panels to be performed according to manufacturers' written instructions and warranty requirements.

1.9 COORDINATION

A. Coordinate metal panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.10 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including rupturing, cracking, or puncturing.

- b. Deterioration of metals and other materials beyond normal weathering.
- 2. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E1592:
 - 1. Wind Loads: As indicated on Structural Drawings.
 - 2. Other Design Loads: As indicated on Structural Drawings.
 - 3. Deflection Limits: For wind loads, no greater than 1/240 of the span.
- B. Air Infiltration: Air leakage of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) when tested according to ASTM E283 at the following test-pressure difference:
 - 1. Test-Pressure Difference: 6.24 lbf/sq. ft. (300 Pa).
- C. Water Penetration under Static Pressure: No water penetration when tested according to ASTM E331 at the following test-pressure difference:
 - 1. Test-Pressure Difference: 6.24 lbf/sq. ft. (300 Pa).
- D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

2.2 CONCEALED-FASTENER, LAP-SEAM METAL WALL PANELS

- A. General: Provide factory-formed metal panels designed to be field assembled by lapping and interconnecting side edges of adjacent panels and mechanically attaching through panel to supports using concealed fasteners inside laps. Include accessories required for weathertight installation.
- A. Flush-Profile, Concealed-Fastener Metal Wall Panels <**MP-1**>: Formed with vertical panel edges and a flat pan between panel edges; with flush joint between panels.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Centria Architectural Systems, Inc.
 - b. Fabral.
 - c. MBCI.

- d. McElroy Metal, Inc.
- e. Morin A Kingspan Group.
- f. Pac-Clad.
- 2. **Basis of Design**: Morin 'Concealed F-12 Vertical Panel System.
- 3. Metallic-Coated Steel Sheet: Zinc-coated (galvanized) steel sheet complying with ASTM A653/A653M, G90 (Z275) coating designation, or aluminum-zinc alloy-coated steel sheet complying with ASTM A792/A792M, Class AZ50 (Class AZM150) coating designation; structural quality. Prepainted by the coil-coating process to comply with ASTM A755/A755M.
 - a. Nominal Thickness: 22 gauge.
 - b. Exterior Finish: Mica two coat fluoropolymer.
 - c. Color: 'Silversmith'
 - d. Panel Coverage: 12 inches.
 - e. Panel Height: 1.5 inch (39 mm).
 - f. Texture: Smooth.

2.3 MISCELLANEOUS MATERIALS

- A. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.
 - 1. Closures: Provide closures at eaves and rakes, fabricated of same metal as metal panels.
 - 2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
 - 3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- (25-mm-) thick, flexible closure strips; cut or premolded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.
- B. Flashing and Trim: Provide flashing and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, bases, drips, sills, jambs, corners, endwalls, framed openings, rakes, fasciae, parapet caps, soffits, reveals, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.
- C. Panel Fasteners: Self-tapping screws designed to withstand design loads. Provide concealed fasteners as recommended by manufacturer.
- D. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are nonstaining, and do not damage panel finish.
 - 1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.

- 2. Joint Sealant: ASTM C920; elastomeric polyurethane or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended in writing by metal panel manufacturer.
- 3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C1311.

2.4 FABRICATION

- A. General: Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.
- B. Provide panel profile for full length of panel.
- C. Fabricate metal panel joints with factory-installed captive gaskets or separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.
- D. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.
 - 1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
 - 2. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
 - 3. Seams for Other Than Aluminum: Fabricate nonmoving seams in accessories with flatlock seams. Tin edges to be seamed, form seams, and solder.
 - 4. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate sealant and to comply with SMACNA standards.
 - 5. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
 - 6. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.
 - a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal wall panel manufacturer for application but not less than thickness of metal being secured.

2.5 FINISHES

- A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are not acceptable. Variations in appearance of other components are acceptable

if they are within the range of approved Samples and are assembled or installed to minimize contrast.

- C. Steel Panels and Accessories:
 - 1. Mica Fluoropolymer: AAMA 621. Two-coat fluoropolymer finish with suspended mica flakes containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal panel supports, and other conditions affecting performance of the Work.
 - 1. Examine wall framing to verify that girts, angles, channels, studs, and other structural panel support members and anchorage have been installed within alignment tolerances required by metal wall panel manufacturer.
 - 2. Examine wall sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal wall panel manufacturer.
 - a. Verify that air- or water-resistive barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.
- B. Examine roughing-in for components and systems penetrating metal panels to verify actual locations of penetrations relative to seam locations of metal panels before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages according to ASTM C754 and metal panel manufacturer's written recommendations.

3.3 METAL PANEL INSTALLATION

- A. General: Install metal panels according to manufacturer's written instructions in orientation, sizes, and locations indicated. Install panels perpendicular to supports unless otherwise indicated. Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.
 - 1. Shim or otherwise plumb substrates receiving metal panels.

- 2. Flash and seal metal panels at perimeter of all openings. Fasten with self-tapping screws. Do not begin installation until air- or water-resistive barriers and flashings that will be concealed by metal panels are installed.
- 3. Install screw fasteners in predrilled holes.
- 4. Locate and space fastenings in uniform vertical and horizontal alignment.
- 5. Install flashing and trim as metal panel work proceeds.
- 6. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.
- 7. Align bottoms of metal panels and fasten with blind rivets, bolts, or self-tapping screws. Fasten flashings and trim around openings and similar elements with self-tapping screws.
- 8. Provide weathertight escutcheons for pipe- and conduit-penetrating panels.
- B. Fasteners:
 - 1. Steel Panels: Use stainless-steel fasteners for surfaces exposed to the exterior; use galvanized-steel fasteners for surfaces exposed to the interior.
- C. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by metal panel manufacturer.
- D. Lap-Seam Metal Panels: Fasten metal panels to supports with fasteners at each lapped joint at location and spacing recommended by manufacturer.
 - 1. Install screw fasteners with power tools having controlled torque adjusted to compress washer tightly without damage to washer, screw threads, or panels. Install screws in predrilled holes.
 - 2. Flash and seal panels with weather closures at perimeter of all openings.
- E. Watertight Installation:
 - 1. Apply a continuous ribbon of sealant or tape to seal lapped joints of metal panels, using sealant or tape as recommend by manufacturer on side laps of nesting-type panels; and elsewhere as needed to make panels watertight.
 - 2. Provide sealant or tape between panels and protruding equipment, vents, and accessories.
 - 3. At panel splices, nest panels with minimum 6-inch (152-mm) end lap, sealed with sealant and fastened together by interlocking clamping plates.
- F. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.
 - 1. Install components required for a complete metal panel system including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items. Provide types indicated by metal wall panel manufacturer; or, if not indicated, provide types recommended by metal panel manufacturer.
- G. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that are permanently watertight.

- 1. Install exposed flashing and trim that is without buckling and tool marks, and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and achieve waterproof performance.
- 2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (610 mm) of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).

3.4 CLEANING AND PROTECTION

- A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.
- B. After metal panel installation, clear weep holes and drainage channels of obstructions, dirt, and sealant.
- C. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 074213

SECTION 074220 - METAL SOFFIT PANELS

1.0 PART 1 - GENERAL

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 <u>SUMMARY</u>

A. Section includes metal soffit panels.

1.3 <u>ACTION SUBMITTALS</u>

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.
- B. Shop Drawings:
 - 1. Include fabrication and installation layouts of metal panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details.
 - 2. Accessories: Include details of flashing, trim, and anchorage systems, at a scale of not less than 1-1/2 inches per 12 inches (1:10).
- C. Samples for Verification: For each type of exposed finish and color required, prepared on Samples of size indicated below:
 - 1. Metal Panels: 12 inches (305 mm) long by actual panel width. Include fasteners, closures, and other metal panel accessories.
- D. Qualification Data: For Installer.
- E. Product Test Reports: For each product, tests performed by a qualified testing agency.
- F. Sample Warranties: For special warranties.
- G. Maintenance Data: For metal panels to include in maintenance manuals.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

B. UL-Certified, Portable Roll-Forming Equipment: UL-certified, portable roll-forming equipment capable of producing metal panels warranted by manufacturer to be the same as factory-formed products. Maintain UL certification of portable roll-forming equipment for duration of work.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver components, metal panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.
- B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.
- C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.
- D. Retain strippable protective covering on metal panels during installation.

1.6 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal panels to be performed according to manufacturers' written instructions and warranty requirements.

1.7 <u>COORDINATION</u>

A. Coordinate metal panel installation with rain drainage work, flashing, trim, construction of walls, and other adjoining work to provide a leak-proof, secure, and noncorrosive installation.

1.8 <u>WARRANTY</u>

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including rupturing, cracking, or puncturing.
 - b. Deterioration of metals and other materials beyond normal weathering.
 - 2. Warranty Period: 2 years from date of Substantial Completion.
- B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

- 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
- 2. Finish Warranty Period: 20 years from date of Substantial Completion.

2.0 PART 2 - PRODUCTS

2.1 <u>PERFORMANCE REQUIREMENTS</u>

- A. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E 1592:
 - 1. Deflection Limits: For wind loads, no greater than 1/180 of the span.
- B. Air Infiltration: Air leakage of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) when tested according to ASTM E 283 at the following test-pressure difference:
 - 1. Test-Pressure Difference: 6.24 lbf/sq. ft. (300 Pa).
- C. Water Penetration under Static Pressure: No water penetration when tested according to ASTM E 331 at the following test-pressure difference:
 - 1. Test-Pressure Difference: 6.24 lbf/sq. ft. (300 Pa).
- D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

2.2 <u>METAL SOFFIT PANELS</u>

- A. General: Provide metal soffit panels designed to be installed by lapping and interconnecting side edges of adjacent panels and mechanically attaching through panel to supports using concealed fasteners in side laps. Include accessories required for weather-tight installation.
- B. Flush-Profile Metal Soffit Panels: Solid panels formed with vertical panel edges and a flat pan between panel edges with flush joint between panels.

- 1. <u>Basis-of-Design Product</u>: Subject to compliance with requirements, provide Petersen Aluminum Corporation; Flush Soffit, or comparable product by one of the following:
 - a. <u>CENTRIA Architectural Systems</u>.
- 2. Aluminum Sheet: Coil-coated sheet, ASTM B 209 (ASTM B 209M), alloy as standard with manufacturer, with temper as required to suit forming operations and structural performance required.
 - a. Thickness: 0.040 inch (1.02 mm).
 - b. Surface: Smooth, flat finish and smooth, perforated finish. Refer to drawings for locations of each type.
 - c. Exterior Finish: Two-coat fluoropolymer.
 - d. Color: 'Bone White'.

2.3 <u>MISCELLANEOUS MATERIALS</u>

- A. Miscellaneous Metal Subframing and Furring: ASTM C 645, cold-formed, metalliccoated steel sheet, ASTM A 653/A 653M, G90 (Z275 hot-dip galvanized) coating designation or ASTM A 792/A 792M, Class AZ50 (Class AZM150) aluminum-zincalloy coating designation unless otherwise indicated. Provide manufacturer's standard sections as required for support and alignment of metal panel system.
- B. Panel Accessories: Provide components required for a complete, weather-tight panel system including trim, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.
 - 1. Closure Strips: Closed-cell, expanded, cellular, rubber or cross-linked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- (25mm-) thick, flexible closure strips; cut or pre-molded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.
- C. Flashing and Trim: Provide flashing and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Finish flashing and trim with same finish system as adjacent metal panels.
- D. Panel Fasteners: Self-tapping screws designed to withstand design loads.
- E. Panel Sealants: Provide sealant types recommended by manufacturer that are compatible with panel materials, are non-staining, and do not damage panel finish.
 - 1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, non-sag, nontoxic, non-staining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.

- 2. Joint Sealant: ASTM C 920; elastomeric polyurethane or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal panels and remain weather-tight; and as recommended in writing by metal panel manufacturer.
- 3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C 1311.

2.4 FABRICATION

- A. General: Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.
- B. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.
- C. Fabricate metal panel joints with factory-installed captive gaskets or separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.
- D. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.
 - 1. Form exposed sheet metal accessories that are without oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
 - 2. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer.
 - 3. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate sealant and to comply with SMACNA standards.
 - 4. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
 - 5. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.
 - a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal soffit panel manufacturer for application but not less than thickness of metal being secured.

2.5 <u>FINISHES</u>

A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

- B. Aluminum Panels and Accessories:
 - 1. Three-Coat Fluoropolymer: AAMA 620. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

3.0 PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal panel supports, and other conditions affecting performance of the Work.
 - 1. Examine framing to verify that girts, angles, channels, studs, and other structural panel support members and anchorage have been installed within alignment tolerances required by metal panel manufacturer.
 - 2. Examine sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal panel manufacturer.
 - a. Verify that air- or water-resistive barriers been installed over sheathing or backing substrate to prevent air infiltration or water penetration.
- B. Examine roughing-in for components and systems penetrating metal panels to verify actual locations of penetrations relative to seam locations of metal panels before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 <u>PREPARATION</u>

A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages according to ASTM C 754 and metal panel manufacturer's written recommendations.

3.3 METAL PANEL INSTALLATION

- A. General: Install metal panels according to manufacturer's written instructions in orientation, sizes, and locations indicated. Install panels perpendicular to supports unless otherwise indicated. Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.
 - 1. Shim or otherwise plumb substrates receiving metal panels.
 - 2. Flash and seal metal panels at perimeter of all openings. Fasten with self-tapping screws. Do not begin installation until air- or water-resistive barriers and flashings that will be concealed by metal panels are installed.

- 3. Install screw fasteners in predrilled holes.
- 4. Locate and space fastenings in uniform vertical and horizontal alignment.
- 5. Install flashing and trim as metal panel work proceeds.
- 6. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.
- 7. Provide weathertight escutcheons for pipe- and conduit-penetrating panels.
- B. Fasteners:
 - 1. Aluminum Panels: Use aluminum or stainless-steel fasteners for surfaces exposed to the exterior; use aluminum or galvanized-steel fasteners for surfaces exposed to the interior.
- C. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by metal panel manufacturer.
- D. Lap-Seam Metal Panels: Fasten metal panels to supports with fasteners at each lapped joint at location and spacing recommended by manufacturer.
 - 1. Apply panels and associated items true to line for neat and weathertight enclosure.
 - 2. Provide metal-backed washers under heads of exposed fasteners bearing on weather side of metal panels.
 - 3. Locate and space exposed fasteners in uniform vertical and horizontal alignment. Use proper tools to obtain controlled uniform compression for positive seal without rupture of washer.
 - 4. Install screw fasteners with power tools having controlled torque adjusted to compress washer tightly without damage to washer, screw threads, or panels. Install screws in predrilled holes.
- E. Watertight Installation:
 - 1. Apply a continuous ribbon of sealant or tape to seal lapped joints of metal panels, using sealant or tape as recommend by manufacturer on side laps of nesting-type panels and elsewhere as needed to make panels watertight.
 - 2. Provide sealant or tape between panels and protruding equipment, vents, and accessories.
 - 3. At panel splices, nest panels with minimum 6-inch (152-mm) end lap, sealed with sealant and fastened together by interlocking clamping plates.

- F. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.
 - 1. Install components required for a complete metal panel system including trim, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items. Provide types indicated by metal panel manufacturer; or, if not indicated, provide types recommended by metal panel manufacturer.
- G. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that are permanently watertight.
 - 1. Install exposed flashing and trim that is without buckling, and tool marks, and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to achieve waterproof performance.
 - 2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (610 mm) of corner or intersection. Where lapped expansion provisions cannot be used or would not be waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).

3.4 CLEANING AND PROTECTION

- A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.
- B. After metal panel installation, clear weep holes and drainage channels of obstructions, dirt, and sealant.
- C. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 074213

SECTION 077100 - ROOF SPECIALTIES

1.0 PART 1 - GENERAL

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 <u>SUMMARY</u>

- A. Section Includes:
 - 1. Roof-edge drainage systems (gutters and downspouts).
- B. Related Sections:
 - 1. Division 06 Section "Rough Carpentry" for wood nailers, curbs, and blocking.
 - 2. Division 07 Section "Joint Sealants" for field-applied sealants between roof specialties and adjacent materials.

1.3 PERFORMANCE REQUIREMENTS

- A. General Performance: Roof specialties shall withstand exposure to weather and resist thermally induced movement without failure, rattling, leaking, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.
- B. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of thermal movements. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

1.4 <u>ACTION SUBMITTALS</u>

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: For roof specialties. Include plans, elevations, expansion-joint locations, keyed details, and attachments to other work. Distinguish between plant- and field-assembled work. Include the following:
 - 1. Pattern of seams and layout of fasteners, cleats, clips, and other attachments.
 - 2. Details of termination points and assemblies, including fixed points.

- 3. Details of special conditions.
- C. Samples for Verification: For roof-edge drainage systems made from 12-inch (300-mm) lengths of full-size components including fasteners, cover joints, accessories, and attachments.

1.5 INFORMATIONAL SUBMITTALS

- A. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for copings and roof-edge flashings.
- B. Warranty: Sample of special warranty.

1.6 <u>CLOSEOUT SUBMITTALS</u>

A. Maintenance Data: For roofing specialties to include in maintenance manuals.

1.7 **QUALITY ASSURANCE**

- A. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
 - 1. Build mockup of typical roof edge, including drainage systems approximately 10 feet (3.0 m) long, including supporting construction, seams, attachments, underlayment, and accessories.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Do not store roof specialties in contact with other materials that might cause staining, denting, or other surface damage. Store roof specialties away from uncured concrete and masonry.
- B. Protect strippable protective covering on roof specialties from exposure to sunlight and high humidity, except to extent necessary for the period of roof specialties installation.

1.9 <u>WARRANTY</u>

- A. Special Warranty on Painted Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace roof specialties that show evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Fluoropolymer Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 20 years from date of Substantial Completion.

2.0 PART 2 - PRODUCTS

2.1 <u>EXPOSED METALS</u>

- A. Aluminum Sheet: ASTM B 209 (ASTM B 209M), alloy as standard with manufacturer for finish required, with temper to suit forming operations and performance required.
 - 1. Surface: Smooth, flat finish.
 - 2. Clear Anodic Finish, Coil Coated: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.
- B. Aluminum Extrusions: ASTM B 221 (ASTM B 221M), alloy and temper recommended by manufacturer for type of use and finish indicated, finished as follows:
 - 1. Clear Anodic Finish, Coil Coated: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.

2.2 <u>MISCELLANEOUS MATERIALS</u>

- A. General: Provide materials and types of fasteners, protective coatings, sealants, and other miscellaneous items required by manufacturer for a complete installation.
- B. Fasteners: Manufacturer's recommended fasteners, suitable for application and designed to meet performance requirements. Furnish the following unless otherwise indicated:
 - 1. Exposed Penetrating Fasteners: Gasketed screws with hex washer heads matching color of sheet metal.
 - 2. Fasteners for Aluminum: Aluminum or Series 300 stainless steel.
- C. Elastomeric Sealant: ASTM C 920, elastomeric silicone polymer sealant of type, grade, class, and use classifications required by roofing-specialty manufacturer for each application.

2.3 <u>ROOF-EDGE DRAINAGE SYSTEMS</u>

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Rutland Gutter Supply LLC, 10895 Rocket Blvd, Orlando, FL 32824.
 - 1. Installation, profiles, colors, and finishes shall match adjacent Phase 1 Carrier Park Gateway Building.
- B. Gutters: Manufactured in uniform section lengths not exceeding 12 feet (3.6 m) with matching corner units, ends, outlet tubes, and other accessories. Elevate back edge at least 1 inch (25 mm) above front edge. Furnish flat-stock gutter straps, gutter brackets, expansion joints, and expansion-joint covers fabricated from same metal as gutters.
 - 1. Fabricate from the following exposed metal:

- a. Extruded Aluminum: 0.050 inch (1.27 mm) thick.
- 2. Gutter Profile: K-Style.
- 3. Corners: Factory mitered and mechanically clinched and sealed watertight.
- 4. Gutter Supports: Flat fascia mount half-round hanger with finish matching the gutters.
- 5. Gutter Accessories: Continuous screened leaf guard with sheet metal frame and flat ends.
- C. Downspouts: Plain rectangular complete with mitered elbows, manufactured from the following exposed metal. Furnish with metal hangers, from same material as downspouts, and anchors.
 - 1. Extruded Aluminum: 0.125 inch (3.18 mm) thick.
 - 2. Size: 3 inch wide by 4 inch deep.
- D. Aluminum Finish: Clear anodic.

2.4 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

3.0 PART 3 - EXECUTION

3.1 <u>EXAMINATION</u>

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of the Work.
- B. Examine walls, roof edges, and parapets for suitable conditions for roof specialties.
- C. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. General: Install roof specialties according to manufacturer's written instructions. Anchor roof specialties securely in place, with provisions for thermal and structural movement.

Use fasteners, solder, protective coatings, separators, sealants, and other miscellaneous items as required to complete roof-specialty systems.

- 1. Install roof specialties level, plumb, true to line and elevation; with limited oilcanning and without warping, jogs in alignment, buckling, or tool marks.
- 2. Provide uniform, neat seams with minimum exposure of solder and sealant.
- 3. Install roof specialties to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before manufacture.
- 4. Torch cutting of roof specialties is not permitted.
- 5. Do not use graphite pencils to mark metal surfaces.
- B. Metal Protection: Protect metals against galvanic action by separating dissimilar metals from contact with each other or with corrosive substrates by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.
 - 1. Coat concealed side of uncoated aluminum roof specialties with bituminous coating where in contact with wood, ferrous metal, or cementitious construction.
 - 2. Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of self-adhering, high-temperature sheet underlayment.
 - 3. Bed flanges in thick coat of asphalt roofing cement where required by manufacturers of roof specialties for waterproof performance.
- C. Expansion Provisions: Allow for thermal expansion of exposed roof specialties.
 - 1. Space movement joints at a maximum of 12 feet (3.6 m) with no joints within 18 inches (450 mm) of corners or intersections unless otherwise shown on Drawings.
 - 2. When ambient temperature at time of installation is between 40 and 70 deg F (4 and 21 deg C), set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures.
- D. Fastener Sizes: Use fasteners of sizes that will penetrate wood blocking or sheathing not less than 1-1/4 inches (32 mm) for nails and not less than 3/4 inch (19 mm) for wood screws.
- E. Seal joints with elastomeric sealant as required by roofing-specialty manufacturer.
- F. Seal joints as required for watertight construction. Place sealant to be completely concealed in joint. Do not install sealants at temperatures below 40 deg F (4 deg C).

3.3 <u>ROOF-EDGE DRAINAGE-SYSTEM INSTALLATION</u>

- A. General: Install components to produce a complete roof-edge drainage system according to manufacturer's written instructions. Coordinate installation of roof perimeter flashing with installation of roof-edge drainage system.
- B. Gutters: Join and seal gutter lengths. Allow for thermal expansion. Attach gutters to firmly anchored gutter supports spaced not more than 24 inches (610 mm) apart. Attach ends with rivets and seal with sealant to make watertight. Slope to downspouts.
 - 1. Install gutter with expansion joints at locations indicated but not exceeding 50 feet (15.2 m) apart. Install expansion joint caps.
 - 2. Install continuous leaf guards on gutters with noncorrosive fasteners, hinged to swing open for cleaning gutters.
- C. Downspouts: Join sections with manufacturer's standard telescoping joints. Provide hangers with fasteners designed to hold downspouts securely to walls and 1 inch (25 mm) away from walls; locate fasteners at top and bottom and at approximately 60 inches (1500 mm) o.c.
 - 1. Provide elbows at base of downspout to direct water away from building.
 - 2. Connect downspouts to underground drainage system indicated.

3.4 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder and sealants.
- C. Remove temporary protective coverings and strippable films as roof specialties are installed. On completion of installation, clean finished surfaces including removing unused fasteners, metal filings, pop rivet stems, and pieces of flashing. Maintain roof specialties in a clean condition during construction.
- D. Replace roof specialties that have been damaged or that cannot be successfully repaired by finish touchup or similar minor repair procedures.

END OF SECTION 077100

SECTION 077253 - SNOW GUARDS

1.0 <u>PART 1 – GENERAL</u>

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Rail-type, seam-mounted snow guards.

1.3 <u>ACTION SUBMITTALS</u>

- A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for snow guards.
- B. Shop Drawings: Include roof plans showing layouts and attachment details of snow guards.
 - 1. Include details of rail-type snow guards.
 - 2. Include calculation of number and location of snow guards based on snow load, roof slope, roof type, components, spacing, and finish.
- C. Samples: Base, bracket, and 12-inch- (300-mm-) long rail.

1.4 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For each type of snow guard, for tests performed by manufacturer and witnessed by a qualified testing agency.

2.0 <u>PART 2 – PRODUCTS</u>

2.1 PERFORMANCE REQUIREMENTS

- A. Performance Requirements: Provide snow guards that withstand exposure to weather and resist thermally induced movement without failure, rattling, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.
 - 1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- B. Structural Performance:
 - 1. Snow Loads: Refer to structural drawings for required snow load.

2.2 RAIL-TYPE SNOW GUARDS

- A. Seam-Mounted, Rail-Type Snow Guards:
 - 1. Basis of Design: Alpine SnowGuards, 289 Harrel Street, Morrisville, VT 05661; ASG3000G-T.
 - 2. Description:
 - a. Snow guard rails fabricated from metal pipes, bars, or extrusions, anchored to brackets with two (2) set screws and equipped with two rails.
 - b. Couplings
 - c. End Caps
 - d. End Collars
 - e. Ice Flags
 - 3. Material and Finish: Stainless steel; No. 4.
 - 4. Design Requirements:
 - a. Spacing to be recommended by manufacturer.
 - b. Install a minimum of two (2) set screws per snow guard.

3.0 <u>PART 3 – EXECUTION</u>

3.1 <u>EXAMINATION</u>

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances, snow guard attachment, and other conditions affecting performance of the Work.
 - 1. Verify compatibility with and suitability of substrates including compatibility with existing finishes or primers.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 <u>PREPARATION</u>

- A. Clean and prepare substrates for bonding snow guards.
- B. Prime substrates according to snow guard manufacturer's written instructions.

3.3 <u>INSTALLATION</u>

A. Install snow guards according to manufacturer's written instructions.

- B. Retain paragraph(s) below for roofing and snow guard types used for Project.
- C. Attachment for Standing-Seam Metal Roofing:
 - 1. Do not use fasteners that will penetrate metal roofing, or fastening methods that void metal roofing finish warranty.
 - 2. Seam-Mounted, Rail-Type Snow Guards: Stainless-steel clamps attached to vertical ribs of standing-seam metal roof panels.

END OF SECTION 077253

SECTION 079200 - JOINT SEALANTS

1.0 <u>PART 1 - GENERAL</u>

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 <u>SUMMARY</u>

- A. Section Includes:
 - 1. Silicone joint sealants.
 - 2. Latex joint sealants.
- B. Related Sections:
 - 1. Division 04 Section "Unit Masonry" for masonry control and expansion joint fillers and gaskets.
 - 2. Division 08 Section "Glazing" for glazing sealants.

1.3 <u>PRECONSTRUCTION TESTING</u>

- A. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.
 - 1. Use manufacturer's standard test method to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
 - 2. Submit not fewer than eight pieces of each kind of material, including joint substrates, shims, joint-sealant backings, secondary seals, and miscellaneous materials.
 - 3. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
 - 4. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures including use of specially formulated primers.
 - 5. Testing will not be required if joint-sealant manufacturers submit joint preparation data that are based on previous testing, not older than 24 months, of sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.
- A. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates as follows:

- 1. Locate test joints where indicated on Project or, if not indicated, as directed by Architect.
- 2. Conduct field tests for each application indicated below:
 - a. Each kind of sealant and joint substrate indicated.
- 3. Notify Architect seven days in advance of dates and times when test joints will be erected.
- 4. Arrange for tests to take place with joint-sealant manufacturer's technical representative present.
 - a. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.
 - 1) For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
- 5. Report whether sealant failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.
- 6. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

1.4 <u>ACTION SUBMITTALS</u>

- A. Product Data: For each joint-sealant product indicated.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- C. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in in 1/2-inch- (13-mm-) wide joints formed between two 6-inch- (150-mm-) long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- D. Joint-Sealant Schedule: Include the following information:
 - 1. Joint-sealant application, joint location, and designation.
 - 2. Joint-sealant manufacturer and product name.
 - 3. Joint-sealant formulation.
 - 4. Joint-sealant color.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer and testing agency.
- B. Product Certificates: For each kind of joint sealant and accessory, from manufacturer.
- C. Sealant, Waterproofing, and Restoration Institute (SWRI) Validation Certificate: For each sealant specified to be validated by SWRI's Sealant Validation Program.
- D. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that sealants comply with requirements.
- E. Preconstruction Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:
 - 1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
 - 2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.
- F. Preconstruction Field-Adhesion Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on testing specified in "Preconstruction Testing" Article.
- G. Field-Adhesion Test Reports: For each sealant application tested.
- H. Warranties: Sample of special warranties.

1.6 **QUALITY ASSURANCE**

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- B. Source Limitations: Obtain each kind of joint sealant from single source from single manufacturer.
- C. Product Testing: Test joint sealants using a qualified testing agency.
 - 1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated.
 - 2. Test according to SWRI's Sealant Validation Program for compliance with requirements specified by reference to ASTM C 920 for adhesion and cohesion under cyclic movement, adhesion-in-peel, and indentation hardness.
- D. Mockups: Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.

1.7 <u>PROJECT CONDITIONS</u>

- A. Do not proceed with installation of joint sealants under the following conditions:
 - 1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F (5 deg C).
 - 2. When joint substrates are wet.
 - 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
 - 4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.8 <u>WARRANTY</u>

- A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - 1. Warranty Period: Two years from date of Substantial Completion.

2.0 PART 2 - PRODUCTS

2.1 <u>MATERIALS, GENERAL</u>

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
- B. VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - 1. Architectural Sealants: 250 g/L.
 - 2. Sealant Primers for Nonporous Substrates: 250 g/L.
 - 3. Sealant Primers for Porous Substrates: 775 g/L.
- C. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.
 - 1. Suitability for Immersion in Liquids. Where sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have

undergone testing according to ASTM C 1247. Liquid used for testing sealants is deionized water, unless otherwise indicated.

- D. Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
- E. Suitability for Contact with Food: Where sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.
- F. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.2 <u>SILICONE JOINT SEALANTS</u>

- A. Single- Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 50, for Use NT.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. BASF Building Systems; Omniseal 50.
 - b. Dow Corning Corporation; 756 SMS, 791, 795, 995.
 - c. Polymeric Systems, Inc.; PSI-641
 - d. Sika Corporation, Construction Products Division; SikaSil-C995.
 - e. Tremco Incorporated; Spectrem 2, Spectrem 3.
- B. Mildew-Resistant, Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 25, for Use NT.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Pecora Corporation; 898.

2.3 LATEX JOINT SEALANTS

- A. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. BASF Building Systems; Sonolac.
 - b. Bostik, Inc.; Chem-Calk 600.
 - c. Pecora Corporation; AC-20+.

d. Tremco Incorporated; Tremflex 834.

2.4 JOINT SEALANT BACKING

- A. General: Provide sealant backings of material that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), Type O (open-cell material), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.5 <u>MISCELLANEOUS MATERIALS</u>

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

3.0 PART 3 - EXECUTION

3.1 <u>EXAMINATION</u>

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 <u>PREPARATION</u>

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant

manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

- 2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
 - a. Concrete.
 - b. Masonry.
- 3. Remove laitance and form-release agents from concrete.
- 4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
 - a. Metal.
 - b. Glass.
 - c. Porcelain enamel.
- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - 1. Do not leave gaps between ends of sealant backings.
 - 2. Do not stretch, twist, puncture, or tear sealant backings.

- 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
 - 1. Place sealants so they directly contact and fully wet joint substrates.
 - 2. Completely fill recesses in each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 - 1. Remove excess sealant from surfaces adjacent to joints.
 - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 - 3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.
 - 4. Provide flush joint profile where indicated per Figure 8B in ASTM C 1193.
 - 5. Provide recessed joint configuration of recess depth and at locations indicated per Figure 8C in ASTM C 1193.
 - a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

3.4 <u>CLEANING</u>

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 <u>PROTECTION</u>

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.6 JOINT-SEALANT SCHEDULE

- A. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces (JS-1).
 - 1. Joint Locations:
 - a. Isolation and contraction joints in cast-in-place concrete slabs.
 - b. Other joints as indicated.
 - 2. Silicone Joint Sealant: Single component, nonsag, traffic grade, neutral curing.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- B. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces subject to water immersion (**JS-2**).
 - 1. Joint Locations:
 - a. Construction joints in cast-in-place concrete.
 - b. Control and expansion joints in unit masonry.
 - c. Joints between different materials listed above.
 - d. Control and expansion joints in ceilings and other overhead surfaces.
 - e. Other joints as indicated.
 - 2. Silicone Joint Sealant: Single component, nonsag, neutral curing, Class 50.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- C. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces (**JS-3**).
 - 1. Joint Locations:
 - a. Control and expansion joints on exposed interior surfaces of exterior walls.
 - b. Perimeter joints of exterior openings where indicated.
 - c. Perimeter joints of exterior openings where indicated.
 - d. Other joints as indicated.
 - 2. Joint Sealant: Latex.

- 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range.
- D. Joint-Sealant Application: Interior joints in horizontal traffic surfaces (JS-4).
 - 1. Joint Locations:
 - a. Door thresholds.
 - 2. Joint Sealant: Butyl-Rubber-Based Joint Sealant.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range.
- E. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces (**JS-5**).
 - 1. Joint Locations:
 - a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
 - b. Other joints as indicated.
 - 2. Joint Sealant: Mildew resistant, single component, nonsag, neutral curing, Silicone.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION 079200

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

1.0 PART 1 - GENERAL

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 <u>SUMMARY</u>

- A. Section includes
 - 1. Standard hollow metal doors and frames.
- B. Related Requirements:
 - 1. Division 04 Section "Unit Masonry" for embedding anchors for hollow metal work into masonry construction.
 - 2. Division 08 Section "Door Hardware" for door hardware for hollow metal doors.
 - 3. Division 09 Section "Interior Painting" for field painting hollow metal doors and frames.

1.3 <u>DEFINITIONS</u>

- A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or SDI A250.8.
- B. Standard Hollow Metal Work: Hollow metal work fabricated according to ANSI/SDI A250.8.

1.4 <u>COORDINATION</u>

A. Coordinate anchorage installation for hollow-metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

1.5 <u>ACTION SUBMITTALS</u>

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, core descriptions, fireresistance ratings and finishes.
- B. Shop Drawings: Include the following:
 - 1. Elevations of each door type.

