

# MAYFIELD VILLAGE

## **THE GROVE AMPHITHEATRE – BANDSHELL**

### **BIDDING DOCUMENTS**

November 10, 2016

### **VOLUME 1 OF 1**

### **SPECIFICATIONS**



**Meld Project #16001**

**CONTENTS**

SECTION	001000	CONTENTS
	001113	LEGAL NOTICE TO BIDDERS
	002113	INSTRUCTIONS TO BIDDERS
	002214	SUPPLEMENTARY INSTRUCTIONS TO BIDDERS
	004113	BID FORM
	004321	ALLOWANCE FORM
	004393	BID SUBMITTAL CHECKLIST
	011000	SUMMARY
	012100	ALLOWANCES
	012500	SUBSTITUTION PROCEDURES
	012600	CONTRACT MODIFICATION PROCEDURES
	013100	PROJECT MANAGEMENT AND COORDINATION
	013300	SUBMITTAL PROCEDURES
	014000	QUALITY REQUIRMENTS
	017300	EXECUTION
	017700	CLOSEOUT PROCEDURES
	033000	CAST-IN-PLACE CONCRETE
	042000	UNIT MASONRY
	051200	STRUCTURAL STEEL FRAMING
	051213	ARCHITECTURALLY EXPOSED STRUCTURAL STEEL FRAMING
	062013	EXTERIOR FINISH CARPENTRY
	072726	FLUID APPLIED MEMBRANE AIR BARRIERS
	073113	ASPHALT SHINGLES
	079200	JOINT SEALANTS
	099113	EXTERIOR PAINTING
	099300	STAINING AND TRANSPARENT FINISHING
APPENDIX-1		GEOTECHNICAL REPORT
APPENDIX-2		AIA A201 - GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION

**Mayfield Village  
The Grove Amphitheatre – Band Shell**

**NOTICE TO BIDDERS**

Sealed Bids will be received by Mayfield Village, 6622 Wilson Mills Road Mayfield Village, Ohio 44143 no later than **12:00 NOON on Friday December 2, 2016** for the following Project:

**The Grove Amphitheatre – Band Shell  
425 North Commons, Mayfield Village, Ohio  
Cost Estimate: \$290,000.00**

Bids received will be opened and publicly read aloud at that time and date.

Bidding documents may be obtained after Nov 10, 2016 at the Mayfield Village Civic Center, 6622 Wilson Mills Road, Mayfield Village, OH 44143, Mon-Fri between the hours of 8:30 a.m. and 4:30 p.m. Bidders will be provided one complete set of documents free of charge (prime bidders only). Bidding documents can also be viewed and downloaded at [www.mayfieldvillage.com](http://www.mayfieldvillage.com)

The documents will also be available for purchase at:

**Cleveland Builders Exchange, Inc.**

Phone: (866) 907-6300 or (216) 393-6300

Fax: (866) 907-6304 or (216) 393-6304

Contacts: Cindy Thornton

info@bxohio.com

**A pre-bid meeting will be held at The Grove Amphitheatre, 425 North Commons Road, on Wednesday, Nov 16, 2016 at 10:00 a.m.**

For more information, contact Director of Administration, Diane Wolgamuth at 440-471-1048 or [dwolgamuth@mayfieldvillage.com](mailto:dwolgamuth@mayfieldvillage.com)

All Requests for information (RFI's) are to be submitted in writing via email to [ed@meldarchitects.com](mailto:ed@meldarchitects.com)

**Advertisement Dates:**

**November 10, 2016**

**November 17, 2016**

**November 24, 2016**

DOCUMENT 002113 - INSTRUCTIONS TO BIDDERS

1.1 INSTRUCTIONS TO BIDDERS

DEFINITIONS

- A. All definitions set forth in the Contract Documents are applicable to the Bidding Documents.
- B. Contract Documents and Bidding Documents are as defined in the General Conditions and as may be modified in the Supplementary General Conditions.
- C. General: Basic Contract definitions are included in the conditions of the contract.
  - 1. “Reviewed”: When used to convey Architect’s action on Contractor’s submittals, applications, and requests, “reviewed” is limited to Architect’s duties and responsibilities as stated in the Conditions of the Contract.
  - 2. “Directed” A command or instruction by Architect. Other terms including “requested”, “authorized”, “selected”, “required”, and “permitted” have the same meaning as “directed”.
  - 3. “Indicated”: Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including “shown”, “noted”, “scheduled”, and “specified” have the same meaning as “indicated”.
  - 4. “Regulations”: Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the work.
  - 5. “Furnish”: Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
  - 6. “Install”: Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations.
  - 7. “Provide”: Furnish and install, complete and ready for the intended use.
  - 8. “Project Site”: Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.
- D. A Bid is a complete and properly signed proposal submitted per the requirements of the Bidding Documents. Any proposal not meeting the requirements of the Bidding Documents in every respect may be rejected by the Owner as an improperly executed Bid.
- E. Base Bid is the sum stated in the Bid for which the Bidder offers to perform the work described in the Bidding Documents and/or the Contract Documents as the Base Bid.
- F. Alternate Bid is the sum or adjustment to the Base Bid stated in the Bid for which the Bidder offers to perform Alternate Work described in the Bidding Documents and/on the Contract Documents as Alternate Bid (or Alternate).

- G. A unit price is the amount stated in the Bid for which the Bidder offers to accept for adjustments to the Contract amount for additions or deductions to the scope of the work.
- H. A Bidder is the person or entity who submits a Bid and a Sub-bidder is a person or entity who submits a Bid to the Bidder for any portion of the work.
- I. Legal Notice and Legal Advertisement have the same meaning. They are the formal Legal Notice placed in newspapers announcing the intention to receive Bids.
- J. A Contractor is any entity, regardless of trade, who submits a bid.
- K. For the purpose of bidding, the words “Contractor” and “Bidder” may be used interchangeably.

## 2. BIDDER’S REPRESENTATIONS

- A. By submitting a Bid, the Bidder represents that he has:
  - 1. Familiarized himself with the Contract Documents and Bidding Documents.
    - 2. Familiarized himself with the site, and with local conditions that may affect the work.
  - 3. Only complete sets of Contract Documents have been used in preparation of the Bid.
    - 4. Based his Bid only on Standards required in the Contract Documents without exception.
    - 5. Has received, and is familiar with all addenda.
    - 6. Is a licensed contractor in the appropriate jurisdiction for which the work is being completed.
    - 7. Has all required bonds and insurances as stated in the specifications.
    - 8. Is a registered contractor with the Mayfield Village, Cuyahoga County, and Ohio or will become registered before the start of construction.
    - 9. Understands and accepts costs associated with overtime, after hours and weekend work associated with this project.
    - 10. Accepts that this work will be completed during normal working hours.
    - 11. Has not made direct contact with the owner or his/her organization. Bidders violating this requirement will be subject to bid rejection.

## 3. BIDDING DOCUMENTS

- A. Bidding Documents and Contract Documents may be obtained per the

Conditions of the Notice to Bidders and/or Legal Advertisement.

- B. Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the Notice to Bidders and/or Legal Advertisement.
- C. Should any requirements in the Contract Documents or the Bidding Documents require clarification, the bidder shall request such clarification in writing, 5 business days prior to the time of submission of bids. If it is determined by the Architect, that a clarification is required, the clarification shall be issued in the form of Addenda. Note that on public project, an Addenda cannot be issued from the Architect's office with less than 72 hours unless it is done in accordance with O.R.C. 153.12(A). Issuance of Addenda is defined as the date issued from the Architect's Office. Addenda may be issued by e-mail, mail, fax, or UPS. Addenda are the only way in which a binding clarification, correction, or change can be made to the Contract Documents and Bidding Documents during the Bidding period.
- D. Issue date for all addenda is defined as the date such addenda are issued from the Architect's office.
- E. Should any of the requirements in the contract documents require clarification during construction that could have reasonably been identified during bidding, any and all costs associated with such clarifications shall be borne by the Contractor. The Architect shall determine which items should have been recognized and identified during the bidding process.

#### 4. SUBSTITUTIONS

- A. The name or make of any article, device, material, form of construction fixtures, etc., named in this project manual shall be known as a "Standard". All proposals shall be based on "Standards" specified unless the bidder obtains the written approval of the Architect as an "Approved Equal".
- B. Where two or more "Standards" are named together, bidders may bid any of the "Standards" named. With the submission of its bid, the Contractor states explicitly that only "standards" will be used.
- C. Bidders desiring to submit products for consideration as an "Approved Equal" should, 7 calendar days prior to the time of submission of bids, submit complete specifications and description of the proposed brands requested to be approved as equal to the Architect for review. If approval is granted by the Architect, written approval will be stated by Addenda to all bidders.
- D. If written approval has not been obtained prior to due date for submission of bids, then proposed brand may be bid as a substitute on Substitution Sheet only.
- E. The low bidder will be determined on the basis of bids submitted in accordance with Paragraphs A, B, and C of this heading and other factors as set forth in the Bidding and Contract Documents. Low bidder will not be determined on the basis of a substitution.
- F. Bidders desiring consideration for the use of material, equipment, etc., not

named in the project manual may submit proposals for the substitution of same in lieu of “Standards” specified, using the “Substitution Sheet” attached to the Proposal Form and listing for each proposed change.

1. The “Standard” specified.
2. The Substitution.
3. The change in Bid Price (or “no change”).

G. Substitution Requests: Submit three ( 3 ) copies of each request for consideration to the Architect. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project Conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

a. Submittals for Convenience: **Not Allowed**

#### 5. ADDENDA

- A. Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
- B. When issued, Addenda will be e-mailed, mailed, faxed or sent via UPS to the address on file in the Architect’s office to all who are known by the Architect to have received a set of the Bidding Documents and the Contract Documents.
- C. Addenda will be made available for inspection wherever Contract Documents and Bidding Documents are on file for that purpose.
- D. The issue date of any Addenda shall be the date the Addenda are transmitted from the Architect’s office.

#### 6. REFERENCE STANDARDS

- A. Any documents, referenced specification, standard, etc., referred to in this project manual as forming a part herein, shall be secured by the respective Contractor, maintained in his records, and shall be available at all times for reference.
- B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Thomson Gale’s “Encyclopedia of Associations” or in Columbia Books’ “National Trade & Professional Associations of the US”.

7. BIDDING PROCEDURE

- A. Bids will be accepted only on the Form of Proposal which is part of these Bidding Documents.
- B. Alternates to the Form of Proposal, exceptions to any portion of the Bidding Documents and/or Contract Documents, and Form of Proposals that are not filled out completely shall, at the discretion of the Owner, disqualify the bidder.
- C. Bid amounts shall be stated both in writing and in figures.
- D. All blanks in the Form of Proposal shall be filled in. If a blank is non-applicable to a bidder, it shall be so stated. The abbreviation NA is acceptable.
- E. All Form of Proposals shall be filled out in ink or typed. All signatures shall be in ink.
- F. Bids shall be signed with proper legal signatures with the names of each and every person interested therein; in the case of a corporation, the proper legal signature of one officer of the corporation authorized to sign for the corporation. All signatures shall have such names “typed in” adjacent thereto. The business address shall be given in all cases.
- G. Bids shall be enclosed in opaque inter and outer envelopes. The outer envelope shall be sealed and shall be clearly marked, as follows, depending on the nature of the bid:

**(BID DOCUMENTS)**

**Mayfield Village – The Grove Amphitheatre - Bandshell**

The properly identified bid shall be sealed, addressed and delivered to the location, and prior to the date and time as noted in the legal advertisement.

- H. Bids for all public work in Ohio cannot exceed the Architect’s opinion of probable cost of construction for the Base Bid of a single contract or multiple contracts by more than ten percent, per Ohio Revised Code, Section 153.12. Any bid received that exceeds the estimated cost of construction for the Base Bid by more than ten percent shall be considered an invalid bid.
- I. Bids must include properly executed Bid Guaranty and Contract Bond per Section 153.571 of the Ohio Revised Code for all public work in Ohio, except for work for incorporated cities. For work for incorporated cities and for privately funded work, bids must include properly executed Bid Bond submitted on AIA document A310, latest edition, for the amount indicated on the Notice to Bidder and/or Legal Advertisement. Irrevocable Letters of Credit and/or Certified Checks may be substituted for the above mentioned Bonds only if such options are indicated on the Notice to Bidders and/or Legal Advertisement. All Bonds must have proper endorsement by the Surety or Sureties.

The Bond or when permitted, Certified Checks or Letters of Credit, received from the unsuccessful bidders will be returned as soon as the Contracts are awarded, signed and the bond obligations of successful bidders are fulfilled, or no more than 60 days after the

closing date for receipt of bids. Bonds, Checks, and Letters of Credit are to be payable to the Owner, as identified in these documents.

- J. The Bid Guaranty must be of a sufficient amount to cover the combined base bid and all additive alternates, or the sum of the individual bids and all additive alternates whichever amount is higher.
- K. Bids may be withdrawn any time prior to bid opening time, but may not be resubmitted. Following bid opening time, no bid may be withdrawn, unless the Contractor has identified a Bid error, until 60 days after the closing date for receipt of bids. Once a bid is submitted, it cannot be modified.
- L. Bids may be withdrawn after receipt of bid if a letter identifying the bid error is received by the Architect within 48 hours of the bid due date. The Architect has the sole discretion of determining if a bid may be withdrawn.
- M. Oral, telephonic, telegraphic bids or facsimile bids are invalid and will not receive consideration.
- N. No bids will be accepted later than the time and date, indicated on the Notice To Bidders and/or Legal Notice.
- O. Each bidder shall indicate on his bid, the time required for the work to be completed.
- P. Subcontractors. Each successful bidder must submit the names of all of their subcontractors prior to commencing work. The Architect and the Owner reserve the right to reject any subcontractor they deem not qualified to perform the work. The contractor shall replace such contractor with a qualified subcontractor as approved by the Architect and Owner at no additional cost.

#### 8. CONSIDERATION OF BIDS

- A. Unless otherwise stated in the Notice to Bidders and/or the Legal Notice, all bids will be publicly opened and read aloud. An abstract of Base Bids and Alternates will be made available to all bidders. When stated that the bids will be opened privately, an abstract of the bids will be made available to all bidders at the discretion of the Owner.
- B. The Owner reserves the right to reject any or all bids and to waive any formalities in bidding, and may accept or reject any or all alternates.
- C. The Owner intends to award a contract to the lowest and most responsive bid which may include construction completion schedule submitted by the Contractor on the Form of Proposal. The lowest and most responsive bid is the bid, in the Owners judgment, that is in the Owners best interest to accept.
- D. After opening of Bids, the Architect will determine the two apparent low bidders in each Bid contract. The Contractor shall submit, with his bid, to the Architect his list of proposed subs, suppliers, and job superintendent. Upon receipt of this list, Architect and Owner shall review this list and advise contractor of any objections to names on such list. Upon determination of acceptable list, there shall be no change from the list. Failure to

submit contractors list of subcontractors, suppliers, and project superintendent shall be considered grounds to disqualify the bid.

- E. After opening the bids, the two apparent low bidders in each trade must submit a list of references to the Architect within 48 hours of the bid date. References shall include names, dates, organization, phone number and a brief description of the work completed by the bidder.
- F. The lowest bid is defined as the lowest cost or base bid and alternates as selected by the Owner.

9. COMPLETION

- A. For this project, the Owner desires Substantial Completion of the project **no later than May 31, 2017**. The starting date is defined as the date the Letter of Authorization to proceed from the Architect is sent to the Contractor.
- B. Substantial Completion is defined as the date established by the Architect.

10. ALTERNATES, UNIT PRICES AND SUBSTITUTIONS

- A. Each bidder shall submit on his bid, prices for all Alternates and Unit Prices as listed herein for inclusion.
- C. Any substitution the bidder wishes to have considered may be so indicated in the Form of Proposal including the change the substitution would make in the bid amount. Each substitution must be accompanied with the data to aid the Architect in evaluation of the substitute. Base Bids and Alternate Bids cannot be based on substitutes.

11. ARCHITECT'S ESTIMATE OF PROBABLE COST

- A. The Architect's Probable Cost of Construction for the total of all Base Bid Work, exclusive of alternate bid items is:  
**\$290,000**

12. ALLOWANCE

- A. Each Contractor shall include in his Base Bid price – allowances in accordance with section 021000 Allowances.

13. CONTRACT

- A. The Form of Agreement shall be “The Standard Form of Agreement between Owner and Contractor where the basis of payment is a Stipulated Sum”. AIA Document A101 issued by the American Institute of Architects, latest edition.

14. PURCHASE ORDER

- A. The Owner has the option of issuing purchase orders for contract totals that are less than \$5,000.00 for items that are delivered only, if such option is exercised, the Owner may waive requirements of furnishing of Bonds, Insurance Certificate, etc. All other requirements of Bid and Contract Documents shall remain unchanged.

15. BONDS

- A. Bonds shall be required of bidders entering an Agreement with the Owner as follows:
1. Bidders required to submit a Bid Guaranty and Contract Bond per Section 7-1 of these Instructions to Bidders, will not be required to furnish additional Performance and Labor and Material Payment Bonds.
  2. Bidders who submit a Bid Bond or (when permitted) submit a Certified Check, Cashier's Check or Irrevocable Letter of Credit with their bid, shall be required to provide the Owner with 100% Performance Bond and Labor and Material Payment Bond, on the form required by ORC 153.57 or a Bid Guaranty and Contract Bond meeting the requirements required by ORC 153.57. The bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto, a certified and current copy of his power of attorney.
  3. Should the Contractor withdraw his bid without the approval of the Architect and as outlined in these specifications, the Bid Bond will be used to compensate the Owner for the total difference between the Contractor's bid and the next lowest most responsive bid.

16. QUALIFICATIONS OF BIDDERS

- A. The Owner may make such investigations as he deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Owner, all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by or investigations of such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein. Conditional bids will not be accepted.
1. Contracts will be awarded only to responsible Contractors, qualified by experience and in a financial position to do the work specified. Each bidder will be required to submit, within 24 hours of the receipt of bids, the following data:
    - a. Experience record showing bidder's training and experience in similar work.
    - b. List and brief description of similar work satisfactorily completed, with location, date of contract, together with names and addresses of Owners.
    - c. List of facilities and equipment available to do this work.

2. The actual work shall be performed by qualified and experienced mechanics working under the Contractor's supervision or under the supervision of an experienced supervisor, who has also been doing this type of work.

17. DISCRIMINATION AND INTIMIDATION

- A. The prohibitions against discrimination and intimidation on account of race, creed, sex or color, and the provisions as to forfeitures to be applied in the event of violation of Contract Terms regarding same, as contained in Sections 153.59 and 153.60, and Sections 4112.01 through 4112.99 inclusive, of the Revised Code of Ohio, shall apply to all Contracts entered into in connection with the work.

18. SALES TAX

- A. At Contractor's request, Sales Tax Exemption Certificates shall be issued to each successful bidder on all projects that are so permitted under State and Federal Laws.

19. PREVAILING WAGE

- A. **All contractors and trades are to abide by the requirements of paying prevailing wage as required for public improvements by the Ohio Revised Code and in accordance with the plans and specifications.**

END OF DOCUMENT 002113

DOCUMENT 002214 – SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

The following supplements, modify, change, delete from or add to the “General Condition” of the Contract for Construction, AIA Document A201, latest edition. Where any Article of the General Conditions is modified or any Paragraph, Subparagraph or Clause thereof is modified or deleted by these supplements, the unaltered provisions of that Article, Paragraph, Subparagraph or Clause shall remain in effect.

1. GENERAL PROVISIONS:

- A. In the event there is a conflict in the Contract Documents, the most stringent requirements, as determined by the Architect, shall determine the minimal acceptable requirement for the Work.
- B. Drawings:
  - 1. Drawings are diagrammatic and are intended to show the approximate locations. Dimensions given on the plans in figures shall take precedence over scaled dimensions; and all dimensions, whether figured or scaled, shall be verified in the field.
  - 2. The exact location of walls, doors, windows, apparatus, equipment, piping, conduit and electrical equipment, etc., shall be ascertained from the Architect or his representative in the field, and the work shall be laid out accordingly. Should the Contractor fail to ascertain such locations the work shall be changed at his own expense when so requested by the Architect. The Architect reserves the right to make minor changes in location up to the time of installing, without additional cost.
  - 3. The drawings and project manual are intended to cover a complete project in every respect. Each and every item, system, etc., is to be complete unless otherwise definitely indicated.
  - 4. The drawings and project manual are intended to supplement each other and any material or labor called for in one shall be furnished even though not specifically mentioned in both.
  - 5. Demolition and/or removal of existing floors, walls, roofing, etc. may necessitate the removal or relocation of existing piping, conduit, services, etc. Such removal and relocation shall be considered part of the demolition work without additional cost, whether or not specifically shown on the drawings or listed in these specifications.
  - 6. The Owner and Architect assume no responsibility for the accuracy of existing contours and elevations shown on site plans; nor do they certify any information furnished through previous field investigations. The Contractor(s) shall verify all aspects of the project site, and determine for themselves the status of all existing conditions. The Contractor shall submit his bid based upon his review of actual field and job conditions as it relates to the specified Scope of Work.

C. Industry Standards:

1. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made part of the Contract Documents by reference. In case of discrepancies between Standards, the more restrictive shall apply.
2. Publication Dates: Comply with the standards in effect as of date of Contract Documents unless otherwise indicated.
3. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents. Where copies of standards are needed to perform a required construction activity, obtain copies directly from the publication source.
4. Tolerances: All measurements and sizes indicated (unless noted as nominal ), are actual measurements and sizes and shall be so interpreted. No deviation will be allowed unless prior acceptance of such deviation has been given by the Architect. Standards for acceptable deviation tolerances are listed by the referenced Associations above and/or noted in the project specifications.

2. OWNER:

- A. The Owner shall secure the services of a surveyor to establish lot lines, restrictions, and bench marks. Once established, it becomes the responsibility of the General Trades Contractor to maintain lines, restrictions and bench marks.
- B. The Contractor shall be furnished, free of charge, complete sets of the Contract Documents as follows:
  - a. General Contractor 1 Set of drawings, 1 spec book as provided during bidding.
  - b. All additional copies of the Contract Documents shall be furnished with Contractor paying the cost of reproduction.
- C. Cost of Utilities
  1. The Owner shall pay the following charges:
    - a. All electric current used from existing, temporary or permanent metering.
    - b. Cost of water used from existing facility or new metering.
    - c. Cost of all fuel and electricity used in permanent and temporary heating system that is directly connected to the existing or new building.

D. Stoppage of Work

1. The Owner reserves the right to stop work at any time, or refuse to allow work to be started, when in his opinion, such stoppage is necessary to insure the proper execution of work. The absence of such a stop order shall not relieve the Contractor of responsibility for any work that may be damaged.

3. CONTRACTOR:

A. Shop Drawing Submittal

1. Contractor shall review, stamp with his indication of approval, and submit in sets along with transmittal, shop drawings as follows:
2. Submit electronic copy ( pdf ), or three ( 3 ) hard copies of preprinted shop drawings including manufacturer's brochures, cuts, etc., which shall bear Contractor's name and project on each page, to the Architect to review for conformance.
3. Architect will retain two hard copies of brochure submittals.
4. Contractor will be invoiced for cost of any additional copies required from prints produced from the original submittals.

B. Superintendents

1. Each Prime Contractor shall have a superintendent who shall be in attendance each and every full working day at the project, and until all work, including final punch list, has been completed. An amount of **\$150.00** (one hundred fifty dollars) per working day shall be credited to the Owner, for each and every day (or portion thereof) that the Contractor's superintendent is not on the jobsite, unless written exception is granted by the Architect.
2. Specific Requirements
  - a. General Trades - Working superintendent each and every day until all work, including final punch list is complete.
  - b. Plumbing, Heating & Ventilating, and Electrical The Superintendent for each of these contractors may be a working superintendent, provided that all other responsibilities are properly executed. (as determined by the Architect). These responsibilities include, but are not limited to, coordination of work between trades, scheduling of work, attending job meetings, etc. Note during some periods of project, the Architect may grant exception to requirement for full time superintendent, if all work is up to date, and no work is scheduled and/or required by that Contractor.
    1. However, the superintendent will still be required to attend job meetings, coordinate work between trades, etc. during this period (i.e. after completion of plumbing rough-ins before finish work).

However, when work needs to be resumed, then requirement for full time job superintendent will again be in effect.

C. Utilities

1. Notify all utility companies that will, in any way, be affected by the proposed work and see that all piping, wires, etc., that may be affected, are properly serviced.
2. Remove abandoned utilities and cap or plug ends.
3. Use maximum care to protect existing utilities and drains. Promptly correct and/or repair any damaged utilities or drains.
4. Report encounter of active utilities and/or drains, not indicated by documents, to Architect for adjustment in Contract in accordance with Article 12. However, extra payment will not be authorized for work that could have been foreseen by a careful examination of the site.
5. Protect all active utilities pending instructions for disposition.

D. Reference Points

1. The General Contractor, or in the case of a single Prime Contractor, the Contractor shall establish and maintain grades, lines, levels, and bench marks within the limits for construction. He shall be responsible for the accuracy of same to the extent that other contractor's work shall relate to them, and the cost of additional work under other Contracts, resulting from deviations of grades, lines, levels, and bench marks, as established on the drawing, shall be borne by him.
2. Each Contractor Shall:
  - a. Verify and maintain location of horizontal and vertical reference points in at least two widely separated places and maintain all lines and grades.
3. Locate areas where grades are to be changed and storage areas for topsoil and storage of materials, if applicable.
4. Locate buildings and layout of all work in accordance with the dimensions given on the drawings and shall be responsible for the accuracy of the layout. Immediately report any discrepancies or errors in the drawings or project manual perceived by the contractor. Adjustments to be made shall be made by the Architect.
5. Notify Architect when layout is substantially complete, and secure his review before proceeding.

E. Permits

1. Each Contractor shall secure all permits and inspections and certificates of inspection, occupancy, and shall furnish Architect with copies of all such reports and certificates prior to final payment.
2. Each Contractor shall pay for all costs associated with all required permits.

F. Materials

1. When a single brand or make of material is called for in the project manual by name or figure number, no other make of material will be acceptable.
2. When no specific make of material or apparatus is mentioned, any first class product of reputable manufacturer may be used, provided that it conforms to the requirements of this project manual and meets with the approval of the Architect.
3. All materials, equipment, etc., to be used in construction shall be delivered to the job and maintained in original unopened containers and/or bundles, stored in a place protected from exposure to the elements and from damage by tampering until used and then used in strict accordance with the manufacturer's written instructions, specifications and recommendations.

G. Labor

1. All labor shall be performed in the best and most workmanlike manner by mechanics skilled in their respective trade. The standards of the work required throughout shall be of quality normal to this trade and acceptable to the Architect. Mechanics whose work is unsatisfactory to the Owner, or are considered by the Owner to be unskilled or otherwise objectionable, shall be instantly dismissed from the work upon notice.
2. There shall be no discrimination against the employment of organized or unorganized or open shop labor, and any interference, or hindrance by the labor of any one or more trades with the labor or work or material of another trade. Any such discrimination, interference, or hindrance any other all, shall be sufficient grounds for termination of the contract in the same manner provided in said agreement for terminating contracts in case of any other breach thereof.

H. Observation

1. If the Contractor, Subcontractor or Supplier performs work on a Saturday, Sunday, Holiday, or on any "overtime" basis, such overtime basis must be with the knowledge of the Architect, so that if he desires, the Architect may observe such work during its installation.
2. Work, where observation is to be effective, must be done at the time of installation; shall not proceed without the Architect's field administrator on the job observing the work; or in lieu of that, having given the Contractor approval to proceed without such review by the Architect.

I. Cutting and Patching of Work

1. New Construction

- a. The respective Contractors predetermine the size and location of all chases, floor openings, pipe openings, with sleeves required for the installation of their work in the new construction, and shall inform the General Contractor of their specific location. The General Contractor will provide box openings required for other Contractor's work.
- b. All roof openings to be sized and located by Mechanical and Electrical Contractors. General Contractor to provide and install all roof opening framing required. The Mechanical and Electrical Contractors will provide and place all pipe sleeves, etc., required for their work. General Trades Contractor shall provide all flashings and trim as required for all items.
- c. Should the above noted Contractors fail to lay out the openings required and provide appropriate sleeves at the proper time, they will be required to pay the General Trades Contractor to cut and drill the openings and all necessary cutting and patching shall be done by the General Contractor at the Mechanical and Electrical Contractor's expense.

2. Existing Conditions

a. General Contractor

1. General Trades Contractor shall provide any openings including lintels in existing construction that are of such a size or location to require a lintel. All patching and finishing to match existing construction for these openings is to be by the General Contractor.

b. Mechanical and/or Electrical Contractor (appropriate contractor).

1. Mechanical and/or Electrical Contractor shall provide any openings in existing construction that are of such a size or relocation and they do not require a lintel. All patching and finishing to match existing construction for these openings is to be by appropriate mechanical and/or electrical Contractor.
2. Any existing openings no longer required, for mechanical and/or electrical use, shall be patched to match existing surrounding work in all respects by the mechanical and/or electrical Contractor no longer requiring such openings.

J. Project Record Documents

1. As-Built Records

- a. Field mark up the most appropriate document to show:

1. Substantial changes made during the construction process.
  2. Details not shown in the original Contract Documents.
  - b. The information provided shall include, but shall not be limited to:
    1. The location of underground utilities and appurtenances, referenced to permanent surface improvements.
    2. The location of internal utilities and appurtenances concealed in building structures, referenced to visible and accessible features of the structures.
    3. Final footing depth.
  - c. Keep project as-built documents current. Do not permanently conceal any work until the required information has been recorded.
  - d. Each trade shall provide individual record documents for their work, clearly marking changes made during the work.
  - e. Required project record documents will be prepared by Architect from as-built documents furnished by Contractor, and shall be delivered to the Owner in digital format as a pdf file. Final retainage will be withheld from Contractor until as-built drawings are received from all trades.
- K. Operating Maintenance and Service Manuals
1. Submit in Duplicate.
  2. Each Contractor shall compile and deliver to the Architect, before request for final payment, all installation drawings, operating manuals, etc., pertaining to all equipment furnished and installed, together with descriptions and instruction for the operation of systems. Provide indexed loose ring notebook containing all information with identification by name, mark, number, etc., as used on drawings.
    - a. Include: Manufacturer's descriptive literature, shop drawings, performance data, curves, ratings, and diagrams; spare parts and replacement parts lists, manufacturer's maintenance and service manuals; name of service agency and installer.
    - b. For: Each item of equipment: Written description of their operation and actual setting of each instrument.
    - c. Also: Include step-by-step procedure for start-up and shut-down for each item of equipment.
  3. Operating instructions must be in the possession of the Architect before final payment will be approved.

L. Instruction of Owner's Personnel

1. Operation

- a. Each Contractor shall provide, install and initiate all software required to operate their equipment.
- b. Each Contractor shall fully instruct the Owner's representative in the complete operation, adjustment and maintenance of the entire installation including all required training to operate software and programs essential to the operation of the installation.
- c. Cost of utilities for such operation shall be paid by the Owner. Said operation shall not be construed as acceptance of the Contractor's Work.

M. Name, Identification, and Instruction Plates

1. Identification, name, and instruction strips or plates on all equipment shall be permanent, engraved or embossed strips or plates permanently attached. ("Dymo Tape" is not acceptable). No pen, pencil or crayon markings will be acceptable. Tape or plastic inserts, in mechanically applied retainers used for switch, breaker branch and for similar identification, where protected from dislodgment and defacement will be allowed. Identification shall include all major pieces of equipment, including those outside of the building.

N. Cleaning Piping and Equipment

1. Each Contractor shall thoroughly clean all work relating to their Contract.
2. If any system should be stopped by foreign matter after being placed in operation, the system shall be disconnected, cleaned and reconnected wherever necessary to locate and remove obstructions. Any work damaged in the course of removing obstructions, shall be repaired or replaced when the system is reconnected at no additional cost to the Owner.