- 2. Details of doors, including vertical- and horizontal-edge details and metal thicknesses.
- 3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
- 4. Locations of reinforcement and preparations for hardware.
- 5. Details of each different wall opening condition.
- 6. Details of anchorages, joints, field splices, and connections.
- 7. Details of accessories.
- 8. Details of moldings, removable stops, and glazing.
- 9. Details of conduit and preparations for power, signal, and control systems.
- C. Schedule: Provide a schedule of hollow-metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with final Door Hardware Schedule.

1.6 **QUALITY ASSURANCE**

- A. Source Limitations: Obtain hollow metal work from single source from single manufacturer.
- B. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based in testing at positive pressure according to UL 10C.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver hollow-metal work palletized, packaged, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.
- B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
- C. Store hollow metal work under cover at Project site. Place in stacks of five units maximum in a vertical position with heads up, spaced by blocking, on minimum 4-inch-(102-mm-) high wood blocking. Do not store in a manner that traps excess humidity. Provide minimum 1/4-inch (6-mm) space between each stacked door to permit air circulation.

1.8 <u>PROJECT CONDITIONS</u>

A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

2.0 PART 2 - PRODUCTS

2.1 <u>MANUFACTURERS</u>

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. <u>Amweld International, LLC</u>.
 - 2. <u>Ceco Door Products</u>; an Assa Abloy Group company.
 - 3. <u>Curries Company</u>; an Assa Abloy Group company.
 - 4. Kewanee Corporation (The).
 - 5. <u>Pioneer Industries, Inc</u>.
 - 6. <u>Steelcraft</u>; an Ingersoll-Rand company.
- B. Source Limitations: Obtain hollow-metal work from single source from single manufacturer.

2.2 <u>REGULATORY REQUIREMENTS</u>

A. Fire-Rated Assemblies: Complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.

2.3 INTERIOR DOORS AND FRAMES

- A. Construct interior doors and frames to comply with the standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.
- B. Heavy-Duty Doors and Frames: SDI A250.8, Level 2.
 - 1. Physical Performance: Level B (Heavy Duty).
 - 2. Doors:
 - a. Type: As indicated in the Door and Frame Schedule.
 - b. Thickness: 1-3/4 inches (44.5 mm).
 - c. Face: Metallic-coated cold-rolled steel sheet.
 - d. Edge Construction: Model 2, Seamless.
 - e. Core: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core at manufacturer's discretion.

- 3. Frames:
 - a. Materials: Metallic-coated, cold-rolled steel sheet, minimum thickness of 0.042 inch (1.0 mm).
 - b. Construction: Full profile welded.
- 4. Exposed Finish: Prime.

2.4 FRAME ANCHORS

- A. Jamb Anchors:
 - 1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch (1.0 mm) thick, with corrugated or perforated straps not less than 2 inches (51 mm) wide by 10 inches (254 mm) long; or wire anchors not less than 0.177 inch (4.5 mm) thick.
- B. Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch (1.0 mm), and as follows:
 - 1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
 - 2. Separate Topping Concrete Slabs: Adjustable-type anchors with extension clips, allowing not less than 2-inch (51-mm) height adjustment. Terminate bottom of frames at finish floor surface.

2.5 <u>MATERIALS</u>

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.
- D. Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Z (12G) coating designation; mill phosphatized.
 - 1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.
- E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
- F. Grout: ASTM C 476, except with a maximum slump of 4 inches (102 mm), as measured according to ASTM C 143/C 143M.

- G. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.
- H. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15mil (0.4-mm) dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.6 <u>FABRICATION</u>

- A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
- B. Hollow-Metal Doors:
 - 1. Fire Door Cores: As required to provide fire-protection ratings indicated.
 - 2. Vertical Edges for Single-Acting Doors: Provide beveled or square edges at manufacturer's discretion.
 - 3. Top Edge Closures: Close top edges of doors with flush closures of same material as face sheets.
 - 4. Bottom Edge Closures: Close bottom edges of doors with end closures or channels of same material as face sheets.
 - 5. Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated. Extend minimum 3/4 inch (19 mm) beyond edge of door on which astragal is mounted or as required to comply with published listing of qualified testing agency.
- C. Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
 - 1. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
 - 2. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
 - 3. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor.

- 4. Jamb Anchors: Provide number and spacing of anchors as follows:
 - a. Masonry Type: Locate anchors not more than 16 inches (406 mm) from top and bottom of frame. Space anchors not more than 32 inches (813 mm) o.c., to match coursing, and as follows:
 - 1) Two anchors per jamb up to 60 inches (1524 mm) high.
 - 2) Three anchors per jamb from 60 to 90 inches (1524 to 2286 mm) high.
 - 3) Four anchors per jamb from 90 to 120 inches (2286 to 3048 mm) high.
 - 4) Four anchors per jamb plus one additional anchor per jamb for each 24 inches (610 mm) or fraction thereof above 120 inches (3048 mm) high.
- 5. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Keep holes clear during construction.
 - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
 - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.
- D. Fabricate concealed stiffeners and edge channels from either cold- or hot-rolled steel sheet.
- E. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to the Door Hardware Schedule and templates furnished as specified in Division 08 Section "Door Hardware."
 - 1. Locate hardware as indicated, or if not indicated, according to ANSI/SDI A250.8 or ANSI/NAAMM-HMMA 861.
 - 2. Reinforce doors and frames to receive nontemplated, mortised, and surfacemounted door hardware.
 - 3. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.

2.7 <u>STEEL FINISHES</u>

- A. Prime Finish: Apply manufacturer's standard primer immediately after cleaning and pretreating.
 - 1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

3.0 PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine roughing-in for embedded and built-in anchors to verify actual locations before frame installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 <u>PREPARATION</u>

- A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.
- B. Prior to installation, adjust and securely brace welded hollow metal frames for squareness, alignment, twist, and plumbness to the following tolerances:
 - 1. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - 2. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.
 - 3. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - 4. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a perpendicular line from head to floor.
- C. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.

3.3 <u>INSTALLATION</u>

A. General: Install hollow-metal work plumb, rigid, properly aligned, and securely fastened in place. Comply with Drawings and manufacturer's written instructions.

- B. Hollow-Metal Frames: Install hollow metal frames of size and profile indicated. Comply with ANSI/SDI A250.11 or HMMA 840.
 - 1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
 - a. At fire-rated openings, install frames according to NFPA 80.
 - b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
 - c. Install door silencers in frames before grouting.
 - d. Remove temporary braces necessary for installation only after frames have been properly set and secured.
 - e. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
 - f. Field apply bituminous coating to backs of frames that will be filled with grout containing antifreezing agents.
 - 2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.
 - 3. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.
 - 4. In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
 - 5. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
 - a. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - b. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.
 - c. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - d. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs at floor.

- C. Hollow-Metal Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.
 - 1. Non-Fire-Rated Steel Doors:
 - a. Between Door and Frame Jambs and Head: 1/8 inch (3.2 mm) plus or minus 1/32 inch (0.8 mm).
 - b. Between Edges of Pairs of Doors: 1/8 inch (3.2 mm) to 1/4 inch (6.3 mm) plus or minus 1/32 inch (0.8 mm).
 - c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch (9.5 mm).
 - d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch (19 mm).
 - e. Between Door Face and Stop: 1/16 inch (1.6 mm) to 1/8 inch (3.2 mm) plus or minus 1/32 inch (0.8 mm).
 - 2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.

3.4 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.
- B. Remove grout and other bonding material from hollow-metal work immediately after installation.
- C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- D. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.
- E. Factory-Finish Touchup: Clean abraded areas and repair with same material used for factory finish according to manufacturer's written instructions.
- F. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

END OF SECTION 081113

SECTION 081613 - FIBERGLASS REINFORCED POLYESTER DOORS

1.0 <u>PART 1 – GENERAL</u>

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

1.2 WORK INCLUDED

- A. Provide fiberglass reinforced polyester doors shown on drawings and schedules and specified herein.
- B. Types of fiberglass reinforced polyester doors required include the following:
 - 1. Exterior flush doors.
 - 2. Exterior aluminum frames.

1.3 <u>RELATED WORK SPECIFIED ELSEWHERE</u>

A. Division 8 section "Hardware."

1.4 <u>SYSTEM PERFORMANCE</u>

- A. Provide exterior and interior door assemblies that have been designed and fabricated to comply with requirements for system performance characteristics listed below as demonstrated by testing manufacturer's corresponding stock systems according to test methods designated.
 - 1. Thermal Transmittance (exterior doors): U-value of not more than 0.09 BTU/per AAMA 1503.1.

1.5 <u>QUALITY ASSURANCE</u>

- A. Comply with fire-resistance and flammability regulations as interpreted by governing authorities and as follows:
 - 1. Face sheet tested in accordance with ASTM E84 shall have the following ratings:
 - a. Smoke Developed: 310 or less.
 - b. Flame Spread: 15 or less.
- B. Manufacturer Qualifications: Shall have produced fiberglass reinforced polyester doors for at least four years. Shall have completed projects of similar building type and size as this project.
- C. Field Measurement: Take field measurements prior to fabrication to ensure proper fitting of work.

1.6 <u>SUBMITTALS</u>

- A. Product Data: Submit manufacturer's specifications, standard details and installation recommendations for components of fiberglass reinforced polyester doors required for project, including test reports certifying that products have been tested and comply with performance requirements.
- B. Shop Drawings: Submit shop drawings for fabrication and installation of fiberglass reinforced polyester doors including elevations, detail sections of typical composite members, hardware mounting heights, anchorages, reinforcement, expansion provisions and glazing.
- C. Samples: Submit 6" samples of each type and color of fiber reinforced polyester finish and 12" long sections of extrusions or formed shapes. Where normal color and texture variations are to be expected, include 2 or more units in each set of samples showing limits of such variations.
- D. Templates and Diagrams: Furnish templates, diagrams and other data to fabricators and installer of related work, as needed for coordination of operators, doors, frames, hardware, concrete work, electrical work, air supply, etc.

1.7 DELIVERY, STORAGE AND HANDLING

- A. All materials supplied shall be delivered to the job site in their original, unopened packages with labels intact. Materials shall be inspected for damage, and the manufacturer informed of any discrepancies. Unsatisfactory materials shall not be used.
- B. All materials supplied shall be packaged in individual corrugated cartons. Doors shall "float" within cartons, with no portion of door in contact with outer shell.

1.8 JOB CONDITIONS

A. Inspect surfaces to receive work of this section. Report any unsatisfactory conditions to General Contractor. Proceeding with the work will be evidence of acceptance of job conditions.

1.9 SPECIAL PROJECT WARRANTY

- A. Material and workmanship of doors and frames shall be guaranteed to be free of defect for TEN YEARS from the date of manufacturing.
- B. Hardware supplied with doors and frames shall be covered by hardware manufacturers standard warranty.
- C. The workmanship and materials involved with the installation of such hardware by the door manufacturer is guaranteed to be free of defect for TEN YEARS from the date of manufacturing.

- D. The door manufacturer's liability shall be limited to the cost of repairing or replacing, at the manufacturer's option, defective products and in no case shall the manufacturer be liable for related costs of any sort.
- E. Field modification to the manufacturer's products performed by anyone other than factory personnel or the application of hardware other than the hardware the door was manufactured to receive will void the guarantee.
- F. A written copy of manufacturer's warranty shall be supplied upon request from the Architect or Owner.

2.0 PART 2 - PRODUCTS

2.1 FLUSH TYPE FIBERGLASS REINFORCED POLYESTER DOORS

- A. Single flush door shall have passed the following tests: (protection system such as shutters, canopies or overhangs will not be allowed to pass tests.)
 - 1. Uniform Static Load test ASTM E330, minimum +70 psf and -70 psf design pressures
 - 2. Forced Entry Resistance Test (SFBC 3603.2 (b) 5), minimum 300 lbs.
 - 3. Large missile impact test Test conditions PA201
 - 4. Cyclic Load Test PA203 withstand up to 200 MPH winds.
- B. Provide flush type fiberglass reinforced polyester doors 1-3/4" thick, unless otherwise indicated.
- C. Frames: Provide tubular frame members, fabricated in accordance with manufacturer's standard fabrication methods.

2.2 ACCEPTABLE MANUFACTURERS

A. Basis-of-Design Product: Subject to compliance with requirements, provide SL-17 (FRP) Flush Doors by Special-Lite, Inc. or Architect approved equal.

2.3 <u>MATERIALS</u>

- A. Aluminum Members: Alloy and temper recommended by manufacturer for strength, corrosion resistance and application of required finish; ASTM B221 for extrusions, ASTM B209 for sheet/plate, minimum wall thickness of 1/8".
 - 1. Clear Aluminum Finish: NAAMM A30 Series finish (Class 2 anodized), 0.4 mils or greater thickness.
- B. Fasteners: Aluminum, or other materials warranted by manufacturer to be non-corrosive and compatible with aluminum components.

- 1. Joinery to be 3/8" galvanized steel tie rod, top and bottom bolted through an extruded spline and 3/16" rivetted re-enforcing angles and secured with aircraft type nuts.
- C. Brackets and Reinforcements: Manufacturer's high-strength aluminum units where feasible; otherwise, provide non-magnetic stainless steel or hot-dip galvanized steel complying with ASTM A386.
 - 1. Provide manufacturer's standard reinforcement for each type of hardware required, not less than .125" thick.
 - 2. Provide manufacturer's recommended fasteners reinforcement.
- D. Core Material: Urethane foam of 5 pounds per cubic foot of density. (Wood core shall not be acceptable).
- E. Face Material: Fiberglass reinforced polyester, .120" minimum thickness, with sandstone-like embossed finish. Color will be Grey, Blue, Green, Dark Grey, Beige, White or Dark Bronze as indicated:
 - 1. Acceptable Product: Subject to compliance with the requirements, provide Glasbord-P, Dyrotech Industries, or Architect approved equal.
 - 2. Impact Strength of Face Sheets: ASTM D1242, Izod Impact Strength, 13.5 foot pounds per inch of notch.
 - 3. Abrasion Resistance of Face Sheets: ASTM D1242, 1000 cycles of Model 503 Taber Abraser with a 1000 gram load, not to exceed 0.23% weight loss.
 - 4. Hardness of Face Sheets: ASTM D2583, Barcol Meter Hardness Test, not more than 50.
 - 5. Humidity Resistance of Face Sheets: ASTM D570, water absorption not greater than 0.40% after 24 hour immersion.
 - 6. Ultra-Violet Degradation: Only slight color change and negligible change in surface gloss and other physical properties after exposure to 500,000 Langleys.

2.4 <u>HARDWARE</u>

- A. See Division 08 Section "Door Hardware" for hardware to be installed on doors but not specified in this Section.
- B. Continuous Hinge: To be Roton continuous hinge in anodized aluminum, unhanded and finished as required. Hinge shall be a pinless assembly of three interlocking extrusions applied to the full height of the door and frame without mortising. The door leaf and jamb leaf shall be geared together for the entire length of the hinge and joined by a channel. Vertical door loads shall be carried on minimum 3/4" acetal bearings through a full 180 degrees. Hinge to be Roton 780-112HD by full height of door.

- C. Flush pull handles: Shall be Model #SL-82 as manufactured by Special-Lite, Inc. at locations indicated.
- D. Weather Stripping: Manufacturer's standard replaceable components.
 - 1. Compression Type: Made of ASTM D 2000, molded neoprene, or ASTM D 2287, molded PVC.
- E. Hardware finishes to match door and frame finish.

2.5 <u>GENERAL FABRICATION</u>

- A. Prefabrication: All hardware, with the exception of door closer, to be shipped to door manufacturer. Door manufacturer shall install hardware on doors. Complete fabrication, assembly, finishing and other work before shipment to project site. Disassemble components only as necessary for shipment and installation.
 - 1. Doors and frames shall be supplied by one manufacturer.
- B. Perform fabrication operations including cutting, fitting, forming, drilling and grinding of material in manner which prevents damage to exposed finish surfaces.
- C. Sequence: Complete cutting, fitting, forming, drilling and grinding prior to cleaning, finishing and surface treatment. Remove arrises from cut edges and ease edges and corners to radius of approximately 1/64".
- D. Reinforcing: Install reinforcing as necessary for high-traffic performance; separate dissimilar metals with bituminous paint or other separator which will prevent corrosion.
- E. Continuity: Maintain accurate relation of planes and angles, with hairline fit of contacting members.
- F. Fasteners: Conceal fasteners wherever possible.

2.6 FRAMING SYSTEM

- A. Frame: Provide 1-3/4" x 4-1/2" tubular frame members with minimum 1/8" thick walls, fabricated with mechanical joints using heavy inserted reinforcing plates and concealed tie-rods or j-bolts. Frames to be supplied with 1/2" x 1-1/4" door stop, with heavy duty weathering pile included.
 - 1. Open back framing will not be acceptable.
- B. Finish: Clear aluminum (204 R1) as indicated.

2.7 INSERT FRAME

A. Insert frame shall be 10-30 frames as manufactured by Special-Lite, Inc. where indicated. Aluminum to be extruded 6063-T-5 alloy fitted with .34 inch high by .36 wide wool-

polypropylene blend pile. Corner joints are to be mitered and secured with prefabricated aluminum clips.

- B. Finish: Clear aluminum (205 R1) as indicated.
- 3.0 PART 3 EXECUTION

3.1 <u>INSPECTION</u>

A. Inspect all surfaces to receive work and notify General Contractor in writing of conditions detrimental to the proper conditions detrimental to the proper and timely completion of the work. Commencement of work shall signify acceptance of conditions and any subsequent adjustments shall be the responsibility of the door subcontractor.

3.2 INSTALLATION

- A. General: Installation of doors shall be by the supplier of door material only.
- B. Install door, track and operating equipment complete with necessary hardware, jamb and head mold stops, anchors, inserts, hanger and equipment supports in accordance with final shop drawings, manufacturer's instructions and as specified herein.
- C. Fastening and Bracing: Fasten vertical track assembly to framing at not less than 24" o.c. Hang horizontal track from structural overhead framing with angle or channel hangers, welded and bolt-fastened in place. Provide sway bracing, diagonal bracing and reinforcing as required for a rigid installation of the track and door operating equipment.
- D. Clearances: Door shall be installed with proper clearances and shall operate smoothly and easily.

3.3 <u>COMPLETION</u>

- A. Upon completion of installation, leave areas of work in neat, clean condition. Remove all debris caused by work of this Section from premises.
- B. Upon completion of installation, including work by other trades, lubricate, test and adjust doors to operate easily, free from warp, twist or distortion and fitting weather-tight for the entire perimeter.

END OF SECTION 081613

SECTION 083313 - COILING COUNTER DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Fire-rated counter doors.
- B. Related Requirements:
 - 1. Division 08 Section "Single Swing Windows" for large format operable windows.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type and size of coiling counter door and accessory.
 - 1. Include construction details, material descriptions, dimensions of individual components, profiles for slats, and finishes.
 - 2. Include rated capacities, operating characteristics, and furnished accessories.
 - 3. Include description of automatic closing device and testing and resetting instructions.
- B. Shop Drawings: For each installation and for special components not dimensioned or detailed in manufacturer's product data.
 - 1. Include plans, elevations, sections, and mounting details.
 - 2. Include details of equipment assemblies, and indicate dimensions, required clearances, method of field assembly, components, and location and size of each field connection.
 - 3. Include points of attachment and their corresponding static and dynamic loads imposed on structure.
 - 4. Show locations of controls, locking devices, detectors or replaceable fusible links, and other accessories.
- C. Samples for Initial Selection: Manufacturer's finish charts showing full range of colors and textures available for units with factory-applied finishes.
 - 1. Include similar Samples of accessories involving color selection.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For coiling counter doors to include in maintenance manuals.
- B. Record Documents: For fire-rated doors, list of door numbers and applicable room name and number to which door accesses.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain coiling counter doors from single source from single manufacturer.
 - 1. Obtain operators and controls from coiling counter door manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Fire-Rated Door Assemblies: Complying with NFPA 80; listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at as close to neutral pressure as possible according to NFPA 252 or UL 10B.
 - 1. Smoke Control: Provide doors that are listed and labeled with the letter "S" on the firerating label by a qualified testing agency for smoke- and draft-control based on testing according to UL 1784; with maximum air-leakage rate of 3.0 cfm/sq. ft. (0.01524 cu. m/s x sq. m) of door opening at 0.10 inch wg (24.9 Pa) for both ambient and elevated temperature tests.

2.3 FIRE-RATED COUNTER DOOR ASSEMBLY

- A. Fire-Rated Counter Door: Overhead fire-rated coiling door formed with curtain of interlocking metal slats.
- B. Manufacturers: Subject to compliance with requirements, provide **Cornell, Model ERC10 Fire Rated Counter Shutter** or comparable product by one of the following:
 - 1. Cookson Door.
 - 2. Overhead Door Co.
 - 3. Raynor.
- C. Operation Cycles: Door components and operators capable of operating for not less than 20,000 cycles. One operation cycle is complete when a door is opened from the closed position to the fully open position and returned to the closed position.
 - 1. Include tamperproof cycle counter.

- D. Fire Rating: 1-1/2 hours with smoke control.
- E. Door Curtain Material: Stainless steel.
- F. Door Curtain Slats: Flat profile slats of 1-1/2-inch (38-mm) center-to-center height.
- G. Curtain Jamb Guides: Stainless steel with exposed finish matching curtain slats.
- H. Integral Frame, Hood, and Fascia: Stainless steel.
 - 1. Mounting: Face of wall.
 - 2. Hood Shape: Square.
- I. Sill Configuration: Integral metal sill, stainless steel.
- J. Locking Devices: Equip door with locking device assembly.
- K. Manual Door Operator: Chain-hoist operator.
- L. Curtain Accessories: Equip door with smoke seals, automatic closing device (fusible link).
- M. Door Finish:
 1. Stainless Steel Finish: ASTM A480/A480M No. 4 (polished directional satin).

2.4 MATERIALS, GENERAL

2.5 DOOR CURTAIN MATERIALS AND CONSTRUCTION

- A. Door Curtains: Fabricate coiling counter door curtain of interlocking metal slats in a continuous length for width of door without splices. Unless otherwise indicated, provide slats of thickness and mechanical properties recommended by door manufacturer for performance, size, and type of door indicated, and as follows:
 - 1. Stainless Steel Door Curtain Slats: ASTM A666, Type 304; sheet thickness of 0.025 inch (0.64 mm); and as required.
- B. Curtain Jamb Guides: Manufacturer's standard angles or channels and angles of same material and finish as curtain slats unless otherwise indicated, with sufficient depth and strength to retain curtain, to allow curtain to operate smoothly, and to withstand loading. Slot bolt holes for guide adjustment. Provide removable stops on guides to prevent overtravel of curtain.
 - 1. Removable Posts and Jamb Guides: Manufacturer's standard.

2.6 HOODS

A. General: Form sheet metal hood to entirely enclose coiled curtain and operating mechanism at opening head. Contour to fit end brackets to which hood is attached. Roll and reinforce top and bottom edges for stiffness. Form closed ends for surface-mounted hoods and fascia for any

portion of between-jamb mounting that projects beyond wall face. Equip hood with intermediate support brackets as required to prevent sagging.

- 1. Stainless Steel: 0.025-inch- (0.64-mm-) thick, stainless-steel sheet, Type 304, complying with ASTM A666.
- 2. Include automatic drop baffle on fire-rated doors to guard against passage of smoke or flame.
- B. Integral Frame, Hood, and Fascia: Welded sheet metal assembly of the following sheet metal(s):
 1. Stainless Steel: Type 304, complying with ASTM A666.

2.7 LOCKING DEVICES

- A. Locking Device Assembly: Fabricate with cylinder lock, spring-loaded dead bolt, operating handle, cam plate, and adjustable locking bars to engage through slots in tracks.
 - 1. Lock Cylinders: As standard with manufacturer and keyed to building keying system.
 - 2. Keys: Three for each cylinder.

2.8 CURTAIN ACCESSORIES

- A. Smoke Seals: Equip each fire-rated door with replaceable smoke-seal perimeter gaskets or brushes for smoke and draft control as required for door listing and labeling by a qualified testing agency.
- B. Automatic-Closing Device: Equip each fire-rated door with an automatic-closing device or holder-release mechanism and governor unit complying with NFPA 80 and an easily tested and reset release mechanism. Automatic-closing device shall be designed for activation by the following:
 - 1. Replaceable fusible links with temperature rise and melting point of 165 deg F (74 deg C) interconnected and mounted on both sides of door opening.

2.9 COUNTER DOOR ACCESSORIES

A. Integral Metal Sill: Fabricate sills as integral part of frame assembly of Type 304 stainless steel in manufacturer's standard thickness with ASTM A480/A480M No. 4 finish.

2.10 COUNTERBALANCE MECHANISM

- A. General: Counterbalance doors by means of manufacturer's standard mechanism with an adjustable-tension, steel helical torsion spring mounted around a steel shaft and contained in a spring barrel connected to top of curtain with barrel rings. Use grease-sealed bearings or self-lubricating graphite bearings for rotating members.
- B. Torsion Rod for Counterbalance Shaft: Fabricate of manufacturer's standard cold-rolled steel, sized to hold fixed spring ends and carry torsional load.

C. Brackets: Manufacturer's standard mounting brackets of either cast iron or cold-rolled steel plate.

2.11 MANUAL DOOR OPERATORS

- A. General: Equip door with manual door operator by door manufacturer.
- B. Chain-Hoist Operator: Consisting of endless steel hand chain, chain-pocket wheel and guard, and gear-reduction unit with a maximum 25-lbf (111-N) force for door operation. Provide alloy-steel hand chain with chain holder secured to operator guide.

2.12 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM/NOMMA 500 for recommendations for applying and designating finishes.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.13 STAINLESS STEEL FINISHES

- A. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.
- B. Polished Finishes: Grind and polish surfaces to produce uniform finish, free of cross scratches.
 - 1. Run grain of directional finishes with long dimension of each piece.
 - 2. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.
 - 3. Directional Satin Finish: ASTM A480/A480M No. 4.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates areas and conditions, with Installer present, for compliance with requirements for substrate construction and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install coiling counter doors and operating equipment complete with necessary hardware, anchors, inserts, hangers, and equipment supports; according to manufacturer's written instructions and as specified.

- B. Install coiling counter doors, hoods, controls, and operators at the mounting locations indicated for each door.
- C. Fire-Rated Doors: Install according to NFPA 80.
- D. Smoke-Control Doors: Install according to NFPA 80 and NFPA 105.

3.3 STARTUP SERVICE

- A. Engage a factory-authorized service representative to perform startup service.
 - 1. Complete installation and startup checks according to manufacturer's written instructions.
 - 2. Test and adjust controls and safety devices. Replace damaged and malfunctioning controls and equipment.

3.4 ADJUSTING

- A. Adjust hardware and moving parts to function smoothly so that doors operate easily, free of warp, twist, or distortion.
- B. Lubricate bearings and sliding parts as recommended by manufacturer.
- C. Adjust seals to provide tight fit around entire perimeter.

3.5 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain coiling counter doors.

END OF SECTION 083313

SECTION 083613 - SECTIONAL DOORS

1.0 PART 1 - GENERAL

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 <u>SUMMARY</u>

- A. Section includes manually operated sectional doors.
- B. Section includes manually operated sectional doors with integral pass doors.
- C. Related Sections:
 - 1. Division 05 Section "Metal Fabrications" for miscellaneous steel supports.

1.3 <u>PERFORMANCE REQUIREMENTS</u>

- A. General Performance: Sectional doors shall meet performance requirements specified without failure due to defective manufacture, fabrication, installation, or other defects in construction and without requiring temporary installation of reinforcing components.
- B. Structural Performance: Exterior sectional doors shall withstand the effects of gravity loads, and the following loads and stresses within limits and under conditions indicated according to ASCE/SEI 7.
 - 1. Deflection Limits: Design sectional doors to withstand design wind loads without evidencing permanent deformation or disengagement of door components. Deflection of door in horizontal position (open) shall not exceed 1/120 of the door width.
- C. Air Infiltration: Maximum rate not more than indicated when tested according to ASTM E 283.
 - 1. Air Infiltration: Maximum rate of 0.08 cfm/sq. ft. (0.406 L/s per sq. m).
- D. Operation Cycles: Provide sectional door components and operators capable of operating for not less than number of cycles indicated for each door. One operation cycle is complete when a door is opened from the closed position to the fully open position and returned to the closed position.

1.4 <u>ACTION SUBMITTALS</u>

- A. Product Data: For each type and size of sectional door and accessory. Include the following:
 - 1. Construction details, material descriptions, dimensions of individual components, profile door sections, and finishes.

- 2. Rated capacities, operating characteristics, and furnished accessories.
- B. Shop Drawings: For each installation and for special components not dimensioned or detailed in manufacturer's product data. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
- C. Samples for Initial Selection: Manufacturer's finish charts showing full range of colors and textures available for units with factory-applied finishes.
 - 1. Include similar Samples of accessories involving color selection.
- D. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below:
 - 1. Flat Door Sections: 6 inches (150 mm) square.
 - 2. Frame for Paneled Door Sections: 6 inches (150 mm) long of each width of stile and rail required.
 - 3. Panel for Raised-Panel Door Sections: 12 inches (300 mm) square at panel corner, but not smaller than required to show raised-panel profile.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer.
- B. Warranties: Sample of special warranties.

1.6 <u>CLOSEOUT SUBMITTALS</u>

A. Maintenance Data: For sectional doors to include in maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for both installation and maintenance of units required for this Project.
- B. Source Limitations: Obtain sectional doors from single source from single manufacturer.
- C. Standard for Sectional Doors: Fabricate sectional doors to comply with DASMA 102 unless otherwise indicated.

1.8 <u>WARRANTY</u>

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of sectional doors that fail in materials or workmanship within specified warranty period.

- 1. Failures include, but are not limited to, the following:
 - a. Structural failures including, but not limited to, excessive deflection.
 - b. Faulty operation of hardware.
 - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use; rust through.
 - d. Delamination of exterior or interior facing materials.
- 2. Warranty Period: Two years from date of Substantial Completion.
- B. Special Finish Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components that show evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Warranty Period: 10 years from date of Substantial Completion.

2.0 PART 2 - PRODUCTS

2.1 STEEL DOOR SECTIONS

- A. Exterior Section Faces and Frames: Fabricate from zinc-coated (galvanized), cold-rolled, commercial steel (CS) sheet, complying with ASTM A 653/A 653M, with indicated zinc coating and thickness.
 - 1. Fabricate section faces from single sheets to provide sections not more than 24 inches (610 mm) high and of indicated thickness. Roll horizontal meeting edges to a continuous, interlocking, keyed, rabbeted, shiplap, or tongue-in-groove weathertight seal, with a reinforcing flange re bturn.
 - 2. For insulated doors, provide sections with continuous thermal-break construction, separating the exterior and interior faces of door.
- B. Section Ends and Intermediate Stiles: Enclose open ends of sections with channel end stiles formed from galvanized-steel sheet not less than 0.064-inch- (1.63-mm-) nominal coated thickness and welded to door section. Provide intermediate stiles formed from not less than 0.064-inch- (1.63-mm-) thick galvanized-steel sheet, cut to door section profile, and welded in place. Space stiles not more than 48 inches (1219 mm) apart.
- C. Reinforce bottom section with a continuous channel or angle conforming to bottomsection profile and allowing installation of astragal.
- D. Reinforce sections with continuous horizontal and diagonal reinforcement, as required to stiffen door and for wind loading. Provide galvanized-steel bars, struts, trusses, or strip steel, formed to depth and bolted or welded in place.
- E. Provide reinforcement for hardware attachment.

- F. Foamed-in-Place Thermal Insulation: Insulate interior of steel sections with door manufacturer's standard CFC-free polyurethane insulation, foamed in place to completely fill interior of section and pressure bonded to face sheets to prevent delamination under wind load, and with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, according to ASTM E 84. Enclose insulation completely within steel sections that incorporate the following interior facing material, with no exposed insulation:
 - 1. Interior Facing Material: Zinc-coated (galvanized), cold-rolled, commercial steel (CS) sheet, complying with ASTM A 653/A 653M, with indicated thickness.
 - 2. Interior Facing Material: Manufacturer's standard prefinished hardboard panel, 1/8 inch (3 mm) thick and complying with ANSI A135.5.
- G. Fabricate sections so finished door assembly is rigid and aligned, with tight hairline joints and free of warp, twist, and deformation.

2.2 TRACKS, SUPPORTS, AND ACCESSORIES

- A. Tracks: Manufacturer's standard, galvanized-steel track system of configuration indicated, sized for door size and weight, designed for lift type indicated and clearances shown on Drawings, and complying with ASTM A 653/A 653M for minimum G60 (Z180) zinc coating. Provide complete track assembly including brackets, bracing, and reinforcement for rigid support of ball-bearing roller guides for required door type and size. Slot vertical sections of track spaced 2 inches (51 mm) apart for door-drop safety device. Slope tracks at proper angle from vertical or design tracks to ensure tight closure at jambs when door unit is closed.
- B. Track Reinforcement and Supports: Galvanized-steel track reinforcement and support members, complying with ASTM A 36/A 36M and ASTM A 123/A 123M. Secure, reinforce, and support tracks as required for door size and weight to provide strength and rigidity without sag, sway, and vibration during opening and closing of doors.
 - 1. Vertical Track Assembly: Track with [continuous reinforcing angle attached to track and attached to wall with jamb brackets] [wall jamb brackets attached to track and attached to wall].
 - 2. Horizontal Track Assembly: Track with continuous reinforcing angle attached to track and supported at points from curve in track to end of track by laterally braced attachments to overhead structural members.
- C. Weatherseals: Replaceable, adjustable, continuous, compressible weather-stripping gaskets of flexible vinyl, rubber, or neoprene fitted to bottom and top of sectional door unless otherwise indicated.
- D. Pass Doors: Manufacturer's standard pass doors where indicated, complete with glazing, operating hardware, and mortise lock. Construct pass doors of same materials, design, and finish as sectional door assembly.
 - 1. Lock Cylinders: Provide cylinders with manufacturer and keyed to building keying system.