O. Cleaning of Equipment

1. All materials installed shall be thoroughly cleaned, surfaces to be painted shall be wiped, scraped, or wire brushed as necessary, to furnish a clean, oil free painting surface. All fixture labels shall be removed.

P. Provisions for Expansion and Contraction

1. Each Contractor shall make adequate and proper provisions for expansion and contraction, in accordance with the best practice, and in accordance with respective manufacturer.

Q. Protection of Property

1. All doorways shall be provided with locks which shall be under the control of the General Trades Contractor, who shall lock doors at the close of each day's work.
4. ARCHITECT:
  - A. Article 4 of the General Conditions shall remain unchanged.
5. SUBCONTRACTORS:
  - A. Article 5 of the General Conditions shall remain unchanged.
6. WORK BY OWNER OR BY SEPARATE CONTRACTS:
  - A. This Section Shall Supersede any conflicts noted elsewhere in the plans and/or project manual. This Section does not limit the Scope of Work required.
    1. Review dimensions, layouts, access, utility requirement, for General Trades Work, Plumbing, Heating and Ventilating, Electrical, Security and Technology requirements, and submit any discrepancies in writing to the Architect before proceeding with fabrication.
    2. Each Contractor shall be responsible for proper scheduling of delivery, unloading, temporary protection, installation, cleanup, etc., as outlined in other Sections of the project manual. Contractor desiring to deliver materials, equipment, furniture, etc., which requires special protection, ie., from weather, theft, etc., shall obtain from the Architect, written approval, prior to making delivery.
    3. The following equipment shall be furnished by the appropriate Prime Contractor to the Electrical Contractor, if it is not an integral part of the equipment, but is required to make an operable system.
      - a. Disconnect switches, including proper fuses.
      - b. Motor starters, including proper fuses.
      - c. Motor starting switches.
      - d. Push button controls.
      - e. Control panels.
      - f. Electrical motors.
    4. Contractor furnishing equipment shall:
      - a. Provide all conduit, wiring, controls etc., complete to load side of the starter or disconnect when a starter or disconnect is shown and/or specified.
      - b. Provide all conduit, wiring, controls, etc., complete to junction box on the exterior of the equipment when starter and/or disconnect is not shown and/or specified.
  - B. Division of Responsibility

1. General Trades
  - a. General Trades Contractor shall furnish and install specified base on all cabinet items furnished by this or other Contractors.
  - b. General Trades Contractor shall be responsible for documentation of Weekly Job Meetings and Distribution of Meeting Minutes.
  - c. The General Trades Contractor shall be responsible for the overall coordination of this project, including the oversight of all other trades including site, plumbing, HVAC, electrical and fire protection contractors.
  
2. Heating and Ventilating Contractors
  - a. Shall provide and install all low voltage and/or line voltage between disconnect switches, starters, push button controls, thermostats, interlocks, control panels and equipment, unless otherwise noted.
  - b. Shall provide all thermostats, including conduit, wire, thermostats, etc., except for electric baseboard and/or electric convectors.
  - c. Shall provide all humidistats, including all conduit, wire, etc.
  - d. Shall provide other control equipment including:
    1. Solenoids
    2. Interlocks
    3. Pressure Switches
    4. Flow Switches
    5. Float Switches
    6. Freezstats
    7. Firestats
  - e. Shall provide any and all smoke detectors required on heating and ventilating system (Interconnection to fire alarm system by electrical contractor).
  - f. Shall furnish exhaust system for kitchen canopies, including fire dampers, ductwork from canopy connection through roof, roof curbs, exhaust fans, etc., for a complete system.
  - g. Shall complete all dust collection systems, etc., as shown, when required.
  
3. Plumbing Contractor
  - a. Shall complete all plumbing piping to cabinet units, sinks, equipment, etc., including all traps, plumbing supply lines, etc., from the point outlined in the Equipment Specifications, as required to provide a

complete system and in accordance with and/or exceeding Code requirements.

- b. Shall furnish, unload, receive, store and install sinks, faucets, strainer, tailpieces, gas cocks, etc.
- c. Shall install any automatic shut-off valve in gas lines serverly and kitchen canopies, where required.

4. Electrical Contractor

- a. Shall install the following equipment furnished by the Mechanical or Equipment Contractors, and not an integral part of equipment.
  - 1. Disconnect Switches
  - 2. Motor Starters
  - 3. Motor Starting Switches
  - 4. Pushbutton Controls
  - 5. Control Panels
  - 6. Electrical Motors
- b. Shall provide power supply of proper size to each mechanical or equipment device.
- c. Shall install fuses and starter heaters furnished by other Contractors as required.
- d. Shall furnish, wire and install all outlets for equipment where electrical requirements do not exceed 115 volts and/or single phase.
- e. Shall wire complete, all furniture and/or equipment items shown as direct connections from power supply to one junction box location at equipment, including final connection in the junction box.
- f. Shall provide power and make final connections, including any interlocks of smoke and/or heat detectors at door openings.
- g. Shall interconnect to fire alarm system, smoke and/or heat detectors, furnished and installed by Mechanical Contractors.
- h. Shall interconnect to all security systems including, but not limited to, surveillance cameras, motion sensors, electronic locks, recording devices, telecommunications systems, computers and monitors.

5. Cabinetry Shall Include:

- a. Placing of cabinets and countertops, field cut all required openings in tops, backs, shelves, etc.
- b. Furnish and install filler panels, scribe, chases, etc., as required.

- c. Provide any caulking necessary at walls, perform any touch up or additional finishing necessary for exposed surfaces, as directed by the Architect.
    - d. Provide special items as specified.
  - C. Foundations, Supports, Piers, Bases, Etc.
    - 1. Contractors or suppliers furnishing equipment shall predetermine the size and location of such equipment foundations and shall inform the proper Contractor in order that he can provide the foundations required. Should any Contractor fail to provide such information at the proper time, they shall be required to compensate the proper Contractor for such installations with additional compensation.
      - a. General Trades Contractor shall complete all interior equipment pads which do not exceed 6” in height.
      - b. All exterior pads, interior pads over 6” high, all foundations, piers, etc., shall be furnished and installed by the Contractor furnishing the equipment involved.
      - c. Pads are required on the following items: Pumps, boilers, air handlers, hot water tanks, compressors, cooling towers, storage tanks, transformers, switch gear.
      - d. Construction of foundations, supports, pier bases, etc., shall be of same material and quality of finishes as adjacent material.
      - e. Pads shall be doveled into structural slabs, and concrete surface shall extend 6” each way beyond the general outline of the equipment.
      - f. Equipment shall be fastened to foundation by Contractor providing equipment as required by Contract Requirements and/or by Code Requirements.
- D. Cooperation
  - 1. All Contractors and Subcontractors shall coordinate their work with all adjacent work and shall cooperate with other trades so as to facilitate general progress of work. Each trade shall afford other trades every reasonable opportunity for installation of their work and for storage of their material. The General Trades Contractor shall be responsible for the overall schedule and overall coordination.
- E. Interferences
  - 1. Before installing any of his work, Contractor shall see that such work does not interfere with clearances required for the proper erection and finish of any other part of the work. If any work is so installed and it later develops that the original design cannot be followed because of such installation, the Contractor shall, at his own expense, make such changes in his work as necessary to permit completion of all work in accordance with the drawings and project manual.

2. It shall be the duty of each Contractor to report to the Architect any interference between his work and that of any other Contractor as soon such interference is discovered. The Architect will determine which equipment shall be relocated regardless of which was first installed and his decision shall be final.

F. Job Clean-Up

1. Owner may require clean up and/or haul away of the rubbish at any reasonable time during the construction period. If Contractor fails to do so, then Owner may have it done.
2. General construction cleanup and debris removal shall be by the General Contractor.
3. Washing and polishing of window glass shall be by the General Trades Contractor.
4. Waxing and polishing of floor to be by the General Trades Contractor.

7. CHANGES IN THE WORK:

Article 7 of the General Conditions shall remain unchanged.

8. TIME:

A. Progress Schedule

1. In general, the work shall be scheduled to be at least 25% complete at the expiration of one-third of the Contract Time, and at least 50% complete at the expiration of half of the contract time, and at least 75% complete at the expiration of two-thirds of the Contract.
2. Copies of graphic progress charts, upon which has been indicated the actual progress, shall be furnished to the Architect with each requisition for payment. Should the rate of progress fall materially behind the scheduled rate of progress, and unless the delay is authorized by the Owner, each offending Contractor shall furnish additional labor, work overtime, or take other necessary means required for completion of the work on the scheduled date. No additional compensation beyond the set Contract Price will be paid for action taken on overtime expense incurred in maintaining scheduled progress.
3. When the rate of progress exceeds original expectations so that the work could be completed ahead of Contract Time, each trade shall take all necessary steps, to keep pace with the earlier completion date.

9. PAYMENTS AND COMPLETION

- A. At various times during construction and particularly near the completion of the Work, the Architect may issue "Punch Lists".

- B. The Architect shall, at about the time of issuance of Certificates of Substantial Completion, list all known items needing corrections, completion, or other Work to conform with plans and project manual. The Architect shall establish a dollar value for the incomplete or noncompliant work which shall be stated on this list. This list shall be prepared by the Architect. The Architect will present this list to the Owner, who shall have 10 days to review. The Owner and Architect by mutual agreement may adjust this Punch List during this time. At the completion of this ten day period, the Architect's punch list, (plus those items that both the Architect and Owner have mutually agreed upon), shall become the "Final Punch List". The Contractor shall have thirty (30) days to complete punch list items. The value of any item not completed in this period, as determined by the Architect, shall be deducted from the Contract Price. The Contractor shall be paid, less credit to the Owner for unfinished punch list items. Guarantee items shall not be considered a punch list item.
- C. The completion of Work on the Punch List shall not relieve the Contractor from any provision of guarantee, warranty, etc.
- D. Payment Application and Support Data
  - 1. Three sets of Payment Application on AIA Form G702 and G703 shall be submitted to the Architect on date determined as follows:
    - a. The 26th day of the month.
    - b. Payment will be made up to 92% of value of work in place, or stored along with proper substantial data, up to a point when project is 50% complete; thereafter no additional retainage will be withheld.
    - c. When 50% of the work is completed, AIA Release of Liens form G706A-94 shall accompany all 'Application and Certificate for Payment'.
    - d. Payroll Report Forms.
      - 1. When Prevailing Wage Rates are in effect, each Contractor shall submit with each payment request, original copies of all payroll report forms for all forces (including sub-contractors) involved on this project. Wages paid and report form shall meet or exceed the prevailing wages as determined by regulatory agencies.

10. SAFETY OF PERSONS AND PROPERTY:

- A. All materials being utilized on this project shall meet the current EPA Regulations and Consumer Product Safety Commission Rules for regulating asbestos hazards in new building materials. In addition, the Architect requests that all new products and materials be asbestos free.

11. INSURANCE AND BONDS:  
SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

- A. All successful bidding contractors will be required to comply with the following insurance requirements:
1. The Owner, Architect and their Sub-Consultants shall be named as additional insureds on the Contractors Policy.
  2. 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 attorney's 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 health, or to injury to or destruction of tangible property (other than the Work itself), including loss of use resulting there from, but only to the extent caused in whole or in part by negligent acts or omissions of the Contractor, a Subcontractor, or 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 there under.
  3. All Insurance Certificates shall contain a written thirty (30) day cancellation notice clause to the other parties of the Contract.
  4. Certificates of Insurance shall show the **Owner –Mayfield Village** as the certificate holder.

12. CONTRACTOR'S LIABILITY INSURANCE:

- A. Current State of Ohio Worker's Compensation Certificate shall be submitted to the Owner and the Architect.
- B. Unless otherwise directed by the Owner in writing, the Contractor shall assume all responsibility for the adequacy of the insurance carried by each of his subcontractors and shall, if requested, file copies of all subcontractors Insurance Certificates with the Owner and the Architect prior to the respective subcontractor's participation in the work.
1. The Owner's Insurance Counsel shall check the Insurance Certificates to determine their adequacy in complying with the requirements of this Project Manual.
  2. It is the Owner's responsibility to determine whether the information contained in the Certificates of Insurance are adequate and acceptable. The Architect shall not be responsible for the checking or approving of the Certificates of Insurance.
- C. For the duration of the Contract, the Contractor shall maintain statutory Workmen's Compensation and shall maintain Employer's Liability Insurance with minimum limits of not less than \$500,000.00 each accident and aggregate.
1. For the duration of the Contract, the Contractor shall maintain Comprehensive General Liability Insurance for Bodily Injury, including Personal Injury and

Death, with limits of not less than \$1,000,000.00 per person and not less than \$1,000,000.00 each occurrence. The Contractor shall maintain Bodily Injury and Property Damage Liability Insurance with minimum limits of not less than \$1,000,000.00 per each occurrence and \$1,000,000.00 in aggregate.

2. Insurance shall include the following:

- a. Owner's Protective Liability ("Stop Gap" coverage with the naming of the Owner and Architect and Consultants as an additional insured for all policies).
- b. Contractor's Protective Liability.
- c. Contractual Liability for the Hold Harmless Clause.
- d. Manufacturer's or Contractor's Protective Liability.
- e. Products Liability including Completed Operations.
- f. Coverage for XCU hazards.
- g. Liability due to occurrence as well as by accident.
- h. Coverage for Premises and Operations, Construction Elevators and Hoists, Independent Contractors, Subcontractors and Completed Operations.
- i. Comprehensive Automobile Liability.
- j. Builders Risk for all tools, equipment, and materials owned by Contractors.

D. OWNER'S LIABILITY INSURANCE:

1. Property Insurance

- a. The Owner shall carry all risk property insurance as stated in the General Conditions. However, it shall be the responsibility of the Contractors to carry insurance on their respective materials, tools, or other equipment owned by them or their employees which will not become an integral part or consumed in the construction of the project. Furthermore, any damage or loss to construction in place, or construction materials stored on site, shall be the responsibility of the Contractor until the Certificate of Substantial Completion is issued and fully executed.

13. CORRECTION OF THE WORK:

- A. Delete Paragraph 12.2.1 in Article 12 and substitute the following:

1. The Architect shall determine quantities and cost for proposed changes and submit to Contractor for his review and concurrence. Cost of changes shall be determined as follows:
  - a. Credit for deleted Work by use of the actual costs noted in the current “Construction Pricing and Scheduling Manual”, as published by the F. W. Dodge Corporation.
  - b. Charges for extra work by use of the actual costs noted in the current “Construction Pricing and Scheduling Manual”, referred to above, plus 15% (Overhead and Profit).
  - c. Extra charges or credits due to changes in the Work shall be made on the basis of actual labor and material, etc., involved in the change plus 7.5%. Labor shall be direct labor by tradesmen. It shall not involve labor of Superintendents which is expected to be in the Base Bid of the Contract and part of each Contractor’s normal overhead.

14. MISCELLANEOUS PROVISIONS:

A. Temporary Protection and Heat

1. General: Installation and removal of, and use charges for temporary facilities as shall.
2. The General Trades Contractor shall maintain temporary heat from existing HVAC units. When existing HVAC Units are removed or not available, then the General Contractor shall furnish other forms of heat for all trades, and he shall take such other precautions as may be necessary to protect the Work during the freezing weather. It shall be the responsibility of this Contractor to remove and rebuild any Work that has become damaged due to freezing weather.
3. The General Contractor shall provide and maintain temporary, weather-tight enclosures where such are necessary to protect the Work from the elements or to maintain heat within the building. The Contractor shall hang tarpaulins in conjunction with the use of portable heaters.
  - a. Concrete slabs and tops of unfinished walls shall be covered with straw and canvas. Where possible to do so, heaters shall be set under slabs, and openings in walls shall be closed to retain heat.

B. Construction Water, Power and Heat

1. The Plumbing Contractor shall provide temporary water supply, connected to the existing lines at a point or points as approved by the Architect.
2. The Electrical Contractor shall furnish, install and maintain the following:
  - a. Service entrance drops, properly grounded.
  - b. Fusible safety switches, branch circuit panels.

- c. Weatherproof lamp holder with guard to maintain minimum of 15 foot-candles; 150 watt lamp on 25 ft. centers. Minimum of 1 lamp to each room.
  - d. Weatherproof 20A., 120 V., 2 P., 3 W., duplex receptacles on 50 ft. centers with ground fault protection.
  - e. If necessary, a special circuit shall be provided for building heating, equipment, electrical, welders, lifts, elevators, etc.
  - f. Electrical contractor shall provide one electrical power source to office or shanty of each prime Contractor, General Trades, Plumbing and Heating.
  - g. The Contractor shall pay all energy charges for electrical current used for temporary power and lighting.
  - h. After completion of the project, the Electrical Contractor shall remove all temporary power and lighting.
3. The permanent heating equipment may be used to provide temporary heat within the building, if approved by the Architect. The use of this equipment shall not constitute acceptance of this portion of the equipment, unless a Certificate of Substantial Completion is issued by the Architect. The Heating Contractor shall be responsible for keeping this equipment in proper operation. Upon completion of the project, the Heating Contractor shall remove and replace all filters and complete a clean and check on all equipment.
4. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
- C. Temporary Sanitary Facilities
- 1. The General Contractor shall provide and maintain temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
  - 2. No permanent fixtures and no finished toilet rooms shall be used by workmen, except that toward the completion of the job, and when temporary toilets are removed, a toilet shall be designated for the use of workmen and shall be maintained under strict supervision and guarded from damage or defacement. Any damaged or defaced Work shall be replaced.

3. No temporary or permanent toilet fixtures, drains or other sewer connections shall be used for the disposal of building refuse or waste materials.

D. Construction Office and Storage Shed

1. Each Contractor shall provide and maintain at all times a weather-tight office, where directed, to provide office space for his needs. This building shall be removed when directed. Construction offices shall be provided with windows, doors with locks, tables and benches.
2. Storage or Staging of products, materials, equipment, etc., at the exterior of the building shall be permitted only with the permission of the Owner. Such exterior storage shall not interfere with daily operations of the facility.
3. When construction is sufficiently advanced, the Contractors shall move their offices to the new building in such location as designated by the Architect.
4. The General Contractor shall install and maintain a Telephone, Fax machine, and Copy machine in the construction office during the execution of the work. This equipment shall be made available to the various Contractors. This can be pay equipment at the General Trades Contractor's option.
5. Each Contractor shall construct and maintain the necessary storage sheds and shanties for materials and the use of workmen. Such sheds shall be watertight, and shall be provided with floors raised above the ground.
6. Temporary Roads and Paved Areas: Construct and maintain temporary access roads and paved areas adequate for construction operations. Locate temporary roads and paved areas within construction limits indicated.
7. Parking: Provide temporary parking areas for construction personnel unless owner has designated other provisions for parking.

E. Trash

1. General Trades Contractor will be responsible to provide trash removal for all Contractors throughout the entire project. Disposal shall be to appropriate approved land fill sites.

F. Project Sign

1. The General Contractor shall provide a project sign that will be erected on the site in a visible location as selected by the architect. The sign will be 48" x 96" in full color with the architectural rendering or other graphic of the proposed project being the highlight of the project sign. The graphic will be heat transferred to adhesive backed vinyl, affixed to 1/8" "diebond".
2. The General Contractor shall direct all efforts of the sign company including, but not limited, to delivery of architect provided graphics to the sign contractor, delivery of sign to project site and installation of the sign. The architect shall provide an electronic file of the graphics to the Contractor on PC format.

15. TERMINATION OR SUSPENSION OF THE CONTRACT:

- A. Article 14 of the General Conditions shall remain unchanged.

16. CLAIMS AND DISPUTES:

- A. Delete Section 15.4 ARBITRATION, and subsequent sections .1, .1.1, .2 and .3 of the General Conditions.

DOCUMENT 004113 - BID FORM - STIPULATED SUM (SINGLE-PRIME CONTRACT)

1.1 BID INFORMATION

- A. Bidder: \_\_\_\_\_.
- B. Project Name: Mayfield Village – The Grove Amphitheatre - Bandshell.
- C. Project Location: 425 North Commons Blvd., Mayfield Village, Ohio 44143
- D. Owner: Mayfield Village
- E. Architect: Meld Architects, Inc.
- F. Architect Project Number: 16001

1.2 CERTIFICATIONS AND BASE BID

- A. Base Bid, Single-Prime (All Trades) Contract: The undersigned Bidder, having carefully examined the Procurement and Contracting Requirements, Conditions of the Contract, Drawings, Specifications, and all subsequent Addenda, as prepared by Meld Architects, Inc. and Architect's consultants, having visited the site, and being familiar with all conditions and requirements of the Work, hereby agrees to furnish all material, labor, equipment and services, including all scheduled allowances, necessary to complete the construction of the above-named project, according to the requirements of the Procurement and Contracting Documents, for the stipulated sum of:
  - 1. \_\_\_\_\_ Dollars (\$\_\_\_\_\_).
  - 2. The above amount may be modified by amounts indicated by the Bidder on the attached Document 004323 "Alternates Form."

1.3 BID GUARANTEE

- A. The undersigned Bidder agrees to execute a contract for this Work in the above amount and to furnish surety as specified within 10 days after a written Notice of Award, if offered within 60 days after receipt of bids, and on failure to do so agrees to forfeit to Owner the attached cash, cashier's check, certified check, U.S. money order, or bid bond, as liquidated damages for such failure, in the following amount constituting five percent (5%) of the Base Bid amount above:
  - 1. \_\_\_\_\_ Dollars (\$\_\_\_\_\_).
- B. In the event Owner does not offer Notice of Award within the time limits stated above, Owner will return to the undersigned the cash, cashier's check, certified check, U.S. money order, or bid bond.

1.4 SUBCONTRACTORS AND SUPPLIERS

A. The following companies shall execute subcontracts for the portions of the Work indicated:

1. Concrete Work: \_\_\_\_\_.
2. Masonry Work: \_\_\_\_\_.
3. Steel Work: \_\_\_\_\_.
4. Wood Work: \_\_\_\_\_.
5. Electrical Work: \_\_\_\_\_.
6. Signage Work: \_\_\_\_\_.

1.5 TIME OF COMPLETION

A. The undersigned Bidder proposes and agrees hereby to commence the Work of the Contract Documents on a date specified in a written Notice to Proceed to be issued by Architect, and shall fully complete the Work no later than April 30, 2017.

1.6 ACKNOWLEDGEMENT OF ADDENDA

A. The undersigned Bidder acknowledges receipt of and use of the following Addenda in the preparation of this Bid:

1. Addendum No. 1, dated \_\_\_\_\_.
2. Addendum No. 2, dated \_\_\_\_\_.
3. Addendum No. 3, dated \_\_\_\_\_.
4. Addendum No. 4, dated \_\_\_\_\_.

1.7 CONTRACTOR ACKNOWLEDGEMENTS

A. The undersigned Bidder proposes and agrees hereby to commence the Work of the Contract Documents with the following acknowledgements:

1. The he/she has a complete understanding of the plans and specifications.
2. That he/she has the equipment, technical ability, personnel and facilities to construct the project in accordance with the plans and specifications.
3. That the plans and specifications are, in his/her opinion, appropriate and adequate for the construction of a sound and suitable building project.
4. That he/she will conform to and abide by the decision of the Owner as to the selection of Contractor.
5. That he/she will conform to and abide by the requirements of paying prevailing wage as required for public improvements by the Ohio Revised Code and in accordance with the plans and specifications.
6. That he/she understands the intent and use of the Allowances as described in specification Section "012100 Allowances". General Contractor is to sign and attach the "004321 - Allowance Form" to the bid form at the time of submission of bid.

1.8 CONTRACTOR'S LICENSE

- A. The undersigned further states that it is a duly licensed contractor, for the type of work proposed, in Mayfield Village, Ohio, and that all fees, permits, etc., pursuant to submitting this proposal have been paid in full.

1.9 SUBMISSION OF BID

- A. Respectfully submitted this \_\_\_\_ day of \_\_\_\_\_, 2016.
- B. Submitted By \_\_\_\_\_ (Name of bidding firm or corporation).
- C. Authorized Signature: \_\_\_\_\_ (Handwritten signature).
- D. Signed By: \_\_\_\_\_ (Type or print name).
- E. Title: \_\_\_\_\_ (Owner/Partner/President/Vice President).
- F. Witness By: \_\_\_\_\_ (Handwritten signature).
- G. Attest: \_\_\_\_\_ (Handwritten signature).
- H. By: \_\_\_\_\_ (Type or print name).
- I. Title: \_\_\_\_\_ (Corporate Secretary or Assistant Secretary).
- J. Street Address: \_\_\_\_\_.
- K. City, State, Zip \_\_\_\_\_.
- L. Phone: \_\_\_\_\_.
- M. Email Address: \_\_\_\_\_.
- N. License No.: \_\_\_\_\_.
- O. Federal ID No.: \_\_\_\_\_ (Affix Corporate Seal Here).

END OF DOCUMENT 004113

DOCUMENT 004321 - ALLOWANCE FORM

1.1 BID INFORMATION

- A. Bidder: \_\_\_\_\_.
- B. Project Name: Mayfield Village – The Grove Amphitheatre - Bandshell.
- C. Project Location: 425 North Commons, Mayfield Village, OH 44143
- D. Owner: Mayfield Village.
- E. Architect: Meld Architects, Inc.
- F. Architect Project Number: 16001.

1.2 BID FORM SUPPLEMENT

- A. This form is required to be attached to the Bid Form.
- B. The undersigned Bidder certifies that Base Bid submission to which this Bid Supplement is attached includes those allowances described in the Contract Documents and scheduled in Section 012100 "Allowances."

1.3 SUBMISSION OF BID SUPPLEMENT

- A. Respectfully submitted this \_\_\_\_ day of \_\_\_\_\_, 2016.
- B. Submitted By: \_\_\_\_\_(Insert name of bidding firm or corporation).
- C. Authorized Signature: \_\_\_\_\_(Handwritten signature).
- D. Signed By: \_\_\_\_\_(Type or print name).
- E. Title: \_\_\_\_\_(Owner/Partner/President/Vice President).

END OF DOCUMENT 004321

DOCUMENT 004393 - BID SUBMITTAL CHECKLIST

1.1 BID INFORMATION

- A. Bidder: \_\_\_\_\_.
- B. Prime Contract: \_\_\_\_\_.
- C. Project Name: Mayfield Village - The Grove Amphitheatre - Bandshell.
- D. Project Location: 425 N. Commons Blvd, Mayfield Village, OH 44143.
- E. Owner: Mayfield Village.
- F. Architect: Meld Architects.
- G. Architect Project Number: 16001.

1.2 BIDDER'S CHECKLIST

- A. In an effort to assist the Bidder in properly completing all documentation required, the following checklist is provided for the Bidder's convenience. The Bidder is solely responsible for verifying compliance with bid submittal requirements.
- B. Attach this completed checklist to the outside of the Submittal envelope.
  - 1. Used the Bid Form provided in the Project Manual.
  - 2. Prepared the Bid Form as required by the Instructions and Supplementary Instructions to Bidders.
  - 3. Indicated on the Bid Form the Addenda received.
  - 4. Attached to the Bid Form: Bid Supplement Form - Allowances.
  - 5. Attached to the Bid Form: Bid Supplement Form - Alternates.
  - 6. Attached to the Bid Form: Proposed Schedule of Values.
  - 7. Attached to the Bid Form: Bid Bond OR a certified check for the amount required.
  - 8. Bid envelope shows name and address of the Bidder.
  - 9. Bid envelope shows the Bidder's Contractor's License Number.
  - 10. Bid envelope shows name of Project being bid.
  - 11. Bid envelope shows name of Prime Contract being bid, if applicable.
  - 12. Bid envelope shows time and day of Bid Opening.
  - 13. Verified that the Bidder can provide executed Performance Bond and Labor and Material Bond.
  - 14. Verified that the Bidder can provide Certificates of Insurance in the amounts indicated.

END OF DOCUMENT 004393

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- 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 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Future work.
4. Access to site.
5. Work restrictions.
6. Specification and drawing conventions.

B. Related Requirements:

1. Division 01 Section "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 PROJECT INFORMATION

A. Project Identification: Construction of new pool heater room addition.

1. Project Location: The Grove Amphitheatre - Bandshell – 425 North Commons Blvd, Mayfield Village, OH 44143

B. Owner:

Mayfield Village  
6622 Wilson Mills Road  
Mayfield Village, Ohio 44143  
Representative: Mr. Bill Thomas

C. Architect:

Meld Architects, Inc.  
2310 Superior Avenue  
Suite 260  
Cleveland, Ohio 44114  
Representative: Mr. Edward Parker

#### 1.4 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of the Project is defined by the Contract Documents and consists of the following: Construction of a curved bandshell roof supported by steel columns and partially enclosed with curved rear walls. Power and minimal house lighting are included in this phase. Elements that currently exist at the site include the sloped seating lawn, concrete walks, and circular concrete pad.
- B. Type of Contract:
  - 1. Project will be constructed under a single prime contract.

#### 1.5 FUTURE WORK

- A. The Contract Documents include requirements that will allow Owner to carry out future work following completion of this Project; provide for the following future work:
  - 1. Possible future phases include construction of additional walls, an enclosed room for storage and back-of-house functions, and lighting and sound equipment.

#### 1.6 ACCESS TO SITE

- A. General: Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.
  - 1. Limits: Confine construction operations to areas within property lines and right of ways as required to connect utilities.
  - 2. Driveways, Walkways and Entrances: Keep driveway loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
    - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.

#### 1.7 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
  - 1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

- B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 7:30 a.m. to 6:00 p.m., Monday through Friday, unless otherwise indicated.
  - 1. Weekend/ Holiday Hours: Work may not take place on weekends and holidays listed in the General Requirements of these documents.
  - 2. Obtain Owner's written approval in advance regarding requested work hours that may vary from those listed above.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
  - 1. Notify Architect and Owner not less than two days in advance of proposed utility interruptions.
  - 2. Obtain Owner's written permission before proceeding with utility interruptions.
- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
  - 1. Notify Architect and Owner not less than two days in advance of proposed disruptive operations.
  - 2. Obtain Owner's written permission before proceeding with disruptive operations.
- E. Controlled Substances: Use of tobacco products and other controlled substances on Project site is not permitted.
- F. No Weapons or Firearms, concealed or otherwise are permitted on the site.

## 1.8 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
  - 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
  - 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
  - 1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.

2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard .
3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

## SECTION 012100 - ALLOWANCES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- 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 SUMMARY

- A. Section includes administrative and procedural requirements governing allowances.
- B. Types of allowances include the following:
  - 1. Contingency allowances.
  - 2. Testing and Inspections allowance
- C. Related Requirements:

#### 1.3 DEFINITIONS

- A. Allowance is a quantity of work or dollar amount established in lieu of additional requirements, used to defer selection of actual materials and equipment to a later date when direction will be provided to Contractor. If necessary, additional requirements will be issued by Change Order.

#### 1.4 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection, or purchase and delivery, of each product or system described by an allowance must be completed by the Owner to avoid delaying the Work.
- B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by Architect from the designated supplier.

#### 1.5 ACTION SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances in the form specified for Change Orders.

1.6 INFORMATIONAL SUBMITTALS

- A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.
- C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.7 CONTINGENCY ALLOWANCES

- A. Use the contingency allowance only as directed by Architect for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.
- B. Contractor's overhead, profit, and related costs for products and equipment ordered by Owner under the contingency allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation, insurance, equipment rental, and similar costs.
- C. Change Orders authorizing use of funds from the contingency allowance will include Contractor's related costs and reasonable overhead and profit.
- D. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

1.8 TESTING AND INSPECTING ALLOWANCES

- A. Testing and inspecting allowances include the cost of engaging testing agencies, actual tests and inspections, and reporting results.
- B. The allowance does not include incidental labor required to assist the testing agency or costs for retesting if previous tests and inspections result in failure. The cost for incidental labor to assist the testing agency shall be included in the Contract Sum.
- C. Costs of testing and inspection services not required by the Contract Documents are not included in the allowance.
- D. At Project closeout, credit unused amounts remaining in the testing and inspecting allowance to Owner by Change Order.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

- A. Allowance No. 1: Contingency Allowance: Include a contingency allowance of \$23,500.00 for use according to Owner's written instructions.
  
- B. Allowance No. 2: Testing and Inspection Allowance: Include the sum of \$1,500.00 for all required testing and inspections.

END OF SECTION 012100

## SECTION 012500 - SUBSTITUTION PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- 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 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
  - 1. Section 012100 "Allowances" for products selected under an allowance.
  - 2. Section 012300 "Alternates" for products selected under an alternate.

#### 1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
  - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
  - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

#### 1.4 ACTION SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
  - a. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.
  - b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
  - c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific

- features and requirements indicated. Indicate deviations, if any, from the Work specified.
- d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
  - e. Samples, where applicable or requested.
  - f. Certificates and qualification data, where applicable or requested.
  - g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
  - h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
  - i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES Insert applicable code organization.
  - j. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
  - k. Cost information, including a proposal of change, if any, in the Contract Sum.
  - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.
  - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
  - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

## 1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

## 1.6 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

1.7 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
- a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
  - b. Substitution request is fully documented and properly submitted.
  - c. Requested substitution will not adversely affect Contractor's construction schedule.
  - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
  - e. Requested substitution is compatible with other portions of the Work.
  - f. Requested substitution has been coordinated with other portions of the Work.
  - g. Requested substitution provides specified warranty.
  - h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: **Not allowed.**

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- 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 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

1.3 MINOR CHANGES IN THE WORK

- A. Owner will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on form included in Project Manual.

1.4 PROPOSAL REQUESTS

- A. Architect/ Owner-Initiated Proposal Requests: Owner will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
  - 1. Work Change Proposal Requests issued by Owner are not instructions either to stop work in progress or to execute the proposed change.
  - 2. Within time specified in Proposal Request or 5 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
    - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    - c. Include costs of labor and supervision directly attributable to the change.
    - d. Provide breakdown for labor (including labor rate) and materials
    - e. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and

finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

- f. Quotation Form: Use forms provided by Owner. Sample copies shall be provided by owner to successful bidder.

B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect .

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Proposal Request Form: Use form provided by Owner. Sample copy shall be provided by owner to successful bidder.

#### 1.5 ADMINISTRATIVE CHANGE ORDERS

- A. Allowance Adjustment: See Bid Form for “Allowances”.

#### 1.6 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Work Changes Proposal Request, will issue a Change Order for signatures on a Form provided.

#### 1.7 WORK CHANGE DIRECTIVE

- A. Work Change Directive: Owner may issue a Work Change Directive on . Work Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
  1. Work Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Work Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- 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 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
  - 1. General coordination procedures.
  - 2. Coordination drawings.
  - 3. Requests for Information (RFIs).
  - 4. Project meetings.
- B. Related Requirements:
  - 1. Division 01 Section "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
  - 2. Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
  - 3. Division 01 Section "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

- A. RFI: Request from Owner, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
  - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
  - 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
  - 3. Make adequate provisions to accommodate items scheduled for later installation.

- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
  - 1. Preparation of Contractor's construction schedule.
  - 2. Preparation of the schedule of values.
  - 3. Installation and removal of temporary facilities and controls.
  - 4. Delivery and processing of submittals.
  - 5. Progress meetings.
  - 6. Preinstallation conferences.
  - 7. Project closeout activities.
  - 8. Startup and adjustment of systems.
- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

#### 1.5 COORDINATION DRAWINGS

- A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
  - 1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
    - a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
    - b. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
    - c. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
    - d. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
- B. Coordination Drawing Organization: Organize coordination drawings as follows:
  - 1. Floor Plans : Show architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted

- devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.
2. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
  3. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
  4. Review: Architect will review coordination drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If Architect determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Architect will so inform Contractor, who shall make changes as directed and resubmit.
- C. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:
1. File Preparation Format: Same digital data software program, version, and operating system as original Drawings.
  2. File Submittal Format: Submit or post coordination drawing files using format same as file preparation format] .
  3. Architect will furnish Contractor one set of digital data files of Drawings for use in preparing coordination digital data files.
    - a. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings.
    - b. Digital Data Software Program: Drawings are available in AutoCAD 2010 format.
    - c. Contractor shall execute a data licensing agreement in the form of AIA Document C106 Agreement form acceptable to Owner and Architect.
- 1.6 REQUESTS FOR INFORMATION (RFIs)
- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
1. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
1. Project name.
  2. Project number.
  3. Date.
  4. Name of Contractor.
  5. Name of Architect.
  6. RFI number, numbered sequentially.

7. RFI subject.
  8. Specification Section number and title and related paragraphs, as appropriate.
  9. Drawing number and detail references, as appropriate.
  10. Field dimensions and conditions, as appropriate.
  11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
  12. Contractor's signature.
  13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
    - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- C. RFI Forms: Software-generated form with substantially the same content as indicated above, acceptable to Architect.
1. Attachments shall be electronic files in Adobe Acrobat PDF format.
- D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.
1. The following Contractor-generated RFIs will be returned without action:
    - a. Requests for approval of submittals.
    - b. Requests for approval of substitutions.
    - c. Requests for approval of Contractor's means and methods.
    - d. Requests for coordination information already indicated in the Contract Documents.
    - e. Requests for adjustments in the Contract Time or the Contract Sum.
    - f. Requests for interpretation of Architect's actions on submittals.
    - g. Incomplete RFIs or inaccurately prepared RFIs.
  2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
  3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."
    - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.
- E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Software log with not less than the following:
1. Project name.
  2. Name and address of Contractor.
  3. Name and address of Architect.

4. RFI number including RFIs that were returned without action or withdrawn.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.

F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.

1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
2. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

## 1.7 PROJECT MEETINGS

A. General: Meetings and conferences will be held at Project site unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Architect responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner, Contractor, and Architect, within three days of the meeting.

B. Preconstruction Conference:

1. Conduct the conference to review responsibilities and personnel assignments.
2. Attendees: Authorized representatives of Owner Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Discuss items of significance that could affect progress, including the following:
  - a. Tentative construction schedule.
  - b. Critical work sequencing and long-lead items.
  - c. Designation of key personnel and their duties.
  - d. Lines of communications.
  - e. Procedures for processing field decisions and Change Orders.
  - f. Procedures for RFIs.
  - g. Procedures for testing and inspecting.
  - h. Procedures for processing Applications for Payment.
  - i. Distribution of the Contract Documents.
  - j. Submittal procedures.
4. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

- C. Preinstallation Conferences: Conduct a pre-installation conference at Project site before each construction activity that requires coordination with other construction.
1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect and Owner of scheduled meeting dates.
  2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
    - a. Contract Documents.
    - b. Options.
    - c. Related RFIs.
    - d. Related Change Orders.
    - e. Purchases.
    - f. Deliveries.
    - g. Submittals.
  3. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
  4. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Project Closeout Conference: Schedule and conduct a project closeout conference, at a time convenient to Owner and Architect, but no later than 30 days prior to the scheduled date of Substantial Completion.
1. Conduct the conference to review requirements and responsibilities related to Project closeout.
  2. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
  3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
    - a. Preparation of record documents.
    - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
    - c. Submittal of written warranties.
    - d. Requirements for completing Enterprise Green Communities Criteria requirements documentationRequirements for preparing operations and maintenance data.
    - e. Requirements for delivery of material samples, attic stock, and spare parts.
    - f. Requirements for demonstration and training.
    - g. Preparation of Contractor's punch list.
    - h. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
    - i. Submittal procedures.
  4. Minutes: Entity conducting meeting will record and distribute meeting minutes.

- E. Progress Meetings: Conduct progress meetings at weekly intervals.
1. Coordinate dates of meetings with preparation of payment requests.
  2. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
  3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
    - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
      - 1) Review schedule for next period.
    - b. Review present and future needs of each entity present, including the following:
      - 1) Interface requirements.
      - 2) Sequence of operations.
      - 3) Status of submittals.
      - 4) Deliveries.
      - 5) Off-site fabrication.
      - 6) Access.
      - 7) Site utilization.
      - 8) Temporary facilities and controls.
      - 9) Progress cleaning.
      - 10) Quality and work standards.
      - 11) Status of correction of deficient items.
      - 12) Field observations.
      - 13) Status of RFIs.
      - 14) Status of proposal requests.
      - 15) Pending changes.
      - 16) Status of Change Orders.
      - 17) Pending claims and disputes.
      - 18) Documentation of information for payment requests.
  4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
    - a. Schedule Updating: Contract to revise the construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

MAYFIELD VILLAGE –  
THE GROVE AMPHITHEATRE - BANDSHELL  
NOVEMBER 10, 2016

16010

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

## SECTION 013300 - SUBMITTAL PROCEDURES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

#### 1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action.
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

#### 1.3 ACTION SUBMITTALS

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

#### 1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Architect's Digital Data Files: Electronic copies of digital data files of the Contract Drawings will not be provided by Architect for Contractor's use in preparing submittals.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
  - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
  - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the

Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 10 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
  2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
  3. Resubmittal Review: Allow 10 days for review of each resubmittal.
- D. Paper Submittals: Place a permanent label or title block on each submittal item for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
  2. Provide a space approximately **6 by 8 inches (150 by 200 mm)** on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
  3. Include the following information for processing and recording action taken:
    - a. Project name.
    - b. Date.
    - c. Name of Architect.
    - d. Name of Construction Manager.
    - e. Name of Contractor.
    - f. Name of subcontractor.
    - g. Name of supplier.
    - h. Name of manufacturer.
    - i. Submittal number or other unique identifier, including revision identifier.
      - 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).
    - j. Number and title of appropriate Specification Section.
    - k. Drawing number and detail references, as appropriate.
    - l. Location(s) where product is to be installed, as appropriate.
    - m. Other necessary identification.
  4. Additional Paper Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
    - a. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.
  5. Transmittal for Paper Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return without review submittals received from sources other than Contractor.
    - a. Transmittal Form for Paper Submittals: Provide locations on form for the following information:

- 1) Project name.
- 2) Date.
- 3) Destination (To:).
- 4) Source (From:).
- 5) Name and address of Architect.
- 6) Name of Construction Manager.
- 7) Name of Contractor.
- 8) Name of firm or entity that prepared submittal.
- 9) Names of subcontractor, manufacturer, and supplier.
- 10) Category and type of submittal.
- 11) Submittal purpose and description.
- 12) Specification Section number and title.
- 13) Transmittal number.
- 14) Submittal and transmittal distribution record.
- 15) Remarks.
- 16) Signature of transmitter.

E. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. **Assemble complete submittal package into a single indexed file** incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
2. Name file with submittal number or other unique identifier, including revision identifier.
  - a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).
3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
4. Transmittal Form for Electronic Submittals: Use acceptable to Owner, containing the following information:
  - a. Project name.
  - b. Date.
  - c. Name and address of Architect.
  - d. Name of Construction Manager.
  - e. Name of Contractor.
  - f. Name of firm or entity that prepared submittal.
  - g. Names of subcontractor, manufacturer, and supplier.
  - h. Category and type of submittal.
  - i. Submittal purpose and description.
  - j. Specification Section number and title.
  - k. Specification paragraph number or drawing designation and generic name for each of multiple items.
  - l. Drawing number and detail references, as appropriate.
  - m. Location(s) where product is to be installed, as appropriate.
  - n. Related physical samples submitted directly.

- o. Indication of full or partial submittal.
  - p. Transmittal number.
  - q. Submittal and transmittal distribution record.
  - r. Other necessary identification.
  - s. Remarks.
- F. Options: Identify options requiring selection by Architect.
- G. Deviations: Identify deviations from the Contract Documents on submittals.
- H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
- 1. Note date and content of previous submittal.
  - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
  - 3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
- I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- J. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

## PART 2 - PRODUCTS

### 2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements:
- 1. Post electronic submittals as PDF electronic files directly to Architect specifically established for Project.
    - a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
  - 2. Submit electronic submittals via email as PDF electronic files.
    - a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
  - 3. Action Submittals: Submit three paper copies of each submittal unless otherwise indicated. Architect will return two copies.
  - 4. Informational Submittals: Submit two paper copies of each submittal unless otherwise indicated. Architect will not return copies.
  - 5. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be

signed by an officer or other individual authorized to sign documents on behalf of that entity.

- a. Provide a digital signature with digital certificate on electronically-submitted certificates and certifications where indicated.
- b. Provide a notarized statement on original paper copy certificates and certifications where indicated.

**B. Product Data:** Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:
  - a. Manufacturer's catalog cuts.
  - b. Manufacturer's product specifications.
  - c. Standard color charts.
  - d. Statement of compliance with specified referenced standards.
  - e. Testing by recognized testing agency.
  - f. Application of testing agency labels and seals.
  - g. Notation of coordination requirements.
  - h. Availability and delivery time information.
4. For equipment, include the following in addition to the above, as applicable:
  - a. Wiring diagrams showing factory-installed wiring.
  - b. Printed performance curves.
  - c. Operational range diagrams.
  - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
5. Submit Product Data before or concurrent with Samples.
6. Submit Product Data in the following format:
  - a. PDF electronic file.
  - b. Three paper copies of Product Data unless otherwise indicated. Architect will return two copies.

**C. Shop Drawings:** Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
  - a. Identification of products.
  - b. Schedules.
  - c. Compliance with specified standards.
  - d. Notation of coordination requirements.

- e. Notation of dimensions established by field measurement.
    - f. Relationship and attachment to adjoining construction clearly indicated.
    - g. Seal and signature of professional engineer if specified.
  2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least **8-1/2 by 11 inches (215 by 280 mm)**, but no larger than **30 by 42 inches (750 by 1067 mm)**.
  3. Submit Shop Drawings in the following format:
    - a. PDF electronic file.
    - b. Two opaque (bond) copies of each submittal. Architect will return one copy(ies).
    - c. Three opaque copies of each submittal. Architect will retain two copies; remainder will be returned.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
  1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
  2. Identification: Attach label on unexposed side of Samples that includes the following:
    - a. Generic description of Sample.
    - b. Product name and name of manufacturer.
    - c. Sample source.
    - d. Number and title of applicable Specification Section.
  3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
  4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
    - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
  5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
    - a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
  6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of

color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

- a. Number of Samples: Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned.
  - 1) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
- E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
  1. Submit product schedule in the following format:
    - a. PDF electronic file.
    - b. Three paper copies of product schedule or list unless otherwise indicated. Architect will return two copies.
- F. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 017700 "Closeout Procedures."
- G. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- H. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- I. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- J. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- K. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- L. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

- M. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

### PART 3 - EXECUTION

#### 3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Project Closeout and Maintenance Material Submittals: See requirements in Section 017700 "Closeout Procedures."
- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

#### 3.2 ARCHITECT'S ACTION

- A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
- C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 013300

## SECTION 014000 - QUALITY REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- 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 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
  - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
  - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
  - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Requirements:
  - 1. Division 01 Section "Allowances" for testing and inspecting allowances.
  - 2. Divisions 02 through 33 Sections for specific test and inspection requirements.

#### 1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect or Owner.

- C. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.
  - 1. Laboratory Mockups: Full-size physical assemblies constructed at testing facility to verify performance characteristics.
  - 2. Integrated Exterior Mockups: Mockups of the exterior envelope erected separately from the building but on Project site, consisting of multiple products, assemblies, and subassemblies.
  - 3. Room Mockups: Mockups of typical interior spaces complete with wall, floor, and ceiling finishes, doors, windows, millwork, casework, specialties, furnishings and equipment, and lighting.
  
- D. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.
  
- E. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
  
- F. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.
  
- G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
  
- H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
  
- I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
  - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
  
- J. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

#### 1.4 CONFLICTING REQUIREMENTS

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

#### 1.5 ACTION SUBMITTALS

- A. Shop Drawings: For integrated exterior and orlaboratory mockups, provide plans, sections, and elevations, indicating materials and size of mockup construction.
  - 1. Indicate manufacturer and model number of individual components.
  - 2. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.

#### 1.6 INFORMATIONAL SUBMITTALS

- A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.
- B. Qualification Data : For Contractor's quality-control personnel.
- C. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems:
  - 1. Seismic-force-resisting system, designated seismic system, or component listed in the designated seismic system quality-assurance plan prepared by Architect.
  - 2. Main wind-force-resisting system or a wind-resisting component listed in the wind-force-resisting system quality-assurance plan prepared by Architect.
- D. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
  - 1. Specification Section number and title.
  - 2. Entity responsible for performing tests and inspections.
  - 3. Description of test and inspection.
  - 4. Identification of applicable standards.

5. Identification of test and inspection methods.
6. Number of tests and inspections required.
7. Time schedule or time span for tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

#### 1.7 CONTRACTOR'S QUALITY-CONTROL PLAN

- A. Quality-Control Plan, General: Submit quality-control plan within 10 days of Notice to Proceed, and not less than five days prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule.
- B. Quality-Control Personnel Qualifications: Engage qualified full-time personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.
  1. Project quality-control manager may also serve as Project superintendent .
- C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.
- D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:
  1. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.
  2. Special inspections required by authorities having jurisdiction and indicated on the "Statement of Special Inspections."
  3. Owner-performed tests and inspections indicated in the Contract Documents.
- E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.
- F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.8 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
1. Date of issue.
  2. Project title and number.
  3. Name, address, and telephone number of testing agency.
  4. Dates and locations of samples and tests or inspections.
  5. Names of individuals making tests and inspections.
  6. Description of the Work and test and inspection method.
  7. Identification of product and Specification Section.
  8. Complete test or inspection data.
  9. Test and inspection results and an interpretation of test results.
  10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
  11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
  12. Name and signature of laboratory inspector.
  13. Recommendations on retesting and reinspecting.
- B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of technical representative making report.
  2. Statement on condition of substrates and their acceptability for installation of product.
  3. Statement that products at Project site comply with requirements.
  4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
  5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
  6. Statement whether conditions, products, and installation will affect warranty.
  7. Other required items indicated in individual Specification Sections.
- C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of factory-authorized service representative making report.
  2. Statement that equipment complies with requirements.
  3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
  4. Statement whether conditions, products, and installation will affect warranty.
  5. Other required items indicated in individual Specification Sections.
- D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee

payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

## 1.9 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.
- F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
  - 1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.
- G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329 ; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
  - 1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
  - 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of

manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

- J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
1. Contractor responsibilities include the following:
    - a. Provide test specimens representative of proposed products and construction.
    - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
    - c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
    - d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.
    - e. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
    - f. When testing is complete, remove test specimens, assemblies, and mockups, and laboratory mockups; do not reuse products on Project.
  2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
- K. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
  2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
  3. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed during the construction at Project.
  4. Demonstrate the proposed range of aesthetic effects and workmanship.
  5. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
    - a. Allow seven days for initial review and each re-review of each mockup.
  6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
  7. Demolish and remove mockups when directed unless otherwise indicated.
- L. Integrated Exterior Mockups: Construct integrated exterior mockup according to approved Shop Drawings or as indicated on Drawings. Coordinate installation of exterior envelope materials and products for which mockups are required in individual Specification Sections, along with supporting materials.

1.10 QUALITY CONTROL

- A. Owner Responsibilities: Owner will engage a third party testing agency to oversee the contractors testing and inspection agency. The owner shall pay for the cost of the third party testing agency..
1. Contractor will furnish Owner with names, addresses, and telephone numbers of testing agencies engaged.
  2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.
- B. Contractor Responsibilities: Tests and inspections are Contractor's responsibility. All additional quality-control activities required to verify that the Work complies with requirements, whether specified or not. Contractor shall submit to Architect and Owner the names , address, telephone numbers, and company qualifications of each testing agency engaged along with a description of types and inspections they are engaged to perform.
1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
  2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
    - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
  3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
  4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
  5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
  6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."
- D. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.
- E. Retesting/Reinspecting: Provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents. Costs for retesting is the contractors responsibility.

- F. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
  2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
  3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
  4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
  5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
  6. Do not perform any duties of Contractor.
- G. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
  2. Incidental labor and facilities necessary to facilitate tests and inspections.
  3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
  4. Facilities for storage and field curing of test samples.
  5. Delivery of samples to testing agencies.
  6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
  7. Security and protection for samples and for testing and inspecting equipment at Project site.
- H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents as a component of Contractor's quality-control plan. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.
1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

#### 1.11 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Conducted by a qualified testing agency or special inspector as required by authorities having jurisdiction, as indicated in individual Specification Sections and in Statement of Special Inspections attached to this Section, and as follows:
1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviews the completeness and adequacy of those procedures to perform the Work.
  2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
  3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
  4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
  5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
  6. Retesting and reinspecting corrected work.

#### PART 2 - PRODUCTS (Not Used)

#### PART 3 - EXECUTION

##### 3.1 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
1. Date test or inspection was conducted.
  2. Description of the Work tested or inspected.
  3. Date test or inspection results were transmitted to Architect.
  4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

##### 3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Division 01 Section "Execution."
- B. Protect construction exposed by or for quality-control service activities.

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THE GROVE AMPHITHEATRE - BANDSHELL  
NOVEMBER 10, 2016

16010

- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

## SECTION 017300 - EXECUTION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- 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 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
  - 1. Construction layout.
  - 2. Field engineering and surveying.
  - 3. Installation of the Work.
  - 4. Cutting and patching.
  - 5. Coordination of Owner-installed products.
  - 6. Progress cleaning.
  - 7. Starting and adjusting.
  - 8. Protection of installed construction.
  - 9. Correction of the Work.
- B. Related Requirements:
  - 1. Division 01 Section "Summary" for limits on use of Project site.
  - 2. Division 01 Section "Submittal Procedures" for submitting surveys.
  - 3. Division 01 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

#### 1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Certified land surveyor.

- B. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.
- C. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:
  - 1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
  - 2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
  - 3. Products: List products to be used for patching and firms or entities that will perform patching work.
  - 4. Dates: Indicate when cutting and patching will be performed.
  - 5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.
    - a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.
- D. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.
- E. Certified Surveys: Submit two copies signed by Certified land surveyor.
- F. Final Property Survey: Submit 5 copies showing the Work performed and record survey data.

#### 1.5 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.
- B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
  - 1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection
  - 2. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- C. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential

interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

- D. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
  2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
  2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
  3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

1. Description of the Work.
2. List of detrimental conditions, including substrates.
3. List of unacceptable installation tolerances.
4. Recommended corrections.

- D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

### 3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility and or Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Division 01 Section "Project Management and Coordination."

### 3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.
- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
  2. Establish limits on use of Project site.
  3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
  4. Inform installers of lines and levels to which they must comply.
  5. Check the location, level and plumb, of every major element as the Work progresses.
  6. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
  7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

### 3.4 FIELD ENGINEERING

- A. Identification: Architect/Engineer will identify existing benchmarks, control points, and property corners.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
  - 1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
  - 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
  - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
  - 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
  - 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.
- D. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.
- E. Final Property Survey: Engage a land surveyor to prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by land surveyor, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.

1. Show boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.

### 3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
  1. Make vertical work plumb and make horizontal work level.
  2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
  3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
  4. Maintain minimum headroom clearance of **96 inches** in occupied spaces and **90 inches** in unoccupied spaces.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
  1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
  2. Allow for building movement, including thermal expansion and contraction.
  3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

- J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

### 3.6 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
  - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of work to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.
- F. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
  - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  - 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  - 4. Excavating and Backfilling: Comply with requirements in applicable Division 31 Sections where required by cutting and patching operations.
  - 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
  - 6. Proceed with patching after construction operations requiring cutting are complete.
- G. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
  2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
    - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    - b. Restore damaged pipe covering to its original condition.
  3. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- H. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

### 3.7 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above **80 deg F**.
  3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
    - a. Use containers intended for holding waste materials of type to be stored.
  4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
1. Remove liquid spills promptly.
  2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Division 01 Section "Temporary Facilities and Controls."
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

### 3.8 STARTING AND ADJUSTING

- A. Coordinate startup and adjusting of equipment and operating components with requirements in Division 01 Section "General Commissioning Requirements."
- B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- E. Manufacturer's Field Service: Comply with qualification requirements in Division 01 Section "Quality Requirements."

### 3.9 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 017300

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
  - 1. Substantial Completion procedures.
  - 2. Final completion procedures.
  - 3. Warranties.
  - 4. Final cleaning.
  - 5. Repair of the Work.
  
- B. Related Requirements:
  - 1. Section 013233 "Photographic Documentation" for submitting final completion construction photographic documentation.
  - 2. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.
  - 3. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
  - 4. Section 017900 "Demonstration and Training" for requirements for instructing Owner's personnel.

1.2 ACTION SUBMITTALS

- A. Product Data: For cleaning agents.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.3 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.
- C. Field Report: For pest control inspection.

1.4 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.5 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number where applicable.
  - a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Architect's signature for receipt of submittals.
5. Submit test/adjust/balance records.
6. Submit sustainable design submittals not previously submitted.
7. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Advise Owner of pending insurance changeover requirements.
2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
3. Complete startup and testing of systems and equipment.
4. Perform preventive maintenance on equipment used prior to Substantial Completion.

5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 017900 "Demonstration and Training."
6. Advise Owner of changeover in heat and other utilities.
7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
9. Complete final cleaning requirements, including touchup painting.
10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for final completion.

#### 1.6 FINAL COMPLETION PROCEDURES

A. Preliminary Procedures: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to Section 012900 "Payment Procedures."
2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report and warranty.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings.

B. Inspection: Submit a written request for final inspection to determine acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

#### 1.7 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

#### 1.8 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
  - 1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive **8-1/2-by-11-inch (215-by-280-mm)** paper.
  - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
  - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
  - 4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
- C. Provide additional copies of each warranty to include in operation and maintenance manuals.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
  - 1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

### PART 3 - EXECUTION

#### 3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
  - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
    - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
    - e. Remove snow and ice to provide safe access to building.
    - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
    - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
    - h. Sweep concrete floors broom clean in unoccupied spaces.
    - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
    - j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
    - k. Remove labels that are not permanent.
    - l. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
    - m. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
    - n. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
    - o. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
    - p. Leave Project clean and ready for occupancy.

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
  - 1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
  - 2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.
    - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
  - 3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
  - 4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION 017700

## SECTION 033000 - CAST-IN-PLACE CONCRETE

### 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 cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete mixture.
- C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer, manufacturer, and testing agency.
- B. Material certificates: For each of the following, signed by manufacturers:
  - 1. Cementitious materials.
  - 2. Admixtures.
  - 3. Steel reinforcement and accessories.
  - 4. Curing compounds.
  - 5. Material test reports.

#### 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.
- B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- C. Testing Agency Qualifications: An independent agency, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
- D. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
  1. ACI 301, "Specifications for Structural Concrete," Sections 1 through 5.
  2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
- E. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

## PART 2 - PRODUCTS

### 2.1 FORM-FACING MATERIALS

- A. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

### 2.2 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.
- B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice."

### 2.3 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
  1. Portland Cement: ASTM C 150, Type I, gray. Supplement with the following:
    - a. Fly Ash: ASTM C 618, Class F.
    - b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.
- B. Normal-Weight Aggregates: ASTM C 33, graded.
  1. Maximum Coarse-Aggregate Size: 1-1/2 inches nominal for footings, and 1 inch nominal for column piers.
  2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Water: ASTM C 94/C 94M and potable.

## 2.4 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C 260.
- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
  - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
  - 2. Retarding Admixture: ASTM C 494/C 494M, Type B.
  - 3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
  - 4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
  - 5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
  - 6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

## 2.5 CURING MATERIALS

- A. Water: Potable.
- B. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.
- C. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, nondissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering.
- D. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.
- E. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

## 2.6 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
- B. Cementitious Materials: Use fly ash, pozzolan, ground granulated blast-furnace slag, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent. Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
  - 1. Fly Ash: 25 percent.
  - 2. Combined Fly Ash and Pozzolan: 25 percent.
  - 3. Ground Granulated Blast-Furnace Slag: 50 percent.
  - 4. Combined Fly Ash or Pozzolan and Ground Granulated Blast-Furnace Slag: 50 percent portland cement minimum, with fly ash or pozzolan not exceeding 25 percent.

- C. Admixtures: Use admixtures according to manufacturer's written instructions.
  - 1. Use water-reducing, high-range water-reducing, or plasticizing admixture in concrete, as required, for placement and workability.
  - 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
  - 3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.

## 2.7 CONCRETE MIXTURES FOR BUILDING ELEMENTS

- A. Footings: Proportion normal-weight concrete mixture as follows:
  - 1. Minimum Compressive Strength: 3000 psi at 28 days.
  - 2. Maximum Water-Cementitious Materials Ratio: 0.50.
  - 3. Slump Limit: 5 inches, 8 inches for concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch.
- B. Column piers: Proportion normal-weight concrete mixture as follows:
  - 1. Minimum Compressive Strength: 4000 psi at 28 days.
  - 2. Minimum Cementitious Materials Content: 520 lb/cu. yd..
  - 3. Slump Limit: 4 inches, plus or minus 1 inch.
  - 4. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 1-inch nominal maximum aggregate size.

## 2.8 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

## 2.9 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.
  - 1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

### PART 3 - EXECUTION

#### 3.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Chamfer exterior corners and edges of permanently exposed concrete.

#### 3.2 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

#### 3.3 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
  - 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.
- C. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

#### 3.4 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.
- C. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
  - 1. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.

- D. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
  - 1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
  - 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
  - 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
  
- E. Hot-Weather Placement: Comply with ACI 301 and as follows:
  - 1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
  - 2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

### 3.5 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
  
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
  
- C. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
  
- D. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
  - 1. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

### 3.6 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
  
- B. Inspections:

1. Steel reinforcement placement.
  2. Verification of use of required design mixture.
  3. Concrete placement, including conveying and depositing.
  4. Curing procedures and maintenance of curing temperature.
- C. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
  2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
  3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
  4. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
  5. Unit Weight: ASTM C 567, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
  6. Compression Test Specimens: ASTM C 31/C 31M.
    - a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
    - b. Cast and field cure two sets of two standard cylinder specimens for each composite sample.
  7. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
    - a. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.
    - b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
  8. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
  9. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
  10. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive

- strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
11. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
  12. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
  13. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
  14. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

END OF SECTION 033000

SECTION 042000 - UNIT MASONRY

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. Decorative/split face concrete masonry units.
2. Mortar and grout.
3. Steel reinforcing bars.
4. Masonry joint reinforcement.
5. Ties and anchors.
6. Embedded flashing.
7. Miscellaneous masonry accessories.

B. Related Sections:

1. Division 05 Section "Structural Steel" for furnishing steel lintels and shelf angles for unit masonry.

1.3 DEFINITIONS

- A. CMU(s): Concrete masonry unit(s).

- B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.4 PERFORMANCE REQUIREMENTS

- A. Provide structural unit masonry that develops indicated net-area compressive strengths at 28 days.

1. Determine net-area compressive strength of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) according to Tables 1 and 2 in ACI 530.1/ASCE 6/TMS 602.
2. Determine net-area compressive strength of masonry by testing masonry prisms according to ASTM C 1314.

1.5 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: Owner will engage a qualified independent testing agency to perform preconstruction testing indicated below. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.
1. Concrete Masonry Unit Test: For each type of unit required, according to ASTM C 140 for compressive strength.
  2. Mortar Test (Property Specification): For each mix required, according to ASTM C 109/C 109M for compressive strength, ASTM C 1506 for water retention, and ASTM C 91 for air content.
  3. Mortar Test (Property Specification): For each mix required, according to ASTM C 780 for compressive strength.
  4. Grout Test (Compressive Strength): For each mix required, according to ASTM C 1019.
  5. Prism Test: For each type of construction required, according to ASTM C 1314.

1.6 SUBMITTALS

- 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 Verification: For each type and color of the following:
1. Split-face concrete masonry unit.
  2. Pigmented mortar. Make Samples using same sand and mortar ingredients to be used on Project.
  3. Weep holes and vents.
  4. Accessories embedded in masonry.
- D. 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.
- E. Qualification Data: For testing agency.
- F. Material Certificates: For each type and size of the following:
1. Masonry units.