2. Keys: Three for each cylinder.

2.3 <u>HARDWARE</u>

- A. General: Provide heavy-duty, corrosion-resistant hardware, with hot-dip galvanized, stainless-steel, or other corrosion-resistant fasteners, to suit door type.
- B. Hinges: Heavy-duty, galvanized-steel hinges of not less than 0.079-inch- (2.01-mm-) nominal coated thickness at each end stile and at each intermediate stile, according to manufacturer's written recommendations for door size. Attach hinges to door sections through stiles and rails with bolts and lock nuts or lock washers and nuts. Use rivets or self-tapping fasteners where access to nuts is not possible. Provide double-end hinges where required, for doors over 16 feet (4.88 m) wide unless otherwise recommended by door manufacturer.
- C. Rollers: Heavy-duty rollers with steel ball-bearings in case-hardened steel races, mounted with varying projections to suit slope of track. Extend roller shaft through both hinges where double hinges are required. Provide 3-inch- (76-mm-) diameter roller tires for 3-inch- (76-mm-) wide track and 2-inch- (51-mm-) diameter roller tires for 2-inch- (51-mm-) wide track.
- D. Push/Pull Handles: For push-up or emergency-operated doors, provide galvanized-steel lifting handles on each side of door.

2.4 LOCKING DEVICES

- A. Locking Device Assembly: Fabricate with cylinder lock, spring-loaded deadbolt, operating handle, cam plate, and adjustable locking bars to engage through slots in tracks.
 - 1. Lock Cylinders: Provide cylinders specified in Division 08 Section "Door Hardware".
- B. Chain Lock Keeper: Suitable for padlock.

2.5 <u>COUNTERBALANCE MECHANISM</u>

- A. Torsion Spring: Counterbalance mechanism consisting of adjustable-tension torsion springs fabricated from steel-spring wire complying with ASTM A 229/A 229M, mounted on torsion shaft made of steel tube or solid steel. Provide springs designed for number of operation cycles indicated.
- B. Cable Drums and Shaft for Doors: Cast-aluminum or gray-iron casting cable drums mounted on torsion shaft and grooved to receive door-lifting cables as door is raised. Mount counterbalance mechanism with manufacturer's standard ball-bearing brackets at each end of torsion shaft. Provide one additional midpoint bracket for shafts up to 16 feet (4.88 m) long and two additional brackets at one-third points to support shafts more than 16 feet (4.88 m) long unless closer spacing is recommended by door manufacturer.
- C. Cables: Galvanized-steel lifting cables with cable safety factor of at least 5 to 1.

- D. Cable Safety Device: Include a spring-loaded steel or spring-loaded bronze cam mounted to bottom door roller assembly on each side and designed to automatically stop door if either lifting cable breaks.
- E. Bracket: Provide anchor support bracket as required to connect stationary end of spring to the wall and to level the shaft and prevent sag.
- F. Provide a spring bumper at each horizontal track to cushion door at end of opening operation.

2.6 MANUAL DOOR OPERATORS

A. Push-up Operation: Lift handles and pull rope for raising and lowering doors, with counterbalance mechanism designed so that required lift or pull for door operation does not exceed 25 lbf (111 N).

2.7 DOOR ASSEMBLY

- A. Steel Sectional Door: Sectional door formed with hinged sections.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Overhead Door Corporation, Series 559, or comparable product by one of the following:
 - a. Raynor.
 - b. Wayne-Dalton Corp.
- B. Operation Cycles: Not less than 20,000.
- C. R-Value: 17.5
- D. Steel Sections: Zinc-coated (galvanized) steel sheet with G90 (Z275) zinc coating.
 - 1. Section Thickness: 2 inches (51 mm).
 - 2. Exterior-Face, Steel Sheet Thickness: .15-inch (.38 mm)
 - a. Surface: Flush, Textured
 - 3. Insulation: Foamed in place.
 - 4. Interior Facing Material: Material: Zinc-coated (galvanized) steel sheet of 0.028-inch- (0.71-mm-) nominal coated thickness.
 - 5. Interior Facing Material: Hardboard panel.
- E. Track Configuration: Standard-lift and Low-headroom.
- F. Weatherseals: Fitted to bottom and top and around entire perimeter of door.
- G. Pass Door: As shown.

- H. Roller-Tire Material: Case-hardened steel.
- I. Locking Devices: Equip door with locking device assembly and chain lock keeper.
 - 1. Locking Device Assembly: Cremone type, both jamb sides, locking bars, operable from inside with thumb turn and outside with cylinder.
 - a. Baked-Enamel or Powder-Coated Finish: Color and gloss as selected by Architect from manufacturer's full range.
 - b. Finish of Interior Facing Material: Finish as selected by Architect from manufacturer's full range.

2.8 <u>GENERAL FINISH REQUIREMENTS</u>

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.9 STEEL AND GALVANIZED-STEEL FINISHES

A. Baked-Enamel or Powder-Coat Finish: Manufacturer's standard baked-on finish consisting of prime coat and thermosetting topcoat. Comply with coating manufacturer's written instructions for cleaning, pretreatment, application, and minimum dry film thickness.

3.0 PART 3 - EXECUTION

3.1 <u>EXAMINATION</u>

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for substrate construction and other conditions affecting performance of the Work.
- B. Examine locations of electrical connections.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 <u>INSTALLATION</u>

- A. Install sectional doors and operating equipment complete with necessary hardware, anchors, inserts, hangers, and equipment supports; according to manufacturer's written instructions and as specified.
- B. Tracks:
 - 1. Fasten vertical track assembly to opening jambs and framing, spaced not more than 24 inches (610 mm) apart.

- 2. Hang horizontal track assembly from structural overhead framing with angles or channel hangers attached to framing by welding or bolting, or both. Provide sway bracing, diagonal bracing, and reinforcement as required for rigid installation of track and door-operating equipment.
- 3. Repair galvanized coating on tracks according to ASTM A 780.
- C. Accessibility: Install sectional doors, switches, and controls along accessible routes in compliance with regulatory requirements for accessibility.

3.3 <u>ADJUSTING</u>

- A. Adjust hardware and moving parts to function smoothly so that doors operate easily, free of warp, twist, or distortion.
- B. Lubricate bearings and sliding parts as recommended by manufacturer.
- C. Adjust doors and seals to provide weathertight fit around entire perimeter.
- D. Touch-up Painting: Immediately after welding galvanized materials, clean welds and abraded galvanized surfaces and repair galvanizing to comply with ASTM A 780.

3.4 <u>DEMONSTRATION</u>

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain sectional doors.

END OF SECTION 083613

SECTION 084113 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

1.0 PART 1 - GENERAL

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Exterior storefront framing.
 - 2. Exterior manual-swing entrance doors.
- B. Related Requirements:
 - 1. Division 08 Section "Fiberglass Reinforced Polyester Doors".
 - 2. Division 08 Section "Aluminum Windows" for standard awning windows.
 - 3. Division 08 Section "Single Swing Windows" for large format operable windows.
 - 4. Division 08 Section "Glazing" for glazing in aluminum framed entrances and storefronts.

1.3 <u>ACTION SUBMITTALS</u>

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: For aluminum-framed entrances and storefronts. Include plans, elevations, sections, full-size details, and attachments to other work.
 - 1. Include details of provisions for assembly expansion and contraction and for draining moisture occurring within the assembly to the exterior.
 - 2. Include full-size isometric details of each vertical-to-horizontal intersection of aluminum-framed entrances and storefronts, showing the following:
 - a. Joinery, including concealed welds.
 - b. Anchorage.
 - c. Expansion provisions.

- d. Glazing.
- e. Flashing and drainage.
- 3. Show connection to and continuity with adjacent thermal, weather, air, and vapor barriers.
- C. Samples for Initial Selection: For units with factory-applied color finishes.
- D. Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.
- E. Entrance Door Hardware Schedule: Prepared by or under supervision of supplier, detailing fabrication and assembly of entrance door hardware, as well as procedures and diagrams. Coordinate final entrance door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Energy Performance Certificates: For aluminum-framed entrances and storefronts, accessories, and components, from manufacturer.
 - 1. Basis for Certification: NFRC-certified energy performance values for each aluminum-framed entrance and storefront.
- C. Product Test Reports: For aluminum-framed entrances and storefronts, for tests performed by a qualified testing agency.
- D. Sample Warranties: For special warranties.

1.5 <u>CLOSEOUT SUBMITTALS</u>

A. Maintenance Data: For aluminum-framed entrances and storefronts to include in maintenance manuals.

1.6 **QUALITY ASSURANCE**

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
- B. Product Options: Information on Drawings and in Specifications establishes requirements for aesthetic effects and performance characteristics of assemblies. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction.
 - 1. Do not change intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If changes are proposed, submit comprehensive explanatory data to Architect for review.

1.7 <u>WARRANTY</u>

- A. Special Warranty: Manufacturer agrees to repair or replace components of aluminumframed entrances and storefronts that do not comply with requirements or that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including, but not limited to, excessive deflection.
 - b. Noise or vibration created by wind and thermal and structural movements.
 - c. Delete option in first subparagraph below if retaining "Special Finish Warranty" Paragraph.
 - d. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - e. Water penetration through fixed glazing and framing areas.
 - f. Failure of operating components.
 - 2. Warranty Period: 10 years from date of Substantial Completion.
- B. Aluminum Finish: 10 years from date of Substantial Completion.

2.0 PART 2 – PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. General Performance: Comply with performance requirements specified, as determined by testing of aluminum-framed entrances and storefronts representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.
 - 1. Aluminum-framed entrances and storefronts shall withstand movements of supporting structure including, but not limited to, story drift, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.
 - 2. Failure also includes the following:
 - a. Thermal stresses transferring to building structure.
 - b. Glass breakage.
 - c. Noise or vibration created by wind and thermal and structural movements.
 - d. Loosening or weakening of fasteners, attachments, and other

components.

- e. Failure of operating units.
- B. Structural Loads:
 - 1. Wind Loads: As indicated on Drawings.
 - 2. Other Design Loads: As indicated on Drawings.
- C. Deflection of Framing Members: At design wind pressure, as follows:
 - 1. Deflection Normal to Wall Plane: Limited to 1/175 of clear span for spans up to 13 feet 6 inches (4.1 m) and to 1/240 of clear span plus 1/4 inch (6.35 mm) for spans greater than 13 feet 6 inches (4.1 m) or an amount that restricts edge deflection of individual glazing lites to 3/4 inch (19.1 mm), whichever is less.
 - 2. Deflection Parallel to Glazing Plane: Limited to 1/360 of clear span or 1/8 inch (3.2 mm), whichever is smaller.
 - a. Operable Units: Provide a minimum 1/16-inch (1.6-mm) clearance between framing members and operable units.
- D. Structural: Test according to ASTM E 330 as follows:
 - 1. When tested at positive and negative wind-load design pressures, assemblies do not evidence deflection exceeding specified limits.
 - 2. When tested at 150 percent of positive and negative wind-load design pressures, assemblies, including anchorage, do not evidence material failures, structural distress, or permanent deformation of main framing members exceeding 0.2 percent of span.
 - 3. Minimum test duration according to ASTM E 330 is 10 seconds, which is historically U.S. practice.
 - 4. Test Durations: As required by design wind velocity, but not less than 10 seconds.
- E. Air Infiltration: Test according to ASTM E 283 for infiltration as follows:
 - 1. Fixed Framing and Glass Area:
 - a. Maximum air leakage of 0.06 cfm/sq. ft. (0.30 L/s per sq. m) at a staticair-pressure differential of 6.24 lbf/sq. ft. (300 Pa).
 - 2. Entrance Doors:
 - a. Pair of Doors: Maximum air leakage of 1.0 cfm/sq. ft. (5.08 L/s per sq. m)] at a static-air-pressure differential of 1.57 lbf/sq. ft. (75 Pa).
 - b. Single Doors: Maximum air leakage of 0.5 cfm/sq. ft. (2.54 L/s per

sq. m) at a static-air-pressure differential of 1.57 lbf/sq. ft. (75 Pa).

- F. Water Penetration under Static Pressure: Test according to ASTM E 331 as follows:
 - 1. No evidence of water penetration through fixed glazing and framing areas when tested according to a minimum static-air-pressure differential of 20 percent of positive wind-load design pressure, but not less than 15 lbf/sq. ft. (720 Pa).
- G. Water Penetration under Dynamic Pressure: Test according to AAMA 501.1 as follows:
 - 1. No evidence of water penetration through fixed glazing and framing areas when tested at dynamic pressure equal to 20 percent of positive wind-load design pressure, but not less than 15 lbf/sq. ft. (720 Pa).
 - 2. Maximum Water Leakage: No uncontrolled water penetrating assemblies or water appearing on assemblies' normally exposed interior surfaces from sources other than condensation. Water leakage does not include water controlled by flashing and gutters, or water that is drained to exterior.
- H. Energy Performance: Certify and label energy performance according to NFRC as follows:
 - 1. Thermal Transmittance (U-factor): Glazing and framing areas shall have U-factor of not more than the following as determined according to NFRC 100:
 - a. Fixed Glazing: 0.38 Btu/sq. ft. x h x deg F.
 - b. Operable Glazing: 0.45 Btu/sq. ft. x h x deg F.
 - c. Entrance Doors: 0.77 Btu/sq. ft. x h x deg F.
 - 2. Solar Heat Gain Coefficient: Glazing and framing areas shall have a solar heat gain coefficient of no greater than 0.35 as determined according to NFRC 200.
- I. Thermal Movements: Allow for thermal movements resulting from ambient and surface temperature changes:
 - 1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

2.2 <u>MANUFACTURERS</u>

- A. <u>Basis-of-Design Product</u>: Subject to compliance with requirements, provide EFCO 403X thermally broken storefront systems or comparable product by one of the following:
 - 1. <u>Kawneer North America</u>.
- B. Location: Refer to drawings for locations of each type of storefront system.

C. Source Limitations: Obtain all components of aluminum-framed entrance and storefront system, including framing and venting windows and accessories, from single manufacturer.

2.3 <u>FRAMING</u>

- A. Framing Members: Manufacturer's extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.
 - 1. Construction: Thermally broken.
 - 2. Glazing System: Retained mechanically with gaskets on four sides, except at butt-glaze corner locations shown on drawings.
 - 3. Glazing Plane: Front.
 - 4. Fabrication Method: Field-fabricated stick system.
- B. Backer Plates: Manufacturer's standard, continuous backer plates for framing members, if not integral, where framing abuts adjacent construction.
- C. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.
- D. Materials:
 - 1. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
 - a. Sheet and Plate: ASTM B 209 (ASTM B 209M).
 - b. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221 (ASTM B 221M).
 - c. Extruded Structural Pipe and Tubes: ASTM B 429/B 429M.
 - d. Structural Profiles: ASTM B 308/B 308M.
 - 2. Steel Reinforcement: Manufacturer's standard zinc-rich, corrosion-resistant primer complying with SSPC-PS Guide No. 12.00; applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPC-SP COM, and prepare surfaces according to applicable SSPC standard.
 - a. Structural Shapes, Plates, and Bars: ASTM A 36/A 36M.
 - b. Cold-Rolled Sheet and Strip: ASTM A 1008/A 1008M.
 - c. Hot-Rolled Sheet and Strip: ASTM A 1011/A 1011M.

2.4 ENTRANCE DOOR SYSTEMS

- A. Entrance Doors: Manufacturer's standard glazed entrance doors for manual-swing operation.
 - Door Construction: 1-3/4-inch (44.5-mm) overall thickness, with minimum 0.125-inch- (3.2-mm-) thick, extruded-aluminum tubular rail and stile members. Mechanically fasten corners with reinforcing brackets that are deeply penetrated and fillet welded or that incorporate concealed tie rods.
 - a. Thermal Construction: High-performance plastic connectors separate aluminum members exposed to the exterior from members exposed to the interior.
 - 2. Door Design: Wide stile; 5-inch (127-mm) nominal width.
 - a. Accessible Doors: Smooth surfaced for width of door in area within 10 inches (255 mm) above floor or ground plane.
 - 3. Glazing Stops and Gaskets: Square snap-on, extruded-aluminum stops and preformed gaskets.
 - a. Provide nonremovable glazing stops on outside of door.

2.5 ENTRANCE DOOR HARDWARE

A. Entrance Door Hardware: Hardware not specified in this Section is specified in Section 087100 "Door Hardware."

2.6 <u>GLAZING</u>

A. Glazing: Comply with Section 088000 "Glazing."

2.7 <u>ACCESSORIES</u>

- A. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
 - 1. Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.
 - 2. Reinforce members as required to receive fastener threads.
- B. Anchors: Three-way adjustable anchors with minimum adjustment of 1 inch (25.4 mm) that accommodate fabrication and installation tolerances in material and finish compatible with adjoining materials and recommended by manufacturer.
- C. Concealed Flashing: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing compatible with adjacent materials.

D. Bituminous Paint: Cold-applied asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos, formulated for 30-mil (0.762-mm) thickness per coat.

2.8 <u>FABRICATION</u>

- A. Form or extrude aluminum shapes before finishing.
- B. Fabricate components that, when assembled, have the following characteristics:
 - 1. Profiles that are sharp, straight, and free of defects or deformations.
 - 2. Accurately fitted joints with ends coped or mitered.
 - 3. Physical and thermal isolation of glazing from framing members.
 - 4. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
 - 5. Provisions for field replacement of glazing from [exterior] [interior] [interior for vision glass and exterior for spandrel glazing or metal panels].
 - 6. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
- C. Mechanically Glazed Framing Members: Fabricate for flush glazing without projecting stops.
- D. Storefront Framing: Fabricate components for assembly using shear-block system.
- E. Entrance Door Frames: Reinforce as required to support loads imposed by door operation and for installing entrance door hardware.
 - 1. At exterior doors, provide compression weather stripping at fixed stops.
 - 2. At interior doors, provide silencers at stops to prevent metal-to-metal contact. Install three silencers on strike jamb of single-door frames and two silencers on head of frames for pairs of doors.
- F. Entrance Doors: Reinforce doors as required for installing entrance door hardware.
 - 1. At pairs of exterior doors, provide sliding-type weather stripping retained in adjustable strip and mortised into door edge.
 - 2. At exterior doors, provide weather sweeps applied to door bottoms.
- G. Entrance Door Hardware Installation: Factory install entrance door hardware to the greatest extent possible. Cut, drill, and tap for factory-installed entrance door hardware before applying finishes.
- H. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.9 <u>ALUMINUM FINISHES</u>

A. Class II, Clear Anodic Finish: AA-M12C22A31 (Mechanical Finish: Nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II, clear coating 0.010 mm or thicker) complying with AAMA 611.

2.10 SOURCE QUALITY CONTROL

A. Structural Sealant: Perform quality-control procedures complying with ASTM C 1401 recommendations including, but not limited to, assembly material qualification procedures, sealant testing, and assembly fabrication reviews and checks.

3.0 PART 3 – EXECUTION

3.1 <u>EXAMINATION</u>

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 <u>PREPARATION</u>

A. Prepare surfaces that are in contact with structural sealant according to sealant manufacturer's written instructions to ensure compatibility and adhesion. Preparation includes, but is not limited to, cleaning and priming surfaces.

3.3 <u>INSTALLATION</u>

- A. General:
 - 1. Comply with manufacturer's written instructions.
 - 2. Do not install damaged components.
 - 3. Fit joints to produce hairline joints free of burrs and distortion.
 - 4. Rigidly secure nonmovement joints.
 - 5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration and to prevent impeding movement of moving joints.
 - 6. Seal perimeter and other joints watertight unless otherwise indicated.
- B. Metal Protection:
 - 1. Where aluminum is in contact with dissimilar metals, protect against galvanic action by painting contact surfaces with materials recommended by manufacturer for this purpose or by installing nonconductive spacers.
 - 2. Where aluminum is in contact with concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

- C. Set continuous sill members and flashing in full sealant bed as specified in Section 079200 "Joint Sealants" to produce weathertight installation.
- D. Install components plumb and true in alignment with established lines and grades.
- E. Install operable units level and plumb, securely anchored, and without distortion. Adjust weather-stripping contact and hardware movement to produce proper operation.
- F. Install glazing as specified in Section 088000 "Glazing."
- G. Entrance Doors: Install doors to produce smooth operation and tight fit at contact points.
 - 1. Exterior Doors: Install to produce weathertight enclosure and tight fit at weather stripping.
 - 2. Field-Installed Entrance Door Hardware: Install surface-mounted entrance door hardware according to entrance door hardware manufacturers' written instructions using concealed fasteners to greatest extent possible.

3.4 ERECTION TOLERANCES

- A. Erection Tolerances: Install aluminum-framed entrances and storefronts to comply with the following maximum tolerances:
 - 1. Plumb: 1/8 inch in 10 feet (3.2 mm in 3 m); 1/4 inch in 40 feet (6.35 mm in 12.2 m).
 - 2. Level: 1/8 inch in 20 feet (3.2 mm in 6 m); 1/4 inch in 40 feet (6.35 mm in 12.2 m).
 - 3. Alignment:
 - a. Where surfaces abut in line or are separated by reveal or protruding element up to 1/2 inch (12.7 mm) wide, limit offset from true alignment to 1/16 inch (1.6 mm).
 - b. Where surfaces are separated by reveal or protruding element from 1/2 to 1 inch (12.7 to 25.4 mm) wide, limit offset from true alignment to 1/8 inch (3.2 mm).
 - c. Where surfaces are separated by reveal or protruding element of 1 inch (25.4 mm) wide or more, limit offset from true alignment to 1/4 inch (6 mm).
 - 4. Location: Limit variation from plane to 1/8 inch in 12 feet (3.2 mm in 3.6 m); 1/2 inch (12.7 mm) over total length.

3.5 MAINTENANCE SERVICE

- A. Entrance Door Hardware:
 - 1. 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 entrance door hardware.

END OF SECTION 084113

SECTION 085113 - ALUMINUM WINDOWS

1.0 PART 1 - GENERAL

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 <u>SUMMARY</u>

- A. Section includes aluminum windows for exterior locations.
- B. Related Requirements:
 - 1. Division 08 Section "Fiberglass Reinforced Polyester Doors" for coordinating finish among aluminum fenestration units.
 - 2. Division 08 Section "Single Swing Windows" for large format operable windows.
 - 3. Division 08 Section "Glazing" for glazing in aluminum windows.

1.3 <u>DEFINITIONS</u>

- A. Performance class designations according to AAMA/WDMA 101/I.S.2/NAFS.
 - 1. AW: Architectural.
- B. Performance grade number according to AAMA/WDMA 101/I.S.2/NAFS:
 - 1. Design pressure number in pounds force per square foot (pascals) used to determine the structural test pressure and water test pressure.
- C. Structural Test Pressure: For uniform load structural test, is equivalent to 150 percent of the design pressure.
- D. Minimum Test Size: Smallest size permitted for performance class (gateway test size).
- E. Products must be tested at minimum test size or at a size larger than minimum test size to comply with requirements for performance class.

1.4 <u>PERFORMANCE REQUIREMENTS</u>

- A. General: Provide aluminum windows capable of complying with performance requirements indicated, based on testing manufacturer's windows that are representative of those specified, and that are of minimum test size indicated below:
 - 1. Size indicated on Drawings.

- B. Structural Performance: Provide aluminum windows capable of withstanding the effects of the following loads, based on testing units representative of those indicated for Project that pass AAMA/WDMA 101/I.S.2/NAFS, Uniform Load Structural Test:
 - 1. Design Wind Loads: Determine design wind loads applicable to Project from basic wind speed indicated in miles per hour (meters per second) at 33 feet (10 m) above grade, according to ASCE 7, Section 6.5, "Method 2-Analytical Procedure," based on mean roof heights above grade indicated on Drawings.
 - a. Basic Wind Speed: 90 mph (40 m/s).
 - b. Importance Factor: 1, Exposure Category: B.
 - 2. Deflection: Design glass framing system to limit lateral deflections of glass edges to less than 1/175 of glass-edge length or 3/4 inch (19 mm), whichever is less, at design pressure based on testing performed according to AAMA/WDMA 101/I.S.2/NAFS, Uniform Load Deflection Test or structural computations.
- C. Thermal Movements: Provide aluminum windows, including anchorage, that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C) material surfaces.

1.5 <u>SUBMITTALS</u>

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, glazing and fabrication methods, dimensions of individual components and profiles, hardware, and finishes for aluminum windows.
- B. Shop Drawings: Include plans, elevations, sections, hardware, accessories, insect screens, operational clearances, and details of installation, including anchor, flashing, and sealant installation.
- C. Samples: For each exposed product and for each color specified, 2 by 4 inches (50 by 100 mm) in size.
- D. Samples for Verification: For aluminum windows and components required, showing full range of color variations for finishes, and prepared on Samples of size indicated below:
 - 1. Exposed Finishes: 2 by 4 inches (50 by 100 mm).

- E. Product Schedule: For aluminum windows. Use same designations indicated on Drawings.
- F. Qualification Data: For manufacturer and Installer.
- G. Product Test Reports: For each type of aluminum window, for tests performed by a qualified testing agency.
- H. Sample Warranties: For manufacturer's warranties.

1.6 **QUALITY ASSURANCE**

- A. Manufacturer Qualifications: A manufacturer capable of fabricating aluminum windows that meet or exceed performance requirements indicated and of documenting this performance by test reports, and calculations.
- B. Installer Qualifications: An installer acceptable to aluminum window manufacturer for installation of units required for this Project.

1.7 **PROJECT CONDITIONS**

- A. Field Measurements: Verify aluminum window openings by field measurements before fabrication and indicate measurements on Shop Drawings.
 - 1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish opening dimensions and proceed with fabricating aluminum windows without field measurements. Coordinate wall construction to ensure that actual opening dimensions correspond to established dimensions.

1.8 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to repair or replace aluminum windows that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Failure to meet performance requirements.
 - b. Structural failures including excessive deflection, water leakage, condensation, and air infiltration.
 - c. Faulty operation of movable sash and hardware.
 - d. Deterioration of materials and finishes beyond normal weathering.
 - e. Failure of insulating glass.
 - 2. Warranty Period:
 - a. Window: 10 years from date of Substantial Completion.

- b. Insulated Glass: 10 years from date of Substantial Completion.
- c. Aluminum Finish: 10 years from date of Substantial Completion.
- d. Contractor to correct defective work for a five (5) year period from date of Substantial Completion.

2.0 PART 2 - PRODUCTS

2.1 <u>MANUFACTURERS</u>

- A. <u>Basis-of-Design Product</u>: Subject to compliance with requirements, provide EFCO, Series 6725 (Awning Windows) and Series 6600 (Fixed Windows); or a comparable product by one of the following:
 - 1. Kawneer North America; an Alcoa company.
 - 2. Wausau Window and Wall Systems.
- B. Source Limitations: Obtain aluminum windows from single source from single manufacturer.

2.2 <u>MATERIALS</u>

- A. Aluminum Extrusions: Alloy and temper recommended by aluminum window manufacturer for strength, corrosion resistance, and application of required finish, but not less than 22,000-psi (150-MPa) ultimate tensile strength, not less than 16,000-psi (110- MPa) minimum yield strength, and not less than 0.062-inch (1.6-mm) thickness at any location for the main frame and sash members.
 - 1. The frame depth shall be a minimum of $3\frac{3}{4}$ ".
 - 2. All fixed frames and sash member shall have a normal wall thickness of .062. The frame sill shall have a nominal wall thickness of .093. Projected windows shall have a nominal wall thickness of .125.
 - 3. No extruded plastics shall be allowed in the frame or sash members.
- B. Fasteners: Aluminum, nonmagnetic stainless steel, epoxy adhesive, or other materials warranted by manufacturer to be noncorrosive and compatible with aluminum window members, trim, hardware, anchors, and other components.
 - 1. Reinforcement: Where fasteners screw anchor into aluminum less than 0.125 inch (3.2 mm) thick, reinforce interior with aluminum or nonmagnetic stainless steel to receive screw threads, or provide standard, noncorrosive, pressed-in, splined grommet nuts.
 - 2. Exposed Fasteners: Unless unavoidable for applying hardware, do not use exposed fasteners. For application of hardware, use fasteners that match finish of member or hardware being fastened, as appropriate.

- C. Anchors, Clips, and Accessories: Aluminum, nonmagnetic stainless steel, or zinccoated steel or iron complying with ASTM B 633 for SC 3 severe service conditions; provide sufficient strength to withstand design pressure indicated.
- D. Reinforcing Members: Aluminum, nonmagnetic stainless steel, or nickel/chromeplated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc- coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions; provide sufficient strength to withstand design pressure indicated.
- E. Compression-Type Weather Stripping: Provide compressible weather stripping designed for permanently resilient sealing under bumper or wiper action and for complete concealment when aluminum window is closed.
 - 1. Weather-Stripping Material: dual durometer neoprene compression gasket complying with AAMA 701.2.
- F. Replaceable Weather Seals: Comply with AAMA 701/702.
- G. Sealant: For sealants required within fabricated windows, provide window manufacturer's standard, permanently elastic, non-shrinking, and nonmigrating type recommended by sealant manufacturer for joint size and movement.

2.3 <u>FIXED WINDOW</u>

- A. Window Type: Fixed.
- B. Subsill: Include Manufacturer's standard subsill.
- C. Subframe: Include Manufacturer's standard subframe.
- D. AAMA/WDMA Performance Requirements: Provide aluminum windows of performance indicated that comply with AAMA/WDMA 101/I.S.2/NAFS unless more stringent performance requirements are indicated.
 - 1. Performance Class and Grade: AW105.
- E. Condensation-Resistance Factor (CRF): Provide aluminum windows tested for thermal performance according to AAMA 1503, showing a CRF of 55.
- F. Thermal Transmittance: Provide aluminum windows with a whole-window, U-factor maximum indicated at 15-mph (24-km/h) exterior wind velocity and winter condition temperatures when tested according to AAMA 1503.
 - 1. U-Factor: 0.40 Btu/sq. ft. x h x deg F (2.3 W/sq. m x K) or less.
- G. Air Infiltration: Maximum rate not more than indicated when tested according to ASTM E283-04, Air Infiltration Test.
 - 1. Maximum Rate: 0.01 cfm/sq. ft. (2 cu. m/h x sq. m) of area at an inward test pressure of 6.24 lbf/sq. ft. (300 Pa).

- H. Water Resistance: No water leakage under static pressure of 15 psf per ASTM E331-00 on test unit of 60"x99".
- I. Forced-Entry Resistance: Comply with Performance Grade 10 requirements when tested according to ASTM F 588.
- J. Life-Cycle Testing: Test according to AAMA 910 and comply with AAMA/WEMA 101/I.S.2/NAFS.

2.4 <u>AWNING WINDOW</u>

- A. Window Type: Awning.
- B. Subsill: Include Manufacturer's standard subsill.
- C. Subframe: Include Manufacturer's standard subframe.
- D. AAMA/WDMA Performance Requirements: Provide aluminum windows of performance indicated that comply with AAMA/WDMA 101/I.S.2/NAFS unless more stringent performance requirements are indicated.
 - 1. Performance Class and Grade: AW90.
- E. Condensation-Resistance Factor (CRF): Provide aluminum windows tested for thermal performance according to AAMA 1503, showing a CRF of 55.
- F. Thermal Transmittance: Provide aluminum windows with a whole-window, U-factor maximum indicated at 15-mph (24-km/h) exterior wind velocity and winter condition temperatures when tested according to AAMA 1503.
 - 1. U-Factor: 0.40 Btu/sq. ft. x h x deg F (2.3 W/sq. m x K) or less.
- G. Air Infiltration: Maximum rate not more than indicated when tested according to ASTM E283-04, Air Infiltration Test.
 - 1. Maximum Rate: 0.2 cfm/sq. ft. (5 cu. m/h x sq. m) of area at an inward test pressure of 1.57 lbf/sq. ft. (75 Pa).
 - 2. Additional Maximum Rate: 0.4 cfm/sq. ft. (5 cu. m/h x sq. m) of area at an inward test pressure of 6.24 lbf/sq. ft. (300 Pa).
- H. Water Resistance: No water leakage under static pressure of 12 psf per ASTM E331-00 on test unit of 63"x39".
- I. Forced-Entry Resistance: Comply with Performance Grade 10 requirements when tested according to ASTM F 588.
- J. Life-Cycle Testing: Test according to AAMA 910 and comply with AAMA/WDMA 101/I.S.2/NAFS.
- K. Operating Force and Auxiliary (Durability) Tests: Comply with AAMA/WDMA 101/I.S.2/NAFS for operating window types indicated.

2.5 <u>GLAZING</u>

- A. Glass and Glazing Materials: Refer to Division 08 Section "Glazing" for glass units and glazing requirements applicable to glazed aluminum window units.
- B. Glazing System: Manufacturer's standard factory-glazing system complying with requirements Division 08 Section "Glazing".

2.6 <u>HARDWARE</u>

- A. General: Provide manufacturer's standard hardware fabricated from aluminum, stainless steel, carbon steel complying with AAMA 907, or other corrosion-resistant material compatible with aluminum; designed to smoothly operate, tightly close, and securely lock aluminum windows, and sized to accommodate sash or ventilator weight and dimensions. Do not use aluminum in frictional contact with other metals. Where exposed, provide solid bronze or nonmagnetic stainless steel.
- B. Awning Window:
 - 1. Gear-Type Rotary Operators: Comply with AAMA 901 when tested according to ASTM E 405, Method A.
 - 2. Four- or Six-Bar Stainless Steel Hinges: sized per window dimension, set in aluminum cradles with adjustable set screw for smooth operation. Hinges mounted with stainless steel screws.
 - a. Awning-operating sash to have white bronze cam handles and keepers mounted with stainless steel screws
 - b. Friction Shoes: Provide friction shoes of nylon or other nonabrasive, nonstaining, noncorrosive, durable material.
 - c. Hinge: Extension hinge or pivot, nonfriction type.
 - d. Lock: Lift-type throw, cam-action lock with keeper; two per ventilator.

2.7 <u>INSECT SCREENS</u>

- A. General: Design windows and hardware to accommodate screens in a tight-fitting, removable arrangement, with a minimum of exposed fasteners and latches. Fabricate insect screens to fully integrate with window frame. Provide for each operable exterior sash or ventilator. Locate screens on outside of horizontal sliding window.
 - 1. Comply with SMA 1004, "Specifications for Aluminum Tubular Frame Screens for Windows," for minimum standards of appearance, fabrication, attachment of screen fabric, hardware, and accessories unless more stringent requirements are indicated.
 - 2. Type and Location: Full, inside for project-out sashes.

- B. Aluminum Insect Screen Frames: Manufacturer's standard aluminum alloy complying with SMA 1004 or SMA 1201. Fabricate frames with mitered or coped joints or corner extrusions, concealed fasteners, and removable PVC spline/anchor concealing edge of frame.
 - 1. Extruded-Aluminum or Aluminum Tubular Framing Sections and Cross Braces: Not less than 0.050-inch (1.3-mm) wall thickness.
 - 2. Finish: Match aluminum window members.
 - 3. Insect Screen: FS RR-W-365, woven aluminum mesh; 14 1/8" mesh sizes; grey or black finish, or equal.

2.8 <u>FABRICATION</u>

- A. Fabricate aluminum windows in sizes indicated. Include a complete system for assembling components and anchoring windows.
- B. Weather strip each operable sash to provide weathertight installation.
- C. Weep Holes: Provide weep holes and internal passages to conduct infiltrating water to exterior.
- D. Provide water-shed members above side-hinged sashes and similar lines of natural water penetration.
- E. Mullions: Provide mullions and cover plates, matching window units, complete with anchors for support to structure and installation of window units. Allow for erection tolerances and provide for movement of window units due to thermal expansion and building deflections, as indicated. Provide mullions and cover plates capable of withstanding design wind loads of window units.
- F. Window Assemblies: Provide operating and fixed units in configuration indicated. Provide window frames, sashes, hardware, and other trim and components necessary for a complete, secure, and weathertight installation.
- G. Complete fabrication, assembly, finishing, hardware application, and other work in the factory to greatest extent possible. Disassemble components only as necessary for shipment and installation.

2.9 <u>GENERAL FINISH REQUIREMENTS</u>

- A. Comply with NAAMM's "Metal Finishes Manual" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other

components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.10 <u>ALUMINUM FINISHES</u>

- A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- B. Class II, Clear Anodic Finish: AA-M12C22A31 (Mechanical Finish: Nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II, clear coating 0.010 mm or thicker) complying with AAMA 611.

3.0 PART 3 - EXECUTION

3.1 <u>EXAMINATION</u>

- A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work. Verify rough opening dimensions, levelness of sill plate, and operational clearances. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure a coordinated, weathertight window installation.
 - 1. Masonry Surfaces: Visibly dry and free of excess mortar, sand, and other construction debris.
 - 2. Metal Surfaces: Dry; clean; free of grease, oil, dirt, rust, corrosion, and welding slag; without sharp edges or offsets at joints.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 <u>INSTALLATION</u>

- A. Comply with Drawings, Shop Drawings, and manufacturer's written instructions for installing windows, hardware, accessories, and other components.
- B. 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.
- C. Install windows and components to drain condensation, water penetrating joints, and moisture migrating within windows to the exterior.
- D. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

3.3 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

- 1. Testing and inspecting agency will interpret tests and state in each report whether tested work complies with or deviates from requirements.
- B. Remove and replace noncomplying windows and retest as specified above.
- C. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.4 ADJUSTING, CLEANING, AND PROTECTION

- A. Adjust operating sashes and ventilators, screens, hardware, and accessories for a tight fit at contact points and weather stripping for smooth operation and weathertight closure. Lubricate hardware and moving parts.
- B. Clean aluminum surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.
- C. Clean factory-glazed glass immediately after installing windows. Comply with manufacturer's written recommendations for final cleaning and maintenance. Remove nonpermanent labels, and clean surfaces.
- D. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.
- E. Protect window surfaces from contact with contaminating substances resulting from construction operations. In addition, monitor window surfaces adjacent to and below exterior concrete and masonry surfaces during construction for presence of dirt, scum, alkaline deposits, stains, or other contaminants. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written recommendations

END OF SECTION 085113

SECTION 085115 - SINGLE SWING WINDOWS

1.0 <u>PART 1 - GENERAL</u>

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 <u>SUMMARY</u>

- A. Section includes aluminum windows for exterior locations.
- B. Related Requirements:
 - 1. Division 08 Section "Fiberglass Reinforced Polyester Doors" for coordinating finish among aluminum fenestration units.
 - 2. Division 08 Section "Aluminum Windows" for standard awning windows.
 - 3. Division 08 Section "Glazing" for glazing in aluminum windows.

1.3 <u>DEFINITIONS</u>

- A. Structural Test Pressure: For uniform load structural test, is equivalent to 150 percent of the design pressure.
- B. Minimum Test Size: Smallest size permitted for performance class (gateway test size).
- C. Products must be tested at minimum test size or at a size larger than minimum test size to comply with requirements for performance class.

1.4 <u>PERFORMANCE REQUIREMENTS</u>

- A. General: Provide steel window capable of complying with performance requirements indicated, based on testing manufacturer's windows that are representative of those specified, and that are of minimum test size indicated below:
 - 1. Size indicated on Drawings.
- B. Structural Performance: Provide steel windows capable of withstanding the effects of the following loads, based on testing units representative of those indicated for Project that pass AAMA/WDMA 101/I.S.2/NAFS, Uniform Load Structural Test:
 - Design Wind Loads: Determine design wind loads applicable to Project from basic wind speed indicated in miles per hour (meters per second) at 33 feet (10 m) above grade, according to ASCE 7, Section 6.5, "Method 2-Analytical Procedure," based on mean roof heights above grade indicated on Drawings.
 - a. Basic Wind Speed: 90 mph (40 m/s).

- b. Importance Factor: 1, Exposure Category: B.
- 2. Deflection: Design glass framing system to limit lateral deflections of glass edges to less than 1/175 of glass-edge length or 3/4 inch (19 mm), whichever is less, at design pressure based on testing performed according to AAMA/WDMA 101/I.S.2/NAFS, Uniform Load Deflection Test or structural computations.
- C. Thermal Movements: Provide steel windows, including anchorage, that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C) material surfaces.

1.5 <u>SUBMITTALS</u>

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, glazing and fabrication methods, dimensions of individual components and profiles, hardware, and finishes for steel windows.
- B. Shop Drawings: Include plans, elevations, sections, hardware, accessories, insect screens, operational clearances, and details of installation, including anchor, flashing, and sealant installation.
- C. Samples: For each exposed product and for each color specified, 2 by 4 inches (50 by 100 mm) in size.
- D. Samples for Verification: For steel windows and components required, showing full range of color variations for finishes, and prepared on Samples of size indicated below:
 - 1. Exposed Finishes: 2 by 4 inches (50 by 100 mm).
- E. Product Schedule: For steel single swing windows. Use same designations indicated on Drawings.
- F. Qualification Data: For manufacturer and Installer.
- G. Product Test Reports: For each type of aluminum window, for tests performed by a qualified testing agency.
- H. Sample Warranties: For manufacturer's warranties.

1.6 <u>QUALITY ASSURANCE</u>

- A. Manufacturer Qualifications: A manufacturer capable of fabricating steel windows that meet or exceed performance requirements indicated and of documenting this performance by test reports, and calculations.
- B. Installer Qualifications: An installer acceptable to steel window manufacturer for installation of units required for this Project.

1.7 **PROJECT CONDITIONS**

- A. Field Measurements: Verify steel window openings by field measurements before fabrication and indicate measurements on Shop Drawings.
 - 1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish opening dimensions and proceed with fabricating steel windows without field measurements. Coordinate wall construction to ensure that actual opening dimensions correspond to established dimensions.

1.8 <u>WARRANTY</u>

- A. Manufacturer's Warranty: Manufacturer agrees to repair or replace aluminum windows that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Failure to meet performance requirements.
 - b. Structural failures including excessive deflection, water leakage, condensation, and air infiltration.
 - c. Faulty operation of movable sash and hardware.
 - d. Deterioration of materials and finishes beyond normal weathering.
 - e. Failure of insulating glass.
 - 2. Warranty Period:
 - a. Window: 1 year from date of Substantial Completion.
 - b. Insulated Glass: 10 years from date of Substantial Completion.

2.0 PART 2 - PRODUCTS

2.1 <u>MANUFACTURERS</u>

- A. <u>Basis-of-Design Product</u>: Subject to compliance with requirements, provide Crown Incorporated (Plato, MN), Single Swing Electric (SSe) System; or a comparable product:
- B. Source Limitations: Obtain windows from single source from single manufacturer.

2.2 <u>MATERIALS</u>

- A. Construct panel/frame with structural steel tube (of ASTM-A500 grade minimum) framing to comply with applied wind code.
- B. Frames shall be constructed of structural steel tubing and other structural steel shapes, and designed to the same loading requirements for live, dead and wind loads as the surrounding construction, with a maximum CTC from vertical and horizontal members of 60".
- C. Panel frame shall be designed so that no center "cane bolt" is required at the window sill.
- D. Panel frame shall be factory-welded at all joints and connections, with smooth welds not to exceed ¹/₄" thickness.
- E. System shall include factory-installed, steel "inside sash" (infill) glass retainer system (glazing stops) and glass inserts
- F. Finish: Panel frame and glazing stops shall be factory powder-coated for finish and corrosion resistance.
- G. Color: Any manufacturer standard RAL color as selected by Architect from full range.
- H. System shall included full-perimeter, factory-installed neoprene seals/weather stripping..
- I. Fasteners: As recommended by window manufacturer.

2.3 <u>ELECTRIC SYSTEM</u>

- A. Single-Swing Electric System shall be operated by linear actuators that are mechanically fastened to the panel frame.
 - 1. Actuators will be designed to carry the required loads during operation, open position and closed position.
 - 2. Speed: Approx. 30-40 sec. fully-closed to fully-open position.
- B. Power: Standard voltage is 120v, single phase, 10-amp.
 - 1. "Up-Down" push button or key switch controls for separate mounting, by others.
 - 2. Control box to operate (2) linear actuators which open and close the window. Control box to be pre-wired, factory-tested and provided with supply cables for final hook-up (by others).
 - 3. "Open-Close" control units will be wired for constant hold operation.
 - 4. Incoming electrical source to control box to be supplied by others.

1. Each linear actuator shall have thermal overload protection for the motors.

2.4 <u>GLAZING</u>

- A. Glass and Glazing Materials: Refer to Division 08 Section "Glazing" for glass units and glazing requirements applicable to glazed aluminum window units.
- B. Glazing System: Manufacturer's standard factory-glazing system complying with requirements Division 08 Section "Glazing".

2.5 <u>HARDWARE</u>

A. General: Provide manufacturer's standard hardware.

2.6 <u>ACCESSORIES:</u>

A. Provide photo-eye or lead-edge sensor that stops (or stops and reverses) the downward movement of the door/window.

3.0 PART 3 - EXECUTION

3.1 <u>EXAMINATION</u>

- A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work. Verify rough opening dimensions, levelness of sill plate, and operational clearances. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure a coordinated, weathertight window installation.
 - 1. Masonry Surfaces: Visibly dry and free of excess mortar, sand, and other construction debris.
 - 2. Metal Surfaces: Dry; clean; free of grease, oil, dirt, rust, corrosion, and welding slag; without sharp edges or offsets at joints.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Comply with Drawings, Shop Drawings, and manufacturer's written instructions for installing windows, hardware, accessories, and other components.
- B. 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.
- C. Install windows and components to drain condensation, water penetrating joints, and moisture migrating within windows to the exterior.

- D. Separate steel, aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.
- E. Installation of the Single-Swing Electric System shall be by a contractor familiar with this type of installation, and be in strict accordance with the approved build drawings and manufacturers standard printed specifications, instructions and recommendations. All moving parts will be left in good operating condition.
- F. Permanent or temporary electric wiring shall be brought to the control box location before installation. After the Single-Swing Electric System is installed, the general contractor assumes the responsibility of any damage to the system or system components during construction until the building is turned over to the owner.

3.3 ADJUSTING, CLEANING, AND PROTECTION

- A. Adjust operating sashes and ventilators, hardware, and accessories for a tight fit at contact points and weather stripping for smooth operation and weathertight closure. Lubricate hardware and moving parts.
- B. Clean aluminum surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.
- C. Clean factory-glazed glass immediately after installing windows. Comply with manufacturer's written recommendations for final cleaning and maintenance. Remove nonpermanent labels, and clean surfaces.
- D. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.
- E. Protect window surfaces from contact with contaminating substances resulting from construction operations. In addition, monitor window surfaces adjacent to and below exterior concrete and masonry surfaces during construction for presence of dirt, scum, alkaline deposits, stains, or other contaminants. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written recommendations

END OF SECTION 085115

SECTION 088000 - GLAZING

1.0 PART 1 - GENERAL

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 <u>SUMMARY</u>

- A. Section includes glazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section:
 - 1. Aluminum Windows.
 - 2. Doors/Entrances.
 - 3. Storefront.
 - 4. Bifold Doors.
- B. Related Sections:
 - 1. Division 08 Section "Fiberglass Reinforced Polyester Doors".
 - 2. Division 08 Section "Aluminum Windows".
 - 3. Division 08 Section "Aluminum-Framed Entrances and Storefronts"
 - 4. Division 08 Section "Single Swing Windows" for large format operable windows.

1.3 **DEFINITIONS**

- A. Manufacturers of Glass Products: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.
- B. Glass Thicknesses: Indicated by thickness designations in millimeters according to ASTM C 1036.
- C. Interspace: Space between lites of an insulating-glass unit.
- D. Deterioration of Coated Glass: Defects developed from normal use that are attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in metallic coating.

- E. Deterioration of Insulating Glass: Failure of hermetic seal under normal use that is attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.
- F. Deterioration of Laminated Glass: Defects developed from normal use that are attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning laminated glass contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated-glass standard.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Installed glazing systems shall withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- B. Glass Design: Glass thickness designations indicated are minimums and are for detailing only. Confirm glass thicknesses by analyzing Project loads and in-service conditions. Provide glass lites in the thickness designations indicated for various size openings, but not less than thicknesses and in strengths (annealed or heat treated) required to meet or exceed the following criteria:
 - 1. Glass Thicknesses: Select minimum glass thicknesses to comply with ASTM E 1300, according to the following requirements:
 - a. Design Wind Loads: Determine design wind loads applicable to Project from basic wind speed indicated in miles per hour (meters per second) at 33 feet (10 m) above grade, according to ASCE 7, "Minimum Design Loads for Buildings and Other Structures": Section 6.5, "Method 2-Analytical Procedure," based on mean roof heights above grade indicated on Drawings.
 - 1) Basic Wind Speed: 90 mph (40 m/s).
 - 2) Importance Factor: 1
 - 3) Exposure Category: B
 - b. Probability of Breakage for Vertical Glazing: 8 lites per 1000 for lites set vertically or not more than 15 degrees off vertical and under wind action.
 - 1) Load Duration: 60 seconds or less.
 - c. Maximum Lateral Deflection: For the following types of glass supported on all 4 edges, provide thickness required that limits center deflection at design wind pressure to 1/50 times the short side length or 1 inch (25

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mm), whichever is less.

- 1) For monolithic-glass lites heat-treated to resist wind loads.
- 2) For insulating glass.
- d. Thickness of Tinted and Heat-Absorbing Glass: Provide the same thickness for each tint color indicated throughout Project.
- C. Thermal Movements: Provide glazing that allows for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures acting on glass framing members and glazing components. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- D. Thermal and Optical Performance Properties: Provide glass with performance properties specified based on manufacturer's published test data, as determined according to procedures indicated below:
 - 1. For monolithic-glass lites, properties are based on units with lites of thickness indicated.
 - 2. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.
 - 3. Center-of-Glass Values: Based on using LBL-44789 WINDOW 5.0 computer program for the following methodologies:
 - a. U-Factors: NFRC 100 expressed as Btu/ sq. ft. x h x deg F (W/sq. m x K).
 - b. Solar Heat Gain Coefficient: NFRC 200.
 - c. Solar Optical Properties: NFRC 300.

1.5 <u>SUBMITTALS</u>

- A. Product Data: For each glass product and glazing material indicated.
- B. Product Data: For glazing sealants used inside the weatherproofing system, documentation including printed statement of VOC content.
- C. Samples: For the following products, in the form of 12-inch- (300-mm-) square Samples for glass.
 - 1. Laminated glass.
 - 2. Insulating glass.

- D. Glazing Accessory Samples: For gaskets, sealants and colored spacers, in 12-inch (300mm) lengths. Install sealant Samples between two strips of material representative in color of the adjoining framing system.
- E. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.
- F. Product Certificates: Signed by manufacturers of glass and glazing products certifying that products furnished comply with requirements.
 - 1. For solar-control low-e-coated glass, provide documentation demonstrating that manufacturer of coated glass is certified by coating manufacturer.
- G. Qualification Data: For installers.
- H. Preconstruction Adhesion and Compatibility Test Report: From glazing sealant manufacturer indicating glazing sealants were tested for adhesion to glass and glazing channel substrates and for compatibility with glass and other glazing materials.
- I. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for tinted glass, coated glass, insulating glass, glazing sealants and glazing gaskets.
 - 1. For glazing sealants, provide test reports based on testing current sealant formulations within previous 36-month period.
- J. Warranties: Sample of special warranties.

1.6 <u>QUALITY ASSURANCE</u>

- A. Installer Qualifications: An experienced installer who has completed glazing similar in material, design, and extent to that indicated for this Project; whose work has resulted in glass installations with a record of successful in-service performance; and who employs glass installers for this Project who are certified under the National Glass Association's Certified Glass Installer Program.
- B. Source Limitations for Glass: Obtain the following through one source from a single manufacturer for each glass type: coated float glass and insulating glass.
- C. Source Limitations for Glazing Accessories: Obtain glazing accessories through one source from a single manufacturer for each product and installation method indicated.
- D. Glass Product Testing: Obtain glass test results for product test reports in "Submittals" Article from a qualified testing agency based on testing glass products.
 - 1. Glass Testing Agency Qualifications: An independent testing agency with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548.

- E. Elastomeric Glazing Sealant Product Testing: Obtain sealant test results for product test reports in "Submittals" Article from a qualified testing agency based on testing current sealant formulations within a 36-month period.
 - 1. Sealant Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated, as documented according to ASTM E 548.
 - 2. Test elastomeric glazing sealants for compliance with requirements specified by reference to ASTM C 920, and where applicable, to other standard test methods.
- F. Preconstruction Adhesion and Compatibility Testing: Submit to elastomeric glazing sealant manufacturers, for testing indicated below, samples of each glazing material type, tape sealant, gasket, glazing accessory, and glass-framing member that will contact or affect elastomeric glazing sealants:
 - 1. Use ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of glazing sealants to glass, tape sealants, gaskets, and glazing channel substrates.
 - 2. Submit not fewer than eight pieces of each type of material, including joint substrates, shims, joint-sealant backings, secondary seals, and miscellaneous materials.
 - 3. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
 - 4. For materials failing tests, obtain sealant manufacturer's written instructions for corrective measures, including the use of specially formulated primers.
- G. Safety Glazing Labeling: Where safety glazing labeling is indicated, permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.
- H. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.
 - 1. IGMA Publication for Insulating Glass: SIGMA TM-3000, "Glazing Guidelines for Sealed Insulating Glass Units."
- I. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of the following testing and inspecting agency:
 - 1. Insulating Glass Certification Council.
 - 2. Associated Laboratories, Inc.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Protect glazing materials according to manufacturer's written instructions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.
- B. For insulating-glass units that will be exposed to substantial altitude changes, comply with insulating-glass manufacturer's written recommendations for venting and sealing to avoid hermetic seal ruptures.

1.8 PROJECT CONDITIONS

- A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.
 - 1. Do not install glazing sealants when ambient and substrate temperature conditions are outside limits permitted by sealant manufacturer or below 40 deg F (4.4 deg C).

1.9 <u>WARRANTY</u>

- A. Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer's standard form, made out to Owner and signed by coated-glass manufacturer agreeing to replace coated-glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.
 - 1. Warranty Period: 10 years from date of Substantial Completion.
- B. Manufacturer's Special Warranty on Insulating Glass: Manufacturer's standard form, made out to Owner and signed by insulating-glass manufacturer agreeing to replace insulating-glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.
 - 1. Warranty Period: 10 years from date of Substantial Completion.

2.0 <u>PART 2 - PRODUCTS</u>

2.1 <u>MANUFACTURERS</u>

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
 - 1. Basis-of-Design Product: The design for each glazing product is based on the product named. Subject to compliance with requirements, provide either the named product by Viracon or a comparable product by one of the other manufacturers listed below:
 - a. Guardian Industries Corp.

b. PPG Industries, Inc.

2.2 <u>GLASS PRODUCTS</u>

- A. Heat-Treated Float Glass: ASTM C 1048; Type I (transparent flat glass); Quality-Q3; of class, kind, and condition indicated.
 - 1. For uncoated glass, comply with requirements for Condition A.
 - 2. For coated vision glass, comply with requirements for Condition C (other coated glass).
 - 3. Acid-etched glass, comply with applicable codes.
- B. Insulating-Glass Units, General: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, and complying with ASTM E 774 for Class CBA units and with requirements specified in this Article and in Part 2 "Insulating-Glass Units" Article:
 - 1. **Provide Kind FT (fully tempered) glass units at all locations.**
 - 2. Overall Unit Thickness and Thickness of Each Lite: Dimensions indicated for insulating-glass units are nominal and the overall thicknesses of units are measured perpendicularly from outer surfaces of glass lites at unit's edge.
 - 3. Sealing System: Dual seal, with primary and secondary sealants as follows
 - a. Polyisobutylene and silicone.
 - 4. Factory Glazed Aluminum Window Spacer Specifications: Aluminum with clear anodized finish; thermally broken with polyurethane thermal barrier.
 - a. Products: Subject to compliance with requirements, provide the following:
 - 1) AZON USA Inc., Warm-Light warm edge spacer (269-385-5942).
 - b. Desiccant: As recommended by spacer manufacturer.

2.3 <u>GLAZING GASKETS</u>

- A. Dense Compression Gaskets: Molded or extruded gaskets of material indicated below, complying with standards referenced with name of elastomer indicated below, and of profile and hardness required to maintain watertight seal:
 - 1. EPDM complying with ASTM C 864.
 - 2. Silicone complying with ASTM C 1115.
 - 3. Thermoplastic polyolefin rubber complying with ASTM C 1115.

- B. Soft Compression Gaskets: Extruded or molded, closed-cell, integral-skinned gaskets of material indicated below; complying with ASTM C 509, Type II, black; and of profile and hardness required to maintain watertight seal:
 - 1. EPDM.
 - 2. Silicone.
 - 3. Thermoplastic polyolefin rubber.
- C. Lock-Strip Gaskets: Neoprene extrusions in size and shape indicated, fabricated into frames with molded corner units and zipper lock-strips, complying with ASTM C 542, black.

2.4 <u>GLAZING SEALANTS</u>

- A. General:
 - 1. Compatibility: Provide glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
 - 2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
 - 3. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range.
 - 4. VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - a. Architectural Sealants: 250 g/L.
 - b. Sealant Primers for Nonporous Substrates: 250 g/L.
- B. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 100/50, Use NT.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Dow Corning Corporation; 790.
 - b. GE Advanced Materials Silicones; SilPruf LM SCS2700.
 - c. May National Associates, Inc.; Bondaflex Sil 290.

- d. Pecora Corporation; 890.
- e. Sika Corporation, Construction Products Division; SikaSil-C990.
- f. Tremco Incorporated; Spectrem 1.
- C. Elastomeric Glazing Sealant: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.
 - 1. Class 25 Neutral-Curing Silicone Glazing Sealant:
 - a. Available Products:
 - 1) Dow Corning Corporation; 799.
 - 2) GE Silicones; UltraGlaze SSG4000.
 - 3) GE Silicones; UltraGlaze SSG4000AC.
 - 4) Polymeric Systems Inc.; PSI-631.
 - 5) Schnee-Morehead, Inc.; SM5731 Poly-Glaze Plus.
 - 6) Tremco; Proglaze SG.
 - 7) Tremco; Spectrem 2.
 - 8) Tremco; Tremsil 600.
 - b. Type and Grade: S (single component) and NS (nonsag).
 - c. Class: 25.
 - d. Use Related to Exposure: NT (nontraffic).
 - e. Uses Related to Glazing Substrates: G, A, and, as applicable to glazing substrates indicated, O.
 - Use O Glazing Substrates: Coated glass, color anodic aluminum, aluminum coated with a high-performance coating, galvanized steel, and wood.
 - f. Shall be fully compatible with insulated glass edge sealant.

2.5 <u>GLAZING TAPES</u>

A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based elastomeric tape with a solids content of 100 percent; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass

manufacturers for application indicated; packaged on rolls with a release paper backing; and complying with ASTM C 1281 and AAMA 800 for products indicated below:

- 1. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
- 2. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.
- B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; packaged on rolls with release liner protecting adhesive; and complying with AAMA 800 for the following types:
 - 1. AAMA 810.1, Type 1, for glazing applications in which tape acts as the primary sealant.
 - 2. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

2.6 <u>MISCELLANEOUS GLAZING MATERIALS</u>

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- C. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.
- D. Spacers: Elastomeric blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
- E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).
- F. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.
- G. Perimeter Insulation for Fire-Resistive Glazing: Product that is approved by testing agency that listed and labeled fire-resistant glazing product with which it is used for application and fire-protection rating indicated.

2.7 FABRICATION OF GLAZING UNITS

A. Fabricate glazing units in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements. Where required to coordinate with integral blinds

Insulated Glazing units may be reduced in thickness to accommodate integral blinds within depth of window assembly. Notification of Architect must occur prior submittal of final glazing materials.

2.8 INSULATING-GLASS TYPES

- A. Glass Type [IG-1]: Clear insulating glass.
 - 1. Location: Fixed windows, doors and storefront.
 - 2. Overall Unit Thickness: 1 inch (25 mm).
 - 3. Thickness of Each Glass Lite: 6.0 mm.
 - 4. Outdoor Lite: Fully tempered float glass.
 - 5. Interspace Content: Argon.
 - 6. Indoor Lite: Fully tempered float glass.
 - 7. Low-E Coating: Sputtered on second surface.
 - 8. Visible Light Transmittance: 63 percent minimum.
 - 9. Winter Nighttime U-Factor: 0.25 maximum.
 - 10. Summer Daytime U-Factor: 0.21 maximum.
 - 11. Solar Heat Gain Coefficient: 0.28 maximum.
- B. Glass Type [IG-2]: Clear insulating glass.
 - 1. Location: Single swing, large format operable windows.
 - 2. Overall Unit Thickness: 0.875 inch (22 mm).
 - 3. Thickness of Each Glass Lite: 5.0 mm.
 - 4. Outdoor Lite: Fully tempered float glass.
 - 5. Interspace Content: Argon.
 - 6. Indoor Lite: Fully tempered float glass.
 - 7. Low-E Coating: Sputtered on second surface.
 - 8. Visible Light Transmittance: 71 percent minimum.
 - 9. Winter Nighttime U-Factor: 0.25 maximum.
 - 10. Solar Heat Gain Coefficient: 0.39 maximum.

- C. Glass Type [IG-3]: Clear insulating glass with acid etched surface.
 - 1. Location: Bathroom awning windows.
 - 2. Overall Unit Thickness: 1 inch (25 mm).
 - 3. Thickness of Each Glass Lite: 6.0 mm.
 - 4. Outdoor Lite: Fully tempered float glass.
 - 5. Interspace Content: Argon.
 - 6. Indoor Lite: Fully tempered float glass.
 - 7. Low-E Coating: Sputtered on second surface.
 - 8. Acid Etched Surface: On third surface. Provide light transmittance but no visibility through windows.
 - 9. Visible Light Transmittance: 63 percent minimum.
 - 10. Winter Nighttime U-Factor: 0.25 maximum.
 - 11. Summer Daytime U-Factor: 0.21 maximum.
 - 12. Solar Heat Gain Coefficient: 0.28 maximum.

3.0 PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:
 - 1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
 - 2. Presence and functioning of weep systems.
 - 3. Minimum required face and edge clearances.
 - 4. Effective sealing between joints of glass-framing members.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 <u>PREPARATION</u>

- A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.
- 3.3 <u>GLAZING, GENERAL</u>

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Glazing channel dimensions, as indicated on Drawings, provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by Project conditions during installation.
- C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.
- D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.
- E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- G. Provide spacers for glass lites where length plus width is larger than 50 inches (1270 mm).
 - 1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
 - 2. Provide 1/8-inch (3-mm) minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
- H. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.
- I. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
- J. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.
- K. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

3.4 GASKET GLAZING (DRY)

- A. Fabricate compression gaskets in lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.
- B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.
- C. Center glass lites in openings on setting blocks and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
- D. Install gaskets so they protrude past face of glazing stops.

3.5 <u>CLEANING AND PROTECTION</u>

- A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels and clean surfaces.
- B. Protect glass from contact with contaminating substances resulting from construction operations. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer.
- C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains; remove as recommended in writing by glass manufacturer.
- D. Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.
- E. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

END OF SECTION 088000

SECTION 089400 - INSULATED TRANSLUCENT SANDWICH PANEL WALL UNIT

1.0 <u>PART 1 – GENERAL</u>

1.1 <u>SUMMARY</u>

- A. Section includes the insulated translucent sandwich panel system and accessories, factory unitized, as shown and specified. Work includes providing and installing:
 - 1. Flat factory prefabricated structural insulated translucent sandwich panels
 - 2. Aluminum installation system
 - 3. Aluminum sill flashing
- B. Related Sections:
 - 1. Rough Carpentry: Section 061000
 - 2. Sheet Metal Flashing and Trim: Section 076200
 - 3. Joint Sealants: Section 079200

1.2 <u>SUBMITTALS</u>

- A. Submit manufacturer's product data. Include construction details, material descriptions, profiles and finishes of components.
- B. Submit shop drawings. Include elevations, details, dimensions and attachments to other work.
- C. Submit manufacturer's color charts showing the full range of colors available for factoryfinished aluminum.
 - 1. When requested, submit samples for each exposed finish required, in same thickness and material indicated for the work and in size indicated below. If finishes involve normal color variations, include sample sets consisting of two or more units showing the full range of variations expected.
 - a. Sandwich panels: 14" x 28" units
 - b. Factory finished aluminum: 5" long sections
- D. Submit Installer Certificate, signed by installer, certifying compliance with project qualification requirements.
- E. Submit product test reports from a qualified independent testing agency indicating each type and class of panel system complies with the project performance requirements, based on comprehensive testing of current products. Previously completed test reports will be acceptable if for current manufacturer and indicative of products used on this project.

- 1. Test reports required are:
 - a. Flame Spread and Smoke Developed (UL 723) Submit UL Card
 - b. Burn Extent (ASTM D-635)
 - c. Color Difference (ASTM D-2244)
 - d. Abrasion/Erosion Resistance (ASTM D-4060)
 - e. Impact Strength (UL 972)
 - f. Bond Tensile Strength (ASTM C-297 after aging by ASTM D-1037
 - g. Bond Shear Strength (ASTM D-1002)
 - h. Beam Bending Strength (ASTM E-72)
 - i. Insulation U-Factor (NFRC-100)
 - j. NFRC System Certification
 - k. Condensation Resistance Factor (AAMA 1503)
 - 1. Performance for Windows (AAMA/NWWDA 101/I.S.2) (Optional)
- F. Submit current documentation indicating regular, independent quality control monitoring under a nationally recognized building code review and listing program.

1.3 **QUALITY ASSURANCE**

- A. Manufacturer's Qualifications
 - 1. Material and products shall be manufactured by a company continuously and regularly employed in the manufacture of specified materials for a period of at least ten (10) consecutive years and which can show evidence of those materials being satisfactorily used on at least six (6) projects of similar size, scope and location. At least three (3) of the projects shall have been in successful use for ten (10) years or longer.
 - 2. Panel system must be listed by the International Code Council Evaluation Service (ICC-ES) which requires quality control inspections and fire, structural and water infiltration testing of sandwich panel systems by an approved agency.
 - 3. Quality control inspections and required testing shall be conducted at least once each year and shall include manufacturing facilities, sandwich panel components and production sandwich panels for conformance with "Acceptance Criteria for Sandwich Panels" as regulated by the ICC-ES.
- B. Installer's Qualifications: Installation shall be by an experienced installer, which has been in the business of installing specified panel systems for at least five (5) consecutive years and can show evidence of satisfactory completion of projects of similar size, scope and type.
- C. The manufacturer shall be responsible for the configuration and fabrication of the complete panel system, in accordance with the requirements of this specification.
- D. Performance Requirements: The manufacturer shall be responsible for the configuration and fabrication of the complete panel system.

1. When requested, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.4 DELIVERY STORAGE AND HANDLING

- A. Deliver panel system, components and materials in manufacturer's standard protective packaging.
- B. Store panels on the long edge, several inches above the ground, blocked and under cover in accordance with manufacturer's storage and handling instructions.

1.5 <u>WARRANTY</u>

- A. Provide a single source system manufacturer warranty against defective materials and fabrication. Submit manufacturer's written warranty agreeing to repair system work, which fails in materials within three (3) years from date of delivery.
- B. Provide single source Wall Light's manufacturer 10-year glazing panel warranty. Third party warranty for glazing panels shall not be acceptable. Glazing warranty to include:
 - 1. Change in light transmission of no more than 6% per ASTM D-1003.
 - 2. No delamination of panel affecting appearance, performance or structural integrity of the panel or the system.
 - 3. Thermal aging the light transmission and the color shall not change after exposure to heat of 300°F for 25 minutes (when measured per ASTM D-1003 and ASTM D-2244 respectively).
- C. In addition, submit installer's written warranty agreeing to repair installation workmanship, defects and leaks within three (3) years from date of delivery.

2.0 <u>PART 2 – PRODUCTS</u>

2.1 <u>MANUFACTURER</u>

- A. The Basis of Design and performance criteria of this job are based on the UniQuad 2 panel unitized translucent wall panel system as manufactured by Kingspan Light + Air, Inc.
 - 1. Product: 4-inch UniQuad.

2.2 PANEL COMPONENTS

- A. Panel Construction
 - 1. Translucent panels must be constructed of tight cell sizes not exceeding 0.18". Wide cell l size exceeding 0.18" shall not be acceptable.
 - 2. The translucent panel shall include an integral extruded tight-cell structural core. The panel's exterior skins shall be connected with supporting continuous ribs,

perpendicular to the skins, at a spacing not to exceed 0.18" (truss-like construction). In addition, the space between the two exterior skins shall be divided by multiple parallel horizontal surfaces, at a spacing not to exceed 0.18".