- a. Include data on material properties
  - b. For masonry units used in structural masonry, 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.
- G. 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.
- H. Cold-Weather and Hot-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with requirements.

## 1.7 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.
- D. Masonry Standard: Comply with ACI 530.1/ASCE 6/TMS 602 unless modified by requirements in the Contract Documents.
- E. 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 as shown on Drawings.
  2. Build mockups for each type of exposed unit masonry construction typical exterior and interior walls in sizes approximately 60 inches long by 48 inches high by full thickness, including face and backup wythes and accessories.
    - a. Include a sealant-filled joint at least 16 inches long in each exterior wall mockup.

- b. Include lower corner of window opening framed with cast stone trim at upper corner of exterior wall mockup. Make opening approximately 12 inches wide by 16 inches high.
  - c. Include through-wall flashing installed for a 24-inch length in corner of exterior wall mockup approximately 16 inches down from top of mockup, with a 12-inch length of flashing left exposed to view (omit masonry above half of flashing).
  - d. Include wood studs, sheathing, fluid-applied membrane air barrier including sheathing joint-and-penetration treatment , veneer anchors, flashing, cavity drainage material, and weep holes in exterior masonry-veneer wall mockup.
3. Protect accepted mockups from the elements with weather-resistant membrane.
  4. 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.
  5. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- F. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

#### 1.8 DELIVERY, STORAGE, AND HANDLING

- 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.

#### 1.9 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 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 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 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.

## 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 DECORATIVE/SPLIT FACE CONCRETE MASONRY UNITS

- A. 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.

B. Integral Water Repellent: Provide units made with integral water repellent for exposed units .

1. Integral Water Repellent: Liquid polymeric, integral water-repellent admixture that does not reduce flexural bond strength. Units made with integral water repellent, when tested according to ASTM E 514 as a wall assembly made with mortar containing integral water-repellent manufacturer's mortar additive, with test period extended to 24 hours, shall show no visible water or leaks on the back of test specimen.
  - 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) ACM Chemistries; RainBloc.
    - 2) BASF Aktiengesellschaft; Rheapel Plus.
    - 3) Grace Construction Products, W. R. Grace & Co. - Conn.; Dry-Block.

A. Decorative/Split face CMUs: ASTM C 90.

1. Density Classification: Normal weight unless otherwise indicated.
2. Size (Width): Manufactured to dimensions 3/8 inch less than nominal dimensions.
3. Exposed Faces: Provide color and texture matching the range represented by Architect's sample.
  - a. Products - Basis of Design:
    - 1) Grand Blanc Cement Products – “Castle Rock.”
  - b. Substitutions must be approved by Architect prior to submitting initial bid.

B. Provide cast stone units accurately shaped, with exposed faces dressed true, and with beds and joints at right angles to faces, as indicated on drawings.

### 2.3 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.
- D. Masonry Cement: ASTM C 91.

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. Capital Materials Corporation; Flamingo Color Masonry Cement.
  - b. Lafarge North America Inc.; Magnolia Masonry Cement Lafarge Masonry Cement
  - c. Lehigh Cement Company; Lehigh Masonry Cement .
  - d. National Cement Company, Inc.; Coosa Masonry Cement.
  
- E. Mortar Cement: ASTM C 1329.
  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. Lafarge North America Inc.; Lafarge Mortar Cement or Magnolia Superbond Mortar Cement.
  
- F. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes and complying with ASTM C 979. Use only pigments with a record of satisfactory performance in masonry mortar.
  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. Davis Colors; True Tone Mortar Colors.
    - b. Lanxess Corporation; Bayferrox Iron Oxide Pigments.
    - c. Solomon Colors, Inc.; SGS Mortar Colors.
  
- G. Colored Cement Product: Packaged blend made from portland cement and hydrated lime masonry cement or mortar cement and mortar pigments, all complying with specified requirements, and containing no other ingredients.
  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. Colored Portland Cement-Lime Mix:
      - 1) Capital Materials Corporation; Riverton Portland Cement Lime Custom Color.
      - 2) Holcim (US) Inc.; Rainbow Mortamix Custom Color Cement/Lime.
      - 3) Lafarge North America Inc.; Eaglebond Portland & Lime.
      - 4) Lehigh Cement Company; Lehigh Custom Color Portland/Lime Cement.
  
    - b. Colored Masonry Cement:
      - 1) Capital Materials Corporation; Flamingo Color Masonry Cement.
      - 2) Cemex S.A.B. de C.V.; Richcolor Masonry Cement.

- 3) Essroc, Italcementi Group; Brixment-in-Color.
  - 4) Holcim (US) Inc.; Rainbow Mortamix Custom Color Masonry Cement.
  - 5) Lafarge North America Inc.; U.S. Cement Custom Color Masonry Cement.
  - 6) Lehigh Cement Company; Lehigh Custom Color Masonry Cement.
  - 7) National Cement Company, Inc.; Coosa Masonry Cement.
2. Formulate blend as required to produce color indicated or, if not indicated, as selected from manufacturer's standard colors.
  3. Pigments shall not exceed 10 percent of portland cement by weight.
  4. Pigments shall not exceed 5 percent of masonry cement or mortar cement by weight.
- H. 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 thick, use aggregate graded with 100 percent passing the No. 16 sieve.
  3. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.
- I. Aggregate for Grout: ASTM C 404.
- J. 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.
- K. Water: Potable.
- 2.4 REINFORCEMENT
- A. Uncoated Steel Reinforcing Bars: ASTM A 615/A 615M or ASTM A 996/A 996M, Grade 60.
- B. Masonry Joint Reinforcement, General: ASTM A 951/A 951M.
1. Interior Walls: Mill-galvanized, carbon steel.
  2. Exterior Walls: Hot-dip galvanized, carbon steel.
  3. Wire Size for Side Rods: 0.187-inch diameter.
  4. Wire Size for Cross Rods: 0.187-inch diameter.
  5. Wire Size for Veneer Ties: 0.187-inch diameter.
  6. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches o.c.

7. Provide in lengths of not less than 10 feet, 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 Multiwythe 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 pintle-and-eye connections having a maximum adjustment of 1-1/4 inches. Size ties to extend at least halfway through facing wythe but with at least 5/8-inch cover on outside face. Ties have hooks or clips to engage a continuous horizontal wire in the facing wythe. (Note: horizontal reinforcement at CMU inner wythe may be mill-galvanized; all pintle-and-eye connectors at outer wythe to be hot-dip galvanized).

## 2.5 TIES AND ANCHORS

- A. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated.
  1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82/A 82M; with ASTM A 153/A 153M, Class B-2 coating.
  2. Steel Sheet, Galvanized after Fabrication: ASTM A 1008/A 1008M, Commercial Steel, with ASTM A 153/A 153M, Class B coating.
- B. Wire Ties, General: Unless otherwise indicated, size wire ties to extend at least halfway through veneer but with at least 5/8-inch cover on outside face. Outer ends of wires are bent 90 degrees and extend 2 inches parallel to face of veneer.
- C. Individual Wire Ties: Rectangular units with closed ends and not less than 4 inches wide.
  1. Z-shaped ties with ends bent 90 degrees to provide hooks not less than 2 inches long may be used for masonry constructed from solid units.
  2. Where wythes do not align are of different materials, use adjustable ties with pintle-and-eye connections having a maximum adjustment of 1-1/4 inches.
- D. Tie Section: Triangular-shaped wire tie, sized to extend within 1 inch of masonry face, made from 0.25-inch-diameter, hot-dip galvanized steel wire 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 100-lbf load in both tension and compression without deforming or developing play in excess of 0.05 inch.
  2. Contractor's Option: Unless otherwise indicated, provide any of the following types of anchors:
  3. 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) Dayton Superior Corporation, Dur-O-Wal Division; D/A 210 with D/A 700-708.
  - 2) Heckmann Building Products Inc.; 315-D with 316 or Pos-I-Tie.
  - 3) Hohmann & Barnard, Inc.; DW-10HS or DW-10-X.
- b. Anchor Section: Rib-stiffened, sheet metal plate with screw holes top and bottom, 2-3/4 inches wide by 3 inches high; with projecting tabs having slotted holes for inserting vertical legs of wire tie specially formed to fit anchor section.
- c. Anchor Section: Sheet metal plate, 1-1/4 inches wide by 6 inches long, with screw holes top and bottom and with raised rib-stiffened strap, 5/8 inch wide by 5-1/2 inches long, stamped into center to provide a slot between strap and plate for inserting wire tie.
- d. Anchor Section: Gasketed sheet metal plate, 1-1/4 inches wide by 6 inches long, with screw holes top and bottom; top and bottom ends bent to form pronged legs of length to match thickness of insulation or sheathing; and raised rib-stiffened strap, 5/8 inch wide by 6 inches long, stamped into center to provide a slot between strap and plate for inserting wire tie. Provide anchor manufacturer's standard, self-adhering, modified bituminous gaskets manufactured to fit behind anchor plate and extend beyond pronged legs.
- e. Anchor Section: Corrosion-resistant, self-drilling, eye-screw designed to receive wire tie. Eye-screw has spacer that seats directly against framing and is same thickness as sheathing and has gasketed, washer head that covers hole in sheathing.
- f. Fabricate sheet metal anchor sections and other sheet metal parts from 1.05-inch-thick, steel sheet, galvanized after fabrication .
- g. Wire Ties: Triangular-, rectangular-, or T-shaped wire ties fabricated from 0.25-inch- diameter, hot-dip galvanized steel wire.
- h. 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.; AA308.
- i. Wire-Type Anchor: Bent wire anchor section with an eye to receive the wire tie. Wire tie has a vertical leg that slips into the eye of anchor section and allows vertical adjustment. Both sections are made from 3/16-inch, hot-dip galvanized wire.

## 2.6 MISCELLANEOUS ANCHORS

- A. Anchor Bolts: Headed or L-shaped steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153/A 153M, Class C; of dimensions indicated.
- B. Postinstalled Anchors: Torque-controlled expansion anchors or chemical anchors.

1. Load Capacity: Capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.
2. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5 unless otherwise indicated.
3. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 stainless-steel bolts, ASTM F 593, and nuts, ASTM F 594.

## 2.7 EMBEDDED FLASHING MATERIALS

A. Metal Flashing: Provide metal flashing complying with SMACNA's "Architectural Sheet Metal Manual" Division 07 Section "Sheet Metal Flashing and Trim" and as follows:

1. Stainless Steel: ASTM A 240/A 240M, Type 304, 0.016 inch thick.
2. Fabricate continuous flashings in sections 96 inches long minimum, but not exceeding 12 feet. Provide splice plates at joints of formed, smooth metal flashing.
  - a. Products: Subject to compliance with requirements, provide the following provide one of the following available products that may be incorporated into the Work include, but are not limited to, the following:
    - 1) Cheney Flashing Company; Cheney Flashing (Dovetail) or Cheney 3-Way Flashing (Sawtooth).
    - 2) Keystone Flashing Company, Inc.; Keystone 3-Way Interlocking Thruwall Flashing.
    - 3) Sandell Manufacturing Co., Inc.; Mechanically Keyed Flashing.

B. Flexible Flashing: Use one of the following unless otherwise indicated:

1. EPDM Flashing: Sheet flashing product made from ethylene-propylene-diene terpolymer, complying with ASTM D 4637, 0.040 inch thick.
  - 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) Carlisle Coatings & Waterproofing; Pre-Kleened EPDM Thru-Wall Flashing.
    - 2) Firestone Specialty Products; FlashGuard.
    - 3) Heckmann Building Products Inc.; No. 81 EPDM Thru-Wall Flashing.
    - 4) Hohmann & Barnard, Inc.; Epra-Max EPDM Thru-Wall Flashing.
    - 5) Sandell Manufacturing Co., Inc.; EPDM Flashing.

C. Application: Unless otherwise indicated, use the following:

1. Where flashing is indicated to receive counterflashing, use metal flashing.

2. Where flashing is indicated to be turned down at or beyond the wall face, use metal flashing.
  3. Where flashing is partly exposed and is indicated to terminate at the wall face, use metal flashing with a drip edge with a sealant stop or flexible flashing with a metal drip edge or elastomeric thermoplastic flashing with drip edge or flexible flashing with a metal sealant stop.
  4. Where flashing is fully concealed, use metal flashing or flexible flashing.
- D. Solder and Sealants for Sheet Metal Flashings: As specified in Division 07 Section "Sheet Metal Flashing and Trim."
1. Solder for Stainless Steel: ASTM B 32, Grade Sn60, with acid flux of type recommended by stainless-steel sheet manufacturer.
  2. Elastomeric Sealant: ASTM C 920, chemically curing urethane polysulfide silicone sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- E. 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.

## 2.8 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 urethane or PVC.
- 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. Mesh Weep/Vent: Free-draining mesh; made from polyethylene strands, full height and width of head joint and depth 1/8 inch 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) Mortar Net USA, Ltd.; Mortar Net Weep Vents.
- 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. Advanced Building Products Inc.; Mortar Break .
  - b. Archovations, Inc.; CavClear Masonry Mat.
  - c. Dayton Superior Corporation, Dur-O-Wal Division; Polytite MortarStop.
  - d. Mortar Net USA, Ltd.; Mortar Net.
  
2. Provide one of the following configurations:
  - a. Strips, full-depth of cavity and 10 inches high, with dovetail shaped notches 7 inches 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 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. Dayton Superior Corporation, Dur-O-Wal Division; D/A 810, D/A 812 or D/A 817.
    - b. Heckmann Building Products Inc.; No. 376 Rebar Positioner.
    - c. Hohmann & Barnard, Inc.; #RB or #RB-Twin Rebar Positioner.
    - d. Wire-Bond; O-Ring or Double O-Ring Rebar Positioner.

## 2.9 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, available 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.

2.10 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 masonry cement or mortar cement mortar unless otherwise indicated.
  3. For exterior masonry, use portland cement-lime masonry cement or mortar cement mortar.
  4. For reinforced masonry, use portland cement-lime masonry cement or mortar cement mortar.
  5. 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 mortar parge coats, use Type S .
  4. 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.
  5. For interior non-load-bearing partitions, Type O may be used instead of Type N.
- D. Pigmented Mortar: Use colored cement product or select and proportion pigments with other ingredients to produce color required. Do not add pigments to colored cement products.
1. Pigments shall not exceed 10 percent of portland cement by weight.
  2. Pigments shall not exceed 5 percent of masonry cement or mortar cement by weight.
  3. Mix to match Architect's sample.
  4. Application: Use pigmented mortar for exposed mortar joints with the following units:
    - a. Face brick.
    - b. Cast stone trim units.
- 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.

3. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C 143/C 143M.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- 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. 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 TOLERANCES

#### A. Dimensions and Locations of Elements:

1. For dimensions in cross section or elevation do not vary by more than plus 1/2 inch or minus 1/4 inch.
2. For location of elements in plan do not vary from that indicated by more than plus or minus 1/2 inch.
3. For location of elements in elevation do not vary from that indicated by more than plus or minus 1/4 inch in a story height or 1/2 inch 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, or 1/2 inch 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, 1/4 inch in 20 feet, or 1/2 inch maximum.
3. For vertical lines and surfaces do not vary from plumb by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2 inch 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, 1/4 inch in 20 feet, or 1/2 inch maximum.
5. For lines and surfaces do not vary from straight by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2 inch maximum.
6. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet, or 1/2 inch maximum.
7. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch 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, with a maximum thickness limited to 1/2 inch.
2. For exposed bed joints, do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch.
3. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch or minus 1/4 inch.
4. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch. Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch.
5. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16 inch 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 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. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch 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 cores in hollow CMUs with grout 24 inches under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.

### 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.
- C. Set cast-stone trim units in full bed of mortar with full vertical joints. Fill dowel, anchor, and similar holes.
  - 1. Clean soiled surfaces with fiber brush and soap powder and rinse thoroughly with clear water.
  - 2. Allow cleaned surfaces to dry before setting.
  - 3. Wet joint surfaces thoroughly before applying mortar.
- D. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

- E. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint) unless otherwise indicated.

### 3.6 COMPOSITE MASONRY

- A. Bond wythes of composite masonry 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 1.77 sq. ft. of wall area spaced not to exceed 16 inches o.c. horizontally and 16 inches o.c. vertically. Stagger ties in alternate courses. Provide additional ties within 12 inches of openings and space not more than 36 inches apart around perimeter of openings. At intersecting and abutting walls, provide ties at no more than 24 inches o.c. vertically.
    - a. Where bed joints of wythes do not align, use adjustable (two-piece) type ties.
  - 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 with continuous horizontal wire in facing wythe attached to ties.
  - 3. Header Bonding: Provide masonry unit headers extending not less than 3 inches into each wythe. Space headers not over 8 inches clear horizontally and 16 inches clear vertically.
- B. Bond wythes of composite masonry together using bonding system indicated on Drawings.
- C. Collar Joints: Solidly fill collar joints by paring face of first wythe that is laid and shoving units of other wythe into place.
- D. Corners: Provide interlocking masonry unit bond in each wythe and course at corners unless otherwise indicated.
  - 1. Provide continuity with masonry joint reinforcement at corners by using prefabricated L-shaped units as well as masonry bonding.
- E. Intersecting and Abutting Walls: Unless vertical expansion or control joints are shown at juncture, bond walls together as follows:
  - 1. Provide individual metal ties not more than 8 inches o.c.
  - 2. Provide continuity with masonry joint reinforcement by using prefabricated T-shaped units.

### 3.7 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.
- C. Form expansion joints in brick as follows:
  - 1. Build flanges of metal expansion strips into masonry. Lap each joint 4 inches in direction of water flow. Seal joints below grade and at junctures with horizontal expansion joints if any.
  - 2. Build flanges of factory-fabricated, expansion-joint units into masonry.
  - 3. Build in compressible joint fillers where indicated.
  - 4. Form open joint full depth of brick wythe and of width indicated, but not less than 3/8 inch for installation of sealant and backer rod specified in Division 07 Section "Joint Sealants."
- D. Provide horizontal, pressure-relieving joints by either leaving an air space or inserting a compressible filler of width required for installing sealant and backer rod specified in Division 07 Section "Joint Sealants," but not less than 3/8 inch .

### 3.8 Revise subparagraph below to suit Project. Show locations of joints on Drawings. See BIA and NCMA references.LINTELS

- A. Install steel lintels where indicated.
- B. Provide minimum bearing of 8 inches at each jamb unless otherwise indicated.

### 3.9 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 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 4 inches, and through inner wythe to within 1/2 inch of the interior face of wall in exposed masonry. Where interior face of wall is to receive furring or framing, carry flashing completely through inner wythe and turn flashing up approximately 2 inches on interior face.
  3. At multiwythe masonry walls, including cavity walls, extend flashing through outer wythe, turned up a minimum of 4 inches, and 1-1/2 inches into the inner wythe.
  4. At masonry-veneer walls, extend flashing through veneer, across air space behind veneer, and up face of sheathing at least 8 inches; with upper edge tucked under building paper or building wrap, lapping at least 4 inches.
  5. At lintels and shelf angles, extend flashing a minimum of 6 inches into masonry at each end. At heads and sills, extend flashing 6 inches at ends and turn up not less than 2 inches to form end dams.
  6. Interlock end joints of ribbed sheet metal flashing by overlapping ribs not less than 1-1/2 inches or as recommended by flashing manufacturer, and seal lap with elastomeric sealant complying with requirements in Division 07 Section "Joint Sealants" for application indicated.
  7. Install metal drip edges and sealant stops 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.
  8. Install metal drip edges beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch back from outside face of wall and adhere flexible flashing to top of metal drip edge.
- C. Install reglets and nailers for flashing and other related construction where they are shown to be built into masonry.
- D. 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 o.c. unless otherwise indicated.
  3. Cover cavity side of weep holes with plastic insect screening at cavities insulated with loose-fill insulation.
- E. Place cavity drainage material in cavities to comply with configuration requirements for cavity drainage material in "Miscellaneous Masonry Accessories" Article.
- F. Install vents in head joints in exterior wythes at spacing indicated. Use specified weep/vent products to form vents.
1. Close cavities off vertically and horizontally with blocking in manner indicated. Install through-wall flashing and weep holes above horizontal blocking.

### 3.10 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 .

### 3.11 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.
- B. Inspections: Level 2 special inspections according to the "International Building Code."
  - 1. Begin masonry construction only after inspectors have verified proportions of site-prepared mortar.
  - 2. Place grout only after inspectors have verified compliance of grout spaces and of grades, sizes, and locations of reinforcement.
  - 3. Place grout only after inspectors have verified proportions of site-prepared grout.
- C. Testing Frequency: One set of tests for each 5000 sq. ft. of wall area or portion thereof.
- D. Clay Masonry Unit Test: For each type of unit provided, according to ASTM C 67 for compressive strength.
- E. Concrete Masonry Unit Test: For each type of unit provided, according to ASTM C 140 for compressive strength.
- F. Mortar Aggregate Ratio Test (Proportion Specification): For each mix provided, according to ASTM C 780.

- G. Mortar Test (Property Specification): For each mix provided, according to ASTM C 780. Test mortar for mortar air content and compressive strength.
- H. Grout Test (Compressive Strength): For each mix provided, according to ASTM C 1019.

### 3.12 PARGING

- A. Parge exterior faces of below-grade masonry walls, where indicated, in 2 uniform coats to a total thickness of 3/4 inch. Dampen wall before applying first coat and scarify first coat to ensure full bond to subsequent coat.
- B. Use a steel-trowel finish to produce a smooth, flat, dense surface with a maximum surface variation of 1/8 inch per foot. Form a wash at top of parging and a cove at bottom.
- C. Damp-cure parging for at least 24 hours and protect parging until cured.

### 3.13 REPAIRING, POINTING, AND CLEANING

- 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 cast 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 brick by bucket-and-brush hand-cleaning method described in BIA Technical Notes 20.
  - 6. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.
  - 7. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.

8. Clean cast stone trim to comply with cast stone supplier's written instructions.

3.14 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 in each dimension.
  2. 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 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 051200 - STRUCTURAL STEEL FRAMING

### 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. Structural steel.
- 2. Grout.

- B. Related Requirements:

- 1. Section 051213 "Architecturally Exposed Structural Steel Framing" for surface preparation of exposed steel framing.

#### 1.3 DEFINITIONS

- A. Structural Steel: Elements of the structural frame indicated on Drawings and as described in AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."

#### 1.4 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

#### 1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Show fabrication of structural-steel components.
  - 1. Include details of cuts, connections, splices,

2. Holes, and other pertinent data.
3. Include embedment Drawings.
4. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld. Show backing bars that are to be removed and supplemental fillet welds where backing bars are to remain.
5. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pretensioned and slip-critical, high-strength bolted connections.

#### 1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer, fabricator, and testing agency.
- B. Welding certificates.
- C. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.
- D. Mill test reports for structural steel, including chemical and physical properties.
- E. Product Test Reports: For the following:
  1. Bolts, nuts, and washers including mechanical properties and chemical analysis.
  2. Direct-tension indicators.
  3. Tension-control, high-strength, bolt-nut-washer assemblies.
  4. Shop primers.
  5. Nonshrink grout.
- F. Survey of existing conditions.
- G. Source quality-control reports.
- H. Field quality-control and special inspection reports.

#### 1.7 QUALITY ASSURANCE

- A. Fabricator Qualifications: A qualified fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category STD.
- B. Installer Qualifications: A qualified installer who participates in the AISC Quality Certification Program and is designated an AISC-Certified Erector, Category CSE.
- C. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- D. Comply with applicable provisions of the following specifications and documents:
  1. AISC 303.
  2. AISC 360.
  3. RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

## 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from corrosion and deterioration.
  - 1. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.
- B. Store fasteners in a protected place in sealed containers with manufacturer's labels intact.
  - 1. Fasteners may be repackaged provided Owner's testing and inspecting agency observes repackaging and seals containers.
  - 2. Clean and relubricate bolts and nuts that become dry or rusty before use.
  - 3. Comply with manufacturers' written recommendations for cleaning and lubricating ASTM F 1852 fasteners and for retesting fasteners after lubrication.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Connections: Provide details of simple shear connections required by the Contract Documents to be selected or completed by structural-steel fabricator to withstand loads indicated and comply with other information and restrictions indicated.
  - 1. Select and complete connections using schematic details indicated and AISC 360.
- B. Moment Connections: Type FR, fully restrained.

### 2.2 STRUCTURAL-STEEL MATERIALS

- A. W-Shapes: ASTM A 992/A 992M.
- B. Plate and Bar: ASTM A 36/A 36M.
- C. Cold-Formed Hollow Structural Sections: ASTM A 500/A 500M, Grade B, structural tubing.
- D. Welding Electrodes: Comply with AWS requirements.

### 2.3 BOLTS, CONNECTORS, AND ANCHORS

- A. High-Strength Bolts, Nuts, and Washers: ASTM A 325, Type 1, heavy-hex steel structural bolts; ASTM A 563, Grade C, heavy-hex carbon-steel nuts; and ASTM F 436, Type 1, hardened carbon-steel washers; all with plain finish.

1. Direct-Tension Indicators: ASTM F 959, Type 325, compressible-washer type with plain finish.

B. Headed Anchor Rods: ASTM F 1554, Grade 36, straight.

1. Nuts: ASTM A 563 heavy-hex carbon steel.
2. Plate Washers: ASTM A 36/A 36M carbon steel.
3. Washers: ASTM F 436, Type 1, hardened carbon steel.
4. Finish: Plain.

## 2.4 PRIMER

- A. Primer: Comply with Section 099600 "High-Performance Coatings."
- B. Primer: Fabricator's standard lead- and chromate-free, nonasphaltic, rust-inhibiting primer complying with MPI#79 and compatible with topcoat.

## 2.5 GROUT

- A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107/C 1107M, factory-packaged, nonmetallic aggregate grout, noncorrosive and nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

## 2.6 FABRICATION

- A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate according to AISC 303, "Code of Standard Practice for Steel Buildings and Bridges," and to AISC 360.
  1. Fabricate beams with rolling camber up.
  2. Identify high-strength structural steel according to ASTM A 6/A 6M and maintain markings until structural steel has been erected.
  3. Mark and match-mark materials for field assembly.
  4. Complete structural-steel assemblies, including welding of units, before starting shop-priming operations.
- B. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.
  1. Plane thermally cut edges to be welded to comply with requirements in AWS D1.1/D1.1M.
- C. Bolt Holes: Cut, drill, or punch standard bolt holes perpendicular to metal surfaces.
- D. Finishing: Accurately finish ends of columns and other members transmitting bearing loads.
- E. Cleaning: Clean and prepare steel surfaces that are to remain unpainted according to SSPC-SP 1, "Solvent Cleaning", or SSPC-SP 2, "Hand Tool Cleaning."
- F. Holes: Provide holes required for securing other work to structural steel and for other work to pass through steel members.

1. Cut, drill, or punch holes perpendicular to steel surfaces. Do not thermally cut bolt holes or enlarge holes by burning.
2. Baseplate Holes: Cut, drill, mechanically thermal cut, or punch holes perpendicular to steel surfaces.
3. Weld threaded nuts to framing and other specialty items indicated to receive other work.

## 2.7 SHOP CONNECTIONS

- A. High-Strength Bolts: Shop install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.
  1. Joint Type: Slip critical.
- B. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.
  1. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in AISC 303 for mill material.

## 2.8 SHOP PRIMING

- A. Shop prime steel surfaces except the following:
  1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches.
  2. Surfaces to be field welded.
  3. Surfaces of high-strength bolted, slip-critical connections.
- B. Surface Preparation: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces according to the following specifications and standards:
  1. SSPC-SP 2, "Hand Tool Cleaning."
  2. SSPC-SP 3, "Power Tool Cleaning."
- C. Priming: Immediately after surface preparation, apply primer according to manufacturer's written instructions and at rate recommended by SSPC to provide a minimum dry film thickness of 1.5 mils. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.
  1. Apply two coats of shop paint to surfaces that are inaccessible after assembly or erection. Change color of second coat to distinguish it from first.

## 2.9 SOURCE QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform shop tests and inspections.

1. Provide testing agency with access to places where structural-steel work is being fabricated or produced to perform tests and inspections.
- B. Bolted Connections: Inspect shop-bolted connections according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- C. Welded Connections: Visually inspect shop-welded connections according to AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:
  1. Liquid Penetrant Inspection: ASTM E 165.
  2. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
  3. Ultrasonic Inspection: ASTM E 164.
  4. Radiographic Inspection: ASTM E 94.
- D. In addition to visual inspection, test and inspect shop-welded shear connectors according to requirements in AWS D1.1/D1.1M for stud welding and as follows:
  1. Perform bend tests if visual inspections reveal either a less-than-continuous 360-degree flash or welding repairs to any shear connector.
  2. Conduct tests according to requirements in AWS D1.1/D1.1M on additional shear connectors if weld fracture occurs on shear connectors already tested.
- E. Prepare test and inspection reports.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Verify, with certified steel erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.
  1. Prepare a certified survey of existing conditions. Include bearing surfaces, anchor rods, bearing plates, and other embedments showing dimensions, locations, angles, and elevations.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place unless otherwise indicated.
  1. Do not remove temporary shoring supporting composite deck construction until cast-in-place concrete has attained its design compressive strength.

### 3.3 ERECTION

- A. Set structural steel accurately in locations and to elevations indicated and according to AISC 303 and AISC 360.
- B. Baseplates, Bearing Plates and Leveling Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.
  - 1. Set plates for structural members on wedges, shims, or setting nuts as required.
  - 2. Weld plate washers to top of baseplate.
  - 3. Snug-tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
  - 4. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.
- C. Maintain erection tolerances of structural steel within AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."
- D. Align and adjust various members that form part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that are in permanent contact with members. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
  - 1. Level and plumb individual members of structure.
  - 2. Make allowances for difference between temperature at time of erection and mean temperature when structure is completed and in service.
- E. Splice members only where indicated.
- F. Do not enlarge unfair holes in members by burning or using drift pins. Ream holes that must be enlarged to admit bolts.

### 3.4 FIELD CONNECTIONS

- A. High-Strength Bolts: Install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.
  - 1. Joint Type: Snug tightened.
- B. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.
  - 1. Comply with AISC 303 and AISC 360 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.
  - 2. Remove backing bars or runoff tabs, back gouge, and grind steel smooth at connections visible to view.

3. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in AISC 303, "Code of Standard Practice for Steel Buildings and Bridges," for mill material.

### 3.5 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:
  1. Verify structural-steel materials and inspect steel frame joint details.
  2. Verify weld materials and inspect welds.
  3. Verify connection materials and inspect high-strength bolted connections.
- B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- C. Bolted Connections: Inspect and test bolted connections according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- D. Welded Connections: Visually inspect field welds according to AWS D1.1/D1.1M.
  1. In addition to visual inspection, test and inspect field welds according to AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:
    - 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 are not accepted.
    - c. Ultrasonic Inspection: ASTM E 164.
    - d. Radiographic Inspection: ASTM E 94.
- E. In addition to visual inspection, test and inspect field-welded shear connectors according to requirements in AWS D1.1/D1.1M for stud welding and as follows:
  1. Perform bend tests if visual inspections reveal either a less-than-continuous 360-degree flash or welding repairs to any shear connector.
  2. Conduct tests according to requirements in AWS D1.1/D1.1M on additional shear connectors if weld fracture occurs on shear connectors already tested.

### 3.6 REPAIRS AND PROTECTION

- A. Touchup Painting: Immediately after erection, clean exposed areas where primer is damaged or missing and paint with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
  1. Clean and prepare surfaces by SSPC-SP 2 hand-tool cleaning or SSPC-SP 3 power-tool cleaning.
- B. Touchup Painting: Cleaning and touchup painting are specified in Section 099113 "Exterior Painting" and Section 099123 "Interior Painting."

- C. Touchup Priming: Cleaning and touchup priming are specified in Section 099600 "High-Performance Coatings."