- 3. Weatherability of exterior face sheets:
 - a. The light transmission shall not decrease more than 6% as measured by ASTM D-1003 over 10 years, or after exposure to temperature of 300°F for 25 minutes (thermal aging performance standard).
 - b. The weathering performance should be justified by successful testing of the glazing panel's performance after exposure to actual Florida weather conditions for approximately 10 years in comparison to a new panel assembly. This performance must be demonstrated by providing independent lab test reports for the exposed and a new panel assembly of 6' wide x 12' long for:
 - 1) Uniform static air pressure per ASTM 330 at negative load of 105psf and positive load of 130psf.
 - 2) Impact loading per ASTM E695 of 500 ft-lb.
 - 3) Cyclic static air pressure at 65 PSF and impact level D per ASTM 1886 & ASTM E1996.
 - c. Panels must be manufactured from polycarbonate resin with a permanent, co- extruded ultra-violet protective layer. Post-applied coatings or films of dissimilar materials are unacceptable.
 - d. The faces shall not become readily detached when exposed to temperatures of 300°F and 0°F for 25 minutes.
 - e. Panel shall be factory sealed at the sill to restrict dirt ingress.
- 4. Thermal and Solar Performance:
 - a. Insulation "U" Value performance per NFRC100 & 700, is required by the IBC/IECC/ASHRE energy code. Such performance values must be certified and labeled by NFRC. Labels shall be displayed on the product. NFRC certified and labeled products shall be published in the Certified Products Directory (CPD) on the NFRC official web site.
 - b. U value for standard panel assembly with no bat or aerogel insulation, Center of Glazing per NFRC100: 0.23.
 - c. U value for panel system assembly with no bat or aerogel insulation and including wall-light aluminum framing per NFRC100 & NFRC700: 0.32 for clear anodized frame.
- 5. Translucent Panel Joint System:

- a. Panel shall be extruded in one single formable length. Transverse connections are not acceptable.
- b. The panels should be manufactured with grip-lock double tooth upstands that are integral to the unit. The upstands shall be 90 degrees to the panel face (standing seam dry glazed concept). Welding or gluing of upstands or standing seam is not acceptable.
- c. The H battens shall have a grip-lock double tooth locking mechanism to ensure maximum uplift capability.
- d. The metal retention clip shall be configured with a 0.4" wide top flange that extends continuously across the web from end to end and from side to side. To allow safety factor, the clip must be tested to meet a wind uplift standard of 90 PSF per ASTM E330.
- e. Water Penetration: No water penetration of the panel H joint connection length at test pressure of 6.24 PSF per ASTM E-331.
- f. Free movement of the panels shall be allowed to occur without damage to the weather tightness of the completed system.
- 6. Flammability:
 - a. The exterior and interior panels shall be an approved light transmitting panel with a CC1 fire rating classification per ASTM D-635. Flame spread no greater than 25 per ASTM E-84. Smoke density no greater than 75 per ASTM D2843 and a minimum self-ignition temperature of 1000°F per ASTM 1929.
 - b. Interior flame spread classification of Class A per ASTM E84.
- 7. Cyclic Wind Load:
 - a. Translucent Panels shall be tested for cyclic wind loads and impact resistance per ASTM E 1886-97 and ASTM E 1996-02 at test load to verify the positive and negative design loads and level D impact.
- 8. Glare and Diffused Light Transmission:
 - a. To avoid glare per IECC requirements, the panels shall have a matte finish with a minimum Haze measurement of 90% per ASTM D1003.

2.3 <u>PANEL CONSTRUCTION</u>

A. Design, engineer, manufacture and installation of two panels insulated translucent walllight system. An assembly of two independent insulated single glazing polycarbonate panels in one integrated daylighting panel assembly, incorporated into a complete aluminum framed system that has been tested and warranted by the manufacturer as a single source system. Design shall provide for the replacement of the exterior panel using tools, independently of the interior single panel and without exposing the interior or

compromising the weather tightness or interfering with the normal working functions of the building. The interior single insulated panel remains intact for the life of the building envelope. Single panel extruded polycarbonate cellular or fiberglass sandwich panel systems will not meet these requirements and are not acceptable.

- B. Panel glazing assembly thickness shall be a minimum 4.25" two panel system with concealed interlocking connector/ H battens where indicated. Minimum thickness of the exterior and the interior single panels shall be 0.394" (10 mm) thick each. Interior and exterior skin shall be Pentaglas translucent panel with Nano-Cell extrusion.
- C. Panel Width: Shall not exceed 2' to ensure best performance for wind uplift, vibration, oil canning and visual appearance. Panels over 2' wide will not be approved.
- D. Panels shall be deflect no more than 1" at 30 psf in 10' 0" span without a supporting frame by ASTM E-72.
- E. Thermally broken panels:
 - 1. Minimum Condensation Resistance Factor of 80 by AAMA 1503 measured on the bond line.
 - 2. Minimum CRF of 90 at center of grid cell.

PART 3 - EXECUTION

2.4 EXAMINATION

A. Examine substrates, supporting structure and installation conditions. Do not proceed with panel erection until unsatisfactory conditions have been corrected.

2.5 <u>PREPARATION</u>

- A. Metal Protection:
 - 1. Where aluminum will contact dissimilar metals, protect against galvanic action by applying sealant or tape recommended by manufacturer for this purpose.
 - 2. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint or method recommended by manufacturer.
 - 3. Where aluminum will contact pressure-treated wood, separate dissimilar materials by methods recommended by manufacturer.

2.6 <u>INSTALLATION</u>

- A. Install the panel system in accordance with the manufacturer's installation recommendations and approved shop drawings.
 - 1. Anchor component parts securely in place by permanent mechanical attachment system.

- 2. Accommodate thermal and mechanical movements.
- 3. Set perimeter framing in a full bed of sealant compound, or with joint fillers or gaskets to provide weather-tight construction.
- B. Install joint sealants at perimeter joints and within the panel system in accordance with manufacturer's installation instructions.

2.7 <u>CLEANING</u>

A. Clean the panel system inside and outside, immediately after installation, according to manufacturer's written recommendations.

END OF SECTION 089400

SECTION 092216 - NON-STRUCTURAL METAL FRAMING

1.0 PART 1 - GENERAL

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 <u>SUMMARY</u>

- A. Section Includes:
 - 1. Non-load-bearing steel framing systems.
- B. Related Requirements:
 - 1. Division 05 Section "Cold-Formed Metal Framing" for exterior and interior loadbearing and exterior non-load-bearing wall studs; floor joists; roof rafters and ceiling joists; and roof trusses.

1.3 <u>ACTION SUBMITTALS</u>

- A. Product Data: For each type of product.
- 2.0 PART 2 PRODUCTS

2.1 FRAMING SYSTEMS

- A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.
 - 1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal unless otherwise indicated.
 - 2. Protective Coating: Coating with equivalent corrosion resistance of ASTM A 653/A 653M, G40 (Z120), hot-dip galvanized, unless otherwise indicated.
- B. Studs and Runners: ASTM C 645.
 - 1. Steel Studs and Runners:
 - a. Minimum Base-Metal Thickness: 0.033 inch (0.84 mm).
 - b. Depth: As indicated on Drawings.
- C. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
 - 1. Minimum Base-Metal Thickness: 0.033 inch (0.84 mm).

- D. Cold-Rolled Channel Bridging: Steel, 0.053-inch (1.34-mm) minimum base-metal thickness, with minimum 1/2-inch- (13-mm-) wide flanges.
 - 1. Depth: 1-1/2 inches (38 mm).
 - 2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches (38 by 38 mm), 0.068-inch-(1.72-mm-) thick, galvanized steel.
- E. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
 - 1. Minimum Base-Metal Thickness: 0.033 inch (0.84 mm).
 - 2. Depth: As indicated on Drawings.

2.2 <u>AUXILIARY MATERIALS</u>

- A. General: Provide auxiliary materials that comply with referenced installation standards.
 - 1. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
- B. Isolation Strip at Exterior Walls: Provide the following:
 - 1. Asphalt-Saturated Organic Felt: ASTM D 226, Type I (No. 15 asphalt felt), nonperforated.
 - 2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch (3.2 mm) thick, in width to suit steel stud size.

3.0 PART 3 - EXECUTION

3.1 <u>EXAMINATION</u>

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 <u>PREPARATION</u>

- A. Suspended Assemblies: Coordinate installation of suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive hangers at spacing required to support the Work and that hangers will develop their full strength.
 - 1. Furnish concrete inserts and other devices indicated to other trades for installation in advance of time needed for coordination and construction.

3.3 INSTALLING FRAMED ASSEMBLIES

- A. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
- B. Install studs so flanges within framing system point in same direction.
 - 1. Space studs as follows:
 - a. Multilayer Application: 16 inches (406 mm) o.c. unless otherwise indicated.
- C. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.
 - 1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
 - 2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
 - a. Install two studs at each jamb unless otherwise indicated.
 - b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch (13-mm) clearance from jamb stud to allow for installation of control joint in finished assembly.
 - c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.
 - 3. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
- D. Z-Furring Members:
- E. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch (3 mm) from the plane formed by faces of adjacent framing.

END OF SECTION 092216

SECTION 092900 - GYPSUM BOARD

1.0 PART 1 - GENERAL

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Interior gypsum board.
 - 2. Tile backing panels.
- B. Related Requirements:
 - 1. Division 09 Section "Non-Structural Metal Framing" for non-structural framing and suspension systems that support gypsum board panels.

1.3 <u>ACTION SUBMITTALS</u>

A. Product Data: For each type of product.

1.4 DELIVERY, STORAGE AND HANDLING

A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.5 FIELD CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.
- B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.
- C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

2.0 PART 2 - PRODUCTS

2.1 <u>PERFORMANCE REQUIREMENTS</u>

- A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

2.2 <u>GYPSUM BOARD, GENERAL</u>

- A. Recycled Content of Gypsum Panel Products: Postconsumer recycled content plus onehalf of preconsumer recycled content not less than 50 percent.
- B. Regional Materials: Gypsum panel products shall be manufactured within 500 miles (800 km) of Project site.
- C. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.3 INTERIOR GYPSUM BOARD

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. CertainTeed Corp.
 - 2. Georgia-Pacific Gypsum LLC.
 - 3. Lafarge North America Inc.
 - 4. National Gypsum Company.
 - 5. USG Corporation.
- B. Gypsum Ceiling Board: ASTM C 1396/C 1396M.
 - 1. Thickness: 1/2 inch (12.7 mm).
 - 2. Long Edges: Tapered.
- C. Gypsum Board, Type X: ASTM C 1396/C 1396M.
 - 1. Thickness: 5/8 inch (15.9 mm).
 - 2. Long Edges: Tapered.

2.4 <u>TILE BACKING PANELS</u>

- A. Cementitious Backer Units: ANSI A118.9 and ASTM C 1288 or 1325, with manufacturer's standard edges.
 - 1. <u>Products</u>: Subject to compliance with requirements, provide one of the following:
 - a. <u>National Gypsum Company</u>, Permabase Cement Board.
 - b. <u>USG Corporation; DUROCK Cement Board.</u>
 - 2. Thickness: 5/8 inch (15.9 mm).
 - 3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

2.5 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
 - 1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized steel sheet.
 - 2. Shapes:
 - a. Cornerbead.
 - b. LC-Bead: J-shaped; exposed long flange receives joint compound.
 - c. Expansion (control) joint.

2.6 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475/C 475M.
- B. Joint Tape:
 - 1. Interior Gypsum Board: Paper.
- C. Joint Compound for Interior Gypsum Board: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
 - 1. Prefilling: At open joints, and damaged surface areas, use setting-type taping compound.
 - 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use drying-type, all-purpose compound.
 - a. Use setting-type compound for installing paper-faced metal trim accessories.

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- 3. Fill Coat: For second coat, use drying-type, all-purpose compound.
- 4. Finish Coat: For third coat, use drying-type, all-purpose compound.

2.7 <u>AUXILIARY MATERIALSs</u>

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
 - 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch (0.84 to 2.84 mm) thick.
- C. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.
 - 1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.
 - 2. Recycled Content of Blankets: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 70 percent.
- D. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Accumetric LLC; BOSS 824 Acoustical Sound Sealant.
 - b. Grabber Construction Products; Acoustical Sealant GSC.
 - c. Pecora Corporation; AC-20 FTR.
 - d. Specified Technologies, Inc.; Smoke N Sound Acoustical Sealant.
 - e. USG Corporation; SHEETROCK Acoustical Sealant.
 - 2. Acoustical joint sealant shall have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

3.0 PART 3 - EXECUTION

3.1 <u>EXAMINATION</u>

A. Examine areas and substrates including welded hollow-metal frames and framing, with Installer present, for compliance with requirements and other conditions affecting performance.

GYPSUM BOARD

- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

- A. Comply with ASTM C 840.
- B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch (1.5 mm) of open space between panels. Do not force into place.
- D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- E. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- (6.4- to 12.7-mm-) wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- F. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
- G. STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written recommendations for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.
- H. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

3.3 <u>APPLYING INTERIOR GYPSUM BOARD</u>

- A. Install interior gypsum board in the following locations:
 - 1. Type X: As indicated on Drawings.
- B. Single-Layer Application:
 - 1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.

- 2. On partitions/walls, apply gypsum panels vertically (parallel to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
 - a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
 - b. At stairwells and other high walls, install panels horizontally unless otherwise indicated or required by fire-resistance-rated assembly.
- 3. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
- 4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.
- C. Multilayer Application:
 - 1. On partitions/walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.
 - 2. Fastening Methods: Fasten base layers and face layers separately to supports with screws.

3.4 <u>APPLYING TILE BACKING PANELS</u>

- A. Cementitious Backer Units: ANSI A108.11, at locations indicated to receive tile.
- B. Where tile backing panels abut other types of panels in same plane, shim surfaces to produce a uniform plane across panel surfaces.

3.5 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints at locations indicated on Drawings.
- C. Interior Trim: Install in the following locations:
 - 1. Cornerbead: Use at outside corners.
 - 2. LC-Bead: Use at exposed panel edges.
 - 3. Angle Moulding: Use at perimeter to fasten panel edges.

3.6 FINISHING GYPSUM BOARD

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints, and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:
 - 1. Level 1: Concealed areas.
 - 2. Level 4: At interior panel surfaces that will be exposed to view unless otherwise indicated.
 - a. Primer and its application to surfaces are specified in other Division 09 Sections.

3.7 <u>PROTECTION</u>

- A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
- B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- C. Remove and replace panels that are wet, moisture damaged, and mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 092900

SECTION 093013 - CERAMIC TILING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Porcelain tile.
 - 2. Glazed ceramic tile.
 - 3. Wall and wall base trim units.
 - 4. Crack isolation membrane.

1.3 DEFINITIONS

- A. General: Definitions in the ANSI A108 series of tile installation standards and in ANSI A137.1 apply to Work of this Section unless otherwise specified.
- B. ANSI A108 Series: ANSI A108.01, ANSI A108.02, ANSI A108.1A, ANSI A108.1B, ANSI A108.1C, ANSI A108.4, ANSI A108.5, ANSI A108.6, ANSI A108.8, ANSI A108.9, ANSI A108.10, ANSI A108.11, ANSI A108.12, ANSI A108.13, ANSI A108.14, ANSI A108.15, ANSI A108.16, and ANSI A108.17, which are contained in its "Specifications for Installation of Ceramic Tile."
- C. Face Size: Actual tile size, excluding spacer lugs.
- D. Module Size: Actual tile size plus joint width indicated.

1.4 PERFORMANCE REQUIREMENTS

- A. Static Coefficient of Friction: For tile installed on walkway surfaces, provide products with the following values as determined by testing identical products per ASTM C 1028:
 - 1. Level Surfaces: Minimum 0.6.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples for Verification:

- 1. Full-size units of each type and composition of tile and for each color and finish required.
- 2. Stone thresholds in 6-inch (150-mm) lengths.
- 3. Metal control joint strips in 6-inch (150-mm) lengths.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Certificates: For each type of product.
- C. Product Test Reports: For tile-setting and -grouting products.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Tile and Trim Units: Furnish quantity of full-size units equal to 2 percent of amount installed for each type, composition, color, pattern, and size indicated.
 - 2. Grout: Furnish quantity of grout equal to 2 percent of amount installed for each type, composition, and color indicated.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirements in ANSI A137.1 for labeling tile packages.
- B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination can be avoided.
- D. Store liquid materials in unopened containers and protected from freezing.

1.9 FIELD CONDITIONS

A. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations for Tile: Obtain tile from single source or producer.

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- 1. Obtain tile of each type and color or finish from same production run and of consistent quality in appearance and physical properties for each contiguous area.
- B. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from single manufacturer and each aggregate from single source or producer.
 - 1. Obtain setting and grouting materials, except for unmodified Portland cement and aggregate, from single manufacturer.
 - 2. Obtain crack isolation membrane, except for sheet products, from manufacturer of setting and grouting materials.
- C. Source Limitations for Other Products: Obtain each of the following products specified in this Section from a single manufacturer:
 - 1. Crack isolation membrane.

2.2 PRODUCTS, GENERAL

- A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1 for types, compositions, and other characteristics indicated.
 - 1. Provide tile complying with Standard grade requirements.
- B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI A108.02, ANSI standards referenced in other Part 2 articles, ANSI standards referenced by TCNA installation methods specified in tile installation schedules, and other requirements specified.
- C. Factory Blending: For tile exhibiting color variations within ranges, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.

2.3 TILE PRODUCTS

- A. System Warranty: Crack Isolation Product, Thin Set Mortar Product, and Grout product shall be by the same manufacturer and result in 25-year system warranty.
- B. Ceramic Tile Type [**PCT-1**]: Porcelain tile.
 - 1. Basis-of-Design Product: Daltile, Slate Attache.
 - 2. Color: Refer to drawings (finish schedule).
 - 3. Certification: Tile certified by the Porcelain Tile Certification Agency.
 - 4. Face Size: 2 by 2 inches mosaic.
 - 5. Shade Variation: V3 High
 - 6. Thickness: .25 inch.
 - 7. Face: Plain with square edges.
 - 8. Dynamic Coefficient of Friction: Not less than 0.42.
 - 9. Grout Color: As selected by Architect from manufacturer's full range.

- C. Ceramic Tile Type [**CT-1**]: Glazed Ceramic Tile.
 - 1. Basis-of-Design Product: Daltile, Showscape Collection.
 - 2. Color: Refer to drawings (finish schedule).
 - 3. Face Size: 12 by 24 inches nominal.
 - 4. Thickness: .375 inch.
 - 5. Face: Pattern of design indicated with cushion edges.
 - 6. Finish: Glazed.
 - 7. Pattern: Reverse Dot.
 - 8. Tile Color, Glaze, and Pattern: As indicated by manufacturer's designations.
 - 9. Grout Color: As selected by Architect from manufacturer's full range.
 - 10. Lay Pattern: Grid Pattern (aka 'Stacked Bond' pattern).

2.4 TRIM UNITS

- A. Wall Tile Trim Unit.
 - 1. Basis-of-Design Product: Schluter, QuaDec.
 - 2. Size: Compatible with ceramic tile.
 - 3. Material: Brushed stainless steel 304.
- B. Wall Tile To Floor Tile (MCB-1)
 - 1. Basis-of-Design Product: Schluter, DILEX-AHK.
 - 2. Material: Satin Anodized Aluminum.
- C. Wall Tile To Concrete Floor (MCB-2)
 - 1. Basis-of-Design Product: Schluter, DILEX-AHKA.
 - 2. Material: Satin Anodized Aluminum.

2.5 CRACK ISOLATION MEMBRANE

- A. General: Manufacturer's standard product, selected from the following, that complies with ANSI A118.12 for high performance and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.
- B. Crack Isolation Membrane: One-part, fluid-applied product intended for use as both a crack isolation membrane.
 - 1. Basis-of-Design Product: Laticrete, 'Hydroban', or equal.

2.6 SETTING MATERIALS

- A. Modified Dry-Set Mortar (Thinset): ANSI A118.4.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Laticrete, #254 Platinum, polymer modified thinset mortar.
 - b. TEC, Superflex, polymer modified thinset mortar.

2.7 GROUT MATERIALS

- A. High-Performance Tile Grout: ANSI A118.7.
 - 1. Basis-of-Design Product: Laticrete, 'Permacolor' Grout, or equal.
 - 2. Color: As selected by Architect from Manufacturer's full range.

2.8 MIXING MORTARS AND GROUT

- A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.
- B. Add materials, water, and additives in accurate proportions.
- C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
 - 1. Verify that substrates for setting tile are firm; dry; clean; free of coatings that are incompatible with tile-setting materials, including curing compounds and other substances that contain soap, wax, oil, or silicone; and comply with flatness tolerances required by ANSI A108.01 for installations indicated.
 - 2. Verify that concrete substrates for tile floors installed with thinset mortar comply with surface finish requirements in ANSI A108.01 for installations indicated.
 - a. Verify that surfaces that received a steel trowel finish have been mechanically scarified.
 - b. Verify that protrusions, bumps, and ridges have been removed by sanding or grinding.
 - 3. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed.
 - 4. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Architect.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Fill cracks, holes, and depressions in concrete substrates for tile floors installed with thinset mortar with trowelable leveling and patching compound specifically recommended by tile-setting material manufacturer.
- B. Blending: For tile exhibiting color variations, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

3.3 INSTALLATION OF CERAMIC TILE

- A. Comply with TCNA's "Handbook for Ceramic, Glass, and Stone Tile Installation" for TCNA installation methods specified in tile installation schedules. Comply with parts of the ANSI A108 series "Specifications for Installation of Ceramic Tile" that are referenced in TCNA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.
 - 1. For the following installations, follow procedures in the ANSI A108 series of tile installation standards for providing 95 percent mortar coverage:
 - a. Tile floors in wet areas.
 - b. Tile floors consisting of tiles 8 by 8 inches (200 by 200 mm) or larger.
- B. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- C. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
- D. Provide manufacturer's standard trim shapes where necessary to eliminate exposed tile edges.
- E. Where accent tile differs in thickness from field tile, vary setting-bed thickness so that tiles are flush.
- F. Jointing Pattern: Lay tile in grid pattern unless otherwise indicated. Lay out tile work and center tile fields in both directions in each space or on each wall area. Lay out tile work to minimize the use of pieces that are less than half of a tile. Provide uniform joint widths unless otherwise indicated.
 - 1. Where adjoining tiles on floor, base, walls, or trim are specified or indicated to be same size, align joints.
- G. Joint Widths: Unless otherwise indicated, install tile with the following joint widths:
 - 1. Porcelain Tile: 1/4 inch (6.4 mm).

3.4 INSTALLATION OF CRACK ISOLATION MEMBRANE

- A. Install crack isolation membrane to comply with ANSI A108.17 and manufacturer's written instructions to produce membrane of uniform thickness that is bonded securely to substrate.
- B. Apply two (2) coats, rolled-on. Apply 2nd coat perpendicular to 1st coats.
- C. Install to combined coating thickness of no less than 0.020-0.030 inches thick.
- D. Allow crack isolation membrane to cure before installing tile or setting materials over it.

3.5 ADJUSTING AND CLEANING

- A. Remove and replace tile that is damaged or that does not match adjoining tile. Provide new matching units, installed as specified and in a manner to eliminate evidence of replacement.
- B. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
 - 1. Remove grout residue from tile as soon as possible.
 - 2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.

3.6 **PROTECTION**

- A. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear. If recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors.
- B. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.
- C. Before final inspection, remove protective coverings and rinse neutral protective cleaner from tile surfaces.

END OF SECTION 093013

SECTION 095113 - ACOUSTICAL PANEL CEILINGS

1.0 <u>PART 1 – GENERAL</u>

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 <u>SUMMARY</u>

- A. Section includes acoustical panels and exposed suspension systems for ceilings.
- B. Products furnished, but not installed under this Section, include anchors, clips, and other ceiling attachment devices to be cast in concrete.

1.3 <u>DEFINITIONS</u>

- A. AC: Articulation Class
- B. CAC: Ceiling Attenuation Class
- C. LR: Light Reflectance Coefficient
- D. NRC: Noise Reduction Coefficient

1.4 <u>ACTION SUBMITTALS</u>

- A. Product Data: For each type of product.
- B. Samples for Verification: For each component indicated and for each exposed finish required, prepared on Samples of size indicated below.
 - 1. Acoustical Panel: Set of 6-inch- (150-mm-) square Samples of each type, color, pattern, and texture.
 - 2. Exposed Suspension-System Members, Moldings, and Trim: Set of 6-inch-(150-mm-) long Samples of each type, finish, and color.

1.5 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
 - 1. Suspended ceiling components.
 - 2. Structural members to which suspension systems will be attached.
 - 3. Size and location of initial access modules for acoustical panels.

- 4. Items penetrating finished ceiling including the following:
 - a. Lighting fixtures.
 - b. Air outlets and inlets.
- 5. Perimeter moldings.
- B. Qualification Data: For testing agency.
- C. Product Test Reports: For each acoustical panel ceiling, for tests performed by a qualified testing agency.
- D. Evaluation Reports: For each acoustical panel ceiling suspension system and anchor and fastener type, from ICC-ES.
- E. Field quality-control reports.

1.6 <u>CLOSEOUT SUBMITTALS</u>

A. Maintenance Data: For finishes to include in maintenance manuals.

1.7 EXTRA MATERIAL

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Acoustical Ceiling Panels: Full-size panels equal to 2 percent of quantity installed.
 - 2. Suspension-System Components: Quantity of each exposed component equal to 2 percent of quantity installed.

1.8 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to NVLAP for testing indicated.
- B. Source Limitations:
 - 1. Acoustical Ceiling Panel: Obtain each type through one source from a single manufacturer.
 - 2. Suspension System: Obtain each type through one source from a single manufacturer.
- C. Surface-Burning Characteristics: Provide acoustical panels with the following surfaceburning characteristics complying with ASTM E 1264 for Class A materials as determined by testing identical products per ASTM E 84:
 - 1. Smoke-Developed Index: 450 or less.

- D. Seismic Standard: Provide acoustical panel ceilings designed and installed to withstand the effects of earthquake motions according to the following:
 - 1. Standard for Ceiling Suspension Systems Requiring Seismic Restraint: Comply with ASTM E580.
 - 2. CISCA's Recommendations for Acoustical Ceilings: Comply with CISCA's "Recommendations for Direct-Hung Acoustical Tile and Lay-in Panel Ceilings Assemblies—Seismic Zones 0-2."
 - 3. CISCA's Guidelines for Systems Requiring Seismic Restraint: Comply with CISCA's "Guidelines for Seismic Restraint of Direct-Hung Suspended Ceiling Assemblies—Seismic Zones 3 & 4."
 - 4. UBC Standard 25-2, "Metal Suspension Systems for Acoustical Tile and for Layin Panel Ceilings."
 - ASCE7, "Minimum Design Loads for Buildings and Other Structures": Section 9, "Earthquake Loads."

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical panels, suspension-system components, and accessories to Project site in original, unopened packages and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical panels carefully to avoid chipping edges or damaging units in any way.

1.10 FIELD CONDITIONS

- A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
 - 1. Pressurized Plenums: Operate ventilation system for not less than 48 hours before beginning acoustical panel ceiling installation.

1.11 COORDINATION

A. Coordinate layout and installation of acoustical panels and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

2.0 PART 2 – PRODUCTS

2.1 ACOUSTICAL PANELS, GENERAL

- A. Acoustical Panel Standard: Provide manufacturer's standard panels of configuration indicated that comply with ASTM E 1264 classifications as designated by types, patterns, acoustical ratings, and light reflectance unless otherwise indicated.
- B. Acoustical Panel Colors and Patterns: Match appearance characteristics indicated for each product type.
 - 1. Where appearance characteristics of acoustical panels are indicated by referencing pattern designations in ASTM E 1264 and not manufacturers' proprietary product designations, provide products selected by Architect from each manufacturer's full range that comply with requirements indicated for type, pattern, color, light reflectance, acoustical performance, edge detail, and size.

2.2 ACOUSTICAL PANELS (ACT-1)

- A. <u>Basis-of-Design Product</u>: Subject to compliance with requirements, provide USG; Halcyon #98225, or comparable product by one of the following:
 - 1. <u>CertainTeed Corp</u>.
 - 2. <u>Tectum Inc</u>.
 - 3. Armstrong.
- B. Classification: Provide panels complying with ASTM E 1264 for type, form, and pattern as follows:
 - 1. Type and Form: Type XII, mineral base with membrane-faced overlay; Form 2, water felted.
 - 2. Pattern: G (smooth).
- C. Color: Flat White 050.
- D. LR: Not less than 0.90.
- E. NRC: Not less than 0.90.
- F. CAC: Not less than 20.
- G. Edge/Joint Detail: FL.
- H. Thickness: 3/4 inch (19 mm).
- I. Modular Size: 24 by 24 inches (610 by 610 mm).
- J. Suspension System and trim:

- 1. Provide Compasso Trim, 10-inches high. Silver Satin 002 where indicated on the finish schedule designated as **(SCS-1)**.
- 2. All other locations to receive DXFF.
- K. Broad Spectrum Antimicrobial Fungicide and Bactericide Treatment: Provide acoustical panels treated with manufacturer's standard antimicrobial formulation that inhibits fungus, mold, mildew, and gram-positive and gram-negative bacteria and showing no mold, mildew, or bacterial growth when tested according to ASTM D 3273 and evaluated according to ASTM D 3274 or ASTM G 21.
- L. Sag Resistance.
- M. No Added/Low VOC.

2.3 ACOUSTICAL PANELS (ACT-2)

- A. <u>Basis-of-Design Product</u>: Subject to compliance with requirements, provide USG; Kitchen Lay-In Panel #3210, or comparable product by one of the following:
 - 1. <u>CertainTeed Corp</u>.
 - 2. <u>Tectum Inc</u>.
 - 3. Armstrong.
- B. Classification: Provide panels complying with ASTM E 1264 for type, form, and pattern as follows:
 - 1. Type and Form: Type IX, Form 2.
 - 2. Pattern: G (smooth).
- C. Color: Flat White 050.
- D. LR: Not less than 0.90.
- E. CAC: Not less than 35.
- F. Edge/Joint Detail: SQ.
- G. Thickness: 5/8 inch.
- H. Modular Size: 24 by 24 inches (610 by 610 mm).
- I. Suspension System and trim:
 - 1. Provide USG DX suspension system.
 - a. Color: Flat White 050.

2.4 METAL SUSPENSION SYSTEMS, GENERAL

- A. Metal Suspension-System Standard: Provide manufacturer's standard direct-hung metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable requirements in ASTM C 635/C 635M.
- B. Attachment Devices: Size for five times the design load indicated in ASTM C 635/C 635M, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.
- C. Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:
 - 1. Zinc-Coated, Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
- D. Hanger Rods: Mild steel, zinc coated or protected with rust-inhibitive paint.
- E. Angle Hangers: Angles with legs not less than 7/8 inch (22 mm) wide; formed with 0.04-inch- (1-mm-) thick, galvanized-steel sheet complying with ASTM A 653/A 653M, G90 (Z275) coating designation; with bolted connections and 5/16-inch- (8-mm-) diameter bolts.
- F. Seismic Stabilizer Bars: Manufacturer's standard perimeter stabilizers designed to accommodate seismic forces.

2.5 <u>METAL SUSPENSION SYSTEM</u>

- A. <u>Basis-of-Design Product</u>: Subject to compliance with requirements, provide USG; DXFF, or comparable product by one of the following:
 - 1. <u>CertainTeed Corp</u>.
 - 2. <u>Chicago Metallic Corporation</u>.
 - 3. Armstrong
- B. Wide-Face, Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet; prepainted, electrolytically zinc coated, or hot-dip galvanized according to ASTM A 653/A 653M, not less than G30 (Z90) coating designation; with prefinished 9/16-inch- (24-mm-) wide metal caps on flanges.
 - 1. Structural Classification: Intermediate-duty system.
 - 2. End Condition of Cross Runners: Override (stepped or butt-edge) type.
 - 3. Face Design: Silver Satin 002.
 - 4. Cap Material: Steel cold-rolled sheet.
 - 5. Cap Finish: Silver Satin 002.

- 6. Color Locations:
 - a. Press Box: Silver Satin 002
 - b. All other areas: Flat White 050

2.6 METAL EDGE MOLDINGS AND TRIM

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Armstrong World Industries
 - 2. Chicago Metallic Corporation
 - 3. USG Interiors, Inc.
- B. Roll-Formed, Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that comply with seismic design requirements; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension-system runners.
 - 1. Provide manufacturer's standard edge moldings that fit acoustical panel edge details and suspension systems indicated and that match width and configuration of exposed runners unless otherwise indicated.
 - 2. For lay-in panels with reveal edge details, provide stepped edge molding that forms reveal of same depth and width as that formed between edge of panel and flange at exposed suspension member.
 - 3. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.

3.0 <u>PART 3 – EXECUTION</u>

3.1 <u>EXAMINATION</u>

- A. Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.
- B. Examine acoustical panels before installation. Reject acoustical panels that are wet, moisture damaged, or mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 <u>PREPARATION</u>

A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders, and comply with layout shown on reflected ceiling plans.

3.3 INSTALLATION

- A. General: Install acoustical panel ceilings to comply with ASTM C 636/C 636M and seismic design requirements indicated, according to manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."
- B. Suspend ceiling hangers from building's structural members and as follows:
 - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
 - 2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, counter-splaying, or other equally effective means.
 - 3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension-system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.
 - 4. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, postinstalled mechanical or adhesive anchors, or power-actuated fasteners that extend through forms into concrete.
 - 5. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.
 - 6. Do not attach hangers to steel deck tabs.
 - 7. Do not attach hangers to steel roof deck. Attach hangers to structural members.
 - 8. Space hangers not more than 48 inches (1200 mm) o.c. along each member supported directly from hangers unless otherwise indicated; provide hangers not more than 8 inches (200 mm) from ends of each member.
 - 9. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.
- C. Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers, without attaching to permanent metal forms, steel deck, or steel deck tabs. Fasten bracing wires into concrete with cast-in-place or postinstalled anchors.

- D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.
 - 1. Screw attach moldings to substrate at intervals not more than 16 inches (400 mm) o.c. and not more than 3 inches (75 mm) from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet (3.2 mm in 3.6 m). Miter corners accurately and connect securely.
 - 2. Do not use exposed fasteners, including pop rivets, on moldings and trim.
- E. Install suspension-system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
- F. Install acoustical panels with undamaged edges and fit accurately into suspension-system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.
 - 1. Arrange directionally patterned acoustical panels as follows:
 - a. As indicated on reflected ceiling plans.

3.4 <u>CLEANING</u>

A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension-system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 095113

SECTION 096513 - RESILIENT BASE AND ACCESSORIES

1.0 <u>PART 1 – GENERAL</u>

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Resilient base.
- B. Related Sections:
 - 1. Division 09 Section "Resilient Tile Flooring" for resilient floor tile.

1.3 <u>ACTION SUBMITTALS</u>

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each color and texture specified, not less than 12 inches (300 mm) long.

1.4 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Furnish not less than 10 linear feet (3 linear m) for every 500 linear feet (150 linear m) or fraction thereof, of each type, color, pattern, and size of resilient product installed.

1.5 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.
 - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

1.6 <u>DELIVERY, STORAGE, AND HANDLING</u>

A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F (10 deg C) or more than 90 deg F (32 deg C).

1.7 <u>FIELD CONDITIONS</u>

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F (21 deg C) or more than 95 deg F (35 deg C), in spaces to receive resilient products during the following time periods:
 - 1. 48 hours before installation.
 - 2. During installation.
 - 3. 48 hours after installation.
- B. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F (13 deg C) or more than 95 deg F (35 deg C).
- C. Install resilient products after other finishing operations, including painting, have been completed.