END OF SECTION 051200

SECTION 051213 - ARCHITECTURALLY EXPOSED STRUCTURAL STEEL FRAMING

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 architecturally exposed structural-steel (AESS).
  - 1. Requirements in Section 051200 "Structural Steel Framing" also apply to AESS.
- B. Related Requirements:
  - 1. Section 051200 "Structural Steel Framing" for additional requirements applicable to AESS.

1.3 DEFINITIONS

- A. AESS: Structural steel designated as "architecturally exposed structural steel" or "AESS" in the Contract Documents.
- B. Category 3 AESS: AESS that is not defined as Category 1 or Category 2 or that is designated as "Category 3 architecturally exposed structural steel" or "AESS-3" in the Contract Documents.

1.4 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.

1.5 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.6 ACTION SUBMITTALS

- A. Shop Drawings: Show fabrication of AESS components. Shop Drawings for structural steel may be used for AESS provided items of AESS are specifically identified and requirements below are met for AESS.

1. Include details of cuts, connections, splices, camber, holes, and other pertinent data.
2. Include embedment Drawings.
3. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld. Show backing bars that are to be removed and supplemental fillet welds where backing bars are to remain. Indicate grinding, finish, and profile of welds.
4. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pretensioned and slip-critical, high-strength bolted connections. Indicate orientation of bolt heads.
5. Indicate exposed surfaces and edges and surface preparation being used.
6. Indicate special tolerances and erection requirements.

B. Samples: Submit Samples of AESS to set quality standards for exposed welds.

1. Two steel plates, 3/8 by 8 by 4 inches, with long edges joined by a groove weld and with weld ground smooth.
2. Steel plate, 3/8 by 8 by 8 inches, with one end of a short length of rectangular steel tube, 4 by 6 by 3/8 inches, welded to plate with a continuous fillet weld and with weld ground smooth and blended.

## 1.7 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer and fabricator.
- B. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.

## 1.8 QUALITY ASSURANCE

- A. Fabricator Qualifications: A qualified fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category STD, or is accredited by the IAS Fabricator Inspection Program for Structural Steel (AC 172).
- B. Installer Qualifications: A qualified installer who participates in the AISC Quality Certification Program and is designated an AISC-Certified Erector, Category ACSE.
- C. Shop-Painting Applicators: Qualified according to AISC's Sophisticated Paint Endorsement P3 or SSPC-QP 3, "Standard Procedure for Evaluating Qualifications of Shop Painting Applicators."

## 1.9 DELIVERY, STORAGE, AND HANDLING

- A. Use special care in handling to prevent twisting, warping, nicking, and other damage. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from corrosion and deterioration.

1. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.

#### 1.10 FIELD CONDITIONS

- A. Field Measurements: Where AESS is indicated to fit against other construction, verify actual dimensions by field measurements before fabrication.

### PART 2 - PRODUCTS

#### 2.1 BOLTS, CONNECTORS, AND ANCHORS

- A. Tension-Control, High-Strength Bolt-Nut-Washer Assemblies: ASTM F 1852, Type 1, round-head assemblies, consisting of steel structural bolts with splined ends, heavy-hex carbon-steel nuts, and hardened carbon-steel washers.
  1. Finish: Mechanically deposited zinc coating.

#### 2.2 FILLER

- A. Filler: Polyester filler intended for use in repairing dents in automobile bodies.

#### 2.3 FABRICATION

- A. Shop fabricate and assemble AESS to the maximum extent possible. Locate field joints at concealed locations if possible. Detail assemblies to minimize handling and to expedite erection.
- B. In addition to special care used to handle and fabricate AESS, comply with the following:
  1. Fabricate with exposed surfaces smooth, square, and free of surface blemishes including pitting, rust, scale, and roughness.
  2. Grind sheared, punched, and flame-cut edges of AESS to remove burrs and provide smooth surfaces and edges.
  3. Fabricate AESS with exposed surfaces free of mill marks, including rolled trade names and stamped or raised identification.
  4. Fabricate AESS with exposed surfaces free of seams to maximum extent possible.
  5. Remove blemishes by filling or grinding or by welding and grinding, before cleaning, treating, and shop priming.
  6. Fabricate with piece marks fully hidden in the completed structure or made with media that permits full removal after erection.
  7. Fabricate AESS to the tolerances specified in AISC 303 for steel that is designated AESS.
  8. Seal-weld open ends of hollow structural sections with 3/8-inch closure plates for AESS.

- C. Curved Members: Fabricate indicated members to curved shape by rolling to final shape in fabrication shop.
  - 1. Distortion of webs, stems, outstanding flanges, and legs of angles shall not be visible from a distance of 20 feet under any lighting conditions.
  - 2. Tolerances for walls of hollow steel sections after rolling shall be approximately 1/2 inch.
- D. Coping, Blocking, and Joint Gaps: Maintain uniform gaps of 1/8 inch with a tolerance of 1/32 inch for AESS.
- E. Bolt Holes: Cut, drill, or punch standard bolt holes perpendicular to metal surfaces.
- F. Holes: Provide holes required for securing other work to structural steel and for other work to pass through steel members.
  - 1. Cut, drill, or punch holes perpendicular to steel surfaces.
  - 2. Baseplate Holes: Cut, drill, mechanically thermal cut, or punch holes perpendicular to steel surfaces.
  - 3. Weld threaded nuts to framing and other specialty items indicated to receive other work.

#### 2.4 SHOP CONNECTIONS

- A. High-Strength Bolts: Shop install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.
  - 1. Joint Type: Slip critical.
- B. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work, and comply with the following:
  - 1. Assemble and weld built-up sections by methods that will maintain true alignment of axes without exceeding specified tolerances.
  - 2. Use weld sizes, fabrication sequence, and equipment for AESS that limit distortions to allowable tolerances.
  - 3. Provide continuous welds of uniform size and profile where AESS is welded.
  - 4. Grind butt and groove welds flush to adjacent surfaces within tolerance of plus 1/16 inch, minus zero inch for AESS.
  - 5. Remove backing bars or runoff tabs; back-gouge and grind steel smooth for AESS.
  - 6. At locations where welding on the far side of an exposed connection of AESS occurs, grind distortions and marking of the steel to a smooth profile aligned with adjacent material.
  - 7. Make fillet welds for AESS oversize and grind to uniform profile with smooth face and transition.

## 2.5 SHOP PRIMING

- A. Shop prime steel surfaces except the following:
  - 1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches.
  - 2. Surfaces to be field welded.
  - 3. Surfaces to be high-strength bolted with slip-critical connections.
- B. Surface Preparation: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces according to the following specifications and standards:
  - 1. SSPC-SP 3, "Power Tool Cleaning."
- C. Priming: Immediately after surface preparation, apply primer according to manufacturer's written instructions and at rate recommended by SSPC to provide a minimum dry film thickness of 1.5 mils. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.
  - 1. Stripe paint corners, crevices, bolts, welds, and sharp edges.
  - 2. Apply two coats of shop paint to surfaces that are inaccessible after assembly or erection. Change color of second coat to distinguish it from first.

## 2.6 EXTERIOR HIGH-PERFORMANCE COATING

- A. AESS
  - 1. Pigmented Polyurethane over Epoxy Zinc-Rich Primer System MPI EXT 5.1P:
    - a. Prime Coat: Primer, zinc rich, epoxy, MPI #20.
    - b. Intermediate Coat: Epoxy, gloss, MPI #77.
    - c. Topcoat: Polyurethane, two component, pigmented, gloss (MPI Gloss Level 6), MPI #72.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verify, with steel erector present, elevations of concrete-bearing surfaces and locations of anchor rods, and bearing plates for compliance with requirements.
  - 1. Prepare a certified survey of bearing surfaces, and anchor rods showing dimensions, locations, angles, and elevations.

- B. Examine AESS for twists, kinks, warping, gouges, and other imperfections before erecting.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Provide temporary shores, guys, braces, and other supports during erection to keep AESS secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place unless otherwise indicated.
  - 1. If possible, locate welded tabs for attaching temporary bracing and safety cabling where they will be concealed from view in the completed Work.

### 3.3 ERECTION

- A. Set AESS accurately in locations and to elevations indicated and according to AISC 303 and AISC 360.
  - 1. Erect AESS to the tolerances specified in AISC 303 for steel that is not designated AESS.
- B. Do not use thermal cutting during erection.

### 3.4 FIELD CONNECTIONS

- A. High-Strength Bolts: Install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.
  - 1. Joint Type: Slip critical.
  - 2. Orient bolt heads in same direction for each connection and to maximum extent possible in same direction for similar connections.
- B. Weld Connections: Comply with requirements in "Weld Connections" Paragraph in "Shop Connections" Article.
  - 1. Remove backing bars or runoff tabs; back-gouge and grind steel smooth for AESS.
  - 2. Remove erection bolts in AESS, fill holes, and grind smooth.
  - 3. Fill weld access holes in AESS and grind smooth.

### 3.5 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to inspect AESS as specified in Section 051200 "Structural Steel Framing." The testing agency is not responsible for enforcing requirements relating to aesthetic effect.
- B. Architect will observe AESS in place to determine acceptability relating to aesthetic effect.

3.6 REPAIRS AND PROTECTION

- A. Remove welded tabs that were used for attaching temporary bracing and safety cabling and that are exposed to view in the completed Work. Grind steel smooth.
- B. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
  - 1. Clean and prepare surfaces by SSPC-SP 3 power-tool cleaning.

END OF SECTION 051213

SECTION 062013 - EXTERIOR FINISH CARPENTRY

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. Exterior wood trim.
2. Lumber and Hardboard siding and soffits.

B. Related Requirements:

1. Section 061000 "Rough Carpentry" for furring, blocking, and other carpentry work not exposed to view.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials, dimensions, profiles, textures, and colors and include construction and application details.

1. Include data for wood-preservative treatment from chemical-treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained. Include chemical-treatment manufacturer's written instructions for finishing treated material.
2. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced before shipment to Project site to levels specified.
3. Include copies of warranties from chemical-treatment manufacturers for each type of treatment.

- B. Samples for Initial Selection: For each type of product involving selection of colors, profiles, or textures.

C. Samples for Verification:

1. For each species and cut of lumber and panel products, with 1/2 of exposed surface finished; 50 sq. in. (300 sq. cm) for lumber and 8 by 10 inches (200 by 250 mm) for panels.
2. For hardboard siding, 50 sq. in. (300 sq. cm) for board types and 8 by 10 inches (200 by 250 mm) for panels.

#### 1.4 INFORMATIONAL SUBMITTALS

##### A. Compliance Certificates:

1. For lumber that is not marked with grade stamp.
2. For preservative-treated wood that is not marked with treatment-quality mark.

##### B. Evaluation Reports: For the following, from ICC-ES:

1. Wood-preservative-treated wood.

##### C. Sample Warranties: For manufacturer's warranties.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- ##### A. Stack lumber, plywood, and other panels flat with spacers between each bundle to provide air circulation. Protect materials from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

#### 1.6 FIELD CONDITIONS

- ##### A. Weather Limitations: Proceed with installation only when existing and forecast weather conditions permit work to be performed and at least one coat of specified finish can be applied without exposure to rain, snow, or dampness.

##### B. Do not install finish carpentry materials that are wet, moisture damaged, or mold damaged.

1. Indications that materials are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that materials are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

#### 1.7 WARRANTY

- ##### A. Manufacturer's Warranty for Hardboard Siding and Trim: Manufacturer agrees to repair or replace siding that fails in materials or workmanship within specified warranty period. Failures include, but are not limited to, deformation or deterioration beyond normal weathering.

1. Warranty Period for Factory-Applied Finish: Five years from date of Substantial Completion.
2. Warranty Period for Siding and Trim (Excluding Finish): 10 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MATERIALS, GENERAL

#### A. Lumber: DOC PS 20 and the following grading rules:

1. NeLMA: Northeastern Lumber Manufacturers' Association, "Standard Grading Rules for Northeastern Lumber."
2. NLGA: National Lumber Grades Authority, "Standard Grading Rules for Canadian Lumber."
3. RIS: Redwood Inspection Service, "Standard Specifications for Grades of California Redwood Lumber."
4. SPIB: The Southern Pine Inspection Bureau, "Standard Grading Rules for Southern Pine Lumber."
5. WCLIB: West Coast Lumber Inspection Bureau, Standard No. 17, "Grading Rules for West Coast Lumber."
6. WWPA: Western Wood Products Association, "Western Lumber Grading Rules."

#### B. Factory mark each piece of lumber with grade stamp of inspection agency indicating grade, species, moisture content at time of surfacing, and mill.

1. For exposed lumber, mark grade stamp on end or back of each piece, or omit grade stamp and provide certificates of grade compliance issued by inspection agency.

#### C. Softwood Plywood: DOC PS 1.

#### D. Hardboard: ANSI A135.4.

### 2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

#### A. Water-Repellent Preservative Treatment by Nonpressure Process: AWWA N1; dip, spray, flood, or vacuum-pressure treatment.

1. Preservative Chemicals: 3-iodo-2-propynyl butyl carbamate (IPBC).
2. Use chemical formulations that do not bleed through or otherwise adversely affect finishes. Do not use colorants in solution to distinguish treated material from untreated material.
3. Application: Exterior trim and wood siding.

### 2.3 EXTERIOR TRIM

#### A. Lumber Trim for Semitransparent-Stained Finish:

1. Species and Grade: Western red cedar, Clear Heart Grade A; NLGA, WCLIB, or WWPA.
2. Maximum Moisture Content: 19 percent.
3. Face Surface: Surfaced (smooth).

- B. Moldings for Semitransparent-Stained Finish: WMMPA WM 4, N-grade wood moldings, without finger jointing. Made from kiln-dried stock to patterns included in WMMPA WM 12.

1. Species: Western red cedar.

#### 2.4 LUMBER SIDING AND SOFFITS

- A. Provide kiln-dried lumber tongue-and-groove siding complying with DOC PS 20.

- B. Species and Grade: Clear VG (Vertical Grain) Heart Grade A western red cedar; NLGA, WCLIB, or WWPA.

- C. Pattern

1. Walls: Vertical application (rainscreen); square-edge siding with vertical orientation, actual overall dimensions of **5-1/2 by 3/4 inch (140 by 19 mm)**, 19 percent moisture content.
2. Ceiling/Soffit: Square-edge siding, actual overall dimensions of **5-1/2 by 3/4 inch (140 by 19 mm)**, 19 percent moisture content.

#### 2.5 MISCELLANEOUS MATERIALS

- A. Fasteners for Exterior Finish Carpentry: Provide concealed nails or screws, in sufficient length to penetrate not less than **1-1/2 inches (38 mm)** into wood substrate.

1. For face-fastening siding, provide ringed-shank siding nails or hot-dip galvanized-steel siding nails.
2. For prefinished items, provide matching prefinished aluminum fasteners where face fastening is required.
3. For applications not otherwise indicated, provide stainless-steel OT hot-dip galvanized-steel fasteners.

- B. Flashing: Comply with requirements in Section 076200 "Sheet Metal Flashing and Trim" for flashing materials installed in exterior finish carpentry.

- C. Sealants: Latex, complying with ASTM C 834 Type OP, Grade NF and with applicable requirements in Section 079200 "Joint Sealants," recommended by sealant manufacturer and manufacturer of substrates for intended application.

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. [Bostik, Inc.](#)
- b. [May National Associates, Inc.; a subsidiary of Sika Corporation.](#)
- c. [Pecora Corporation.](#)
- d. [Schnee-Morehead, Inc., an ITW company.](#)

- e. [Tremco, Inc.](#)

## 2.6 FABRICATION

- A. Back out or kerf backs of standing and running trim wider than **5 inches (125 mm)**, except members with ends exposed in finished work.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Examine finish carpentry materials before installation. Reject materials that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Clean substrates of projections and substances detrimental to application.

### 3.3 INSTALLATION, GENERAL

- A. Do not use materials that are unsound, warped, improperly treated or finished, inadequately seasoned, or too small to fabricate with proper jointing arrangements.
1. Do not use manufactured units with defective surfaces, sizes, or patterns.
- B. Install exterior finish carpentry level, plumb, true, and aligned with adjacent materials. Use concealed shims where necessary for alignment.
1. Scribe and cut exterior finish carpentry to fit adjoining work. Refinish and seal cuts as recommended by manufacturer.
  2. Install to tolerance of **1/8 inch in 96 inches (3 mm in 2438 mm)** for level and plumb. Install adjoining exterior finish carpentry with **1/32-inch (0.8-mm)** maximum offset for flush installation and **1/16-inch (1.5-mm)** maximum offset for reveal installation.
  3. Coordinate exterior finish carpentry with materials and systems in or adjacent to it. Provide cutouts for mechanical and electrical items that penetrate exterior finish carpentry.

### 3.4 STANDING AND RUNNING TRIM INSTALLATION

- A. Install flat-grain lumber with bark side exposed to weather.

- B. Install trim with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Do not use pieces less than 24 inches (610 mm) long except where necessary.
  - 1. Use scarf joints for end-to-end joints.
  - 2. Stagger end joints in adjacent and related members.
- C. Fit exterior joints to exclude water. Cope at returns and miter at corners to produce tight-fitting joints with full-surface contact throughout length of joint. Plane backs of casings to provide uniform thickness across joints, where necessary for alignment.
- D. Where face fastening is unavoidable, countersink fasteners, fill surface flush, and sand unless otherwise indicated.

### 3.5 SIDING INSTALLATION

- A. Install siding to comply with manufacturer's written instructions and warranty requirements.
- B. Vertical and Soffit Lumber Siding: Begin application at corner with tongue edge up. Install subsequent courses with tongue-and-groove edges tightly fitted together. Nail at each stud.
  - 1. Leave 1/8-inch (3-mm) gap at trim and corners unless otherwise recommended by manufacturer, and apply sealant.
  - 2. Butt joints only over framing or blocking, nailing top and bottom on each side and staggering joints in subsequent courses.
- C. Flashing: Install metal flashing as indicated on Drawings and as recommended by siding manufacturer.
- D. Finish: Apply finish within two weeks of installation.

### 3.6 ADJUSTING

- A. Replace exterior finish carpentry that is damaged or does not comply with requirements. Exterior finish carpentry may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing. Adjust joinery for uniform appearance.

### 3.7 CLEANING

- A. Clean exterior finish carpentry on exposed and semiexposed surfaces. Touch up factory-applied finishes to restore damaged or soiled areas.

### 3.8 PROTECTION

- A. Protect installed products from damage from weather and other causes during construction.

- B. Remove and replace finish carpentry materials that are wet, moisture damaged, and mold damaged.
  - 1. Indications that materials are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
  - 2. Indications that materials are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 062013

SECTION 072726 - FLUID-APPLIED MEMBRANE AIR BARRIERS

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 fluid-applied, vapor-permeable membrane air barriers.

1.3 DEFINITIONS

- 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 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
  - 1. Review air-barrier requirements and installation, special details, mockups, air-leakage and bond testing, air-barrier protection, and work scheduling that covers air barriers.

1.5 ACTION SUBMITTALS

- 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.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.

- B. 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.

#### 1.7 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.
- B. Mockups: Build mockups to set quality standards for materials and execution.
  - 1. Build integrated mockups of exterior wall assembly, incorporating backup wall construction, external cladding, window, storefront, door frame and sill, insulation, ties and other penetrations, and flashing to demonstrate surface preparation, crack and joint treatment, application of air barriers, and sealing of gaps, terminations, and penetrations of air-barrier assembly.
    - a. If Architect determines mockups do not comply with requirements, reconstruct mockups and apply air barrier until mockups are approved.
  - 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. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

#### 1.8 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.

#### 1.9 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.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Source Limitations: Obtain primary air-barrier materials and air-barrier accessories from single source from single manufacturer.
- B. Low-Emitting Materials: Air barriers 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 PERFORMANCE REQUIREMENTS

- A. General: Air barrier shall be capable of performing as a continuous vapor- permeable 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 **0.04 cfm/sq. ft. of surface area at 1.57 lbf/sq. ft. (0.2 L/s x sq. m of surface area at 75 Pa)**, when tested according to ASTM E 283 ASTM E 783 or ASTM E 2357.

2.3 VAPOR-PERMEABLE MEMBRANE AIR-BARRIER

- A. Fluid-Applied, Vapor-Permeable Membrane Air Barrier: [**Elastomeric, modified bituminous**] [**or**] [**synthetic polymer**] membrane.
  - 1. Elastomeric, Modified Bituminous Membrane:
    - a. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
      - 1) **Henry Company.**
      - 2) **Hohmann & Barnard, Inc.**
      - 3) **Tremco Incorporated.**
  - 2. Physical and Performance Properties:
    - a. Air Permeance: Maximum **0.004 cfm/sq. ft. of surface area at 1.57-lbf/sq. ft. (0.02 L/s x sq. m of surface area at 75-Pa)** pressure difference; ASTM E 2178.
    - b. Vapor Permeance: Minimum **10 perms (580 ng/Pa x s x sq. m)**; ASTM E 96/E 96M.
    - c. Ultimate Elongation: Minimum 200 percent; ASTM D 412, Die C.
    - d. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.

## 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 waterborne primer recommended for substrate by air-barrier material manufacturer.
- C. Counterflashing Strip: Modified bituminous, 40-mil- (1.0-mm-) thick, self-adhering sheet consisting of 32 mils (0.8 mm) of rubberized asphalt laminated to an 8-mil- (0.2-mm-) thick, cross-laminated polyethylene film with release liner backing.
- D. Butyl Strip: Vapor retarding, 30 to 40 mils (0.76 to 1.0 mm) thick, self-adhering; polyethylene-film-reinforced top surface laminated to layer of butyl adhesive with release liner backing.
- E. Modified Bituminous Strip: Vapor retarding, 40 mils (1.0 mm) thick, smooth surfaced, self-adhering; consisting of 36 mils (0.9 mm) of rubberized asphalt laminated to a 4-mil- (0.1-mm-) thick polyethylene film with release liner backing.
- F. Joint Reinforcing Strip: Air-barrier manufacturer's glass-fiber-mesh tape.
- G. Substrate-Patching Membrane: Manufacturer's standard trowel-grade substrate filler.
- H. Adhesive and Tape: Air-barrier manufacturer's standard adhesive and pressure-sensitive adhesive tape.
- I. 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.
- J. Modified Bituminous Transition Strip: Vapor retarding, 40 mils (1.0 mm) thick, smooth surfaced, self-adhering; consisting of 36 mils (0.9 mm) of rubberized asphalt laminated to a 4-mil- (0.1-mm-) thick polyethylene film with release liner backing.
- K. Adhesive-Coated Transition Strip: Vapor-permeable, 17-mil- (0.43-mm-) thick, self-adhering strip consisting of an adhesive coating over a permeable laminate with a permeance value of 37 perms (2145 ng/Pa x s x sq. m).
- L. Elastomeric Flashing Sheet: ASTM D 2000, minimum 50- to 65-mil- (1.3- to 1.6-mm-) thick, cured sheet neoprene with manufacturer-recommended contact adhesives and lap sealant with stainless-steel termination bars and fasteners.
- M. Preformed Silicone-Sealant Extrusion: Manufacturer's standard system consisting of cured low-modulus silicone extrusion, sized to fit opening widths, with a single-component, neutral-curing, Class 100/50 (low-modulus) silicone sealant for bonding extrusions to substrates.
  - 1. [<Double click here to find, evaluate, and insert list of manufacturers and products.>](#)

- N. 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."
- O. Termination Mastic: Air-barrier manufacturer's standard cold fluid-applied elastomeric liquid; trowel grade.

### 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

- A. 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 air-barrier 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 butyl 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 roofing-membrane 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. Fill gaps in perimeter frame surfaces of windows, curtain walls, storefronts, and doors, and miscellaneous penetrations of air-barrier material with foam sealant.

- G. Seal strips and transition strips around masonry reinforcing or ties and penetrations with termination mastic.
- H. Seal top of through-wall flashings to air barrier with an additional **6-inch- (150-mm-)** wide, modified bituminous strip.
- I. Seal exposed edges of strips at seams, cuts, penetrations, and terminations not concealed by metal counterflashings or ending in reglets with termination mastic.
- J. 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-Permeable 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 or more equal coats.
- C. Apply strip and transition strip a minimum of **1 inch (25 mm)** onto cured air-barrier material or 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. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

- B. 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.
- C. Air barriers will be considered defective if they do not pass tests and 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.
- D. 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.

MAYFIELD VILLAGE –  
THE GROVE AMPHITHEATRE - BANDSHELL  
NOVEMBER 10, 2016

16010

END OF SECTION 072726

## SECTION 073113 - ASPHALT SHINGLES

### 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. Asphalt shingles.
  - 2. Underlayment.
  - 3. Metal flashing and trim.

#### 1.3 DEFINITION

- A. Roofing Terminology: See ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definitions of terms related to roofing work in this Section.

#### 1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

#### 1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each color and texture specified.
  - 1. Asphalt Shingles: Full size.
- C. Samples for Initial Selection: For each type of asphalt shingle indicated.
  - 1. Include similar Samples of accessories involving color selection.
- D. Samples for Verification: For the following products, of sizes indicated:
  - 1. Asphalt Shingles: Full size.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Sample Warranty: For manufacturer's warranty.

1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For asphalt shingles to include in maintenance manuals.

1.8 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. Asphalt Shingles: 100 sq. ft. (9.3 sq. m) of each type, in unbroken bundles.

1.9 QUALITY ASSURANCE

- A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Store roofing materials in a dry, well-ventilated location protected from weather, sunlight, and moisture according to manufacturer's written instructions.
- B. Store underlayment rolls on end on pallets or other raised surfaces. Do not double stack rolls.
- C. Protect unused roofing materials from weather, sunlight, and moisture when left overnight or when roofing work is not in progress.
- D. Handle, store, and place roofing materials in a manner to prevent damage to roof deck or structural supporting members.

1.11 FIELD CONDITIONS

- A. Environmental Limitations: Install self-adhering sheet underlayment within the range of ambient and substrate temperatures recommended in writing by manufacturer.

1.12 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to repair or replace asphalt shingles that fail within specified warranty period.

1. Failures include, but are not limited to, the following:
    - a. Manufacturing defects.
  2. Material Warranty Period: 30 years from date of Substantial Completion, prorated, with first three years nonprorated.
  3. Wind-Speed Warranty Period: Asphalt shingles will resist blow-off or damage caused by wind speeds of up to 70 mph (31 m/s) for five years from date of Substantial Completion.
  4. Algae-Resistance Warranty Period: Asphalt shingles will not discolor for five years from date of Substantial Completion.
  5. Workmanship Warranty Period: Five years from date of Substantial Completion.
- B. Roofing Installer's Warranty: On warranty form at end of this Section, signed by Installer, in which Installer agrees to repair or replace components of asphalt-shingle roofing that fail in materials or workmanship within specified warranty period.
1. Warranty Period: Five years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Exterior Fire-Test Exposure: Provide asphalt shingles and related roofing materials identical to those of assemblies tested for Class A fire resistance according to ASTM E 108 or UL 790 by Underwriters Laboratories or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing agency.

### 2.2 GLASS-FIBER-REINFORCED ASPHALT SHINGLES

- A. Laminated-Strip Asphalt Shingles: ASTM D 3462/D 3462M, laminated, multi-ply overlay construction, glass-fiber reinforced, mineral-granule surfaced, and self-sealing.
  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. [Atlas EPS; a Division of Atlas Roofing Corporation.](#)
    - b. [Building Products of Canada Corp.](#)
    - c. [CertainTeed Corporation.](#)
    - d. [GAF.](#)
    - e. [IKO.](#)
    - f. [Malarkey Roofing Company.](#)
    - g. [Owens Corning.](#)
    - h. [PABCO Roofing Products.](#)
    - i. [Tamko Building Products, Inc.](#)
  2. Butt Edge: Straight cut.

3. Strip Size: Manufacturer's standard.
4. Algae Resistance: Granules resist algae discoloration.
5. Impact Resistance: UL 2218, Class 4.
6. Color and Blends: As selected by Architect from manufacturer's full range.

### 2.3 UNDERLAYMENT MATERIALS

- A. Felt: ASTM D 226/D 226M, asphalt-saturated organic felts, nonperforated.

1. Type: Type II.

### 2.4 ACCESSORIES

- A. Asphalt Roofing Cement: ASTM D 4586, Type II, asbestos free.

- B. Roofing Nails: ASTM F 1667; aluminum, stainless-steel, copper, or hot-dip galvanized-steel wire shingle nails, minimum **0.120-inch- (3-mm-)** diameter, sharp-pointed, with a minimum **3/8-inch- (9.5-mm-)** diameter flat head and of sufficient length to penetrate **3/4 inch (19 mm)** into solid wood decking or extend at least **1/8 inch (3 mm)** through OSB or plywood sheathing.

1. Shank: Barbed.
2. Where nails are in contact with metal flashing, use nails made from same metal as flashing.

- C. Felt-Underlayment Nails: Aluminum, stainless-steel, or hot-dip galvanized-steel wire with low-profile capped heads or disc caps, **1-inch (25-mm)** minimum diameter.

### 2.5 METAL FLASHING AND TRIM

- A. General: Comply with requirements in Section 076200 "Sheet Metal Flashing and Trim."

1. Sheet Metal: Aluminum, mill finished.

- B. Fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of the item.

1. Drip Edges: Fabricate in lengths not exceeding **10 feet (3 m)** with **2-inch (50-mm)** roof-deck flange and **1-1/2-inch (38-mm)** fascia flange with **3/8-inch (9.5-mm)** drip at lower edge.

### 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.
  - 1. Examine roof sheathing to verify that sheathing joints are supported by framing and blocking or metal clips and that installation is within flatness tolerances.
  - 2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and completely anchored; and that provisions have been made for flashings and penetrations through asphalt shingles.
- B. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 UNDERLAYMENT INSTALLATION

- A. General: Comply with underlayment manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.
- B. Single-Layer Felt Underlayment: Install on roof deck parallel with and starting at the eaves. Lap sides a minimum of **2 inches (50 mm)** over underlying course. Lap ends a minimum of **4 inches (100 mm)**. Stagger end laps between succeeding courses at least **72 inches (1830 mm)**. Fasten with felt-underlayment nails.
  - 1. Install felt underlayment on roof deck not covered by self-adhering sheet underlayment. Lap sides of felt over self-adhering sheet underlayment not less than **3 inches (75 mm)** in direction that sheds water. Lap ends of felt not less than **6 inches (150 mm)** over self-adhering sheet underlayment.
  - 2. Install fasteners at no more than **36 inches (914 mm)** o.c.

#### 3.3 METAL FLASHING INSTALLATION

- A. General: Install metal flashings and other sheet metal to comply with requirements in Section 076200 "Sheet Metal Flashing and Trim."
  - 1. Install metal flashings according to recommendations in ARMA's "Residential Asphalt Roofing Manual" and NRCA's "NRCA Guidelines for Asphalt Shingle Roof Systems."
  - 2.
- B. Rake Drip Edges: Install rake drip-edge flashings over underlayment and fasten to roof deck.
- C. Eave Drip Edges: Install eave drip-edge flashings below underlayment and fasten to roof sheathing.

3.4 ASPHALT-SHINGLE INSTALLATION

- A. General: Install asphalt shingles according to manufacturer's written instructions, recommendations in ARMA's "Residential Asphalt Roofing Manual," and recommendations in NRCA's "NRCA Guidelines for Asphalt Shingle Roof Systems."
- B. Install starter strip along lowest roof edge, consisting of an asphalt-shingle strip with tabs removed at least **7 inches (175 mm)** wide with self-sealing strip face up at roof edge.
  - 1. Extend asphalt shingles **1/2 inch (13 mm)** over fasciae at eaves and rakes.
  - 2. Install starter strip along rake edge.
- C. Install first and remaining courses of asphalt shingles stair-stepping diagonally across roof deck with manufacturer's recommended offset pattern at succeeding courses, maintaining uniform exposure.
- D. Fasten asphalt-shingle strips with a minimum of four roofing nails located according to manufacturer's written instructions.
  - 1. Where roof slope exceeds 21:12, seal asphalt shingles with asphalt roofing cement spots after fastening with additional roofing nails.
  - 2. Where roof slope is less than 4:12, seal asphalt shingles with asphalt roofing cement spots.
  - 3. When ambient temperature during installation is below **50 deg F (10 deg C)**, seal asphalt shingles with asphalt roofing cement spots.