2.0 <u>PART 2 – PRODUCTS</u>

2.1 <u>PERFORMANCE REQUIREMENTS</u>

A. Low-Emitting Materials: Flooring system shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

2.2 <u>THERMOPLASTIC-RUBBER BASE (RB-1)</u>

- A. Basis of Design Subject to compliance with requirements, Roppe Corporation; Pinnacle, or comparable product by one of the following:
 - 1. Johnsonite; A Tarkett Company.
 - 2. Nora Systems, Inc.
- B. Product Standard: ASTM F 1861, Type TP (rubber, thermoplastic).
 - 1. Group: I (solid, homogeneous).
 - 2. Style and Location:
 - a. Standard No Toe: Provide at all carpeted areas.
 - b. Style B, Cove: Provide at all other areas
- C. Thickness: 0.125 inch (3.2 mm).
- D. Height: 4 inches (102 mm).

- E. Lengths: Coils in manufacturer's standard length.
- F. Outside Corners: Preformed.
- G. Inside Corners: Preformed.
- H. Finish: Satin
- I. Colors: #150 Dark Gray.

2.3 RUBBER MOLDING ACCESSORY

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Roppe Corporation, USA. (#22 Reducer Strip)
- B. Description: Rubber reducer strip for resilient flooring.
- C. Profile and Dimensions: .125" (3.175 mm) wedge shaped.
- D. Locations: At all rubber flooring to exposed concrete transitions.
- E. Colors and Patterns: Roppe #150 Dark Gray.

2.4 INSTALLATION MATERIALS

- A. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.
 - 1. Adhesives shall have a VOC content of 50 g/L or less.
 - 2. Adhesives shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

3.0 PART 3 – EXECUTION

3.1 <u>EXAMINATION</u>

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
 - 1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

1. Installation of resilient products indicates acceptance of surfaces and conditions.

3.2 <u>PREPARATION</u>

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- C. Do not install resilient products until they are the same temperature as the space where they are to be installed.
 - 1. At least 48 hours in advance of installation, move resilient products and installation materials into spaces where they will be installed.
- D. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

3.3 RESILIENT BASE INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.
- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.
- F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.
- G. Preformed Corners: Install preformed corners before installing straight pieces.

3.4 <u>RESILIENT ACCESSORY INSTALLATION</u>

- A. Comply with manufacturer's written instructions for installing resilient accessories.
- B. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of floor covering that would otherwise be exposed.

3.5 <u>CLEANING AND PROTECTION</u>

A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.

- B. Perform the following operations immediately after completing resilient-product installation:
 - 1. Remove adhesive and other blemishes from exposed surfaces.
 - 2. Sweep and vacuum horizontal surfaces thoroughly.
 - 3. Damp-mop horizontal surfaces to remove marks and soil.
- C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- D. Cover resilient products subject to wear and foot traffic until Substantial Completion.

END OF SECTION 096513

SECTION 096813 - TILE CARPETING

1.0 <u>PART 1 - GENERAL</u>

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 <u>SUMMARY</u>

- A. Section includes modular, tufted carpet tile.
- B. Related Requirements:
 - 1. Division 09 Section "Resilient Base and Accessories" for resilient wall base and accessories installed with carpet tile.

1.3 <u>ACTION SUBMITTALS</u>

- A. Product Data: For each type of product.
 - 1. Include manufacturer's written data on physical characteristics, durability, and fade resistance.
 - 2. Include installation recommendations for each type of substrate.
- B. Samples: For each of the following products and for each color and texture required. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.
 - 1. Carpet Tile: Full-size Sample.
 - 2. Exposed Edge, Transition, and Other Accessory Stripping: 12-inch- (300-mm-) long Samples.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Test Reports: For carpet tile, for tests performed by a qualified testing agency.
- C. Sample Warranty: For special warranty.

1.5 <u>CLOSEOUT SUBMITTALS</u>

- A. Maintenance Data: For carpet tiles to include in maintenance manuals. Include the following:
 - 1. Methods for maintaining carpet tile, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.
 - 2. Precautions for cleaning materials and methods that could be detrimental to carpet tile.

1.6 <u>MAINTENANCE MATERIAL SUBMITTALS</u>

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Carpet Tile: Full-size units equal to 5 percent of amount installed for each type indicated, but not less than 10 sq. yd. (8.3 sq. m).

1.7 **QUALITY ASSURANCE**

A. Installer Qualifications: An experienced installer who is certified by the International Certified Floorcovering Installers Association at the Master II certification level.

1.8 <u>DELIVERY, STORAGE, AND HANDLING</u>

A. Comply with CRI 104.

1.9 <u>FIELD CONDITIONS</u>

- A. Comply with CRI 104 for temperature, humidity, and ventilation limitations.
- B. Environmental Limitations: Do not deliver or install carpet tiles until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at occupancy levels during the remainder of the construction period.
- C. Do not install carpet tiles over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet tile manufacturer.

1.10 WARRANTY

- A. Special Warranty for Carpet Tiles: Manufacturer agrees to repair or replace components of carpet tile installation that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, more than 10 percent edge raveling, snags, runs, dimensional stability, excess static discharge, loss of tuft bind strength, loss of face fiber, and delamination.
 - 2. Warranty Period: 15 years from date of Substantial Completion.

2.0 PART 2 - PRODUCTS

2.1 CARPET TILE (CPT-1)

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Interface, Inc. CT 101, or comparable product:
- B. Color: 103976 Steel.
- C. Pattern: Non-Directional.
- D. Fiber Content: 100 percent nylon 6, 6
- E. Pile Characteristic: Tufted textured loop.
- F. Density: 5,885 oz./cu. yd. (221.7 g/cu. cm).
- G. Pile Thickness: 0.104 inches (2.6mm) for finished carpet tile.
- H. Stitches: 10 per inch (39.37 ends/10cm).
- I. Surface Pile Weight: 17 oz./sq. yd. (576 g/sq. m).
- J. Backing System: NexStep.
- K. Size: 19.69 by 19.69 inches (50 by 50 cm).
- L. Applied Soil-Resistance Treatment: Protekt.

2.2 INSTALLATION ACCESSORIES

A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet tile manufacturer.

Adhesives: Water-resistant, mildew-resistant, non-staining, pressure-sensitive type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet tile and is recommended by carpet tile manufacturer for releasable installation.

- 1. Adhesives shall have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- C. Accessories: Provide rubber transition strips at all locations where there is a change in flooring material.
 - 1. Color: To be selected by Architect from manufacturers full range of colors.

3.0 PART 3 - EXECUTION

3.1 <u>EXAMINATION</u>

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet tile performance. Examine carpet tile for type, color, pattern, and potential defects.
- B. Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and the following:
 - 1. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by carpet tile manufacturer.
 - 2. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 <u>PREPARATION</u>

- A. General: Comply with CRI 104, Section 6.2, "Site Conditions; Floor Preparation," and with carpet tile manufacturer's written installation instructions for preparing substrates indicated to receive carpet tile installation.
- B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, depressions, and protrusions in substrates. Fill or level cracks, holes and depressions 1/8 inch (3 mm) wide or wider and protrusions more than 1/32 inch (0.8 mm) unless more stringent requirements are required by manufacturer's written instructions.
- C. Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by carpet tile manufacturer.
- D. Broom and vacuum clean substrates to be covered immediately before installing carpet tile.

3.3 <u>INSTALLATION</u>

- A. General: Comply with CRI 104, Section 14, "Carpet Modules," and with carpet tile manufacturer's written installation instructions.
- B. Installation Method: Glue down; install every tile with full-spread, releasable, pressuresensitive adhesive.
- C. Maintain dye lot integrity. Do not mix dye lots in same area.
- D. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet tile manufacturer.
- E. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on finish flooring as marked on subfloor. Use nonpermanent, non-staining marking device.
- G. Install pattern parallel to walls and borders.

3.4 <u>CLEANING AND PROTECTION</u>

- A. Perform the following operations immediately after installing carpet tile:
 - 1. Remove excess adhesive, seam sealer, and other surface blemishes using cleaner recommended by carpet tile manufacturer.
 - 2. Remove yarns that protrude from carpet tile surface.
 - 3. Vacuum carpet tile using commercial machine with face-beater element.
- B. Protect installed carpet tile to comply with CRI 104, Section 16, "Protecting Indoor Installations."
- C. Protect carpet tile against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet tile manufacturer.

END OF SECTION 096813

SECTION 099113 - EXTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes surface preparation and the application of paint systems on the following exterior substrates:
 - 1. Concrete.
 - 2. Clay masonry.
 - 3. Wood.
- B. Related Requirements:
 - 1. Section 099123 "Interior Painting" for interior painting.
 - 2. Section 099300 "Staining and Transparent Finishing" for transparent finishing.

1.3 DEFINITIONS

- A. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D523.
- B. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D523.
- C. MPI Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D523.
- D. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D523.
- E. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D523.
- F. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D523.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
 - 1. Include printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.
 - 2. Indicate VOC content.

- B. Samples for Initial Selection: For each type of topcoat product (color and gloss).
- C. Product List: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

1.5 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Architect will select one surface to represent surfaces and conditions for application of each paint system.
 - a. Vertical and Horizontal Surfaces: Provide samples of at least 50 sq. ft.
 - b. Other Items: Architect will designate items or areas required.
 - 2. Final approval of color selections will be based on mockups.
 - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
 - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).
 - 1. Maintain containers in clean condition, free of foreign materials and residue.
 - 2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Benjamin Moore & Co.
 - 2. ICI Paints.
 - 3. Sherwin-Williams Company (The).

2.2 PAINT, GENERAL

- A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."
- B. Material Compatibility:
 - 1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - 2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
- C. Colors: As selected by Architect from manufacturer's full range and as indicated in a color schedule.

2.3 PRIMERS/SEALERS

- A. Primer Sealer, Latex, Exterior:
 - 1. Product: Sherwin Williams Exterior Latex Wood Primer (B42W08041), or equal.
- B. Primer, Alkali Resistant, Water Based: MPI #3.
 - 1. Product: Sherwin Williams Loxon Concrete and Masonry Primer/Sealer (A24W8300), or equal.

2.4 WATER-BASED PAINTS

- A. Latex, Exterior, Institutional Low Odor/VOC, Satin (Gloss Level 4).
 - 1. Product: Sherwin Williams Duration, Exterior Acrylic Latex, or equal.

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PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - 1. Concrete: 12 percent.
 - 2. Masonry (Clay and CMUs): 12 percent.
 - 3. Wood: 15 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- D. Proceed with coating application only after unsatisfactory conditions have been corrected.
 - 1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
 - 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- E. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceeds that permitted in manufacturer's written instructions.
- F. Wood Substrates:

- 1. Scrape and clean knots. Before applying primer, apply coat of knot sealer recommended in writing by topcoat manufacturer for exterior use in paint system indicated.
- 2. Sand surfaces that will be exposed to view, and dust off.
- 3. Prime edges, ends, faces, undersides, and backsides of wood.
- 4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
 - 3. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.
 - 4. Paint entire exposed surface of window frames and sashes.
 - 5. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 - 6. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint undercoats same color as topcoat, but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 EXTERIOR PAINTING SCHEDULE

- A. Concrete Substrates, Nontraffic Surfaces:
 - 1. Institutional Latex System:
 - a. Prime Coat: Alkali Resistant, Water Based.
 - b. Intermediate Coat: Latex, exterior, matching topcoat.
 - c. Topcoat: Latex, exterior, satin (Gloss Level 4).
- B. Clay Masonry Substrates:
 - 1. Institutional Latex System:
 - a. Prime Coat: Alkali Resistant, Water Based.
 - b. Intermediate Coat: Latex, exterior, matching topcoat.
 - c. Topcoat: Latex, exterior, satin (Gloss Level 4).
- C. Wood Substrates:
 - 1. Institutional Latex System:
 - a. Prime Coat: Primer, latex, for exterior wood.
 - b. Intermediate Coat: Latex, exterior, matching topcoat.
 - c. Topcoat: Latex, exterior, satin (Gloss Level 4).

END OF SECTION 099113

SECTION 099123 - INTERIOR PAINTING

1.0 PART 1 - GENERAL

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes surface preparation and the application of paint and floor coating systems on the following interior substrates:
 - 1. Concrete.
 - 2. Concrete masonry units (CMU).
 - 3. Steel.
 - 4. Wood
 - 5. Gypsum board.
- B. Related Requirements:
 - 1. Division 05 Sections for shop priming of metal substrates with primers specified in this Section.
 - 2. Division 08 Sections for factory priming interior doors.
 - 3. Division 09 Section "Staining and Transparent Finishing" for interior and exterior transparent finishing.

1.3 **DEFINITIONS**

- A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.
- B. Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- C. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- D. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.
- E. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
- F. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

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G. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.4 <u>ACTION SUBMITTALS</u>

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
- B. Samples for Verification: For each type of paint system and in each color and gloss of topcoat.
 - 1. Submit Samples on rigid backing, 8 inches (200 mm) square.
 - 2. Step coats on Samples to show each coat required for system.
 - 3. Label each coat of each Sample.
 - 4. Label each Sample for location and application area.
- C. Product List: For each product indicated, include the following:
 - 1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
 - 2. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.
 - 3. VOC content.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials[, from the same product run,] that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Paint: 5 percent, but not less than 1 gal. (3.8 L) of each material and color applied.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).
 - 1. Maintain containers in clean condition, free of foreign materials and residue.
 - 2. Remove rags and waste from storage areas daily.

1.7 <u>FIELD CONDITIONS</u>

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).

- B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.
- 2.0 PART 2 PRODUCTS

2.1 <u>MANUFACTURERS</u>

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Benjamin Moore & Co.
 - 2. ICI Paints.
 - 3. Sherwin-Williams Company (The).

2.2 PAINT, GENERAL

- A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."
- B. Material Compatibility:
 - 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- C. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction and, for interior paints and coatings applied at Project site, the following VOC limits, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 - 1. Flat Paints and Coatings: 50 g/L.
 - 2. Nonflat Paints and Coatings: 150 g/L.
 - 3. Primers, Sealers, and Undercoaters: 200 g/L.
 - 4. Anticorrosive and Antirust Paints Applied to Ferrous Metals: 250 g/L.
 - 5. Zinc-Rich Industrial Maintenance Primers: 340 g/L.
 - 6. Floor Coatings: 100 g/L.
- D. Colors: As indicated on Drawings.

2.3 <u>BLOCK FILLERS</u>

A. Block Filler, Latex, Interior/Exterior: MPI #4.

1. Product: Sherwin Williams – Protective & Marine (B42W00046), or equal.

2.4 <u>PRIMERS/SEALERS</u>

- A. Primer Sealer, Latex, Interior: MPI #50.
 - 1. Product: Sherwin Williams ProMar 200 Zero (B28W02600), or equal.
- B. Primer, Alkali Resistant, Water Based: MPI #3.
 - 1. Product: Sherwin Williams Loxon (A24W8300), or equal.
- C. Primer, Two-Component Epoxy:
 - 1. Product: Sherwin Williams ArmorSeal 1000HS, 2-Part Epoxy Floor Coating, reduced 1 pt/gal with Sherwin Williams R7K54), or equal.

2.5 <u>METAL PRIMERS</u>

- A. Primer, Rust-Inhibitive, Water Based: MPI #107.
 - 1. Product: Sherwin Williams Pro Industrial Pro-Cryl Universal Primer (B66W310), or equal.
- B. Primer, Galvanized, Water Based: MPI #134.
 - 1. Product: Sherwin Williams Pro Industrial Pro-Cryl Universal Primer (B66W310), or equal.

2.6 WATER-BASED PAINTS

- A. Latex, Interior, Institutional Low Odor/VOC, Semi-Gloss (Gloss Level 5): MPI #147.
 - 1. Product: Sherwin Williams All Surface Enamel HP Semi-Gloss (A41WQ8051), or equal.
- B. Light Industrial Coating, Interior, Water Based, Semi-Gloss (Gloss Level 5): MPI #153.
 - 1. Product: Sherwin Williams Pro Industrial Pre-Catalyzed Waterbased Semi-Gloss Epoxy (K46W00151), or equal.

2.7 FLOOR COATINGS (HPC-1)

- A. Coating, Polyurethane Based, for Concrete Floors:
 - 1. Product: Neogard; 70714-15 CTU with manufacturer standard anti-slip aggregate, or equal.
 - 2. Location: Refer to Finish Schedules for each building.

2.8 SOURCE QUALITY CONTROL

- A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:
 - 1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
 - 2. Testing agency will perform tests for compliance with product requirements.
 - 3. Owner may direct Contractor to stop applying coatings if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

3.0 PART 3 - EXECUTION

3.1 <u>EXAMINATION</u>

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - 1. Concrete: 12 percent.
 - 2. Masonry (Clay and CMU): 12 percent.
 - 3. Wood: 15 percent.
 - 4. Gypsum Board: 12 percent.
- C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
- D. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- E. Proceed with coating application only after unsatisfactory conditions have been corrected.
 - 1. Application of coating indicates acceptance of surfaces and conditions.

3.2 <u>PREPARATION</u>

- A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
 - 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- D. Concrete Vertical Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- E. Concrete Floor Substrates: Mechanically remove, (by grinding or shot blasting) laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants that might impair underlayment bond.
 - 1. After abrading, clean surfaces as required for satisfactory bond and as directed by manufacturer.
 - 2. Acid edging is not permitted
- F. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceed that permitted in manufacturer's written instructions.
- G. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer but not less than the following:
 - 1. SSPC-SP 2, "Hand Tool Cleaning."
- H. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- I. Wood Substrates:
 - 1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
 - 2. Sand surfaces that will be exposed to view, and dust off.

- 3. Prime edges, ends, faces, undersides, and backsides of wood.
- 4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

3.3 <u>APPLICATION</u>

- A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat and finish coat.
 - 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
 - 4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- E. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
 - 1. Paint the following work where exposed in equipment rooms:
 - a. Equipment, including panelboards.
 - b. Uninsulated metal piping.
 - c. Uninsulated plastic piping.
 - d. Pipe hangers and supports.
 - e. Metal conduit.
 - f. Plastic conduit.
 - g. Tanks that do not have factory-applied final finishes.

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- h. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
- 2. Paint the following work where exposed in occupied spaces:
 - a. Equipment, including panelboards.
 - b. Uninsulated metal piping.
 - c. Uninsulated plastic piping.
 - d. Pipe hangers and supports.
 - e. Metal conduit.
 - f. Plastic conduit.
 - g. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
 - h. Other items as directed by Architect.
- 3. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
 - 1. Contractor shall touch up and restore painted surfaces damaged by testing.
 - 2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.5 <u>CLEANING AND PROTECTION</u>

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 INTERIOR PAINTING SCHEDULE

- A. Concrete Substrates:
 - 1. Coating, Polyurethane Based for Concrete Floors.
 - a. Prime Coat: Primer, Two-component epoxy.
 - b. Intermediate Coat: Match top coat.
 - c. Topcoat: Coating, Polyurethane Based.
- B. CMU Substrates:
 - 1. Institutional Low-Odor/VOC Latex System:
 - a. Block Filler: Block filler, latex, interior/exterior.
 - b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
 - c. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5).
- C. Steel Substrates:
 - 1. Institutional Low-Odor/VOC Latex System:
 - a. Prime Coat: Primer, rust-inhibitive, water based.
 - b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
 - c. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5).
- D. Galvanized-Metal Substrates:
 - 1. Institutional Low-Odor/VOC Latex System:
 - a. Prime Coat: Primer, galvanized, water based.
 - b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
 - c. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5).
- E. Wood Substrates:
 - 1. Institutional Low-Odor/VOC Latex System:

- a. Prime Coat: Primer, latex, for interior wood, MPI #39.
- b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
- c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1), MPI #143.
 - 1) Location: Exposed wood roof deck.
- d. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5), MPI #147.
 - 1) Location: Wood trim.
- F. Gypsum Board Substrates:
 - 1. Institutional Low-Odor/VOC Latex System:
 - a. Prime Coat: Primer sealer, interior, institutional low odor/VOC.
 - b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
 - c. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5).

END OF SECTION 099123

SECTION 099300 - STAINING AND TRANSPARENT FINISHING

1.0 PART 1 - GENERAL

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 <u>SUMMARY</u>

- A. Section includes surface preparation and application of wood finishes on the following substrates:
 - 1. Interior Substrates:
 - a. Structural wood beams.
- B. Related Requirements:
 - 1. Division 09 Sections "Interior Painting" and "Exterior Painting" for paint.

1.3 **DEFINITIONS**

- A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.
- B. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.
- C. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
- D. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
- E. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.4 <u>ACTION SUBMITTALS</u>

- A. Product Data: For each type of product indicated. Include preparation requirements and application instructions.
- B. Samples for Initial Selection: For each type of product indicated.
- C. Product List: For each product indicated, include the following:
 - 1. Cross-reference to finish system and locations of application areas. Use same designations indicated on Drawings and in schedules.
 - 2. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the product proposed for use highlighted.

3. VOC content.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Stains and Transparent Finishes: 5 percent, but not less than 1 gal. (3.8 L) of each material and color applied.

1.6 **QUALITY ASSURANCE**

- A. Mockups: Apply mockups of each finish system indicated and each color selected to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Architect will select one surface to represent surfaces and conditions for application of each type of finish system and substrate. Use surface which will not be exposed to view when project is completed.
 - a. Vertical and Horizontal Surfaces: Provide samples of at least 10 sq. ft.
 - 2. Final approval of stain color selections will be based on mockups.
 - a. If preliminary stain color selections are not approved, apply additional mockups of additional stain colors selected by Architect at no added cost to Owner.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).
 - 1. Maintain containers in clean condition, free of foreign materials and residue.
 - 2. Remove rags and waste from storage areas daily.

1.8 <u>FIELD CONDITIONS</u>

- A. Apply finishes only when temperature of surfaces to be finished and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).
- B. Do not apply finishes when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.
- C. Do not apply exterior finishes in snow, rain, fog, or mist.

2.0 PART 2 - PRODUCTS

2.1 <u>MANUFACTURERS</u>

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Benjamin Moore & Co.
 - 2. ICI Paints.
 - 3. Sherwin-Williams Company (The).
- B. Basis of Design Product: Sherwin Williams, Woodscapes, Exterior Polyurethane Semi-Transparent House Stain.
- C. Number of Coats: Two.
- D. Color: As selected by Architect from manufacturer's full range.

2.2 MATERIALS, GENERAL

- A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."
- B. Material Compatibility:
 - 1. Provide materials for use within each finish system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - 2. For each coat in a finish system, provide products recommended in writing by manufacturers of topcoat for use in finish system and on substrate indicated.
- C. Stain Colors: As indicated on finish legend.

2.3 <u>SOURCE QUALITY CONTROL</u>

- A. Testing of Materials: Owner reserves the right to invoke the following procedure:
 - 1. Owner will engage the services of a qualified testing agency to sample wood finishing materials. Contractor will be notified in advance and may be present when samples are taken. If materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
 - 2. Testing agency will perform tests for compliance with product requirements.

3. Owner may direct Contractor to stop applying wood finishes if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying materials from Project site, pay for testing, and refinish surfaces finished with rejected materials. Contractor will be required to remove rejected materials from previously finished surfaces before refinishing with complying materials if the two finishes are incompatible or produce results that, in the opinion of the Architect, are aesthetically unacceptable.

3.0 PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Exterior Wood Substrates: 15 percent, when measured with an electronic moisture meter.
- C. Maximum Moisture Content of Interior Wood Substrates: 9 percent, when measured with an electronic moisture meter.
- D. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- E. Proceed with finish application only after unsatisfactory conditions have been corrected.
 - 1. Beginning finish application constitutes Contractor's acceptance of substrates and conditions.

3.2 <u>PREPARATION</u>

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and finishing.
 - 1. After completing finishing operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- C. Clean and prepare surfaces to be finished according to manufacturer's written instructions for each particular substrate condition and as specified.
 - 1. Remove dust, dirt, oil, and grease by washing with a detergent solution; rinse thoroughly with clean water and allow to dry. Remove grade stamps and pencil marks by sanding lightly. Remove loose wood fibers by brushing.

- 2. Remove mildew by scrubbing with a commercial wash formulated for mildew removal and as recommended by stain manufacturer.
- D. Interior Wood Substrates:
 - 1. Sand surfaces that will be exposed to view, to remove existing dark stained finish. Dust off.

3.3 <u>APPLICATION</u>

- A. Apply finishes according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."
 - 1. Use applicators and techniques suited for finish and substrate indicated.
 - 2. Finish surfaces behind movable equipment and furniture same as similar exposed surfaces.
 - 3. Do not apply finishes over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- B. Apply finishes to produce surface films without cloudiness, holidays, lap marks, brush marks, runs, ropiness, or other surface imperfections.

3.4 <u>CLEANING AND PROTECTION</u>

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing finish application, clean spattered surfaces. Remove spattered materials by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from finish application. Correct damage by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced finished wood surfaces.

END OF SECTION 099300

SECTION 101400 - SIGNAGE

1.0 PART 1 – GENERAL

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 <u>SUMMARY</u>

- A. This Section includes the following:
 - 1. Room Signs, Code Required: Modular, acrylic based, plaque signs.

1.3 <u>DEFINITIONS</u>

A. ADA-ABA Accessibility Guidelines: U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines."

1.4 <u>SUBMITTALS</u>

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show fabrication and installation details for signs.
 - 1. Show sign mounting heights, locations of supplementary supports to be provided by others, and accessories.
 - 2. Provide message list, typestyles, graphic elements, including tactile characters and Braille, and layout for each sign.
- C. Samples for Initial Selection: Manufacturer's color charts consisting of actual units or sections of units showing the full range of colors available for the following:
 - 1. Acrylic sheet.
- D. Samples for Verification: For each of the following products and for the full range of color, texture, and sign material indicated, of sizes indicated:
 - 1. Plaque: 6 inches (150 mm) square including border.
 - 2. Dimensional Characters: Full-size Samples of each type of dimensional character (letter, number, and graphic element).

- 3. Acrylic Sheet: 8 by 10 inches (200 by 250 mm) for each color required.
- 4. Accessories: Manufacturer's full-size unit.
- E. Sign Schedule: Indicate all rooms to receive signage. Use same designations indicated on Drawings.
- F. Qualification Data: For Installer.
- G. Maintenance Data: For signs to include in maintenance manuals.
- H. Warranty: Special warranty specified in this Section.

1.5 **QUALITY ASSURANCE**

- A. Fabricator Qualifications: 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.
- B. Source Limitations for Signs: Obtain each sign type indicated from one source from a single manufacturer.
- C. Regulatory Requirements: Comply with applicable provisions in ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.
- D. Surface Burning Characteristics:
 - 1. All interior signs shall be fabricated of materials tested and certified to meet the following burning properties:
 - a. Flame Spread: (ASTM E84) Class A, not more than 25.
 - b. Smoke Density: (ASTM D2843) Not over 75.

1.6 <u>PROJECT CONDITIONS</u>

A. Field Measurements: Verify recess openings by field measurements before fabrication and indicate measurements on Shop Drawings.

1.7 <u>COORDINATION</u>

A. Coordinate placement of anchorage devices with templates for installing signs.

1.8 <u>WARRANTY</u>

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.

- 1. Failures include, but are not limited to, the following:
 - a. Deterioration of embedded graphic image colors and sign lamination.
- 2. Warranty Period: One year from date of Substantial Completion.

2.0 <u>PART 2 – PRODUCTS</u>

2.1 <u>MATERIALS</u>

A. Acrylic Sheet: ASTM D 4802, Category A-1 (cell-cast sheet), Type UVA (UV absorbing).

2.2 <u>MANUFACTURERS</u>

- A. The materials or items included in this Section shall be products of the same quality and design of the manufacturers used herein for reference, or accepted substitutes:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. ASI Sign Systems, Inc.
 - b. TakeForm

2.3 <u>ROOM SIGNAGE</u>

- A. Description:
 - 1. Signs shall be manufactured from acrylic engraving stock with message photomechanically etched, removing the background, leaving the copy and Braille raised, minimum of 1/32" (Grade 2). Plaque is then laminated to an opaque acrylic base and finished with painted acrylic polyurethane enamel, matte finish.
 - 2. Mounting Height: Tactile characters on signs shall be located 48 inches (1220 mm) minimum above finish floor or ground surface, measured from the baseline of the lowest tactile character and 60 inches (1525 mm) maximum above finish floor or ground surface, measured from the baseline of the highest tactile character.
 - 3. Mounting Location: Mount on wall alongside the door on latch side (exterior of room). If there is no wall space at the latch side, locate the sign on the nearest adjacent wall.

- B. **Type A:** Room Designation w/ Pictogram
 - 1. Each Toilet Room sign shall incorporate the international symbol of accessibility and denote graphically "MEN," "WOMEN," or "UNISEX" as applicable.
- C. **Type B:** Room Designation
 - 1. Janitor Closet sign shall denote graphically "JANITOR CLOSET".

3.0 <u>PART 3 – EXECUTION</u>

3.1 <u>EXAMINATION</u>

- A. Dimensional Letters:
 - 1. Site Verification of Conditions: Verify installation conditions previously established under other sections are acceptable for product installation in accordance with manufacturer.

3.2 INSTALLATION

- A. General: Coordinate locations of signs with Owner and Architect prior to installation. Install signs using mounting methods in compliance with the manufacturer's instructions.
 - 1. Install signs level, plumb, and at the height indicated with sign surfaces that are free from distortion or other defects in appearance.
- B. Wall Mounted Room Signs: Attach panel signs to wall surfaces using the methods indicated below:
 - 1. Mounting: Surface mounted to wall with countersunk flathead through fasteners.
- C. Dimensional Letters:
 - 1. Install product in accordance with supplier's instructions.
 - 2. Install product in locations indicated using mounting methods recommended by sign manufacturer and free from distortion, warp, or defect adversely affecting appearance.
 - 3. Install signs within 1-inch vertically and horizontally of intended location.

3.3 <u>CLEANING AND PROTECTION</u>

A. At the completion of installation, clean soiled sign surfaces in accordance with the manufacturer's instructions. Protect units from damage until acceptance by the Owner.

END OF SECTION 101400

SECTION 102113 - TOILET COMPARTMENTS

1.0 PART 1 - GENERAL

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 <u>SUMMARY</u>

- A. Section Includes:
 - 1. Phenolic-core toilet compartments configured as toilet enclosures and urinal screens.
- B. Related Sections:
 - 1. Division 10 Section "Toilet, Bath, and Laundry Accessories" for toilet tissue dispensers, grab bars, purse shelves, and similar accessories.

1.3 <u>ACTION SUBMITTALS</u>

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: For toilet compartments. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Show locations of cutouts for compartment-mounted toilet accessories.
 - 2. Show locations of reinforcements for compartment-mounted grab bars.
 - 3. Show locations of centerlines of toilet fixtures.
 - 4. Show ceiling grid and overhead support or bracing locations.
- C. Samples for Initial Selection: For each type of unit indicated. Include Samples of hardware and accessories involving material and color selection.
- D. Samples for Verification: For the following products, in manufacturer's standard sizes unless otherwise indicated:
 - 1. Each type of material, color, and finish required for units, prepared on 6-inch-(152-mm-) square Samples of same thickness and material indicated for Work.
 - 2. Each type of hardware and accessory.

1.4 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each type of toilet compartment, from manufacturer.

1.5 <u>CLOSEOUT SUBMITTALS</u>

A. Maintenance Data: For toilet compartments to include in maintenance manuals.

1.6 **QUALITY ASSURANCE**

- A. Comply with requirements in GSA's CID-A-A-60003, "Partitions, Toilets, Complete."
- B. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84, or another standard acceptable to authorities having jurisdiction, by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: 25 or less.
- C. Regulatory Requirements: Comply with applicable provisions in [the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA) and Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities" and ICC/ANSI A117.1 for toilet compartments designated as accessible.

1.7 <u>PROJECT CONDITIONS</u>

A. Field Measurements: Verify actual locations of toilet fixtures, walls, columns, ceilings, and other construction contiguous with toilet compartments by field measurements before fabrication.

1.8 <u>WARRANTY</u>

A. Warranty: Provide manufacturer's standard 10-year warranty.

2.0 PART 2 - PRODUCTS

2.1 <u>MATERIALS</u>

- A. Stainless-Steel Castings: ASTM A 743/A 743M.
- B. Adhesives: Manufacturer's standard product that complies with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- C. Core: Phenolic impregnated kraft papers, minimum 93 lbs/cubic foot phenolic material to ensure full saturation of kraft core.
- D. Face Sheet: Integrally compression molded decorative surface with pigmented resins, electron beam cured for superior chemical and dirt resistance.
- E. Edge Banding: None required.

- F. Optical Properties:
 - 1. Resistance to Dry Heat a 180 degrees C: Greater than 4
 - 2. Resistance to Wet Heat at 100 degrees C: Greater than 4.
 - 3. Resistance to Crazing: Greater than 4.
 - 4. Resistance to Color Change, UV-A (ASTM G 53): Greater than 6.
- G. Mechanical Properties:
 - 1. Modulus of Elasticity: 1.5 million psi minimum.
 - 2. Shear Strength: 2,000 PSI minimum.
 - 3. Compressive Strength: 24,000 PSI minimum.
 - 4. Tensile Strength: 10,100 PSI
 - 5. Flexural Strength: 15,500 PSI.
 - 6. Resistance to Impact: Greater than 3.
 - 7. Water Resistance:
 - a. Initial Point: Greater than 150 revolutions.
 - b. Wear Value: Greater than 350 revolutions.
- H. Chemical Properties:
 - 1. Resistance to Staining: 5 rating.
 - 2. Chemical Resistance: Panels to meet or exceed "Scientific Equipment Furniture Associations's" (SEFA) list of 496 standard chemicals.
- I. Water Absorption: 3 percent maximum.

2.2 <u>PHENOLIC-CORE UNITS</u>

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Bobrick, Duraline 1080 Series or equal:
- B. Toilet-Enclosure Style: Overhead braced, floor anchored.
- C. Urinal-Screen Style: Wall hung.

- D. Door, Pane, Screen, and Pilaster Construction: Solid phenolic-core panel material with melamine facing on both sides fused to substrate during panel manufacture (not separately laminated), and with eased and polished edges and no-sightline system. Provide minimum 3/4-inch- (19-mm-) thick doors and pilasters and minimum 3/4-inch- (19-mm-) thick panels.
- E. Pilaster Shoes and Sleeves (Caps): Fabricated from stainless-steel sheet, not less than 0.031-inch (0.79-mm) nominal thickness and 3 inches (76 mm) high, finished to match hardware.
- F. Brackets (Fittings):
 - 1. Full-Height (Continuous) Type: Manufacturer's standard design; aluminum.
- G. Phenolic-Panel Finish:
 - 1. Facing Sheet Finish: One color on both faces in each room.
 - 2. Color and Pattern: As selected by Architect from manufacturer's full range, with manufacturer's standard through-color core matching face sheet.