3.5 ROOFING INSTALLER'S WARRANTY (TO BE COMPLETED ON DATE OF SUBSTANTIAL COMPLETION)

- A. WHEREAS (company)\_\_\_\_\_ of (address)\_\_\_\_\_, herein called the "Roofing Installer," has performed roofing and associated work ("the work") on the following project:
  - 1. Owner: Mayfield Village.
  - 2. Address: 6622 Wilson Mills Rd. Mayfield, Ohio 44143.
  - 3. Building Name/Type: The Grove Amphitheater - Bandshell.
  - 4. Address: 425 N. Commons Blvd, Mayfield Village, OH 44143.
  - 5. Area of the Work: Roof.
  - 6. Acceptance Date: \_\_\_\_\_
  - 7. Warranty Period: \_\_\_\_\_
  - 8. Expiration Date: \_\_\_\_\_
- B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant the work against leaks and faulty or defective materials and workmanship for designated Warranty Period,
- C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be

made such repairs to or replacements of the work as are necessary to correct faulty and defective work and as are necessary to maintain the work in a watertight condition.

D. This Warranty is made subject to the following terms and conditions:

1. Specifically excluded from this Warranty are damages to the work and other parts of the building, and to building contents, caused by:
  - a. Lightning;
  - b. Peak gust wind speed exceeding 80 mph;
  - c. Fire;
  - d. Failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
  - e. Faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
  - f. Vapor condensation on bottom of roofing; and
  - g. Activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.
2. When the work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
3. Roofing Installer is responsible for damage to the work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of the work.
4. During Warranty Period, if Owner allows alteration of the work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of the alterations, but only to the extent the alterations affect the work covered by this Warranty. If Owner engages Roofing Installer to perform the alterations, Warranty shall not become null and void unless Roofing Installer, before starting the alterations, notified Owner in writing, showing reasonable cause for claim, that the alterations would likely damage or deteriorate the work, thereby reasonably justifying a limitation or termination of this Warranty.
5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a use or service more severe than originally specified, this Warranty shall become null and void on date of the change, but only to the extent the change affects the work covered by this Warranty.
6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect the work and to examine evidence of such leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of Roofing Installer on the work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of the work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this \_\_\_\_\_ day of  
(month)\_\_\_\_\_, (year)\_\_\_\_\_.

1. Authorized Signature: \_\_\_\_\_
2. Name: \_\_\_\_\_
3. Title: \_\_\_\_\_

END OF SECTION 073113

## SECTION 079200 - JOINT SEALANTS

### 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. Silicone joint sealants.
2. Urethane Joint sealants.
3. Latex joint sealants for interior use only.

- B. Related Sections:

1. Division 04 Section "Unit Masonry" for masonry control and expansion joint fillers and gaskets.
2. Division 32 Section "Concrete Paving Joint Sealants" for sealing joints in pavements, walkways, and curbing.

#### 1.3 PRECONSTRUCTION TESTING

- 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 ASTM C 1087 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 six 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.

- B. 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 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
  1. Product Data: For sealants and sealant primers used inside the weatherproofing system, including printed statement of VOC content.
- 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: Provide 6" samples of joint sealant on substrates that will be used on the project on the mockup. Joint sealant shall be a minimum of 6" long and installed a minimum of two weeks prior to installation. .
- D. Joint-Sealant Schedule: Include the following information:
  1. Latex Joint-sealant application, for interior use only.
  2. Neutral cure joint sealant application for Exterior Use.
  3. Acetoxy Silicone mildew resistant for interior use only.
- E. Qualification Data: For qualified Installer and testing agency.
- F. Product Certificates: For each kind of joint sealant and accessory, from manufacturer.

- G. Sealant, Waterproofing, and Restoration Institute (SWRI) Validation Certificate only for Exterior Use Products specified to be validated by SWRI's Sealant Validation Program.
- H. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that sealants comply with requirements. Only for exterior use products.
- I. 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.
- J. 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.
- K. Field-Adhesion Test Reports: For each sealant application tested.
- L. Warranties: Sample of special warranties.

#### 1.5 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 Exterior Sealant 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.
- E. Preinstallation Conference: Conduct conference at Project site .

#### 1.6 PROJECT CONDITIONS

- 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 .
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.

## 1.7 WARRANTY

- 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. Exterior Warranty Period: 2 years from date of Substantial Completion.
  2. Interior Warranty Period: 1 year from date of substantial completion.
- B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
  1. Exterior Silicone Sealants Warranty Period: 20 years from date of Substantial Completion.
  2. Exterior Urethane Joint Sealants Warranty Period: 5 years from date of substantial completion.
  3. Interior Sealants Warranty Period 1 year from date of Substantial Completion
- C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:
  1. Movement of the structure caused by structural settlement or errors attributable to design or construction resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
  2. Disintegration of joint substrates from natural causes exceeding design specifications.
  3. Mechanical damage caused by individuals, tools, or other outside agents.
  4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

## PART 2 - PRODUCTS

### 2.1 MATERIALS, GENERAL

- 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: Provide sealants and sealant primers for use inside the weatherproofing system that comply with the following limits for VOC content when calculated according to 40 CFR 59, Part 59, Subpart D (EPA Method 24):
  - 1. Architectural Sealants: 50 g/L.
  - 2. Sealant Primers for Nonporous Substrates: 50 g/L.
  - 3. Sealant Primers for Porous Substrates: 50 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.
- 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. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

## 2.2 SILICONE JOINT SEALANTS

- A. Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 100/50, 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. Tremco Incorporated; Spectrem 1
    - b. GE Advanced Materials - Silicones; SilPruf LM SCS2700.
    - c. Pecora Corporation; 890 .
    - d. .
- B. Single-Component, Pourable, Traffic-Grade, Joint Sealant: ASTM C 920, Type S, Grade P, Class 100/50, for Use T.
  - 1. Products: Subject to compliance with requirements, provide one of the following available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Tremco Vulkem 45SSL .
    - b. May National Associates, Inc.; Bondaflex Sil 728 SG .

- c. Pecora Corporation; 300 SL .

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- C. Mildew-Resistant, Single-Component, Acid-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 25, for Use NT.

- 1. Products: Subject to compliance with requirements, provide one of the following available products that may be incorporated into the Work include, but are not limited to, the following:

- a. Tremco Incorporated; Tremsil 200 Sanitary.
- b. BASF Building Systems; Omniplus.
- c. May National Associates, Inc.; Bondaflex Sil 100 WF.

### 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, provide one of the following available products that may be incorporated into the Work include, but are not limited to, the following:

- a. Tremco Incorporated; Tremflex 834
- b. BASF Building Systems; Sonolac.
- c. Bostik, Inc.; Chem-Calk 600.
- d. May National Associates, Inc.; Bondaflex 600 Bondaflex Sil-A 700.
- e. Pecora Corporation; AC-20+.
- f. Schnee-Morehead, Inc.; SM 8200.

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### 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 B (bicellular material with a surface skin) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, 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 MISCELLANEOUS MATERIALS

- 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.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- 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 PREPARATION

- 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. 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. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.
  - 3. Provide flush joint profile where indicated per Figure 8B in ASTM C 1193.

4. 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 if needed..

### 3.4 FIELD QUALITY CONTROL

#### A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:

1. Extent of Testing: Test completed and cured sealant joints as follows:
  - a. Perform 1 test for each 250 feet of joint length thereafter or 1 test per each floor per elevation.
2. 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.
  - a. 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.
3. Inspect tested joints and report on the following:
  - a. Whether sealants filled joint cavities and are free of voids.
  - b. Whether sealant dimensions and configurations comply with specified requirements.
  - c. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. Compare these results to determine if adhesion passes sealant manufacturer's field-adhesion hand-pull test criteria.
4. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant fill, sealant configuration, and sealant dimensions.
5. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.

#### B. Evaluation of Field-Adhesion Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

### 3.5 CLEANING

- 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.

### 3.6 PROTECTION

- 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.

### 3.7 JOINT-SEALANT SCHEDULE

- A. Sealant Type:
  - 1. S-2: Dymonic FC
  - 2. S-3: Vulkem 45SSL
  - 3. S-5: Spectrem 1
- B. Joint-Sealant Application JS-1: Exterior vertical and horizontal non-traffic construction joints in cast-in-place concrete.
  - 1. Joint Sealant: Single Component hybrid sealant S-2.
  - 2. Joint-Sealant Color: As selected by Architect from manufacturer's full range.
- C. Joint Sealant Application JS-2: Horizontal traffic joints in cast-in-place concrete slabs and pre-cast architectural concrete units.
  - 1. Joint Sealant: Single component pourable urethane sealant S-3.
  - 2. Joint-Sealant Color: As selected by Architect from manufacturer's full range.
- D. Joint-Sealant Application JS-3: Exterior vertical joints between plant-precast architectural concrete units.
  - 1. Joint Sealant: Single component hybrid sealant S-2.
  - 2. Joint-Sealant Color: As selected by Architect from manufacturer's full range.
- E. Joint-Sealant Application JS-4: Exterior vertical control and expansion joints in unit masonry.
  - 1. Joint Sealant: Single component hybrid sealant S-2.
  - 2. Joint-Sealant Color: As selected by Architect from manufacturer's full range.
- F. Joint-Sealant Application JS-6: Exterior joints in exterior insulation and finish systems.
  - 1. Joint Sealant: Single component Non-sag hybrid sealant S-2.
  - 2. Joint-Sealant Color: As selected by Architect from manufacturer's full range.

- G. Joint-Sealant Application JS-7: Exterior butt joints between metal panels.
  - 1. Joint Sealant: Single Component Neutral Cure Non Sag Silicone S-5.
  - 2. Joint-Sealant Color: As selected by Architect from manufacturer's full range.
  
- H. Joint-Sealant Application JS-8: Exterior vertical joints between different materials listed above.
  - 1. Joint Sealant: Single Component Neutral Cure Non Sag Silicone S-5.
  - 2. Joint-Sealant Color: As selected by Architect from manufacturer's full range.
  
- I. Joint-Sealant Application JS-10: Exterior perimeter joints between frames of doors, windows and louvers.
  - 1. Joint Sealant: Single Component Neutral Cure Non Sag Silicone S-5.
  - 2. Joint-Sealant Color: As selected by Architect from manufacturer's full range

END OF SECTION 079200

## **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. Concrete masonry units (CMU).
  - 3. Steel.
  - 4. Wood.
  - 5. Galvanized metal.
- B. Related Requirements:
  - 1. Section 051200 "Structural Steel Framing" for shop priming of metal substrates with primers specified in this Section.
  - 2. Section 099300 "Staining and Transparent Finishing" for surface preparation and the application of wood stains and transparent finishes on exterior wood substrates.

#### 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 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- C. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.
- D. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
- E. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
- F. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
- B. 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, 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. of each material and color applied.

#### 1.6 QUALITY ASSURANCE

- A. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.
- B. Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.
- C. Source Limitations: Obtain block fillers and primers for each coating system from the same manufacturer as the finish coats.

#### 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 .
  - 1. Maintain containers in clean condition, free of foreign materials and residue.
  - 2. Remove rags and waste from storage areas daily.

#### 1.8 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F .
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F 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. Glidden Professional.
  2. PPG Architectural Finishes, Inc.
  3. Sherwin-Williams Company (The).

### 2.2 PAINT, GENERAL

- A. 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.
- B. VOC Content: Provide materials that comply with VOC limits of authorities having jurisdiction.
- C. Colors: Match Architect's samples.

### 2.3 BLOCK FILLERS

- A. Block Filler, Latex, Interior/Exterior:
1. Glidden Professional: 3010 Concrete Coatings Block Filler Interior Exterior Primer.
  1. PPG Architectural Finishes, Inc.: 6-15 Speedhide Acrylic Block Filler.
  2. Sherwin-Williams Company (The): B25W25 PrepRite Block Filler.

### 2.4 PRIMERS/SEALERS

- A. Primer, Alkali Resistant, Water Based:
1. Glidden Professional: 6001 Hydrosealer Primer Sealer.
  2. PPG Architectural Finishes, Inc.: 4-601 PermaCrete Alkali Resistant Primer.
  3. Sherwin-Williams Company (The): A24W8300 Loxon Masonry Primer.

### 2.5 METAL PRIMERS

- A. Primer, Galvanized: As recommended in writing by topcoat manufacturer.

1. Glidden Professional: 4020 DEVFLEX Direct to Metal Primer & Flat Finish.
2. PPG Architectural Finishes, Inc.: 90-912 Pitt Tech Plus Primer.
3. Sherwin-Williams Company (The): B66-310 Pro Industrial ProCryl Universal Primer.

## 2.6 WATER-BASED PAINTS

### A. Latex, Exterior Satin (Gloss Level 4):

1. Glidden Professional: 2412V Ultra Hide 150 Exterior Satin.
2. PPG Architectural Finishes, Inc.: 6-2045xi Speedhide Exterior Satin Finish.
3. Sherwin-Williams Company (The): A-100 Acrylic Satin A82 Series.

### B. Latex, Exterior Semi-Gloss (Gloss Level 5):

1. Glidden Professional: 2416V Ultra Hide 150 Exterior Semi-Gloss.
2. PPG Architectural Finishes, Inc.: 6-900 xi Speedhide Exterior Semi-Gloss Finish.
3. Sherwin-Williams Company (The): A-100 Acrylic Gloss A8 Series

## 2.7 SOLVENT-BASED PAINTS

### A. Alkyd, Exterior, Semi-Gloss (Gloss Level 5):

1. Glidden Professional: 4306 Devguard Alkyd Semi-Gloss Enamel.
2. PPG Architectural Finishes, Inc.: 6-1510 Speedhide Alkyd WB Semi-Gloss Finish.
3. Sherwin-Williams Company (The): n/a

### B. Alkyd, Exterior Gloss (Gloss Level 6):

1. Glidden Professional: 4348 Devguard Low VOC Alkyd Gloss Enamel.
2. PPG Architectural Finishes, Inc.: 6-1610 Speedhide Alkyd WB Gloss Finish.
3. Sherwin-Williams Company (The): Industrial Enamel HS B54 Series.

## 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 paints 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.

### 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 CMU): 12 percent.
  - 3. Gypsum Board: 12 percent.
- C. Exterior 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 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI 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. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer.
- G. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- H. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

### 3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and recommendations in "MPI 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.
- E. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
  - 1. Paint the following work where exposed to view:
    - a. Equipment, including panelboards and switch gear.
    - b. Uninsulated metal piping.
    - c. Pipe hangers and supports.
    - d. Metal conduit.
    - e. Tanks that do not have factory-applied final finishes.

### 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 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.

### 3.6 EXTERIOR PAINTING SCHEDULE

- A. Concrete Substrates, Nontraffic Surfaces:
  - 1. Latex System:
    - a. Prime Coat: Primer, alkali resistant, water based.
    - b. Intermediate Coat: Latex, exterior, matching topcoat.
    - c. Topcoat: Latex, exterior, satin (Gloss Level 4).
- B. CMU Substrates:
  - 1. Latex System:
    - a. Prime Coat: Block filler, latex, interior/exterior.
    - b. Intermediate Coat: Latex, exterior, matching topcoat.
    - c. Topcoat: Latex, exterior semi-gloss (Gloss Level 5).
- C. Steel Substrates:
  - 1. Alkyd System:
    - a. Prime Coat: Primer, alkyd, anticorrosive for metal.

- b. Intermediate Coat: Exterior alkyd enamel matching topcoat.
- c. Topcoat: Alkyd, exterior, gloss (Gloss Level 6).

D. Galvanized-Metal Substrates:

1. Water-Based Light Industrial Coating System:

- a. Prime Coat: Primer, galvanized metal, as recommended in writing by topcoat manufacturer for exterior use on galvanized-metal substrates with topcoat indicated.
- b. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
- c. Topcoat: Light industrial coating, exterior, water based, semi-gloss (Gloss Level 5).

E. Wood Substrates:

1. Latex System:

- a. Prime Coat: Latex, exterior, matching topcoat.
- b. Intermediate Coat: Latex, exterior, matching topcoat.
- c. Topcoat: Latex, exterior, low satin (Gloss Level 4).

END OF SECTION 099113

## **SECTION 099300 - STAINING AND TRANSPARENT FINISHING**

### **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. This Section includes surface preparation and the application of wood finishes on the following substrates:

- 1. Interior Substrates:
  - a. Dressed lumber (finish carpentry).

- B. Related Sections include the following:

- 1. Division 06 Section "Interior Architectural Woodwork" for stains and transparent finishes applied to millwork.
- 2. Division 09 wood flooring Sections for stains and transparent finishes applied to wood flooring.
- 2. Division 09 Section "Exterior Painting" for surface preparation and application of standard paint systems on exterior substrates.
- 3. Division 09 Section "Interior Painting" for surface preparation and application of standard paint systems on interior substrates.

#### **1.3 DEFINITIONS**

- A. General: Standard coating terms defined in ASTM D 16 apply to this Section.

- 1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
- 2. Satin refers to low-sheen finish with a gloss range between 25 and 30 when measured at a 60-degree meter.
- 3. Full gloss refers to high-sheen finish with a gloss range more than 70 when measured at a 60-degree meter.

#### **1.4 SUBMITTALS**

- A. Product Data: For each type of product indicated.
- B. Samples for Initial Selection: For each type of product indicated.
- C. Samples for Verification: For each type of finish system and in each color and gloss of finish indicated.

1. Submit Samples on representative samples of actual wood substrates, 8 inches (200 mm) square.
2. Label each Sample for location and application area.

D. 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.

#### 1.4 QUALITY ASSURANCE

- A. Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.
- B. Source Limitations: Obtain wood fillers and primers for each coating system from the same manufacturer as the finish coats.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label and the following information:
  1. Product name or title of material.
  2. Product description (generic classification or binder type).
  3. Manufacturer's stock number and date of manufacture.
  4. Contents by volume, for pigment and vehicle constituents.
  5. Thinning instructions.
  6. Application instructions.
  7. Color name and number.
  8. VOC content.
- B. 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.

#### 1.6 PROJECT CONDITIONS

- 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).

#### 1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.

1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. (3.8 L) of each material and color applied.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- 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:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  1. Benjamin Moore & Co., Limited (Canada).
  2. ICI Paints.
  3. Sherwin-Williams Company (The)

### 2.2 MATERIALS, GENERAL

- A. 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.
- B. Stain Colors: As selected by Architect from manufacturer's full range.

### 2.3 WOOD FILLERS

- A. Open-Grain Wood Filler: Factory-formulated paste wood filler applied at spreading rate recommended by manufacturer.
  1. Basis-of-Design: Sherwin-Williams; Sher-Wood Fast-Dry Filler.

### 2.4 STAINS

- A. Interior Wood Stain (Semitransparent):
  1. Basis-of-Design: Sherwin-Williams; Wood Classics Oil Stain, A49 Series (450-500 sq. ft./gal)

### 2.5 POLYURETHANE FINISHES

- A. Moisture-Cured Clear Polyurethane (Satin): Factory-formulated clear satin acrylic-based polyurethane varnish applied at spreading rate recommended by manufacturer.

1. Basis-of-Design: Sherwin-Williams; Wood Classics Waterborne Polyurethane Satin, A67 Series (350-400 sq. ft./gal).
- B. Moisture-Cured Clear Polyurethane (Gloss): Factory-formulated clear gloss acrylic-based polyurethane varnish applied at spreading rate recommended by manufacturer.
  1. Basis-of-Design: Sherwin-Williams; Wood Classics Waterborne Polyurethane Gloss, A67 Series (350-400 sq. ft./gal).

### 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 work.
  1. Maximum Moisture Content of Wood Substrates: 15 percent when measured with an electronic moisture meter.
  2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes.
  3. Begin finish application only after unsatisfactory conditions have been corrected and surfaces are dry.
  4. Beginning application of finish system constitutes Contractor's acceptance of substrate and conditions.

#### 3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.
- B. Remove plates, machined surfaces, and similar items already in place that are not to be finished. 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, reinstall items that were removed; use workers skilled in the trades involved. 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 surface dirt, oil, or 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.
  3. Countersink steel nails, if used, and fill with putty tinted to final color to eliminate rust leach stains.

- D. Apply wood filler paste to open-grain woods, as defined in "MPI Architectural Painting Specification Manual," to produce smooth, glasslike finish.

### 3.3 APPLICATION

- A. Apply finishes according to manufacturer's written instructions.
  - 1. Use applicators and techniques suited for finish and substrate indicated.
  - 2. Finish surfaces behind movable equipment and furniture same as similar exposed surfaces.
- B. Apply finishes to produce surface films without cloudiness, holidays, lap marks, brush marks, runs, ropiness, or other surface imperfections.

### 3.4 FIELD QUALITY CONTROL

- A. Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when finishes are being applied:
  - 1. Owner will engage the services of a qualified testing agency to sample finish materials being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor.
  - 2. Testing agency will perform tests for compliance with product requirements.
  - 3. Owner may direct Contractor to stop applying 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 if, on refinishing with complying materials, the two finishes are incompatible.

### 3.5 CLEANING AND PROTECTION

- 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.

### 3.6 INTERIOR WOOD-FINISH-SYSTEM SCHEDULE

- A. Finish Carpentry Substrates:

1. Moisture-Cured Clear Polyurethane Over Stain System (Semitransparent): Three finish coats of polyurethane over an interior wood stain.
  - a. Stain Coat basis of design: Sherwin-Williams; Wood Classics Oil Stain, A49 Series (400-500 sq. ft./gal)
  - b. Two Finish Coats basis of design: Sherwin-Williams; Wood Classics Waterborne Polyurethane Gloss, A67 Series.
  - c. One Finish Coat basis of design: Sherwin-Williams; Wood Classics Waterborne Polyurethane Satin, A67 Series.
  - d. Surfaces: Vertical and ceiling/soffit millwork applications.

END OF SECTION 099300

**APPENDIX 1:**  
Geotechnical Report



November 2, 2016

Ms. Diane Wolgamuth  
Director of Administration  
Mayfield Village  
6622 Wilson Mills Road  
Mayfield Village, Oh 44114  
[dwolgamuth@mayfieldvillage.com](mailto:dwolgamuth@mayfieldvillage.com)

Re: Geotechnical Subsurface Exploration  
Proposed Building Structure  
Commons Boulevard  
Mayfield Village, Ohio  
**PSI Project Number: 0142-1449**

Dear Ms. Wolgamuth,

Per your request, Professional Service Industries, Inc. (PSI) is pleased to submit this Geotechnical Engineering Services Report for the above referenced project. The results of this exploration, together with our recommendations, are to be found in the accompanying report.

After the plans and specifications are complete, PSI should review the final design and specifications in order to verify that the earthwork and recommendations are properly interpreted and implemented. **It is considered imperative that the geotechnical engineer and/or its representative be present during earthwork operations and foundation installations to observe the field conditions with respect to the design assumptions and specifications. PSI will not be held responsible for interpretations and field quality control observations made by others.**

Respectfully submitted,

**PROFESSIONAL SERVICE INDUSTRIES, INC.**

Zaineddin Obeid  
Project Manager

A. Veeramani, P.E.  
Vice President



**Subsurface Exploration Report**

**For the Proposed**

**Building Structure  
Commons Boulevard  
Mayfield Village, Cuyahoga County, Ohio**

**Prepared for**

**Mayfield Village  
6622 Wilson Mills Road  
Mayfield Village, Cuyahoga County, Ohio**

**Prepared by**

**Professional Service Industries, Inc.  
5555 Canal Road  
Cleveland, OH 44125**

**Report Date: November 2, 2016**

**PSI Project No. 0142-1449**

## TABLE OF CONTENTS

<b>PROJECT INFORMATION</b> .....	Page 1
Project Authorization.....	Page 1
Project Description.....	Page 1
Purpose and Scope of Services .....	Page 2
<b>SITE AND SUBSURFACE CONDITIONS</b> .....	Page 2
Site Location and Description .....	Page 2
Subsurface Conditions .....	Page 2
Groundwater Conditions.....	Page 4
<b>EVALUATION AND RECOMMENDATIONS</b> .....	Page 4
Site Preparation and Earthwork Construction .....	Page 4
Engineered Fill.....	Page 5
Foundation Recommendations .....	Page 5
Floor Slab Design and Construction.....	Page 6
Pavement Recommendations .....	Page 7
<b>CONSTRUCTION CONSIDERATIONS</b> .....	Page 8
Drainage Control and Groundwater.....	Page 8
Excavations .....	Page 8
Weather Considerations .....	Page 9
<b>GEOTECHNICAL RISK</b> .....	Page 9
<b>REPORT LIMITATIONS</b> .....	Page 10
<b>APPENDIX</b>	
Boring Location Plan	
Boring Logs	
Grain Size Graph	
General Notes	
USCS Soil Classification Chart	

## PROJECT INFORMATION

### Project Authorization

This report presents the results of a geotechnical subsurface exploration and evaluation conducted for Mayfield Village in connection with the proposed building structure at Commons Boulevard in Mayfield Village, Cuyahoga County, Ohio. PSI's services for this project were performed in accordance with PSI Proposal No. 0142-192274, dated October 10, 2016. Authorization to perform this exploration and analysis was in the form of signed acceptance of the aforementioned proposal by Ms. Brenda T. Bodnar, Mayor of Mayfield Village dated October 17, 2016.

### Project Description

For development of this report, we have been provided with site plan prepared by MELD Architects. The provided site plan shows the general layout of the proposed building structure and requested test boring locations.

Based on the available information, it is understood that the proposed project will include the construction of a single story, slab on grade building structure, measuring approximately 800 square feet in plan area located on the north side of the Parkview Pool Facility. The proposed building will be utilized as an outdoor/open air facility. The proposed project also includes some pavement area development on the north side of the proposed building.

No loading information was provided at the time of this report. However, we have assumed a maximum column, wall, and floor loads of approximately 40 kips, 3 kips per lineal foot and 100 pounds per square foot (psf), respectively, for this submittal.

No topographic plans were available at the time. However, based on visual observation, the overall site slopes downward from west to east with an elevation difference of about 4 to 5 feet. However, the site grades within the proposed building footprint are relatively flat with an elevation difference of less than 2 feet. Therefore, the cut/fill of less than 2 feet is anticipated for the proposed building.

The geotechnical recommendations presented in this report are based on the available project information, the proposed location and orientation of the building on the site and the subsurface materials described in this report. If any of the information we have been given or assumed is incorrect, please contact us so that we may amend the recommendations presented accordingly. PSI will not be responsible for the implementation of its recommendations when it is not notified of changes in the project.

## **Purpose and Scope of Services**

The purpose of this study was to explore the subsurface conditions at the site and to prepare recommendations for foundations, floor slab construction, site preparation, pavements and other construction considerations. Our scope for this service included a project site reconnaissance, drilling and sampling of three (3) test borings to evaluate the subsurface conditions of the proposed development area, completing a laboratory testing program and submitting an engineering analysis and evaluation of the surface materials.

The scope of services for the geotechnical exploration did not include an environmental assessment for the presence or absence of wetlands or hazardous or toxic materials in the soil, surface water, groundwater or air, on or below or around this site. Any statements in this report or on the boring logs regarding odors, colors or unusual or suspicious items or conditions are strictly for the information of the client.

## **SITE AND SUBSURFACE CONDITIONS**

### **Site Location and Description**

The site areas for the proposed building is located on North Commons Boulevard in Mayfield Village, Cuyahoga County, Ohio. Specifically, proposed new building will be located immediately north of the Parkview Pool facility located at 425 North Commons Boulevard.

The development site is currently occupied by an existing paved stage area surrounded by landscaped grass, and associated pavement walkway access. No topographic information was available at the time of this report. However, based on site visit and visual observation, the overall site slopes downwards towards the existing paved stage area with an elevation difference of about 4 to 5 feet. Surface drainage was fair at the time of the field drilling operations. We recommend that any existing utility lines be checked and marked prior to construction activities.

### **Subsurface Conditions**

The subsurface conditions at the site were explored with a total of three (3) test borings drilled to a depth of about 8.1 to 15 feet below the existing surface grade. The approximate boring locations are shown on the Boring Location Plan presented in the *Appendix* of this report. The number and location of the test borings were selected by and field located by PSI's representative by measuring distances from existing site features.

The borings were advanced utilizing 3¼ inches inside diameter, hollow-stem auger drilling methods. Soil samples were routinely obtained during the drilling process. Select soil samples were later tested in the laboratory to obtain soil material properties for the foundation, floor slabs and pavement recommendations. Drilling, sampling, and laboratory testing was accomplished in general accordance with ASTM procedures. The types of subsurface materials encountered in the test borings have been visually classified. The results of the visual classifications, Standard Penetration tests, moisture contents and water level observations are presented on the boring logs in the *Appendix* of this report. Representative samples of the soils were placed in sample jars, and are now stored in the laboratory for further analysis, if requested. Unless notified to the contrary, all samples will be disposed of after 60 days following the date of this report.

The surface of the site, at all the test boring locations, was covered with a layer of topsoil measuring approximately 2 inches in thickness. The thickness and composition of the surface materials should be expected to be variable throughout site.

The topsoil, at all test boring locations was underlain by miscellaneous fill materials and extended to depths of approximately 4 to 7 feet below the existing surface grade. The fill materials consisted of lean clay containing varying degrees of gravel, asphalt concrete and organics. The fill soils exhibited moisture contents about 14 to 27 percent. The depth and engineering characteristics of the fill materials, such as strength, composition and compressibility are considered to be extremely variable.

Underlying the fill materials, natural soils were encountered at all test boring locations and encountered to the depths of exploration about 6.0 to 9.5 feet below the existing surface grades. The natural soils consisted of lean clay with varying amounts of sand and gravel. Natural soils exhibited moisture contents ranging from about 16 to 25 percent and exhibited a medium stiff to very stiff consistency, based on the Standard Penetration tests.

The area's bottommost formation consisted of very weak to strong, gray, weathered shale formation and encountered at all the test boring locations to depths of about 6 to 9.5 feet below the existing surface grades.

The subsurface description is of a generalized nature provided to highlight the major strata encountered. The boring logs included in the *Appendix* should be reviewed for specific information at the individual boring locations. The stratifications shown on the boring logs represent the conditions only at the actual test positions. Variations may occur and should be expected between the boring locations. The stratifications represent the approximate boundary between the subsurface materials, and the transition may be gradual or not clearly defined.

## **Groundwater Conditions**

No free groundwater was encountered at any of the test boring locations during field drilling operations. Note that groundwater levels fluctuate seasonally as a function of precipitation. During a time of year or weather different from the time of drilling, there may be a considerable change in the water table. Furthermore, the water levels in the boreholes often are not representative of the actual groundwater level, because the boreholes remain open for a relatively short time. Therefore, we recommend that the contractor determine the actual groundwater levels at the time of construction to evaluate groundwater impact on the construction procedures.

## **EVALUATION AND RECOMMENDATIONS**

### **Site Preparation and Earthwork Construction**

Prior to the initiation of any earthwork operations, general site area clearing should be carried out. All existing topsoil, asphalt concrete, base materials, vegetation, roots, grass, excessively wet soils, highly organic soils, and soft/loose or obviously compressible materials should be completely removed from the proposed construction areas. Additionally, miscellaneous fill soils, as noted at all test boring locations, should be completely removed from the proposed building area and at least 18 inches below the proposed pavement subgrade elevations and replaced with compacted engineered fill. The decision in connection with the precise extent of required cut and fill should be determined in the field by a representative of PSI following observation of the exposed subgrades and proofrolling operations.

Following the site clearing, stripping and undercutting, and prior to placing structural fill, the exposed subgrades should be critically proofrolled with a loaded 20-ton tandem-axle dump truck until the grade offers a relatively unyielding surface. Areas of excessive yielding should be excavated and backfilled with compacted structural fill and/or the unstable soils can be stabilized by choking the exposed bearing surface with crushed limestone or similar coarse aggregate. After the existing subgrade materials are excavated to design grade, proper control of subgrade compaction and the placement and compaction of new fill materials should be observed and tested by a representative of PSI.

It is recommended to perform the site preparation, proofrolling and earthwork activities during a period of warm and dry weather. If site work is performed during a dry period, the need for soil stabilization, drainage and surface repairs can be significantly reduced. During site preparation, burn pits, trash pits or other isolated disposal areas may be encountered. All too frequently such buried materials occur in isolated areas outside boring locations. Any such materials encountered during site work or construction should be completely excavated and removed from the site.

### **Engineered Fill**

Engineered fill materials should consist of non-expansive materials. Pyritic and/or potentially expansive materials, such as mine tailings, slag, shale fragments and soil mixed with more than 5 percent of shale fragments, should not be used as engineered fill material. Materials selected for use as engineered fill should contain less than 3 percent by weight of organic matter, waste construction debris, or other deleterious materials. Fill materials should generally have a Standard Proctor maximum dry density greater than 110 pounds per cubic foot (pcf), an Atterberg Liquid Limit less than 40, a Plasticity Index of less than 15, and a maximum particle size of 2 inches or less.

Representative samples of the proposed fill materials should be collected at least one week prior to the start of the filling operations. The samples should be tested to determine the maximum dry density, optimum moisture content, particle size distribution and plasticity characteristics. These tests are needed to determine if the material is acceptable as structural fill and for quality control during the compaction process.

The fill should be placed in layers of not more than 8 inches in thickness, with each layer being compacted to a minimum density of 98 percent of the maximum dry density and within  $\pm 2\%$  of the optimum moisture content, as determined by the Standard Proctor Method ASTM D-698. Moisture control (increasing or decreasing the natural moisture content) of the engineered fill materials may be necessary for compaction.

### **Foundation Recommendations**

Considering the subsurface conditions and the proposed construction, the proposed building can be founded on the shallow bearing continuous wall foundations or spread footings.

Foundations supporting the proposed building structure bearing within compacted engineered fill soils can be designed for a maximum allowable soil bearing pressure of 2,000 pounds per square foot (psf).

All perimeter footings must be placed at a minimum depth of 42 inches below the finished grade in order to protect against frost action. Interior foundations in heated areas may be placed at a depth of at least 18 inches below the floor slab, provided they will be bearing on acceptable soil.

In order to reduce the effects of differential movement that may occur due to variations in the character of the supporting soils and any variations in seasonal moisture contents, it is recommended that all continuous footings be reinforced, as per structural considerations. Foundations supporting individual columns should have a minimum dimension of 24 inches, and continuous wall foundations should have a minimum width of 18 inches.

Footings bearing surfaces are to be critically inspected and tested to verify consistency and compatibility with subsurface exploration data, and to assure that the recommended bearing capacity is being achieved. It is recommended that a representative of PSI be present at the site throughout foundation excavation and construction.

Extreme care should be taken to prevent weakening of the foundation bearing materials because of prolonged atmospheric exposure, construction activity disturbance or an increase in moisture content. In the event that an overnight delay in concrete placement is anticipated, the foundation excavations should be cut approximately 6 inches high and subsequently excavated to final grade immediately before placement of concrete.

Based on the assumed structural loads, it is anticipated that total and differential foundation settlements will be less than 1.0-inch and 0.50-inch, respectively. However, actual settlements will be dependent upon the depth of the foundations, column spacing, structural loads and other related factors. The structural and architectural design should include provisions for liberally spaced, vertical control joints to minimize the effects of potential settlement.

Based on the table 1615.1.1 of the OBC building code, the test boring results and review of the geology in the vicinity of the project area, a site classification of 'C' can be utilized for the seismic design.

### **Floor Slab Design and Construction**

Once final subgrade elevations have been achieved employing procedures outlined in Site Preparation and Engineered Fill, it is recommended that the subgrade surface be subjected to surface compaction to the extent that a minimum of 24 inches of materials underlying the subgrade elevation achieve a minimum in-place density of 100 percent of the maximum laboratory dry density and should be within  $\pm 2\%$  of the optimum moisture content, as determined in general accordance with ASTM D-698. If subsurface materials at the finished subgrade elevations exhibit excessive moisture contents and unstable subgrade conditions, then undercutting and replacement of the objectionable soils should be performed to achieve firm subgrade support. Alternatively, the unstable soils can be stabilized by choking the exposed bearing surface with crushed limestone or similar coarse aggregate.

A capillary gravel layer (such as AASHTO #57 or equivalent) should be provided between the floor slab and the approved subgrade materials. The gravel layer should have a minimum thickness of 6 inches and should be properly compacted. Also, a vapor barrier is recommended below the floor slab as per ACI specifications. We recommend that a subgrade modulus (k) of 100 pci be used in floor slab design calculations.

Careful field control is to be exercised in finish grading operations in order to assure that subgrade tolerances are maintained. It is particularly important that no low sectors or depressions be allowed to exist within these areas, water may accumulate and lead to serious loss of supporting capacity.

The floor slab should be suitably reinforced, as per structural considerations, to make it as rigid as practical. Proper joints should be provided at the junctions of the slab and foundation system so that a small amount of independent movement can occur without causing damage. Large floor areas should be provided with joints at frequent intervals to compensate for concrete volume changes during curing and temperature changes.

### **Pavement Recommendations**

Pavement design will include proper preparation of subgrade sectors, careful design of the pavement area drainage systems and utilization of an aggregate base course with asphalt concrete or concrete surface course. Preparation of pavement subgrades should be in accordance with recommendations outlined in the Site Preparation and Structural Fill sections of the report. Careful attention will be required in fine-grading the subgrade surfaces in order to eliminate undulations and depressions that would tend to collect water.

Based on the subsurface materials encountered at the test boring locations, an average California Bearing Ratio (CBR) value of 4 can be utilized for the design of the pavement structures, provided that the subgrade materials consist of structural fill or natural soils, and are compacted to the minimum specified degree as recommended. The subgrade soils should be verified by PSI prior to the placement of the aggregate base course.

Design for drainage is of the utmost importance to minimize detrimental effects that may shorten the service life of the pavements. The pavement should be crowned or sloped in order to promote effective surface drainage and reduce the risk of water ponding. We recommend a minimum slope of 1.5 percent. In addition, the subgrade should be similarly sloped to promote effective subgrade drainage. We recommend "stub" or "finger" drains be provided around catch-basins and in other low areas of the proposed pavements to limit the accumulation of water on the frost susceptible subgrade soils. Subsurface edge drains should be provided at curbs. Where no curbs are proposed, ditches should be provided and the pavement base course should be daylighted through the ditch sideslope to facilitate drainage of the base course.

## **CONSTRUCTION CONSIDERATIONS**

### **Drainage Control and Groundwater**

No groundwater was encountered at any of the test boring locations during field drilling operations. However, groundwater seepage may be encountered during site work, foundation excavation and construction. Accordingly, a gravity drainage system, sump pump or other conventional dewatering procedure, as deemed necessary by the field conditions, should be implemented throughout construction such that the groundwater is controlled and maintained at an elevation of at least 2 feet below the excavation bottom at all times. Every effort should be made to keep the excavations dry if water is encountered.

Water should not be allowed to collect near the foundation or floor slab areas of the building either during or after construction. Undercut or excavated areas should be sloped toward one corner to facilitate removal of any collected rainwater, groundwater or surface runoff. Positive site drainage should be provided to reduce infiltration of surface water around the perimeter of the building and beneath the floor slab. Overall site area drainage is to be arranged in a manner such that the possibility of water impounding below slab-on-grade areas and over the structural fill is prevented.

### **Excavations**

In Federal Register, Volume 54, No. 209 (October, 1989), the United States Department of Labor, Occupational Safety and Health Administration (OSHA) amended its "Construction Standards for Excavations, 29 CFR, Part 1926, Subpart P." This document was issued to better insure the safety of workers entering trenches or excavations. It is mandated by this federal regulation that all excavations, whether they be utility trenches, basement excavations or foundation excavations, be constructed in accordance with the new OSHA guidelines. It is our understanding that these regulations are being strictly enforced. If they are not followed closely, the owner and the contractor could be liable for substantial penalties.

The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. The contractor's "responsible person" as defined in "CFR Part 1926," should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations.

We are providing this information solely as a service to our client. PSI is not assuming responsibility for construction site safety or the contractor's activities; such responsibility is

not being implied and should not be inferred. If the excavations are left open and exposed to the elements for a significant length of time, desiccation of the clays may create minute shrinkage cracks which could allow large pieces of clay to collapse or slide into the excavation.

### **Weather Considerations**

The soils encountered at this site are known to be sensitive to disturbances caused by construction traffic and to changes in moisture content. During wet weather periods, increases in the moisture content of the soil can cause significant reduction in the soil strength and support capabilities. Care should be exercised during the grading operations at the site. Due to the fine-grained nature of the surficial soils, the traffic of heavy equipment, including heavy compaction equipment, may very well create pumping and a general deterioration of those soils in the presence of water. Therefore, the grading should, if at all possible, be performed during a dry season. A layer of crushed stone may be required to allow the movement of construction traffic over the site during the rainy season. The contractor should maintain positive site drainage and if wet/pumping conditions occur, the contractor will be responsible to over excavate the wet soils and replace them with a properly compacted engineered fill. During wet seasons, limestone stabilization may be required to place engineer fill.

## **GEOTECHNICAL RISK**

The concept of risk is an important aspect of the geotechnical evaluation. The primary reason for this is that the analytical methods used to develop geotechnical recommendations do not comprise an exact science. Site exploration identifies actual subsurface conditions only at those points where samples are taken. A geotechnical report is based on conditions that existed at the time of the subsurface exploration. The analytical tools which geotechnical engineers use are generally empirical and must be used in conjunction with engineering judgment and experience. Therefore, the solutions and recommendations presented in the geotechnical evaluation should not be considered risk-free and, more importantly, are not a guarantee that the interaction between the soils and the proposed structure will perform as planned. The engineering recommendations presented in the preceding section constitutes PSI's professional estimate of those measures that are necessary for the proposed structure to perform according to the proposed design based on the information generated and referenced during this evaluation, and PSI's experience in working with these conditions.

## **REPORT LIMITATIONS**

The recommendations submitted in this report are based on the available subsurface information obtained by PSI and design details furnished by Mr. Edward T. Parker of MELD Architects. If there are any revisions to the plans for the proposed building structure or pavement areas, or if deviations from the subsurface conditions noted in this report are encountered during construction, PSI should be retained to determine if changes in the recommendations are required. If PSI is not retained to perform these functions, PSI will not be responsible for the impact of those conditions on the geotechnical recommendations for the project.

The Geotechnical Engineer warrants that the findings, recommendations, specifications, or professional advice contained herein, have been presented after being prepared in accordance with generally accepted professional engineering practice in the fields of foundation engineering, soil mechanics and engineering geology. No other warranties are implied or expressed.

After the plans and specifications are complete, it is recommended that PSI be provided the opportunity to review the final design and specifications, in order to verify that the earthwork and recommendations are properly interpreted and implemented. At that time, it may be necessary to submit supplementary recommendations. This report has been prepared for the exclusive use of Mayfield Village for the specific application to the proposed building structure on Commons Boulevard in Mayfield Village, Cuyahoga County, Ohio.

## **APPENDIX**

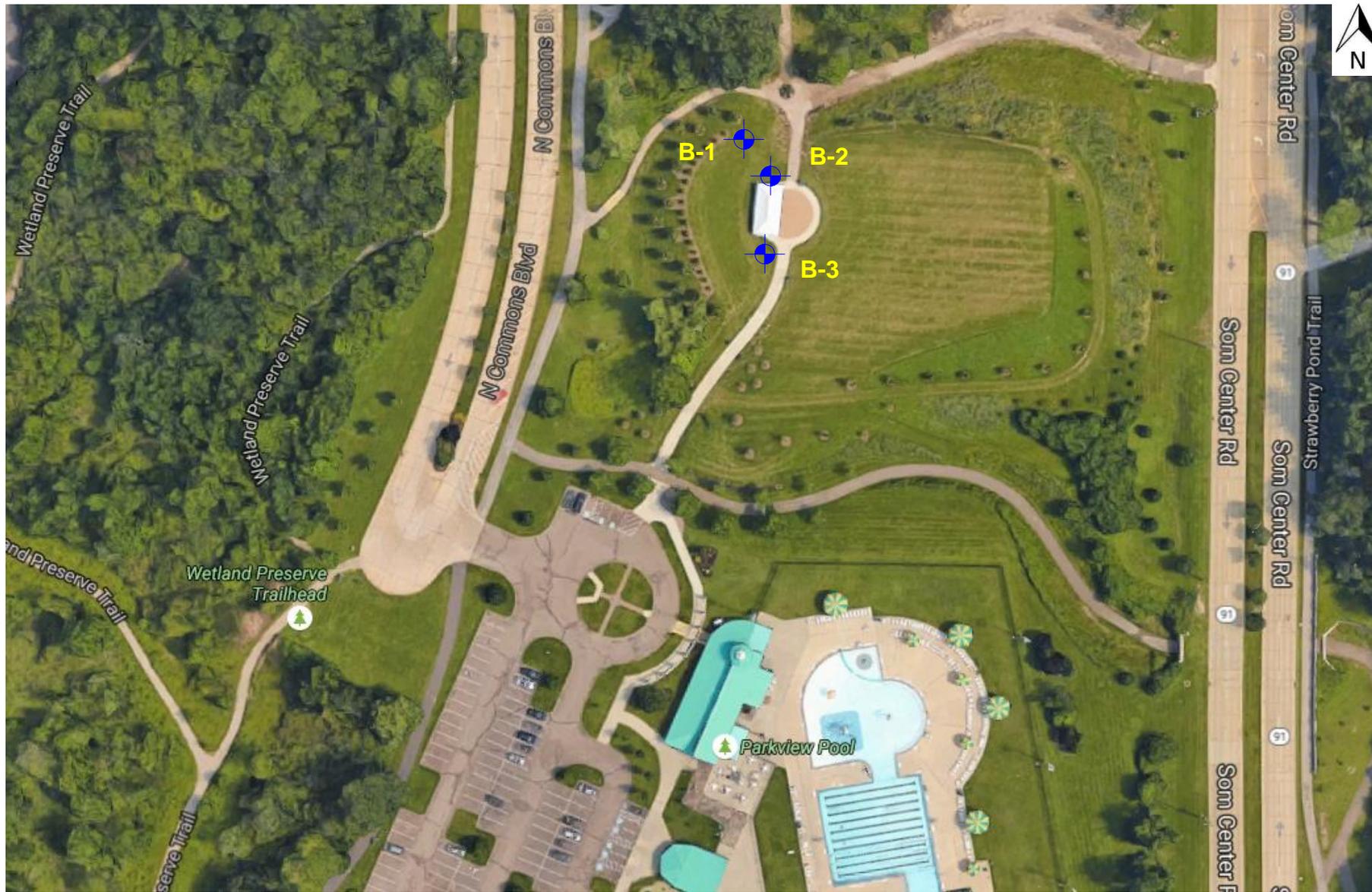
Boring Location Plan

Boring Logs

Grain Size Graph

General Notes

USCS Soil Classification Chart



**Parkview Pool Facility Building Addition  
Commons Boulevard  
Mayfield Village, Cuyahoga County, Ohio**

**Date: 10/19/16**

**Drawn By: ZO**

**Scale: NA**

**Boring Location Plan**

**PSI Report No:  
0142-1449**



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 5555 Canal Road  
 Cleveland, OH 44125  
 Telephone: (216) 447-1335  
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# LOG OF BORING B-1

Sheet 1 of 1

PSI Job No.: 0142-1449  
 Project: Commons Boulevard Development  
 Location: Commons Boulevard  
 Mayfield Village, Cuyahoga County, Ohio

Drilling Method: 3.25" Hollow Stem Auger  
 Sampling Method: 2-in SS  
 Hammer Type: Automatic  
 Boring Location: Pavement Area

WATER LEVELS	
▽ While Drilling	None
▼ Upon Completion	None
▽ Delay	N/A

Elevation (feet)	Depth (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	Station: N/A Offset: N/A	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	STANDARD PENETRATION TEST DATA		Additional Remarks
										N in blows/ft	Moisture, %	
0							2" TOPSOIL Medium Stiff to Stiff, Moist, Brown/Gray, Lean CLAY, Little to Some Gravel, Trace Organics, Asphalt Fragments	Topsoil				
				1	18			Fill	6-2-3 N=5	14	⊗	
				2	18			Fill	4-4-4 N=8	23	⊗	
				3	18			CL	6-5-6 N=11	22	⊗	
				4	18		Stiff to Very Stiff, Moist, Brown/Gray, Mottled, Lean CLAY, Trace to Little Gravel		6-11-11 N=22	21	⊗	
				5	6		Very Weak to Strong, Gray, Weathered SHALE	Shale	28-50/1"	8	⊗	>>⊗
							** Split-Spoon Refusal @ 14.1' ** Auger Refusal @ 15.0'					

Completion Depth: 15.0 ft  
 Date Boring Started: 10/26/16  
 Date Boring Completed: 10/26/16  
 Logged By: Z.O.  
 Drilling Contractor: PSI, Inc.

Sample Types:

- Auger Cutting
- Split-Spoon
- Rock Core
- Shelby Tube
- Hand Auger
- Calif. Sampler
- Texas Cone

Latitude:  
 Longitude:  
 Drill Rig: D-50  
 Remarks: Borings backfilled with soil/auger cuttings

The stratification lines represent approximate boundaries. The transition may be gradual.



Professional Service Industries, Inc.  
 5555 Canal Road  
 Cleveland, OH 44125  
 Telephone: (216) 447-1335  
 Fax: (216) 642-7008

# LOG OF BORING B-2

Sheet 1 of 1

PSI Job No.: 0142-1449  
 Project: Commons Boulevard Development  
 Location: Commons Boulevard  
 Mayfield Village, Cuyahoga County, Ohio

Drilling Method: 3.25" Hollow Stem Auger  
 Sampling Method: 2-in SS  
 Hammer Type: Automatic  
 Boring Location: Building Area

WATER LEVELS	
▽ While Drilling	None
▼ Upon Completion	None
⏸ Delay	N/A

Elevation (feet)	Depth (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	Station: N/A Offset: N/A	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	STANDARD PENETRATION TEST DATA		Additional Remarks
										N in blows/ft	Moisture, %	
0							2" TOPSOIL	Topsoil				
				1	12		Medium Stiff, Moist, Brown/Black, Lean CLAY With Gravel, Trace Organics, Concrete and Asphalt Fragments	Fill	3-3-3 N=6	18	⊗	
				2	18		Medium Stiff, Moist, Brown, Lean CLAY, Trace Gravel, Trace Sand	CL	3-2-3 N=5	27	⊗	LL = 35 PL = 20 Fines=92.3%
5							Moderately Strong to Very Weak, Brown to Gray, Weathered SHALE	50/4"		7	⊗	>>⊗
							** Gray @ 8.0'	Shale				
				4	18				15-29-35 N=64	8	⊗	>>⊗
10												

Completion Depth: 10.0 ft  
 Date Boring Started: 10/26/16  
 Date Boring Completed: 10/26/16  
 Logged By: Z.O.  
 Drilling Contractor: PSI, Inc.

Sample Types:

- Auger Cutting
- Split-Spoon
- Rock Core
- Shelby Tube
- Hand Auger
- Calif. Sampler
- Texas Cone

Latitude:  
 Longitude:  
 Drill Rig: D-50  
 Remarks: Borings backfilled with soil/auger cuttings

The stratification lines represent approximate boundaries. The transition may be gradual.



Professional Service Industries, Inc.  
 5555 Canal Road  
 Cleveland, OH 44125  
 Telephone: (216) 447-1335  
 Fax: (216) 642-7008

# LOG OF BORING B-3

Sheet 1 of 1

PSI Job No.: 0142-1449  
 Project: Commons Boulevard Development  
 Location: Commons Boulevard  
 Mayfield Village, Cuyahoga County, Ohio

Drilling Method: 3.25" Hollow Stem Auger  
 Sampling Method: 2-in SS  
 Hammer Type: Automatic  
 Boring Location: Building Area

WATER LEVELS	
▽ While Drilling	None
▼ Upon Completion	None
▽ Delay	N/A

Elevation (feet)	Depth (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	Station: N/A Offset: N/A	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	STANDARD PENETRATION TEST DATA		Additional Remarks
										N in blows/ft		
0							2" TOPSOIL Stiff, Moist, Brown, Lean CLAY With Gravel, Organics, Asphalt and Concrete Fragments	Topsoil				
				1	18			Fill	4-6-8 N=14	18	⊗	
	5			2	18		Medium Stiff, Moist, Brown, Lean CLAY, Trace Gravel	CL	2-3-3 N=6	17	⊗	
				3	18		Very Weak to Very Strong, Brown to Gray, Weathered SHALE	Shale	15-13-12 N=25		⊗	
				4	0		** Gray @ 8.0' ** Split-Spoon Refusal @ 8.1'		50/1"	8	⊗	>>⊗

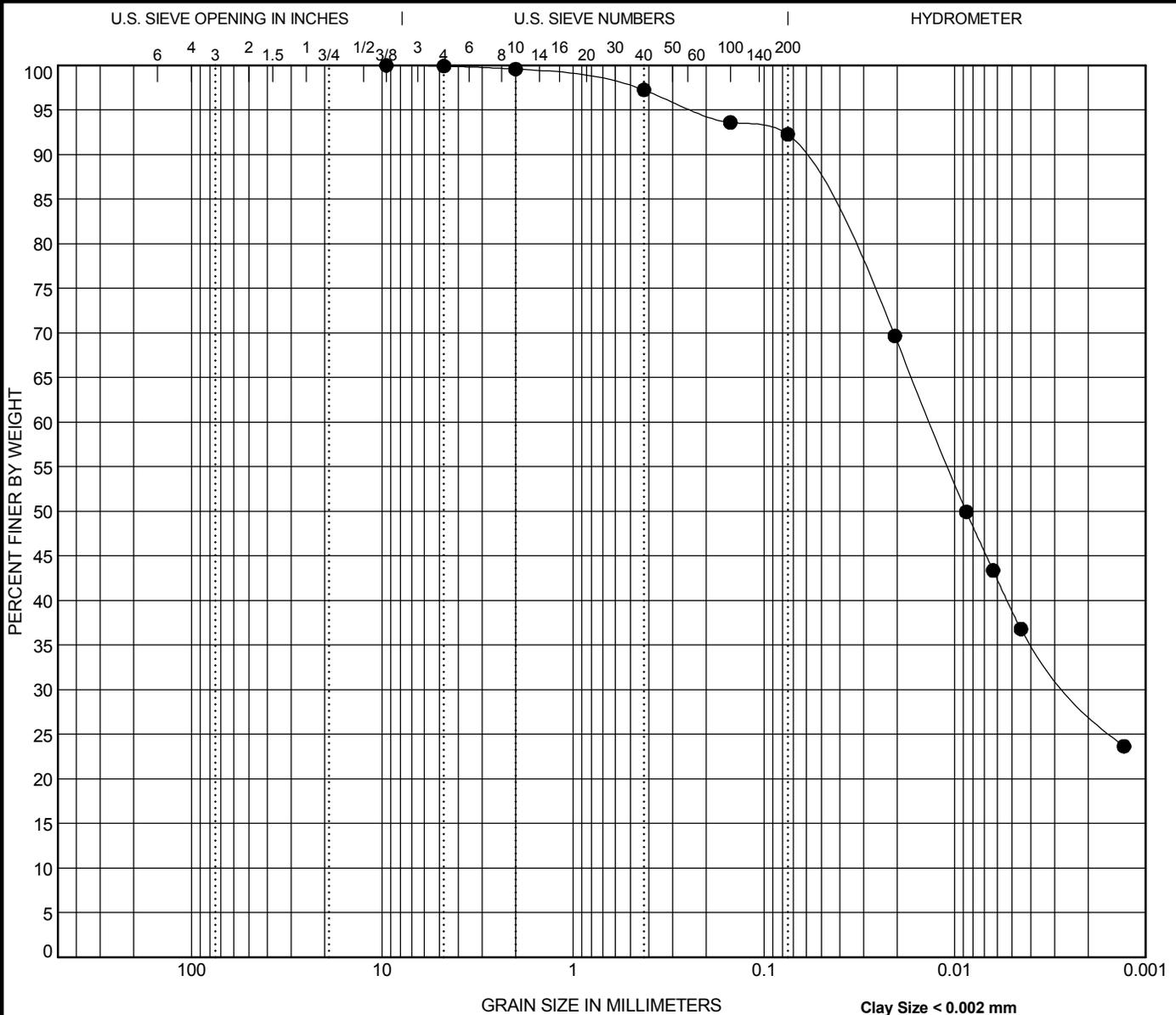
Completion Depth: 8.1 ft  
 Date Boring Started: 10/26/16  
 Date Boring Completed: 10/26/16  
 Logged By: Z.O.  
 Drilling Contractor: PSI, Inc.

Sample Types:

- Auger Cutting
- Split-Spoon
- Rock Core
- Shelby Tube
- Hand Auger
- Calif. Sampler
- Texas Cone

Latitude:  
 Longitude:  
 Drill Rig: D-50  
 Remarks: Borings backfilled with soil/auger cuttings

The stratification lines represent approximate boundaries. The transition may be gradual.





## GENERAL NOTES

### SAMPLE IDENTIFICATION

The Unified Soil Classification System (USCS), AASHTO 1988 and ASTM designations D2487 and D-2488 are used to identify the encountered materials unless otherwise noted. Coarse-grained soils are defined as having more than 50% of their dry weight retained on a #200 sieve (0.075mm); they are described as: boulders, cobbles, gravel or sand. Fine-grained soils have less than 50% of their dry weight retained on a #200 sieve; they are defined as silts or clay depending on their Atterberg Limit attributes. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size.

### DRILLING AND SAMPLING SYMBOLS

SFA: Solid Flight Auger - typically 4" diameter flights, except where noted.	SS: Split-Spoon - 1 3/8" I.D., 2" O.D., except where noted.
HSA: Hollow Stem Auger - typically 3 1/4" or 4 1/4" I.D. openings, except where noted.	ST: Shelby Tube - 3" O.D., except where noted.
M.R.: Mud Rotary - Uses a rotary head with Bentonite or Polymer Slurry	BS: Bulk Sample
R.C.: Diamond Bit Core Sampler	PM: Pressuremeter
H.A.: Hand Auger	CPT-U: Cone Penetrometer Testing with Pore-Pressure Readings
P.A.: Power Auger - Handheld motorized auger	

### SOIL PROPERTY SYMBOLS

N: Standard "N" penetration: Blows per foot of a 140 pound hammer falling 30 inches on a 2-inch O.D. Split-Spoon.  
 $N_{60}$ : A "N" penetration value corrected to an equivalent 60% hammer energy transfer efficiency (ETR)  
 $Q_u$ : Unconfined compressive strength, TSF  
 $Q_p$ : Pocket penetrometer value, unconfined compressive strength, TSF  
 $w\%$ : Moisture/water content, %  
 LL: Liquid Limit, %  
 PL: Plastic Limit, %  
 PI: Plasticity Index = (LL-PL), %  
 DD: Dry unit weight, pcf  
 ▼, ▼, ▼ Apparent groundwater level at time noted

### RELATIVE DENSITY OF COARSE-GRAINED SOILS

Relative Density	N - Blows/foot
Very Loose	0 - 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	50 - 80
Extremely Dense	80+

### ANGULARITY OF COARSE-GRAINED PARTICLES

Description	Criteria
Angular:	Particles have sharp edges and relatively plane sides with unpolished surfaces
Subangular:	Particles are similar to angular description, but have rounded edges
Subrounded:	Particles have nearly plane sides, but have well-rounded corners and edges
Rounded:	Particles have smoothly curved sides and no edges

### GRAIN-SIZE TERMINOLOGY

Component	Size Range
Boulders:	Over 300 mm (>12 in.)
Cobbles:	75 mm to 300 mm (3 in. to 12 in.)
Coarse-Grained Gravel:	19 mm to 75 mm (3/4 in. to 3 in.)
Fine-Grained Gravel:	4.75 mm to 19 mm (No.4 to 3/4 in.)
Coarse-Grained Sand:	2 mm to 4.75 mm (No.10 to No.4)
Medium-Grained Sand:	0.42 mm to 2 mm (No.40 to No.10)
Fine-Grained Sand:	0.075 mm to 0.42 mm (No. 200 to No.40)
Silt:	0.0075 mm to 0.075 mm
Clay:	<0.0075 mm (< 3/64 in.)

### PARTICLE SHAPE

Description	Criteria
Flat:	Particles with width/thickness ratio > 3
Elongated:	Particles with length/width ratio > 3
Flat & Elongated:	Particles meet criteria for both flat and elongated

### RELATIVE PROPORTIONS OF FINES

Descriptive Term	% Dry Weight
Trace:	< 5%
With:	5% to 12%
Modifier:	>12%



# GENERAL NOTES

(Continued)

## CONSISTENCY OF FINE-GRAINED SOILS

<u>Q<sub>u</sub> - TSF</u>	<u>N - Blows/foot</u>	<u>Consistency</u>
0 - 0.25	0 - 2	Very Soft
0.25 - 0.50	2 - 4	Soft
0.50 - 1.00	4 - 8	Firm (Medium Stiff)
1.00 - 2.00	8 - 15	Stiff
2.00 - 4.00	15 - 30	Very Stiff
4.00 - 8.00	30 - 50	Hard
8.00+	50+	Very Hard

## MOISTURE CONDITION DESCRIPTION

<u>Description</u>	<u>Criteria</u>
Dry:	Absence of moisture, dusty, dry to the touch
Moist:	Damp but no visible water
Wet:	Visible free water, usually soil is below water table

## RELATIVE PROPORTIONS OF SAND AND GRAVEL

<u>Descriptive Term</u>	<u>% Dry Weight</u>
Trace:	< 15%
With:	15% to 30%
Modifier:	>30%

## STRUCTURE DESCRIPTION

<u>Description</u>	<u>Criteria</u>	<u>Description</u>	<u>Criteria</u>
Stratified:	Alternating layers of varying material or color with layers at least ¼-inch (6 mm) thick	Blocky:	Cohesive soil that can be broken down into small angular lumps which resist further breakdown
Laminated:	Alternating layers of varying material or color with layers less than ¼-inch (6 mm) thick	Lensed:	Inclusion of small pockets of different soils
Fissured:	Breaks along definite planes of fracture with little resistance to fracturing	Layer:	Inclusion greater than 3 inches thick (75 mm)
Slickensided:	Fracture planes appear polished or glossy, sometimes striated	Seam:	Inclusion 1/8-inch to 3 inches (3 to 75 mm) thick extending through the sample
		Parting:	Inclusion less than 1/8-inch (3 mm) thick

## SCALE OF RELATIVE ROCK HARDNESS

<u>Q<sub>u</sub> - TSF</u>	<u>Consistency</u>
2.5 - 10	Extremely Soft
10 - 50	Very Soft
50 - 250	Soft
250 - 525	Medium Hard
525 - 1,050	Moderately Hard
1,050 - 2,600	Hard
>2,600	Very Hard

## ROCK BEDDING THICKNESSES

<u>Description</u>	<u>Criteria</u>
Very Thick Bedded	Greater than 3-foot (>1.0 m)
Thick Bedded	1-foot to 3-foot (0.3 m to 1.0 m)
Medium Bedded	4-inch to 1-foot (0.1 m to 0.3 m)
Thin Bedded	1¼-inch to 4-inch (30 mm to 100 mm)
Very Thin Bedded	½-inch to 1¼-inch (10 mm to 30 mm)
Thickly Laminated	1/8-inch to ½-inch (3 mm to 10 mm)
Thinly Laminated	1/8-inch or less "paper thin" (<3 mm)

## ROCK VOIDS

<u>Voids</u>	<u>Void Diameter</u>
Pit	<6 mm (<0.25 in)
Vug	6 mm to 50 mm (0.25 in to 2 in)
Cavity	50 mm to 600 mm (2 in to 24 in)
Cave	>600 mm (>24 in)

## GRAIN-SIZED TERMINOLOGY

<u>(Typically Sedimentary Rock)</u>	
<u>Component</u>	<u>Size Range</u>
Very Coarse Grained	>4.76 mm
Coarse Grained	2.0 mm - 4.76 mm
Medium Grained	0.42 mm - 2.0 mm
Fine Grained	0.075 mm - 0.42 mm
Very Fine Grained	<0.075 mm

## ROCK QUALITY DESCRIPTION

<u>Rock Mass Description</u>	<u>RQD Value</u>
Excellent	90 -100
Good	75 - 90
Fair	50 - 75
Poor	25 -50
Very Poor	Less than 25

## DEGREE OF WEATHERING

Slightly Weathered:	Rock generally fresh, joints stained and discoloration extends into rock up to 25 mm (1 in), open joints may contain clay, core rings under hammer impact.
Weathered:	Rock mass is decomposed 50% or less, significant portions of the rock show discoloration and weathering effects, cores cannot be broken by hand or scraped by knife.
Highly Weathered:	Rock mass is more than 50% decomposed, complete discoloration of rock fabric, core may be extremely broken and gives clunk sound when struck by hammer, may be shaved with a knife.