2.3 <u>ACCESSORIES</u>

- A. Hardware and Accessories: Manufacturer's standard design, heavy-duty operating hardware and accessories.
 - 1. Material: Clear-anodized aluminum.
 - 2. Hinges: Manufacturer's standard continuous, cam type that swings to a closed or partially open position.
 - 3. Latch and Keeper: Manufacturer's standard surface-mounted latch unit designed for emergency access and with combination rubber-faced door strike and keeper. Provide units that comply with regulatory requirements for accessibility at compartments designated as accessible.
 - 4. Coat Hook: Manufacturer's standard combination hook and rubber-tipped bumper, sized to prevent in-swinging door from hitting compartment-mounted accessories.
 - 5. Door Pull: Manufacturer's standard unit at out-swinging doors that complies with regulatory requirements for accessibility. Provide units on both sides of doors at compartments designated as accessible.
- B. Overhead Bracing: Manufacturer's standard continuous, extruded-aluminum head rail with anti-grip profile with a clear anodized finish.

C. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel or chrome-plated steel or brass, finished to match the items they are securing, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use stainless steel, hot-dip galvanized steel, or other rust-resistant, protective-coated steel.

2.4 <u>FABRICATION</u>

- A. Overhead-Braced Units: Provide manufacturer's standard corrosion-resistant supports, leveling mechanism, and anchors at pilasters to suit floor conditions. Provide shoes at pilasters to conceal supports and leveling mechanism.
- B. Floor-Anchored Units: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment nuts at pilasters for structural connection to floor. Provide shoes at pilasters to conceal anchorage.

3.0 PART 3 - EXECUTION

3.1 <u>INSTALLATION</u>

- A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.
 - 1. Maximum Clearances:
 - a. Pilasters and Panels: 1/2 inch (13 mm).
 - b. Panels and Walls: 1 inch (25 mm).
- B. Floor-Anchored Units: Set pilasters with anchors penetrating not less than 2 inches (51 mm) into structural floor unless otherwise indicated in manufacturer's written instructions. Level, plumb, and tighten pilasters. Hang doors and adjust so tops of doors are level with tops of pilasters when doors are in closed position.
- C. Urinal Screens: Attach with anchoring devices to suit supporting structure. Set units level and plumb, rigid, and secured to resist lateral impact.

3.2 <u>ADJUSTING</u>

A. Hardware Adjustment: Adjust and lubricate hardware according to hardware manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors to return doors to fully closed position.

END OF SECTION 102113

SECTION 102800 - TOILET, BATH, AND LAUNDRY ACCESSORIES

1.0 PART 1 - GENERAL

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Washroom accessories.
 - 2. Warm-air dryers.
 - 3. Childcare accessories.
 - 4. Under-lavatory guards.
 - 5. Custodial accessories.
- B. Related Sections:
 - 1. Division 10 Section "Detention Toilet Compartments".

1.3 <u>ACTION SUBMITTALS</u>

- A. Product Data: For each type of product indicated. Include the following:
 - 1. Construction details and dimensions.
 - 2. Anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
 - 3. Material and finish descriptions.
 - 4. Features that will be included for Project.
 - 5. Manufacturer's warranty.
- B. Samples: For each accessory item to verify design, operation, and finish requirements.
- C. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.
 - 1. Identify locations using room designations indicated.
 - 2. Identify products using designations indicated.

1.4 INFORMATIONAL SUBMITTALS

A. Warranty: Sample of special warranty.

1.5 <u>CLOSEOUT SUBMITTALS</u>

A. Maintenance Data: For toilet and bath accessories to include in maintenance manuals.

1.6 QUALITY ASSURANCE

- A. Source Limitations: Obtain products from single source from single manufacturer.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

1.7 <u>COORDINATION</u>

- A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.
- B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

1.8 WARRANTY

- A. Special Mirror Warranty: Manufacturer's standard form in which manufacturer agrees to replace mirrors that develop visible silver spoilage defects and that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: 15 years from date of Substantial Completion.

2.0 PART 2 - PRODUCTS

2.1 <u>MATERIALS</u>

- A. Stainless Steel: ASTM A 666, Type 304 with satin finish, 0.031-inch (0.8-mm) minimum nominal thickness unless otherwise indicated.
- B. Galvanized-Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.
- C. Fasteners: Screws, bolts, and other devices of same material as accessory unit and tamper-and-theft resistant where exposed, and of galvanized steel where concealed.
- D. Mirrors: ASTM C 1503, Mirror Glazing Quality, clear-glass mirrors, nominal 6.0 mm thick.

2.2 WASHROOM ACCESSORIES

- A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - 1. A & J Washroom Accessories, Inc.
 - 2. American Specialties, Inc.
 - 3. Bobrick Washroom Equipment, Inc.
 - 4. Bradley Corporation.
- B. Toilet Tissue (Roll) Dispenser (TA-J):
 - 1. Basis-of-Design Product: Bobrick Washroom Equipment; Contura Series (#B-4288).
 - 2. Description: Roll-in-reserve dispenser with hinged front secured with tumbler lockset.
 - 3. Mounting: Partition mounted serving two adjacent toilet compartments; surface mounted.
 - 4. Operation: Non-control delivery with theft-resistant spindle.
 - 5. Capacity: Designed for 5-1/4 inch diameter tissue rolls.
 - 6. Material and Finish: Stainless steel, No. 4 finish (satin).
- C. Liquid-Soap Dispenser (TA-E):
 - Basis-of-Design Product: Bobrick Washroom Equipment; Contura Series (#B-4112).
 - 2. Description: Designed for dispensing soap in liquid or lotion form.
 - 3. Mounting: Surface mounted.
 - 4. Capacity: 40 oz. (mL).
 - 5. Materials: Black molded plastic push button. Soap head-holding mushroom valve. Stainless steel spring. U-packing seal and duckbill. Anti-bacterial soap resistant plastic cylinder.
 - 6. Lockset: Tumbler type.
 - 7. Refill Indicator: Window type.

- D. Grab Bar (TA-L see plans):
 - 1. Basis-of-Design Product: Bobrick Washroom Equipment; (#B-5806 x 36).
 - 2. Mounting: Flanges with concealed fasteners.
 - 3. Material: Stainless steel, 0.05 inch (1.3 mm) thick.
 - a. Finish: Smooth, No. 4 finish (satin) on ends and slip-resistant texture in grip area.
 - 4. Outside Diameter: 1-1/4 inches (32 mm).
 - 5. Configuration and Length: Straight, 36 inches (914 mm) long.
- E. Grab Bar (TA-L see plans):
 - 1. Basis-of-Design: Bobrick Washroom Equipment; (#B-5806 x 42).
 - 2. Mounting: Flanges with concealed fasteners.
 - 3. Material: Stainless steel, 0.05 inch (1.3 mm) thick.
 - a. Finish: Smooth, No. 4 finish (satin) on ends and slip-resistant texture in grip area.
 - 4. Outside Diameter: 1-1/4 inches (32 mm).
 - 5. Configuration and Length: Straight, 42 inches (914 mm) long.
- F. Grab Bar (TA-AE):
 - 1. Basis-of-Design: Bobrick Washroom Equipment; (#B-5806 x 18).
 - 2. Mounting: Flanges with concealed fasteners.
 - 3. Material: Stainless steel, 0.05 inch (1.3 mm) thick.
 - a. Finish: Smooth, No. 4 finish (satin) on ends and slip-resistant texture in grip area.
 - 4. Outside Diameter: 1-1/4 inches (32 mm).
 - 5. Configuration and Length: Straight, 18 inches (914 mm) long.

- G. Mirror Unit **(TA-B1)**:
 - 1. Basis-of-Design: Bobrick Washroom Equipment; (#B-2908-1836).
 - 2. Frame: Type 304 stainless steel angle.
 - a. Corners: Heliarc welded, ground and polished smooth with beveled edge.
 - 3. Hangers: Produce rigid, tamper- and theft-resistant installation, using method indicated below:
 - a. One-piece, galvanized steel, wall-hanger device with spring-action locking mechanism to hold mirror unit in position with no exposed screws or bolts.
 - 4. Size: 24" x 30".
- H. Mirror Unit (TA-B2):
 - 1. Basis-of-Design: Bobrick Washroom Equipment; (#B-293-1836).
 - 2. Frame: Type 304 stainless steel, fixed tilt.
 - 3. Hangers: Produce rigid, tamper- and theft-resistant installation, using method indicated below:
 - a. One-piece, galvanized steel, wall-hanger device with spring-action locking mechanism to hold mirror unit in position with no exposed screws or bolts.
 - 4. Size: 24" x 30".
- I. Baby-Changing Station (**TA-AF**):
 - 1. Basis-of-Design Product: Bobrick Washroom Equipment; (#KB110-SSWM).
 - 2. Description: Horizontal unit that opens by folding down from stored position and with child-protection strap.
 - a. Engineered to support a minimum of 200-lb static load when opened.
 - 3. Mounting: Surface mounted, with unit projecting not more than 4 inches (100 mm) from wall when closed.
 - 4. Operation: Concealed pneumatic cylinder and hinge structure.
 - 5. Materials and Finish: 18 GA, type 304 satin stainless steel exterior finish with molded high-density polyethylene, and antimicrobial interior.
 - 6. Liner Dispenser: Built in.

- 7. Safety Straps: Nylon safety straps.
- J. Sanitary-Napkin Disposal Unit (**TA-O**):
 - 1. Basis-of-Design Product: Bobrick Washroom Equipment; (#B-270).
 - 2. Mounting: Surface mounted.
 - 3. Door or Cover: Self-closing, disposal-opening cover.
 - 4. Material and Finish: Stainless steel, No. 4 finish (satin).

2.3 <u>WARM-AIR DRYERS</u>

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. A & J Washroom Accessories, Inc.
 - 2. American Dryer, Inc.
 - 3. American Specialties, Inc.
 - 4. Bobrick Washroom Equipment, Inc.
 - 5. Bradley Corporation.
 - 6. Dyson B2B, Inc.
 - 7. Excel Dryer Corporation.
- B. Warm-Air Dryer (TA-H):
 - 1. Basis-of-Design Product: Excel Dryer Corp.; Xlerator hand dryer, Model XL-SB.
 - 2. Mounting: Surface mounted.
 - 3. Operation: Electronic-sensor activated with timed power cut-off switch.
 - a. Operation Time: 30 to 40 seconds.
 - 4. Cover Material and Finish: Stainless steel, No. 4 finish (satin).
 - 5. Electrical Requirements: 208V, 1500 Watts.

2.4 UNDERLAVATORY GUARDS

A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

- 1. Plumberex Specialty Products, Inc.
- 2. Truebro by IPS Corporation.
- B. Underlavatory Guard:
 - 1. Basis-of-Design Product: Plumberex Specialty Products, Inc.; Pro-Extreme.
 - 2. Description: Insulating pipe covering for supply and drain piping assemblies that prevent direct contact with and burns from piping; allow service access without removing coverings.
 - 3. Material and Finish: Antimicrobial, molded plastic, white.

2.5 <u>CUSTODIAL ACCESSORIES</u>

- A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - 1. A & J Washroom Accessories, Inc.
 - 2. American Specialties, Inc.
 - 3. Bobrick Washroom Equipment, Inc.
 - 4. Bradley Corporation.
- B. Mop and Broom Holder:
 - 1. Basis-of-Design Product: Bobrick Washroom Equipment; (#B-239 x 34).
 - 2. Description: Unit with shelf, hooks, and holders.
 - 3. Length: 34 inches (863 mm).
 - 4. Hooks: Four.
 - 5. Mop/Broom Holders: Three anti-slip rubber hat, cam type.
 - 6. Material and Finish: Stainless steel, No. 4 finish (satin).
 - a. Shelf: Not less than nominal 0.05-inch- (1.3-mm-) thick stainless steel.

2.6 FABRICATION

- A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.
- B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative.

3.0 PART 3 - EXECUTION

3.1 <u>INSTALLATION</u>

- A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.
- B. Grab Bars: Install to withstand a downward load of at least 250 lbf (1112 N), when tested according to ASTM F 446.

3.2 ADJUSTING AND CLEANING

- A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.
- B. Remove temporary labels and protective coatings.
- C. Clean and polish exposed surfaces according to manufacturer's written recommendations.

END OF SECTION 102800

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SECTION 11400 - FOOD SERVICE EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. All drawings and general provisions of the contract, including general and supplementary conditions, apply to the work of this section.

1.2 DESCRIPTION

- A. Work Included:
 - 1. The work of this section includes furnishing all labor, materials, transportation, appliances, and services necessary to complete all kitchen equipment and related work required by the drawings and/or herein specified, including, but not limited to, the following:
 - a. Furnishing, delivering, and setting in place of all food service equipment in spaces as shown and/or as hereinafter itemized.
 - b. All items of work reasonably inferred as necessary to complete the work of this section. Supply all necessary bolts, hangers, and brackets. Provide cut outs in equipment as necessary for electric, plumbing, or other utility lines required for hook up of the item.
- B. Related Work Described Elsewhere Performed by Others:
 - 1. Supplying and installing all necessary drain traps, steam traps, vents, shut-offs, valves, pipe fittings, and/or other materials to complete final plumbing and electrical or steam connections between the rough-in and the connection or connections on each piece of equipment.
 - 2. Ductwork and ductwork connections from hoods unless otherwise indicated.
 - 3. Installing all drain fittings, tailpieces, faucets, operating switches, and/or starters.

1.3 QUALITY ASSURANCE

A. Manufacturer's Qualifications:

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- 1. Firms regularly engaged in the manufacture of food service equipment of types, capacities, and sizes required, whose products have been in satisfactory use in similar service for not less than five (5) years.
- B. Installer's Qualifications:
 - 1. Firm with at least three (3) years of successful installation experience on projects with food service equipment similar to that required for project.
- C. Fabricator's Qualifications:
 - Where units require custom fabrication, provide units fabricated by a shop that is skilled with a minimum of five (5) years of experience in similar work. Fabricate all custom equipment items at same shop. Where units cannot be fully shop-fabricated, complete fabrication work at project site. Fabricator shall be subject to the approval of the food service equipment consultant.
- D. Codes and Standards:
 - 1. All food service equipment shall be provided, fabricated, and installed in compliance with the following, where such standards have been set: NSF, AGA, UL, ASME, NEMA, NFPA, State Department of Health regulations, and other applicable State, County, and Local governing laws and ordinances.
 - 2. Nothing in the contract documents shall be construed to conflict with any local or state laws or regulations governing the installation of any part of the work to be performed under this contract, and all requirements shall be in accordance therewith, without additional cost to the owner. Installation of equipment must comply with applicable regulations of the local health department.

1.4 SUBSTITUTIONS

A. The materials, products, and equipment items or types shown on the Contract Drawings or listed in this Specification establish the standard of performance, quality, function, dimension, and appearance required. Products, materials, and equipment items not listed herein or on the Contract Drawings, but which achieve identical or superior performance to those specified in all aspects but particularly with respect to gender, configuration, and finish are not excluded provided the established criteria described and required is met and such components are shown to be true equals to the satisfaction of the Owner, Architect, Engineer, and Food Facilities Consultant.

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- B. The bidder may base his bid or proposal on the use of one or more of these items or an equivalent substitution. If substitutions are proposed, the bid must contain a list of all proposed substitutions. Also, each bidder shall list by Specification Sections, all materials, products, or equipment he proposes to offer as possible substitutions for specified items, together with all information on the product required for a complete review.
- C. No additional substitutions will be considered unless substitution is required due to a specified material, product, or equipment being removed from or made unavailable in the market place. Upon such circumstances, additional substitutions will be considered by the Architect and Food Service Consultant, but only at no charge to or at a credit to the Contract amount, and at no change in completion time.
- D. A request for substitution constitutes a representation that the submitter:
 - 1. Will coordinate installation and make changes to other work, which may be required for the work to be complete with no additional cost to the Owner or to other Contractors.
 - 2. Waives claims for additional costs or time extension, which may subsequently become apparent.
 - 3. Will reimburse the Owner, Architect/Engineer, and Food Facilities Consultant for review or redesign services associated with reapproval by authorities.

1.5 SUBMITTALS

- A. Shop Drawings:
 - 1. Within 45 days after award of contract, and before any kitchen equipment is delivered to the job site, submit complete shop drawings to the architect for approval. Show all conditions where equipment will interface with the work of other trades.
- B. Details:
 - Rough-in drawings, showing detailed dimensions of all utility lines for all equipment, shall be furnished and drawn to a scale of not less than ¼" to 1'-0". Rough-in drawings shall contain the following *individual* drawings:
 - a. A layout drawing showing all food service and related equipment with all items properly marked as to item number.

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- b. An individual mechanical layout drawing for each of the mechanical trades; i.e.: Electrical, Plumbing and Heating/Ventilating.
- c. A drawing showing any required recesses in the floor for walk-ins etc.
- 2. Furnish shop drawings with details showing all dimensions and details of construction, installation, and related work. Shop drawings of fabricated equipment shall be drawn to a scale of not less than ³/₄" to 1'-0".
- 3. Manufacturer's names, cuts, descriptive data, rated capacities, and other information necessary for approval of standard manufactured articles and equipment shall be submitted to architect for written approval before ordering or fabricating. Catalog cuts shall be submitted in bound booklet form with <u>each</u> item (including existing and spare numbers) having its own title sheet before the catalog cut. The title sheet shall contain the item number, quantity, make, model and any and all accessories provided.
- 4. If submitting hard copies, submit eight (8) copies of all drawings and catalog cuts (in booklet form) to the architect's office for approval and distribution. The review of any and all drawings and catalog cuts will not relieve the contractor of any responsibility for providing the items, etc. as called for in the specifications.
- C. Samples:
 - 1. Samples shall be provided as requested by the architect.

1.6 PRODUCT DELIVERY, HANDLING, AND STORAGE

- A. Equipment shall be delivered when required and shall be safely stored on the premises and protected against damage.
- B. Deliver all equipment to the job promptly and in such time as not to delay the work of other trades. Cooperate with all other trades in the proper installation of this equipment. Set level, plumb, and true and anchor to floor, walls, or ceiling as required. Leave all equipment ready to receive final plumbing, electric, and ventilation connections, which shall be provided under respective sections.
- C. No deliveries shall be made unless this contractor's representative is on the job site to receive same and see that it is properly stored and protected. Neither the owner, construction personnel or architect will receive any equipment or be in any way responsible for same.

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D. All responsibilities shall lie with the contractor for damage incurred, loss of materials, and loss of items while in the building or during transportation. Any articles found damaged shall be immediately replaced or repaired at this contractor's expense to the satisfaction of the architect.

1.7 JOB CONDITIONS

- A. Inspect surfaces to receive work of this section. Report any unsatisfactory conditions to the architect. Proceeding with the work shall be evidence of acceptance of job conditions.
- B. Take field measurements to assure accurate fit of all food service equipment.
- C. Check electrical characteristics and water, steam, and gas pressures. Provide pressure regulating valves where required for proper operation of equipment.

1.8 GUARANTEES

A. This contractor shall fully guarantee all work and materials for a period of one year from date of acceptance. Should any defect in work or materials, not due to ordinary use, appear in the above-mentioned time, this contractor agrees to repair or replace the same without cost to the owner, as directed, immediately upon written notice of such defect from the owner or owner's previously-identified agent. All refrigerated items shall have an additional four (4) year warranty on all compressors.

PART 2 - PRODUCTS

- 2.1 GENERAL
 - A. Unless otherwise called for under the individual items of equipment set forth hereinafter or shown on the details, the general construction called for under each specific material and all detail drawings shall apply to all fabricated equipment.
- 2.2 METALS
 - A. Stainless steel shall be AISI type 304, with not less than a #4 mill finish on all exposed surfaces. All welding wire used shall be type 308L. All sheets shall be free of buckles, warps, and surface imperfections.
 - B. Galvanized iron shall be 1½" x 1½" x 1/8". Where galvanized iron has been welded, all seams shall be cleaned and scale removed and finished with a prime

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coat of aluminum paint. All galvanize shall be 8% copper bearing alloy with an approved hot dip pure zinc galvanizing.

- C. A white metal (commercially known as nickel silver) casting is intended. Such metal to be of corrosion resistant quality and shall contain not less than 30% nickel. All castings shall be rough ground, polished, and buffed to a bright luster, free from pits, cold runs, checks, burrs, or other surface imperfections.
- D. Stainless steel pipe and tubing shall be seamless of gauge specified and of true roundness. All tubing, where exposed to view, shall be given a final grind of not less than 180 grit emery.
- E. All angles, bands, channels, or other structural shapes used for framing shall be of domestic manufacture, uniform and ductile in quality. Where such sections are specified as galvanized, they shall be galvanized by the hot dip process with all excess spelter removed, and be smooth and free from cold runs, blisters, and uncoated or scaly patches.

2.3 HARDWARE

A. Where equipment is provided with handles, knobs, hinges, brackets, or other miscellaneous hardware, all shall be of either white metal or stainless steel of metallurgical composition previously specified.

2.4 FABRICATION

- A. Welding:
 - 1. All welding of stainless steel shall be done by the electric heliarc process. Carbon arc will not be permitted. All welding of galvanized iron shall be done by the electric fusion-metal-arc method. All welding shall be done in a thorough manner with welding rod as specified hereinbefore of stainless steel or of same composition as sheets or parts welded. Welds shall be complete welds, strong and ductile with excess metal ground off and joints finished smooth to match adjoining surfaces. Welds are to be free of mechanical imperfections such as gas holes, pits, runs, cracks, etc., and shall have same color as adjoining sheet surfaces. All joints in tops of fixtures, tables, drainboards, exposed shelving, sinks, fronts and ends of cabinets exposed to view, etc., shall be completely welded. Butt welds made with solder and finished by grinding will not be acceptable.
 - 2. All welded joints shall be homogeneous with the sheet metal itself. Where sheet sizes necessitate a joint, such joints shall be welded. Tops of fixtures shall be fabricated in the factory with welded joints to reduce field joints to a minimum. Wherever welds occur on surfaces not finished by

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grinding and polishing, such welds, and the accompanying discoloration, shall be suitably coated in the factory by means of metallic base paint to prevent the possibility of progressive corrosion at such points. All field joints shall be welded, ground smooth, and polished.

B. Soldering:

- Soldering, where required and/or permitted, shall be done with a solder consisting of no more lead than is allowable by code. Stainless steel requiring soldering shall be first thoroughly cleaned of surface oxides and shall then have applied a suitable stainless steel soldering flux. After the soldering has been completed, excess of remaining flux shall be removed and the entire soldered joint cleaned with liquid alkaline to prevent any attack of the stainless steel by soldering flux.
- C. Grinding, Polishing, and Finishing:
 - 1. All exposed welded joints shall be suitably ground flush with the adjoining material and neatly finished to harmonize therewith. Wherever material has been sunken or depressed by a welding operation, such depressions shall be suitably hammered and peened flush with the adjoining surfaces, and, if necessary, ground to eliminate low spots. All ground surfaces consistent with good workmanship. Care shall be exercised in all grinding operations to avoid excessive heating of the metal and metal discoloration. In all cases, the grain of rough grinding shall be removed by a successive finer polishing operation. The texture of the final polishing operations shall be uniform and smooth, consistent with reasonable care and good workmanship. The finish of all equipment shall be of a high grade.
 - 2. Butt joints and contact joints, wherever they occur, shall be close fitting. Wherever brake bends occur, they shall be free of undue extrudence and shall not be flaky, scaly, or cracked in appearance, and where such brake work does mar the uniform appearance of the surface of the material, all such marks shall be removed by suitable grinding, polishing, and finishing. Wherever sheared edges occur, they shall be free from burrs, fins, or irregular projections and shall be finished to obviate all danger of cutting or laceration when the hand is drawn over such sheared edges. Where miters or bullnosed corners occur, they shall be neatly finished with the under edge of material neatly ground to a uniform condition, and in no case are overlapping materials to be acceptable.
 - 3. All exposed surfaces shall have a #4 ground finish, except trim, which is to be of a more highly polished satin finish. Where specified, all cabinets, doors, and shelves, whether inside or outside of cabinets, and wherever

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exposed are to be #4 finish. This applies to inside finish of any cabinet having doors or otherwise. An exposed surface shall be interpreted as meaning an inside surface exposed to view when a sliding or swinging door is opened. The underside of shelf need not be #4 finish but such finish shall be at least equal to #80 ground finish. The tops of tables, sinks, dishtables, where manufacturing operations and welding disturb the original #4 finish, shall be finished in a satin finish.

- 4. Deliver all stainless steel equipment to the job covered with a protective paper coating. Remove this coating when directed by the architect and restore any surfaces that are scratched or marred to their original finish, and to the approval of the architect.
- D. Stainless Steel Tops:
 - Where specified, all tops shall be constructed of not less than 14 gauge stainless steel, with all edges rounded without burrs or excess metal. All edges shall be rolled on 180° roll 1½" in diameter on all exposed sides. Where table tops are placed against wall, refrigerators, cabinets, etc., they shall be turned up on the back and/or sides approximately 6" and returned 2" on a 45° break, with all exposed ends closed, welded, ground, and polished. All corners shall be reinforced on the underside with 1" x 4" x 1" stainless steel channels of not less than 14 gauge stainless steel. These channels shall be spaced not more than 30" apart in any direction and shall give full perimeter as well as interior support.
- E. Stainless Steel Legs:
 - All legs shall be constructed of not less than 1-5/8" OD stainless steel seamless tubing, having a wall thickness of not less than 16 gauge. Stainless steel shall be of type as hereinbefore specified. Legs shall be spaced no more than 6'-0" on center. All legs shall be polished to a uniform finish.
 - 2. Leg mounting shall be inserted into 16 gauge stainless steel conical gussets type 483-58 as manufactured by Standard Keil. Gussets shall be welded around entire circumference continuous, sealing gusset against underbracing channel.
 - All legs shall be provided with stainless steel adjustable feet type #A10-0851 as manufactured by Component Hardware, complete with #A10-0010 lock ring. Legs supporting sink units shall be fitted with stainless steel flanged feet type #A10-0854 with #A10-0010 lock ring as manufactured by Component Hardware.

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- 4. Leg crossbracing, where required, shall be constructed of not less than 1" OD stainless steel seamless tubing as previously specified. All crossbracing shall run horizontal and level between legs and forming a box type framing between all legs, approximately 12" above the floor. Crossbracing shall be formed to and fully welded to the legs, with all welds ground and polished. Where one side of the boxed unit bracing is omitted to provide space for carts, bins, etc., the adjacent leg shall be fully braced in the prescribed manner.
- F. Undershelving:
 - Undershelving shall be constructed of not less than 16 gauge stainless steel. Each undershelf shall be the full depth of the individual unit. Front edges shall be turned down 1½" and returned ½", sides and rear to be turned up 2". Corners shall be notched at legs and welded, ground, and polished to same. Undershelves, where required, shall be provided with pipe slots of suitable size to accommodate necessary service lines. Slots shall be turned up on all sides to eliminate cutting or defacing of equipment on the job.
- G. Drawers:
 - Unless otherwise noted, drawers shall be 20" x 20" x 5" die-stamped 20 gauge stainless steel having all inside corners coved. Drawer body shall be lift-out type. Front of drawers shall be double pan 16 gauge stainless steel exterior and 20 gauge stainless steel interior. Drawer shall be suspended by ball bearing heavy-duty extension slides, Model #9190, as manufactured by Standard Keil Hardware. The drawer slides shall be attached to channel bracing under the table top. Drawer pulls shall be Standard Keil #SS-12100.
- H. Plumbing Fixtures:
 - 1. Faucets:
 - a. Furnish faucets on sinks, steamtables, bain maries, water stations and other equipment as shown on plans, details and specifications. Furnish water saving devices where required by local codes. All faucets intended to dispense water for human consumption shall be manufactured of materials that contain no lead intentionally added to the product. Finish shall be polished stainless steel. All faucets specified to have standard lever type handle with internationally coded handle identification buttons (hot and cold) and ADA easy turn stems. All faucets shall have internal stainless steel seats and two part swivel stems. All plumbing fixtures shall

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be ANSI/NSF 61 sec. 9 certified, CSA Certified, California AB 1953 Compliant, Vermont S152 Compliant, and EPAct 2005 compliant.

- b. Faucets to have cartridges made of ceramic to prevent leaks and cross flow.
- 2. Pre Rinse Units:
 - a. Shall have integral spring-loaded check stems to prevent cross flow, stainless steel seats in control valve, hose equipped with three ply hydraulic type hose liner, spray valves shall be 1.15 GPM for water conservation, be fitted with backflow prevention device (where required), and furnished complete with nipples, lock nuts, washers for secure and proper installation.
- 3. Waste Valves:
 - Each sink compartment shall be provided with one ball valve type waste valve. Waste valve shall have a stainless steel rotating ball, two Teflon seals, 1¹/₂" and 2" outlet treads. Unless otherwise specified all waste valves shall have overflow tubes and fittings.
- 4. All faucets, pre-rinse units and fixture brand shall be consistent throughout project (except where specified otherwise) and shall be as manufactured by Fisher Manufacturing Company, or **equal** by T&S Brass and Bronze, Krowne or Dormont.
- I. Sinks:
 - 1. Where specified, there shall be single or multiple compartment sinks of size specified or shown on drawings. All sinks to be made entirely of 14 gauge stainless steel; all lengths, widths, and depths as hereinafter specified or as shown on drawings. Backsplash shall be drilled as required to accommodate faucets as specified and shown on drawings. Sink shall be of welded, seamless construction with all joints, crevices, etc., eliminated and all traces of welding removed. Corners, both horizontal and vertical, shall be rounded to 1" radius with intersections meeting in spherical coves. All edges shall be integrally rolled on 1¹/₂" diameter to a 180° closure with front corners fully rounded on outside of roll. Both rear corners to be curved and welded into the upturned splash. Bottoms shall be scored towards outlets to permit complete drainage. Die-stamped recess shall be formed in bottom of each compartment to accommodate waste outlet. In multiple compartment sinks, partitions shall be of coved corner construction consisting of two thicknesses of 14

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gauge stainless steel formed from one sheet. Top edge of partition to be rounded on $\frac{1}{2}$ " radius, and all corners, where partitions meet the sides, shall be coved. Where partitions occur, there shall be no beads or straps on the outside of sink. Front, bottom, and back of sink shall be constructed of one sheet of metal in order to eliminate crevices between each compartment.

- J. Drainboards:
 - 1. Where called for, drainboards shall be of same gauge and material as sink and shall be full width of sink with exposed ends bullnosed. Backs shall be provided with high backsplashes to match backsplashes of sink. The front and ends shall be turned up 3", rolled and made continuous with roll of sink. The drainboards shall be pitched to drain to sink, welded, ground, and polished smooth to make entire unit into one piece. All welding shall be integral, and tack welding or bolted construction will not be acceptable. Support drainboards up to 36" in length by 1" diameter stainless steel tube welded to underside of drainboard and leg gusset. Support drainboards 36" and longer with legs. Cove horizontal and vertical corners with not less than 3/4" radius.
- K. Dishtables:
 - Fabricate dishtables of 14 gauge stainless steel, with exposed edges formed into 1½" x 190° rolled rim approximately 3" high. Provide built-in pitch of ¼" minimum. Provide 10" high rim of type as indicated in the specifications. Cove horizontal and vertical corners with not less than ¾" radius.
- L. Framing:
 - Mount tops on 1½" x 1½" x 1/8" galvanized angle iron or 4" wide x 12 gauge galvanized channels. Mount dishtables and drainboards on 4" wide x 14 gauge stainless steel channels.
 - 2. Run framework around entire perimeter of unit, and crossbrace on 30" centers. For dishtables and drainboards, run framing from front to back at each leg location, and run additional channel lengthwise, located at center of table width and welded to leg channels. Fasten framing to underside of top surfaces with 1⁄4" studs welded at approximately 12" centers. Provide each stud with suitable chrome-plated lockwashers and capnuts, and make stud lengths such that capnuts can be made up tight bringing top down snugly to framing.
- M. Enclosed Cabinets:

- 1. Enclosed cabinets shall be constructed of angle iron frame as hereinbefore specified. Exposed angle shall be 1½" x 1½" x 1/8" stainless steel and concealed angle of galvanized iron. Frame construction shall provide a complete box-like welded frame with tops and fronts reinforced with angle iron on approximately 30" centers. Exterior of cabinets shall be 18 gauge stainless steel with openings, door frames, drawer openings, etc., having butt welded flush joints. Compressor compartments, refrigerated compartments, and open shelving areas shall have double pan bulkheads with full insulation where required. Where cold pans and other inserts are installed in a cabinet base, an apron shall be provided the full depth of the insert and shall be of the same material as the body. Openings shall be formed in on all sides and reinforced where necessary.
- N. Doors:
 - Sliding doors shall be constructed of 18 gauge stainless steel exterior and 20 gauge stainless steel interior, all double pan construction with all corners welded, ground, and polished. Door shall be suspended on overhead track Model #550 as manufactured by Standard Keil. Doors shall be retained at the bottom with a depressing pin Model #1906 as manufactured by Standard Keil. All doors shall be removable and fitted with recessed stainless steel pulls.
 - 2. Hinged doors shall be of same construction as for sliding doors except they shall be mounted on full-length stainless steel continuous type hinges. Doors shall be fitted with recessed stainless steel pulls, permanent magnetic catches, and door locks where indicated. Door face shall be flush with cabinet body.
- O. Shelves:
 - Cabinet shelves shall be of 16 gauge stainless steel all welded construction turned up 2" on back and ends and down on front. Bottom shelf shall be extended forward and be turned down at front flush with cabinet body. Fixed intermediate shelves shall be welded to 14 gauge stainless steel brackets, which in turn shall be welded cabinet interior in such a manner as to provide a 1" space between shelf and cabinet at back and ends. Removable shelves shall be set on full perimeter 14 gauge stainless steel channeling.
- P. Sinks in Worktops:

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- Sinks incorporated into work surfaces shall be as hereinbefore specified, except rolls, inversions, and backsplashes shall be omitted and the bowl shall be completely welded integrally and flush with the work surface. Each sink shall be provided with drain and waste fitting as hereinbefore specified.
- Q. Cold Pans:
 - Fabricate cold pans from 14 gauge stainless steel lining and 20 gauge stainless steel casing. Cove interior horizontal and vertical corners. Insulate sides, ends, and bottom with material thermally equal to 2" thickness of fiberglass. Sweat ½" diameter copper cooling coils to underside of cold pan, and seal in thermostatic material. Turn down counter top 1" into pan. Install completely concealed 1" wide plastic breaker strip. Install 1" chrome plated drain with plug. Provide ½" high false bottom of 14 gauge perforated stainless steel in removable sections.

PART 3 - EXECUTION

- 3.1 SURFACE CONDITIONS
 - A. Prior to installation, verify that kitchen equipment may be installed in accordance with the manufacturer's recommendations; notify the architect in the event of a discrepancy. Do not proceed until all such discrepancies have been fully resolved unless directed to do so.

3.2 INSTALLATION

- A. Procedure:
 - 1. Move equipment into location specified and properly install all equipment per approved shop drawings and in strict accordance with the manufacturer's correct recommendations.
 - 2. Coordinate with electrical and mechanical contractors for their final connection to services required. All final plumbing and electrical connections shall be by electrical and mechanical contractors.
 - 3. Inspect all equipment for compliance and test by cycling equipment through various stages to verify proper operation.

3.3 TESTING AND OPERATING INSTRUCTION

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- A. After completion of installation, the manufacturer's representative shall test all equipment and instruct kitchen personnel in the use and care of all items of equipment. A representative from this contractor shall be present at time of demonstration(s).
- B. Provide two (2) sets of repair and maintenance manuals for each item of mechanically-operated equipment. All brochures shall be bound in booklet form. Also include a list of all service agencies with address and telephone numbers.

3.4 ADJUSTMENT AND CLEANING

A. Upon completion of installation and hook-up of equipment, put each item through a complete operating cycle and verify that all equipment is properly installed and properly operating; verify that all trim is in place; adjust all components as necessary to ensure continued proper operation; remove all labels and protective paper from equipment and remove all packing materials from the job site. Thoroughly clean all equipment.

3.5 PUNCH LIST

A. A representative of this contractor shall be present at time of final inspection(s).

PART 4 - LIST OF EQUIPMENT

- 4.1 ITEM 1 STORAGE SHELVING ONE (1) LOT
 - A. Storage shelving shall be as manufactured by Advance/Tabco, Model #EC.
 - B. Storage shelving shall be provided with chrome finish, five shelves high with 86" posts. Storage shelving shall be provided with all standard equipment in sizes as shown on drawing.
 - C. It shall be the responsibility of this contractor to verify and adjust shelving sizes to insure proper fit.

4.2 ITEM 2 - REACH-IN REFRIGERATOR - ONE (1) REQUIRED

- A. Reach-in refrigerator shall be as manufactured by Continental Refrigerator, Model #3R-SN.
- B. Reach-in refrigerator shall be provided with all standard equipment, plus one (1) extra shelf per section.
- 4.3 ITEM 3 BACK COUNTER/PREP SINK ONE (1) REQUIRED

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- A. Back counter/prep sink shall be custom built, approximately 10'-6" x 30" x 34" high to working surface.
- B. Top shall be constructed of 14 gauge stainless steel with front and ends rolled and corners bullnosed. Rear of top shall be turned up in a 10" high backsplash.
- C. Where shown, provide an integral 20" x 20" x 10" deep all coved corner sink compartment. Sink shall be complete with Fisher #22314 leverwaste, overflow, and Fisher #60844 faucet with aerator.
- D. The worktable shall be supported on 1⁵/₈" OD stainless steel legs with 1¹/₄" OD stainless steel crossbracing (Detail #3.2) under sink area and undershelf (Detail #3.1) under balance of the top. Provide legs with adjustable stainless steel flanged feet, secured to floor using stainless steel fasteners.
- E. Provide open area for undercounter refrigerator, Item #7, to fit under worktable surface. Modify roll at front, if required, to allow for the doors to swing open properly.
- 4.4 ITEM 4 COFFEE UNIT ONE (1) LOT
 - A. Coffee unit shall be as manufactured by Bloomfield, Model #1082.
 - B. Coffee unit shall be provided with all standard equipment, plus the following:
 - 1. Four (4) #7763-ALB Airpots
 - 2. One (1) #3012-SRVRK2F Rack
 - 3. Dormont Swirl Hose Assembly
- 4.5 ITEM 5 HOT CHOCOLATE MACHINE ONE (1) REQUIRED
 - A. Hot chocolate machine shall be as manufactured by Bunn-O-Matic, Model #FMD-1 Black.
 - B. Hot chocolate machine shall be provided with all standard equipment, plus Dormont swirl hose assembly.
- 4.6 ITEM 6 MICROWAVE OVENS TWO (2) REQUIRED
 - A. Microwave ovens shall be as manufactured by Waring, Model #MW-090.
 - B. Microwave ovens shall be provided with all standard equipment.
- 4.7 ITEM 7 UNDERCOUNTER REFRIGERATOR ONE (1) REQUIRED

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- A. Undercounter refrigerator shall be as manufactured by Continental Refrigerator, Model #SW72-N.
- B. Undercounter refrigerator shall be provided with all standard equipment, plus the following:
 - 1. Cylinder Locks
 - 2. Electric Condensate Evaporator
 - 3. Stainless Steel Interior

4.8 ITEM 8 - WORKTABLE - ONE (1) REQUIRED

- A. Worktables shall be custom built, approximately 10'-0" x 30" x 34" high to working surface.
- B. Top shall be constructed of 14-gauge stainless steel with all edges rolled and corners bullnosed.
- C. Under the top provide two (2) tool drawers with locks as per Detail #6.2.
- D. The worktable shall be supported on 1⁵/₈" OD stainless steel legs with undershelf (Detail #3.1).
- 4.9 ITEM 9 FRENCH FRY WARMER ONE (1) REQUIRED
 - A. French fry warmers shall be as manufactured by Hatco, Model #GRFFB.
 - B. French fry warmers shall be provided with all standard equipment.
- 4.10 ITEM 10 NACHO CHIP WARMER ONE (1) REQUIRED
 - A. Nacho chip warmers shall be as manufactured by Hatco, Model #FST-1MN.
 - B. Nacho chip warmers shall be provided with all standard equipment.
- 4.11 ITEM 11 NACHO CHEESE WARMER ONE (1) REQUIRED
 - A. Nacho cheese warmers shall be as manufactured by Server, Model #FSPW-SS.
 - B. Nacho cheese warmers shall be provided with all standard equipment.
- 4.12 ITEM 12 PRETZEL DISPLAY ONE (1) REQUIRED
 - A. Pretzel display shall be as manufactured by Winco, Model #51012.

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B. Pretzel display shall be provided with all standard equipment.

4.13 ITEM 13 - EXHAUST HOOD - ONE (1) REQUIRED

- A. Exhaust hood shall be as manufactured by Aqua-Matic, Mode ND, size as shown on drawing.
- B. Construction shall be type 430 stainless steel with a #3 or #4 polish where exposed. Individual component construction shall be determined by the manufacturer and ETL. Construction shall be dependent on the structural application to minimize distortion and other defects. All seams, joints and penetrations of the hood enclosure to the lower outermost perimeter that directs and captures grease-laden vapor and exhaust gases shall have a liquid-tight continuous external weld in accordance with NFPA 96. Hood shall be wall type with a minimum of four connections for hanger rods. Corner hanging angles have a 5/8" x 11/2" slot pre-punched at the factory, allowing hanging rods to be used for quick and safe installation.
- C. The hood shall be furnished with U.L. classified filters, supplied in size and quantity as required by ventilator.
- D. The hood manufacturer shall supply complete, computer-generated submittal drawings, including hood section view(s) and hood plan view(s). These drawings must be available to the engineer, architect and owner for their use in construction, operation and maintenance.
- E. Exhaust duct collar to be 4" high with 1" flange. Duct sizes, CFM and static pressure requirements shall be as shown on drawings. Static pressure requirements shall be precise and accurate; air velocity and volume information shall be accurate within 1'-0" increments along the length of the ventilator.
- F. UL incandescent light fixtures and globes shall be installed and pre-wired to a junction box. The light fixtures shall be installed with a maximum of 4'-0" spacing on center and allow up to a 100 watt standard light bulb.
- G. The hood shall have:
 - 1. A double wall insulated front to eliminate condensation and increase rigidity. The insulation shall have a flexural modulus of 475 EI, meet UL 181 requirements and be in accordance with NFPA 90A and 90B.
 - 2. An integral front baffle to direct grease laden vapors toward the exhaust filter bank.

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- 3. A built-in wiring chase provided for outlets and electrical controls on the hood face and shall not penetrate the capture area or require an external chaseway.
- 4. Removable grease cup for easy cleaning.
- H. The hood shall be ETL Listed as "Exhaust Hood Without Exhaust Damper", ETL Sanitation Listed and built in accordance with NFPA 96. The hood shall be listed for 450°F cooking surfaces at 150 CFM/ft, 600°F cooking surfaces at 200 CFM/ft, and 700°F cooking surfaces at 250 CFM/ft. The hood shall be ETL Listed as "Exhaust Hood Without Exhaust Damper".
- I. Provide with Utility Cabinet, back supply plenum, end panels, captrate combo and captrate solo stainless steel/aluminum baffle high velocity cartridge filters, and enclosure panels.
- J. The DCV includes:
 - 1. Smart Controller
 - 2. LCD Screen Interface
 - 3. Duct Temperature Sensor(s)
 - 4. Variable Frequency Drive(s)
- K. Controls shall be listed by ETL (UL 508A).
- L. The system to include an LCD screen interface for fan(s) and hood lights control, wash control (if applicable), gas valve reset, programmable schedule, Max Air Override function, Preparation Time mode, Cool Down mode, and diagnostics including VFD status. The LCD screen shows descriptive plain text explaining the functions or values. The LCD screen interface will be installed on the face of the hood, on the face of the utility cabinet or on the face of a wall mounted control enclosure.
- M. Control enclosure will be NEMA 1 rated and listed for installation inside of the exhaust hood utility cabinet. Control enclosure may be constructed of stainless steel or painted steel.
- N. The smart controller will constantly monitor the exhaust air temperature through the riser mounted temperature sensor and modulate the fan speeds accordingly.
- O. A room temperature sensor will also be provided for field installation in the kitchen space in order to start the fan(s) based on the fixed temperature differential between the room and the exhaust air in the duct rather than fixed set-points.

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- P. A Preparation Time Mode is available for morning operation: dedicated make-up air will be locked out only allowing the use of transfer air during this mode. Exhaust fan(s) will run at low CFM while maintaining a balanced kitchen pressure.
- Q. A Cool Down Mode is designed for equipment cool-down period at the end of the daily cooking operations: similarly to Preparation Time mode, dedicated make-up air will be locked out only allowing the use of transfer air during this mode. Exhaust fan(s) will run at low CFM while maintaining a balanced kitchen pressure.
- R. Fan maximum/ minimum speeds will be adjustable for proper kitchen balance. Fan direction change is also available from the smart controller configuration menu without need for rewiring.
- S. Duct Temperature Sensor(s) will be mounted in the exhaust hood riser(s). Temperature probe will be constructed of Stainless Steel. System will be factory pre-set to modulate fan speed within a range of 45°F for 600°F and 700°F cooking applications and a range of 5°F for 400°F cooking applications. Setpoints are fully adjustable through the touch screen interface based on application needs.
- T. The Max Air Override will have an adjustable timeout value.
- U. The panels include color coded wiring with as-built wiring diagrams and spare terminals controlled by the fire system micro switch. The panel is factory prewired to shut supply fans down in a fire condition. Options to turn ON the exhaust fans or turn off the hood lights in a fire condition will be configurable through the smart controller, but only through a password protected menu to prevent any changes after a fire inspection has been performed.
- 4.14 ITEM 14 FIRE SUPPRESSION SYSTEM ONE (1) REQUIRED
 - A. Fire suppression system shall be as manufactured by Ansul, Model #R-102.
 - B. Fire suppression system shall cover the hood, duct, and any necessary appliances below. Provide all necessary electrical contacts and gas valves as may be required. The fire protection system shall comply to both NFPA96 and NFPA17 requirements.
- 4.15 ITEM 15 GRIDDLE ONE (1) REQUIRED
 - A. Griddle shall be as manufactured by Garland, Model #CG-48R.

- B. Griddle shall be provided with all standard equipment, plus Dormont #KITCF2S quick disconnect.
- 4.16 ITEM 16 GRIDDLE STAND ONE (1) REQUIRED
 - A. Griddle stand shall be as manufactured by Continental Refrigerator, Model #D48GN.
 - B. Griddle stand shall be provided with all standard equipment, plus the following:
 - 1. Cylinder Locks
 - 2. Electric Condensate Evaporator
- 4.17 ITEM 17 FRYER SYSTEM ONE (1) LOT
 - A. Fryer shall be as manufactured by Dean, Model #1FPRG50T.
 - B. Fryer system shall be provided with all standard equipment, plus the following:
 - 1. Sediment Tray
 - 2. Frypot Cover
 - 3. #15MC Spreader Cabinet
 - 4. #FWH-1 Food Warmer/Dump Station
 - 5. Built-In Filter System
 - 6. One (1) Extra Box Paper
 - 7. One (1) Extra Box Powder
 - 8. Casters with Brakes
 - 9. Dormont #KITCF2S Quick Disconnect
- 4.18 ITEM 18 WORKTABLE ONE (1) REQUIRED
 - A. Worktable shall be custom built, approximately 2'-4" x 24" x 34" high to working surface.
 - B. Top shall be constructed of 14 gauge stainless steel with all edges rolled and corners bullnosed.
 - C. Under the top provide a tool drawer with lock as per Detail #6.2.
 - D. Worktable shall be supported on 1-5/8" OD stainless steel legs with undershelf (Detail #3.1). Legs shall be provided with 5" heavy-duty casters, all with brakes.
- 4.19 ITEM 19 REACH-IN FREEZER ONE (1) REQUIRED

- A. Reach-in freezer shall be as manufactured by Continental Refrigerator, Model #3FN-SS.
- B. Reach-in freezer shall be provided with all standard equipment, plus one (1) extra shelf per section.
- 4.20 ITEM 20 HAND SINKS TWO (2) REQUIRED
 - A. Hand sinks shall be as manufactured by Advance/Tabco, Model #7-PS-71.
 - B. Hand sinks shall be provided with all standard equipment, plus the following:
 - 1. #K-121 Faucet
 - 2. #7-PS-10 P-Trap
 - 3. T&S #B-504 Wall-Mounted Foot Pedal
- 4.21 ITEM 21 POT/PAN SINK ONE (1) REQUIRED
 - A. Pot/pan sink shall be custom built, size and shape as shown on drawing x 34" high to working surface.
 - B. Sink shall be constructed of 14 gauge stainless steel, one piece welded construction. All interior corners shall be coved horizontal and vertical with a ¹/₂" minimum radius. Three 10" wide x 14" multiple compartment sinks shall be fabricated with double thickness partitions and continuous front. The bottom of each sink shall be pitched to drain and provided with Fisher #22314 leverwastes with connected overflows. Mounted on the backsplash over the left bulkhead shall be a Fisher #60844 faucet with aerator. Mounted above the other bulkhead shall be a Fisher #68128 pre-rinse with wall bracket and add-on faucet. Securely fasten bracket to the wall using stainless steel fasteners.
 - C. Drainboards shall be constructed of 14 gauge stainless steel with 3" high raised roll edge on front and left end. Drainboards shall be welded integrally with sink to form one-piece construction. Drainboards shall be pitched ¼" per foot.
 - D. Sink unit shall have 10" high backsplash along all wall areas. See Detail #5.0 -Type "A". Unit shall be supported on 1⁵/₈" OD stainless steel legs with crossbracing. See Detail #3.2. Front legs shall have stainless steel adjustable flanged feet, secured to the floor using stainless steel fasteners.
- 4.22 ITEM 22 SPARE NUMBER
- 4.23 ITEM 23 SPARE NUMBER
- 4.24 ITEM 24 SPARE NUMBER

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4.25 ITEM 25 - FRONT COUNTER - ONE (1) REQUIRED

- A. Front counter shall be custom built, approximately 12'-1" x 4'-1" x 36" high to working surface.
- B. Top shall be constructed of 14 gauge stainless steel with front and ends rolled and corners bullnosed. Rear of top shall be turned up in a 6" high backsplash along wall areas.
- C. The worktable at worker side shall be supported on 1⁵/₈" OD stainless steel legs with bottom and intermediate undershelf (Detail #3.1).
- D. Coordinate section through window opening.
- E. Provide brackets at underside of front sill to attach to wall, spaced evenly at 3'-0" on center. Brackets to be bolted to wall with ¼" 20 gauge stainless steel bolts and toggles or expansion shields as required. Check wall construction and provide backing if necessary. Brackets shall be constructed of 14 gauge stainless steel 1½" wide flange to mount to wall and underside of worktop surface. The underside of the work top surface at the customer side to have studs welded to underside to accommodate the angle brackets. The bracket to be attached to the underside of the top with stainless steel lockwashers and stainless steel cap nuts.
- 4.26 ITEM 26 CASH REGISTERS TWO (2) NIC/BY OWNER
- 4.27 ITEM 27 SOFT-SERVE ICE CREAM MACHINE ONE (1) REQUIRED
 - A. Soft-serve ice cream machine shall be as manufactured by Spaceman, Model #6250A-C.
 - B. Soft-serve ice cream machine shall be provided with all standard equipment.
- 4.28 ITEM 28 ICE CREAM CONE DISPENSERS TWO (2) NIC/BY VENDOR
- 4.29 ITEM 29 SODA DISPENSER ONE (1) NIC/BY VENDOR
- 4.30 ITEM 30 ICE MACHINE ONE (1) REQUIRED
 - A. Ice machine shall be as manufactured by Hoshizaki, Model #F-801MAJ-C.
 - B. Ice machine shall be provided with all standard equipment, plus the following:
 - 1. #B-500SF Bin with Stainless Steel Legs

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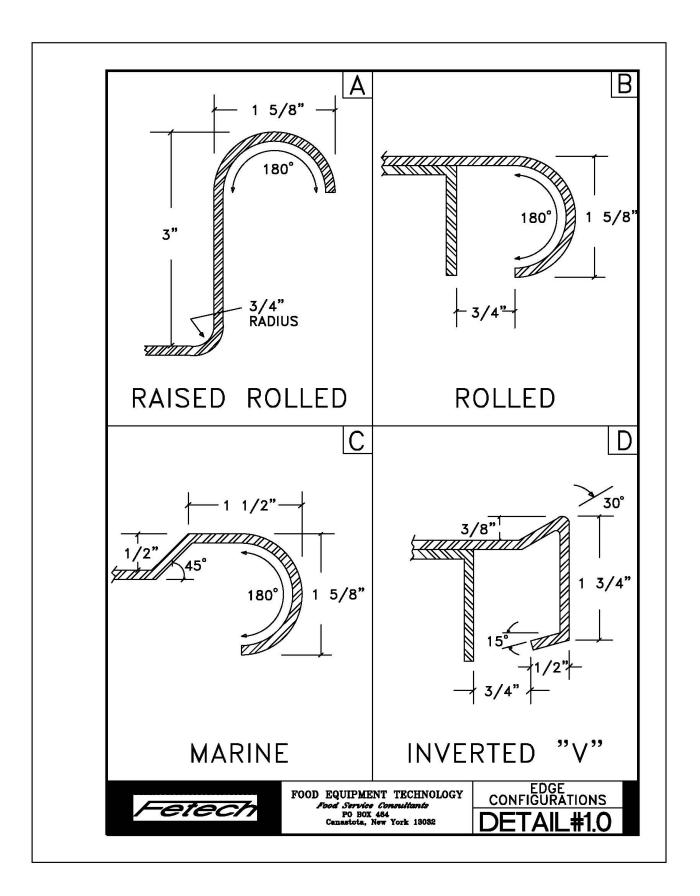
- 2. Top Kit As Required
- 3. Thermostat Kit
- 4. Water Filtration System
- 5. Six (6) Additional Cartridges
- 6. EcO Ozone System
- 7. Four (4) Replacement Cartridges
- 8. Dormont Swirl Hose Assembly with Disconnect

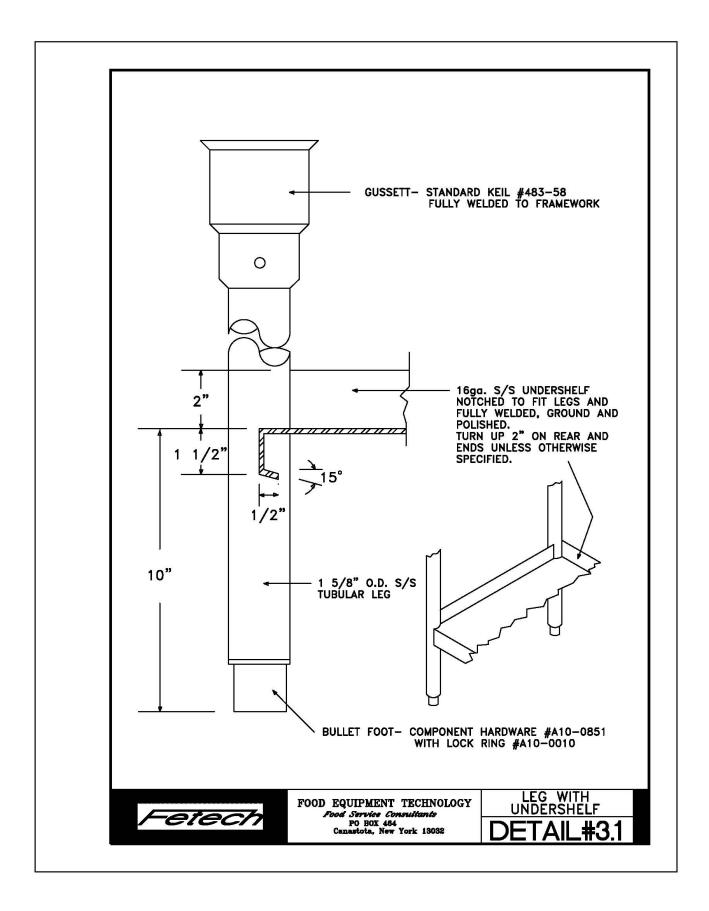
4.31 ITEM 31 - JANITOR'S CABINET - ONE (1) REQUIRED

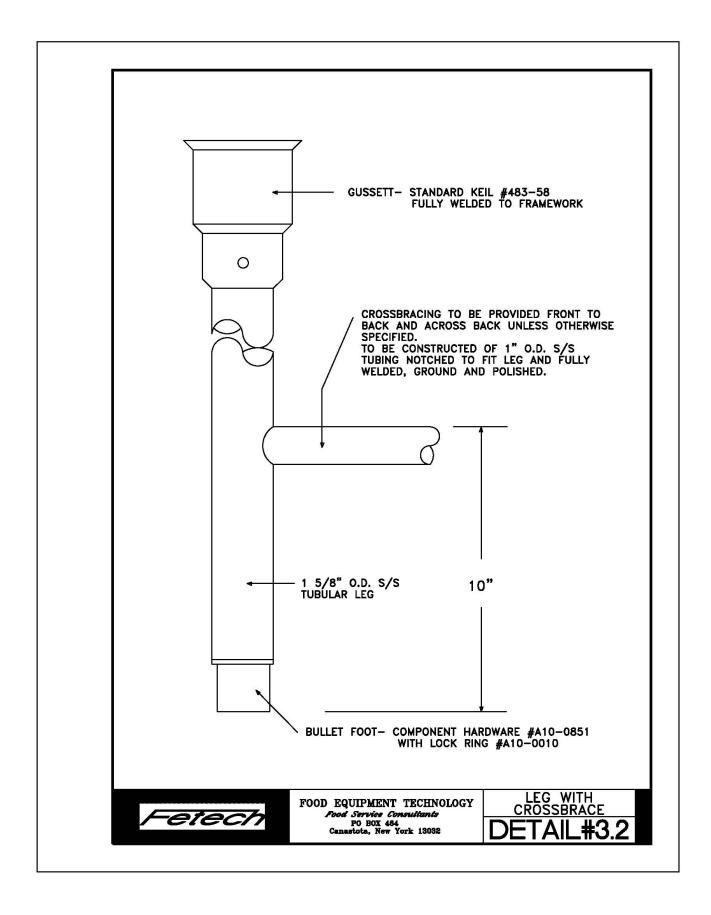
- A. Janitor's cabinet shall be as manufactured by Advance/Tabco, Model #9-OPC-84DR-300.
- B. Janitor's cabinet shall be provided with all standard equipment, plus the following:
 - 1. #TA-46 Lock
 - 2. #K-240 Faucet

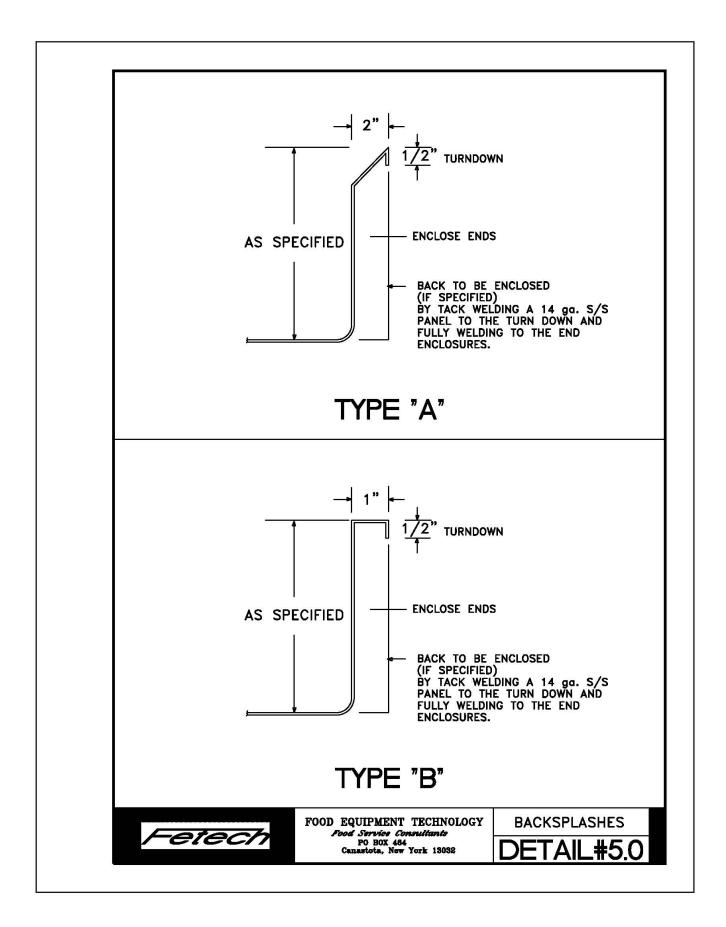
PART 5 - DETAILS OF CONSTRUCTION

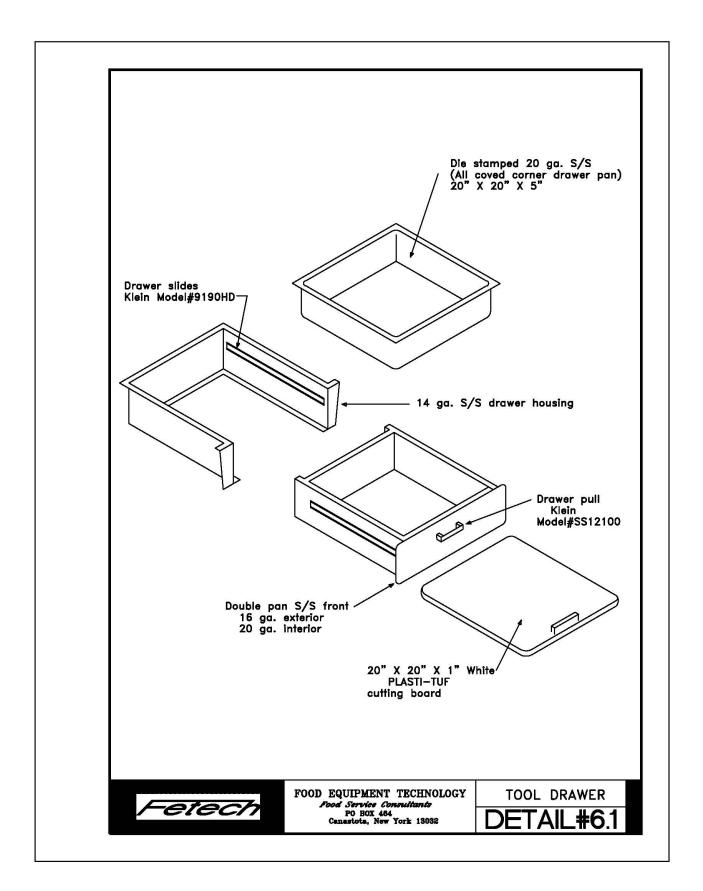
- 5.1 DETAIL DRAWINGS
 - A. The following details are a part of these specifications and shall be referred to for design requirements:
 - 1.0 Edge Configurations
 - 3.1 Leg with Undershelf
 - 3.2 Leg with Crossbrace
 - 5.0 Backsplashes
 - 6.1 Tool Drawer
 - 6.2 Tool Drawer

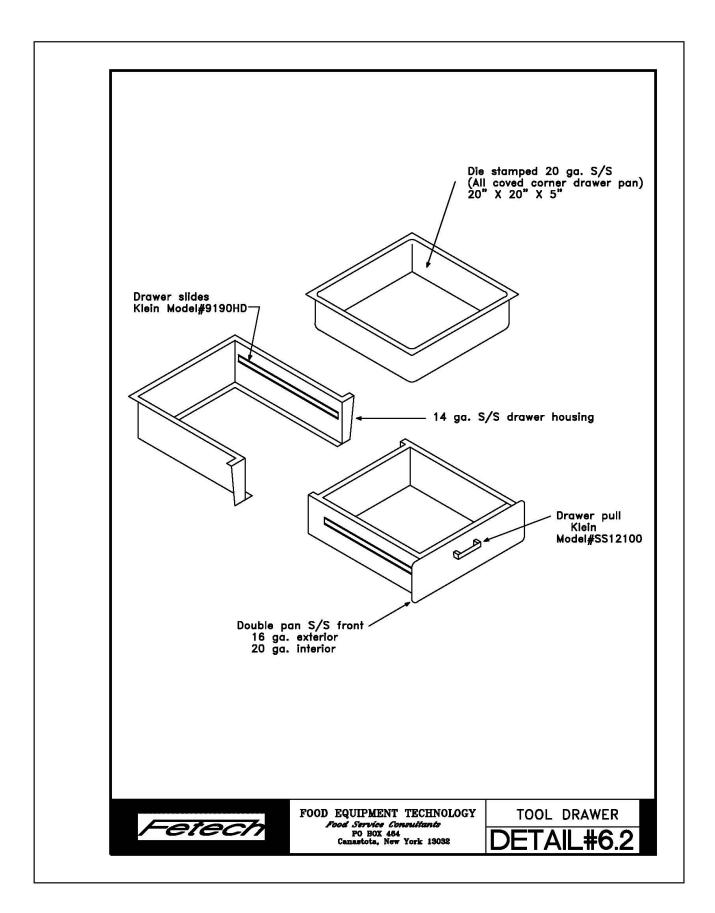












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END OF SECTION 11400

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SECTION 123661 - SIMULATED STONE COUNTERTOPS

1.0 PART 1 - GENERAL

1.1 <u>RELATED DOCUMENTS</u>

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Quartz agglomerate countertops and backsplash.

1.3 <u>ACTION SUBMITTALS</u>

- A. Product Data: For countertop materials.
- B. Shop Drawings: For countertops. Show materials, finishes, edge and backsplash profiles, methods of joining, and cutouts for plumbing fixtures and all other penetrations.
- C. Samples for Verification: For the following products:
 - 1. Countertop material, 6 inches (150 mm) square.

1.4 <u>PROJECT CONDITIONS</u>

A. Field Measurements: Verify dimensions of countertops by field measurements after base cabinets are installed but before countertop fabrication is complete.

1.5 <u>COORDINATION</u>

A. Coordinate locations of utilities and structure that will penetrate countertops or backsplashes.

2.0 PART 2 - PRODUCTS

2.1 <u>QUARTZ AGGLOMERATE COUNTERTOPS</u>

- A. Configuration: Provide countertops with the following front and backsplash style:
 - 1. Front: 3/4-inch (19-mm) bullnose.
 - 2. Backsplash: Radius edge with 3/8-inch (9.5-mm) radius.
 - 3. Endsplash: Matching backsplash.
- B. Countertops: 3/4-inch- (19-mm-) thick, quartz agglomerate with front edge built up with same material.

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- C. Backsplashes: 3/4-inch- (19-mm-) thick, quartz agglomerate.
- D. Fabrication: Fabricate tops in one piece with shop-applied edges and backsplashes unless otherwise indicated. Comply with quartz agglomerate manufacturer's written instructions for adhesives, sealers, fabrication, and finishing.
 - 1. Fabricate with loose backsplashes for field assembly.

2.2 COUNTERTOP MATERIALS

- A. Certified Wood Materials: Fabricate countertops with wood and wood-based products produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship."
- B. Plywood: Exterior softwood plywood complying with DOC PS 1, Grade C-C Plugged, touch sanded.
- C. Adhesives: Adhesives shall not contain urea formaldehyde.
- D. Adhesives: Adhesives shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- E. Quartz Agglomerate: Solid sheets consisting of quartz aggregates bound together with a matrix of filled plastic resin and complying with the "Physical Characteristics of Materials" Article of ANSI SS1.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. <u>Cambria</u>.
 - b. <u>Cosentino USA</u>.
 - c. <u>LG Chemical, Ltd</u>.
 - d. <u>Samsung Chemical USA, Inc</u>.
 - e. <u>Transolid, Inc</u>.
 - 2. Design Product: Cambria, Quartz, Classic Collection and Marble Collection.
 - 3. Colors and Patterns: As indicated by manufacturer's designations, refer to drawings.

3.0 PART 3 - EXECUTION

3.1 <u>INSTALLATION</u>

A. Install countertops level to a tolerance of 1/8 inch in 8 feet (3 mm in 2.4 m).

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- B. Fasten countertops by screwing through corner blocks of base units into underside of countertop. Pre-drill holes for screws as recommended by manufacturer. Align adjacent surfaces and, using adhesive in color to match countertop, form seams to comply with manufacturer's written instructions. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
 - 1. Install backsplashes and endsplashes to comply with manufacturer's written instructions for adhesives, sealers, fabrication, and finishing.
 - 2. Seal edges of cutouts in particleboard sub-tops by saturating with varnish.

END OF SECTION 123661