# SOIL CLASSIFICATION CHART

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
<p><b>COARSE GRAINED SOILS</b></p> <p>MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE</p>	<p>GRAVEL AND GRAVELLY SOILS</p> <p>MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE</p>	<p>CLEAN GRAVELS</p> <p>(LITTLE OR NO FINES)</p>		<b>GW</b>	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		<p>GRAVELS WITH FINES</p> <p>(APPRECIABLE AMOUNT OF FINES)</p>		<b>GP</b>	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				<b>GM</b>	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				<b>GC</b>	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	<p>SAND AND SANDY SOILS</p> <p>MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE</p>	<p>CLEAN SANDS</p> <p>(LITTLE OR NO FINES)</p>		<b>SW</b>	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		<p>SANDS WITH FINES</p> <p>(APPRECIABLE AMOUNT OF FINES)</p>		<b>SP</b>	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
				<b>SM</b>	SILTY SANDS, SAND - SILT MIXTURES
				<b>SC</b>	CLAYEY SANDS, SAND - CLAY MIXTURES
	<p><b>FINE GRAINED SOILS</b></p> <p>MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE</p>	<p>SILTS AND CLAYS</p> <p>LIQUID LIMIT LESS THAN 50</p>		<b>ML</b>	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				<b>CL</b>	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			<b>OL</b>	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
<p>SILTS AND CLAYS</p> <p>LIQUID LIMIT GREATER THAN 50</p>			<b>MH</b>	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS	
			<b>CH</b>	INORGANIC CLAYS OF HIGH PLASTICITY	
			<b>OH</b>	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
			<b>PT</b>	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS	
<p>HIGHLY ORGANIC SOILS</p>				<b>PT</b>	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS



## *Insurance Cancellation Notice Requirements*

In September of 2009, the Association for Cooperative Operations Research and Development (ACORD) amended its Form 25 Certificate of Liability Insurance (ACORD Form 25) as it relates an insurer's duty to give notice of cancellation of an insurance policy. The changes, and related rulings by state insurance administrative agencies, make it difficult or impossible for construction industry professionals to satisfy some requirements found in several AIA Contract Documents. Due to these developments, edits may be required to the standard text of the following AIA Contract Documents:

A107–2007	Sections 17.1 and 17.3.2
A141–2004 Exhibit A	Sections A9.10.2, A11.2.3 and A.11.4.6
A142–2004 Exhibit A	Section A9.10.2
A142–2004 Exhibit E	Section E.1.3
A201–2007	Sections 9.10.2, 11.1.3 and 11.3.6
A201–2007 SP	Sections 9.10.2, 11.1.3 and 11.3.6
A232–2009	Sections 9.10.2, 11.1.3 and 11.3.6
A232–2009 SP	Sections 9.10.2, 11.1.3 and 11.3.6
A251–2007	Section 13.1.3
A295–2008	Sections 10.2.2, 11.1.3 and 11.3.6
A401–2007	Section 13.3
A401–2007 SP	Section 13.3
A441–2008	Section 13.3
C101–1993	Section 9.3
C191–2009 Exhibit A	Sections A12.9.2 and A14.1.3
C196–2008	Section 2.4.5
C197–2008	Section 2.7.5
C198–2010	Section 2.9.3
C199–2010 Exhibit A	Sections A.5.26.2.2, A6.1.3 and A6.3.6

For more information, please visit [AIA.org](http://AIA.org) and read a memorandum entitled “Changes in the Insurance Industry Impact Notice of Policy Cancellation.” This memorandum (1) provides an overview of the ACORD Form 25 changes and related rulings by state agencies, and (2) suggests edits that users might incorporate into standard AIA Contract Documents to respond to these changes and rulings.

To read the memorandum, visit the AIA Contract Documents Reference Material Web site, [www.aia.org/contractdocs/reference](http://www.aia.org/contractdocs/reference). At the bottom of the **Reference Material** page, click **Other Reference Material**. On the Other Reference Material page, the memorandum is listed under the subheading “Corrections, Modifications and Important Information.”

You may also access the memorandum by typing the following URL into your Web browser:

[www.aia.org/groups/aia/documents/pdf/aiab101644.pdf](http://www.aia.org/groups/aia/documents/pdf/aiab101644.pdf)

 **AIA** Document A201™ – 2007**General Conditions of the Contract for Construction****for the following PROJECT:***(Name and location or address)*

Mayfield Village The Grove Amphitheater - Bandshell  
425 North Commons Blvd., Mayfield Village, Ohio 44143

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

**THE OWNER:***(Name, legal status and address)*

Mayfield Village  
6622 Wilson Mills Rd  
Mayfield, Ohio 44143

**THE ARCHITECT:***(Name, legal status and address)*

Meld Architects, Inc.  
2310 Superior Ave, Suite 260  
Cleveland, OH 44114

**TABLE OF ARTICLES**

1	GENERAL PROVISIONS
2	OWNER
3	CONTRACTOR
4	ARCHITECT
5	SUBCONTRACTORS
6	CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
7	CHANGES IN THE WORK
8	TIME
9	PAYMENTS AND COMPLETION
10	PROTECTION OF PERSONS AND PROPERTY
11	INSURANCE AND BONDS
12	UNCOVERING AND CORRECTION OF WORK
13	MISCELLANEOUS PROVISIONS
14	TERMINATION OR SUSPENSION OF THE CONTRACT
15	CLAIMS AND DISPUTES

Init.

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## INDEX

(Topics and numbers in bold are section headings.)

### Acceptance of Nonconforming Work

9.6.6, 9.9.3, **12.3**

Acceptance of Work

9.6.6, 9.8.2, 9.9.3, 9.10.1, 9.10.3, 12.3

### Access to Work

**3.16**, 6.2.1, 12.1

Accident Prevention

10

Acts and Omissions

3.2, 3.3.2, 3.12.8, 3.18, 4.2.3, 8.3.1, 9.5.1, 10.2.5,  
10.2.8, 13.4.2, 13.7, 14.1, 15.2

Addenda

1.1.1, 3.11.1

Additional Costs, Claims for

3.7.4, 3.7.5, 6.1.1, 7.3.7.5, 10.3, 15.1.4

### Additional Inspections and Testing

9.4.2, 9.8.3, 12.2.1, **13.5**

Additional Insured

11.1.4

### Additional Time, Claims for

3.2.4, 3.7.4, 3.7.5, 3.10.2, 8.3.2, **15.1.5**

### Administration of the Contract

3.1.3, **4.2**, 9.4, 9.5

Advertisement or Invitation to Bid

1.1.1

Aesthetic Effect

4.2.13

### Allowances

**3.8**, 7.3.8

All-risk Insurance

11.3.1, 11.3.1.1

### Applications for Payment

4.2.5, 7.3.9, 9.2, **9.3**, 9.4, 9.5.1, 9.6.3, 9.7, 9.10,  
11.1.3

Approvals

2.1.1, 2.2.2, 2.4, 3.1.3, 3.10.2, 3.12.8, 3.12.9, 3.12.10,  
4.2.7, 9.3.2, 13.5.1

### Arbitration

8.3.1, 11.3.10, 13.1.1, 15.3.2, **15.4**

## ARCHITECT

### 4

Architect, Definition of

#### 4.1.1

Architect, Extent of Authority

2.4.1, 3.12.7, 4.1, 4.2, 5.2, 6.3, 7.1.2, 7.3.7, 7.4, 9.2,  
9.3.1, 9.4, 9.5, 9.6.3, 9.8, 9.10.1, 9.10.3, 12.1, 12.2.1,  
13.5.1, 13.5.2, 14.2.2, 14.2.4, 15.1.3, 15.2.1

Architect, Limitations of Authority and Responsibility

2.1.1, 3.12.4, 3.12.8, 3.12.10, 4.1.2, 4.2.1, 4.2.2,  
4.2.3, 4.2.6, 4.2.7, 4.2.10, 4.2.12, 4.2.13, 5.2.1, 7.4,  
9.4.2, 9.5.3, 9.6.4, 15.1.3, 15.2

Architect's Additional Services and Expenses

2.4.1, 11.3.1.1, 12.2.1, 13.5.2, 13.5.3, 14.2.4

Architect's Administration of the Contract

3.1.3, 4.2, 3.7.4, 15.2, 9.4.1, 9.5

Architect's Approvals

2.4.1, 3.1.3, 3.5, 3.10.2, 4.2.7

Architect's Authority to Reject Work

3.5, 4.2.6, 12.1.2, 12.2.1

Architect's Copyright

1.1.7, 1.5

Architect's Decisions

3.7.4, 4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 4.2.14, 6.3,  
7.3.7, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4.1, 9.5, 9.8.4, 9.9.1,  
13.5.2, 15.2, 15.3

Architect's Inspections

3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, 13.5

Architect's Instructions

3.2.4, 3.3.1, 4.2.6, 4.2.7, 13.5.2

Architect's Interpretations

4.2.11, 4.2.12

Architect's Project Representative

4.2.10

Architect's Relationship with Contractor

1.1.2, 1.5, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2, 3.5,  
3.7.4, 3.7.5, 3.9.2, 3.9.3, 3.10, 3.11, 3.12, 3.16, 3.18,  
4.1.2, 4.1.3, 4.2, 5.2, 6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4, 9.5,  
9.7, 9.8, 9.9, 10.2.6, 10.3, 11.3.7, 12, 13.4.2, 13.5,  
15.2

Architect's Relationship with Subcontractors

1.1.2, 4.2.3, 4.2.4, 4.2.6, 9.6.3, 9.6.4, 11.3.7

Architect's Representations

9.4.2, 9.5.1, 9.10.1

Architect's Site Visits

3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.5.1, 9.9.2, 9.10.1, 13.5

Asbestos

10.3.1

Attorneys' Fees

3.18.1, 9.10.2, 10.3.3

Award of Separate Contracts

6.1.1, 6.1.2

### Award of Subcontracts and Other Contracts for Portions of the Work

#### 5.2

### Basic Definitions

#### 1.1

Bidding Requirements

1.1.1, 5.2.1, 11.4.1

Binding Dispute Resolution

9.7, 11.3.9, 11.3.10, 13.1.1, 15.2.5, 15.2.6.1, 15.3.1,  
15.3.2, 15.4.1

### Boiler and Machinery Insurance

#### 11.3.2

Bonds, Lien

7.3.7.4, 9.10.2, 9.10.3

### Bonds, Performance, and Payment

7.3.7.4, 9.6.7, 9.10.3, 11.3.9, **11.4**

Building Permit

3.7.1

### Capitalization

#### 1.3

Certificate of Substantial Completion

9.8.3, 9.8.4, 9.8.5

**Certificates for Payment**

4.2.1, 4.2.5, 4.2.9, 9.3.3, **9.4**, 9.5, 9.6.1, 9.6.6, 9.7,

9.10.1, 9.10.3, 14.1.1.3, 14.2.4, 15.1.3

Certificates of Inspection, Testing or Approval

13.5.4

Certificates of Insurance

9.10.2, 11.1.3

**Change Orders**

1.1.1, 2.4.1, 3.4.2, 3.7.4, 3.8.2.3, 3.11.1, 3.12.8, 4.2.8,

5.2.3, 7.1.2, 7.1.3, **7.2**, 7.3.2, 7.3.6, 7.3.9, 7.3.10,

8.3.1, 9.3.1.1, 9.10.3, 10.3.2, 11.3.1.2, 11.3.4, 11.3.9,

12.1.2, 15.1.3

**Change Orders**, Definition of

**7.2.1**

**CHANGES IN THE WORK**

2.2.1, 3.11, 4.2.8, **7**, 7.2.1, 7.3.1, 7.4, 8.3.1, 9.3.1.1,

11.3.9

**Claims**, Definition of

**15.1.1**

**CLAIMS AND DISPUTES**

3.2.4, 6.1.1, 6.3, 7.3.9, 9.3.3, 9.10.4, 10.3.3, **15**, 15.4

Claims and Timely Assertion of Claims

15.4.1

**Claims for Additional Cost**

3.2.4, 3.7.4, 6.1.1, 7.3.9, 10.3.2, **15.1.4**

**Claims for Additional Time**

3.2.4, 3.7.4.1.1, 8.3.2, 10.3.2, **15.1.5**

**Concealed or Unknown Conditions, Claims for**  
**3.7.4**

Claims for Damages

3.2.4, 3.18, 6.1.1, 8.3.3, 9.5.1, 9.6.7, 10.3.3, 11.1.1,

11.3.5, 11.3.7, 14.1.3, 14.2.4, 15.1.6

Claims Subject to Arbitration

15.3.1, 15.4.1

**Cleaning Up**

**3.15**, 6.3

Commencement of the Work, Conditions Relating to

2.2.1, 3.2.2, 3.4.1, 3.7.1, 3.10.1, 3.12.6, 5.2.1, 5.2.3,

6.2.2, 8.1.2, 8.2.2, 8.3.1, 11.1, 11.3.1, 11.3.6, 11.4.1,

15.1.4

**Commencement of the Work**, Definition of

**8.1.2**

**Communications Facilitating Contract**  
**Administration**

3.9.1, **4.2.4**

Completion, Conditions Relating to

3.4.1, 3.11, 3.15, 4.2.2, 4.2.9, 8.2, 9.4.2, 9.8, 9.9.1,

9.10, 12.2, 13.7, 14.1.2

**COMPLETION, PAYMENTS AND**

**9**

Completion, Substantial

4.2.9, 8.1.1, 8.1.3, 8.2.3, 9.4.2, 9.8, 9.9.1, 9.10.3,

12.2, 13.7

Compliance with Laws

1.6.1, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 4.1.1, 9.6.4,

10.2.2, 11.1, 11.3, 13.1, 13.4, 13.5.1, 13.5.2, 13.6,

14.1.1, 14.2.1.3, 15.2.8, 15.4.2, 15.4.3

Concealed or Unknown Conditions

3.7.4, 4.2.8, 8.3.1, 10.3

Conditions of the Contract

1.1.1, 6.1.1, 6.1.4

Consent, Written

3.4.2, 3.7.4, 3.12.8, 3.14.2, 4.1.2, 9.3.2, 9.8.5, 9.9.1,

9.10.2, 9.10.3, 11.3.1, 13.2, 13.4.2, 15.4.4.2

**Consolidation or Joinder**

**15.4.4**

**CONSTRUCTION BY OWNER OR BY**  
**SEPARATE CONTRACTORS**

1.1.4, **6**

**Construction Change Directive**, Definition of  
**7.3.1**

**Construction Change Directives**

1.1.1, 3.4.2, 3.12.8, 4.2.8, 7.1.1, 7.1.2, 7.1.3, **7.3**,

9.3.1.1

Construction Schedules, Contractor's

3.10, 3.12.1, 3.12.2, 6.1.3, 15.1.5.2

**Contingent Assignment of Subcontracts**

**5.4**, 14.2.2.2

**Continuing Contract Performance**

**15.1.3**

**Contract**, Definition of

**1.1.2**

**CONTRACT, TERMINATION OR**  
**SUSPENSION OF THE**

5.4.1.1, 11.3.9, **14**

Contract Administration

3.1.3, 4, 9.4, 9.5

Contract Award and Execution, Conditions Relating to

3.7.1, 3.10, 5.2, 6.1, 11.1.3, 11.3.6, 11.4.1

Contract Documents, Copies Furnished and Use of

1.5.2, 2.2.5, 5.3

**Contract Documents**, Definition of

**1.1.1**

**Contract Sum**

3.7.4, 3.8, 5.2.3, 7.2, 7.3, 7.4, **9.1**, 9.4.2, 9.5.1.4,

9.6.7, 9.7, 10.3.2, 11.3.1, 14.2.4, 14.3.2, 15.1.4,

15.2.5

**Contract Sum**, Definition of

**9.1**

Contract Time

3.7.4, 3.7.5, 3.10.2, 5.2.3, 7.2.1.3, 7.3.1, 7.3.5, 7.4,

8.1.1, 8.2.1, 8.3.1, 9.5.1, 9.7, 10.3.2, 12.1.1, 14.3.2,

15.1.5.1, 15.2.5

Contract Time, Definition of

8.1.1

**CONTRACTOR**

**3**

**Contractor**, Definition of

**3.1**, **6.1.2**

**Contractor's Construction Schedules**

**3.10**, 3.12.1, 3.12.2, 6.1.3, 15.1.5.2

Contractor's Employees  
3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2, 10.3,  
11.1.1, 11.3.7, 14.1, 14.2.1.1

### **Contractor's Liability Insurance**

#### **11.1**

Contractor's Relationship with Separate Contractors  
and Owner's Forces

3.12.5, 3.14.2, 4.2.4, 6, 11.3.7, 12.1.2, 12.2.4

Contractor's Relationship with Subcontractors

1.2.2, 3.3.2, 3.18.1, 3.18.2, 5, 9.6.2, 9.6.7, 9.10.2,  
11.3.1.2, 11.3.7, 11.3.8

Contractor's Relationship with the Architect

1.1.2, 1.5, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2, 3.5,  
3.7.4, 3.10, 3.11, 3.12, 3.16, 3.18, 4.1.3, 4.2, 5.2,  
6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4, 9.5, 9.7, 9.8, 9.9, 10.2.6,  
10.3, 11.3.7, 12, 13.5, 15.1.2, 15.2.1

Contractor's Representations

3.2.1, 3.2.2, 3.5, 3.12.6, 6.2.2, 8.2.1, 9.3.3, 9.8.2

Contractor's Responsibility for Those Performing the  
Work

3.3.2, 3.18, 5.3.1, 6.1.3, 6.2, 9.5.1, 10.2.8

Contractor's Review of Contract Documents

3.2

Contractor's Right to Stop the Work

9.7

Contractor's Right to Terminate the Contract

14.1, 15.1.6

Contractor's Submittals

3.10, 3.11, 3.12.4, 4.2.7, 5.2.1, 5.2.3, 9.2, 9.3, 9.8.2,  
9.8.3, 9.9.1, 9.10.2, 9.10.3, 11.1.3, 11.4.2

Contractor's Superintendent

3.9, 10.2.6

Contractor's Supervision and Construction Procedures

1.2.2, 3.3, 3.4, 3.12.10, 4.2.2, 4.2.7, 6.1.3, 6.2.4,  
7.1.3, 7.3.5, 7.3.7, 8.2, 10, 12, 14, 15.1.3

Contractual Liability Insurance

11.1.1.8, 11.2

Coordination and Correlation

1.2, 3.2.1, 3.3.1, 3.10, 3.12.6, 6.1.3, 6.2.1

Copies Furnished of Drawings and Specifications

1.5, 2.2.5, 3.11

### **Copyrights**

1.5, 3.17

### **Correction of Work**

2.3, 2.4, 3.7.3, 9.4.2, 9.8.2, 9.8.3, 9.9.1, 12.1.2, 12.2

### **Correlation and Intent of the Contract Documents**

#### **1.2**

**Cost**, Definition of

#### **7.3.7**

Costs

2.4.1, 3.2.4, 3.7.3, 3.8.2, 3.15.2, 5.4.2, 6.1.1, 6.2.3,  
7.3.3.3, 7.3.7, 7.3.8, 7.3.9, 9.10.2, 10.3.2, 10.3.6,  
11.3, 12.1.2, 12.2.1, 12.2.4, 13.5, 14

### **Cutting and Patching**

3.14, 6.2.5

Damage to Construction of Owner or Separate  
Contractors

3.14.2, 6.2.4, 10.2.1.2, 10.2.5, 10.4, 11.1.1, 11.3,  
12.2.4

Damage to the Work

3.14.2, 9.9.1, 10.2.1.2, 10.2.5, 10.4.1, 11.3.1, 12.2.4

Damages, Claims for

3.2.4, 3.18, 6.1.1, 8.3.3, 9.5.1, 9.6.7, 10.3.3, 11.1.1,  
11.3.5, 11.3.7, 14.1.3, 14.2.4, 15.1.6

Damages for Delay

6.1.1, 8.3.3, 9.5.1.6, 9.7, 10.3.2

**Date of Commencement of the Work**, Definition of  
**8.1.2**

**Date of Substantial Completion**, Definition of  
**8.1.3**

**Day**, Definition of

#### **8.1.4**

Decisions of the Architect

3.7.4, 4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 15.2, 6.3,  
7.3.7, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4, 9.5.1, 9.8.4, 9.9.1,  
13.5.2, 14.2.2, 14.2.4, 15.1, 15.2

### **Decisions to Withhold Certification**

9.4.1, 9.5, 9.7, 14.1.1.3

Defective or Nonconforming Work, Acceptance,  
Rejection and Correction of

2.3.1, 2.4.1, 3.5, 4.2.6, 6.2.5, 9.5.1, 9.5.2, 9.6.6, 9.8.2,  
9.9.3, 9.10.4, 12.2.1

Definitions

1.1, 2.1.1, 3.1.1, 3.5, 3.12.1, 3.12.2, 3.12.3, 4.1.1,  
15.1.1, 5.1, 6.1.2, 7.2.1, 7.3.1, 8.1, 9.1, 9.8.1

### **Delays and Extensions of Time**

3.2, 3.7.4, 5.2.3, 7.2.1, 7.3.1, 7.4, 8.3, 9.5.1, 9.7,  
10.3.2, 10.4.1, 14.3.2, 15.1.5, 15.2.5

Disputes

6.3, 7.3.9, 15.1, 15.2

### **Documents and Samples at the Site**

#### **3.11**

**Drawings**, Definition of

#### **1.1.5**

Drawings and Specifications, Use and Ownership of

3.11

Effective Date of Insurance

8.2.2, 11.1.2

### **Emergencies**

10.4, 14.1.1.2, 15.1.4

Employees, Contractor's

3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2,  
10.3.3, 11.1.1, 11.3.7, 14.1, 14.2.1.1

Equipment, Labor, Materials or

1.1.3, 1.1.6, 3.4, 3.5, 3.8.2, 3.8.3, 3.12, 3.13.1, 3.15.1,  
4.2.6, 4.2.7, 5.2.1, 6.2.1, 7.3.7, 9.3.2, 9.3.3, 9.5.1.3,  
9.10.2, 10.2.1, 10.2.4, 14.2.1.1, 14.2.1.2

Execution and Progress of the Work

1.1.3, 1.2.1, 1.2.2, 2.2.3, 2.2.5, 3.1, 3.3.1, 3.4.1, 3.7.1,  
3.10.1, 3.12, 3.14, 4.2, 6.2.2, 7.1.3, 7.3.5, 8.2, 9.5.1,  
9.9.1, 10.2, 10.3, 12.2, 14.2, 14.3.1, 15.1.3

Extensions of Time  
3.2.4, 3.7.4, 5.2.3, 7.2.1, 7.3, 7.4, 9.5.1, 9.7, 10.3.2,  
10.4.1, 14.3, 15.1.5, 15.2.5  
**Failure of Payment**  
9.5.1.3, 9.7, 9.10.2, 13.6, 14.1.1.3, 14.2.1.2  
Faulty Work  
(See Defective or Nonconforming Work)  
**Final Completion and Final Payment**  
4.2.1, 4.2.9, 9.8.2, 9.10, 11.1.2, 11.1.3, 11.3.1, 11.3.5,  
12.3.1, 14.2.4, 14.4.3  
Financial Arrangements, Owner's  
2.2.1, 13.2.2, 14.1.1.4  
Fire and Extended Coverage Insurance  
11.3.1.1

## **GENERAL PROVISIONS**

### **1**

#### **Governing Law**

##### **13.1**

Guarantees (See Warranty)

#### **Hazardous Materials**

##### **10.2.4, 10.3**

Identification of Subcontractors and Suppliers  
5.2.1

#### **Indemnification**

3.17, 3.18, 9.10.2, 10.3.3, 10.3.5, 10.3.6, 11.3.1.2,  
11.3.7

#### **Information and Services Required of the Owner**

2.1.2, 2.2, 3.2.2, 3.12.4, 3.12.10, 6.1.3, 6.1.4, 6.2.5,  
9.6.1, 9.6.4, 9.9.2, 9.10.3, 10.3.3, 11.2, 11.4, 13.5.1,  
13.5.2, 14.1.1.4, 14.1.4, 15.1.3

#### **Initial Decision**

##### **15.2**

**Initial Decision Maker**, Definition of

##### **1.1.8**

Initial Decision Maker, Decisions

14.2.2, 14.2.4, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5

Initial Decision Maker, Extent of Authority

14.2.2, 14.2.4, 15.1.3, 15.2.1, 15.2.2, 15.2.3, 15.2.4,  
15.2.5

#### **Injury or Damage to Person or Property**

##### **10.2.8, 10.4.1**

Inspections

3.1.3, 3.3.3, 3.7.1, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3,  
9.9.2, 9.10.1, 12.2.1, 13.5

Instructions to Bidders

##### **1.1.1**

Instructions to the Contractor

3.2.4, 3.3.1, 3.8.1, 5.2.1, 7, 8.2.2, 12, 13.5.2

**Instruments of Service**, Definition of

##### **1.1.7**

#### **Insurance**

3.18.1, 6.1.1, 7.3.7, 9.3.2, 9.8.4, 9.9.1, 9.10.2, 11

#### **Insurance, Boiler and Machinery**

##### **11.3.2**

#### **Insurance, Contractor's Liability**

##### **11.1**

Insurance, Effective Date of

8.2.2, 11.1.2

#### **Insurance, Loss of Use**

##### **11.3.3**

#### **Insurance, Owner's Liability**

##### **11.2**

#### **Insurance, Property**

10.2.5, 11.3

Insurance, Stored Materials

9.3.2

## **INSURANCE AND BONDS**

### **11**

Insurance Companies, Consent to Partial Occupancy  
9.9.1,

Intent of the Contract Documents

1.2.1, 4.2.7, 4.2.12, 4.2.13, 7.4

#### **Interest**

##### **13.6**

#### **Interpretation**

1.2.3, 1.4, 4.1.1, 5.1, 6.1.2, 15.1.1

Interpretations, Written

4.2.11, 4.2.12, 15.1.4

Judgment on Final Award

15.4.2

#### **Labor and Materials, Equipment**

1.1.3, 1.1.6, 3.4, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1,  
4.2.6, 4.2.7, 5.2.1, 6.2.1, 7.3.7, 9.3.2, 9.3.3, 9.5.1.3,  
9.10.2, 10.2.1, 10.2.4, 14.2.1.1, 14.2.1.2

Labor Disputes

8.3.1

Laws and Regulations

1.5, 3.2.3, 3.6, 3.7, 3.12.10, 3.13.1, 4.1.1, 9.6.4, 9.9.1,  
10.2.2, 11.1.1, 11.3, 13.1.1, 13.4, 13.5.1, 13.5.2,  
13.6.1, 14, 15.2.8, 15.4

Liens

2.1.2, 9.3.3, 9.10.2, 9.10.4, 15.2.8

Limitations, Statutes of

12.2.5, 13.7, 15.4.1.1

Limitations of Liability

2.3.1, 3.2.2, 3.5, 3.12.10, 3.17, 3.18.1, 4.2.6, 4.2.7,  
4.2.12, 6.2.2, 9.4.2, 9.6.4, 9.6.7, 10.2.5, 10.3.3,  
11.1.2, 11.2, 11.3.7, 12.2.5, 13.4.2

Limitations of Time

2.1.2, 2.2, 2.4, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2.7,  
5.2, 5.3.1, 5.4.1, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3,  
9.4.1, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 11.1.3, 11.3.1.5,  
11.3.6, 11.3.10, 12.2, 13.5, 13.7, 14, 15

#### **Loss of Use Insurance**

##### **11.3.3**

Material Suppliers

1.5, 3.12.1, 4.2.4, 4.2.6, 5.2.1, 9.3, 9.4.2, 9.6, 9.10.5

#### **Materials, Hazardous**

##### **10.2.4, 10.3**

Materials, Labor, Equipment and

1.1.3, 1.1.6, 1.5.1, 3.4.1, 3.5, 3.8.2, 3.8.3, 3.12,  
3.13.1, 3.15.1, 4.2.6, 4.2.7, 5.2.1, 6.2.1, 7.3.7, 9.3.2,  
9.3.3, 9.5.1.3, 9.10.2, 10.2.1.2, 10.2.4, 14.2.1.1,  
14.2.1.2

Means, Methods, Techniques, Sequences and Procedures of Construction

3.3.1, 3.12.10, 4.2.2, 4.2.7, 9.4.2

Mechanic's Lien

2.1.2, 15.2.8

### **Mediation**

8.3.1, 10.3.5, 10.3.6, 15.2.1, 15.2.5, 15.2.6, **15.3**, 15.4.1

### **Minor Changes in the Work**

1.1.1, 3.12.8, 4.2.8, 7.1, **7.4**

## **MISCELLANEOUS PROVISIONS**

### **13**

**Modifications**, Definition of

#### **1.1.1**

Modifications to the Contract

1.1.1, 1.1.2, 3.11, 4.1.2, 4.2.1, 5.2.3, 7, 8.3.1, 9.7, 10.3.2, 11.3.1

**Mutual Responsibility**

#### **6.2**

**Nonconforming Work, Acceptance of**

9.6.6, 9.9.3, **12.3**

Nonconforming Work, Rejection and Correction of

2.3.1, 2.4.1, 3.5, 4.2.6, 6.2.4, 9.5.1, 9.8.2, 9.9.3, 9.10.4, 12.2.1

Notice

2.2.1, 2.3.1, 2.4.1, 3.2.4, 3.3.1, 3.7.2, 3.12.9, 5.2.1, 9.7, 9.10, 10.2.2, 11.1.3, 12.2.2.1, 13.3, 13.5.1, 13.5.2, 14.1, 14.2, 15.2.8, 15.4.1

**Notice, Written**

2.3.1, 2.4.1, 3.3.1, 3.9.2, 3.12.9, 3.12.10, 5.2.1, 9.7, 9.10, 10.2.2, 10.3, 11.1.3, 11.3.6, 12.2.2.1, **13.3**, 14, 15.2.8, 15.4.1

**Notice of Claims**

3.7.4, 10.2.8, **15.1.2**, 15.4

Notice of Testing and Inspections

13.5.1, 13.5.2

Observations, Contractor's

3.2, 3.7.4

Occupancy

2.2.2, 9.6.6, 9.8, 11.3.1.5

Orders, Written

1.1.1, 2.3, 3.9.2, 7, 8.2.2, 11.3.9, 12.1, 12.2.2.1, 13.5.2, 14.3.1

## **OWNER**

### **2**

**Owner**, Definition of

#### **2.1.1**

**Owner, Information and Services Required of the**

2.1.2, **2.2**, 3.2.2, 3.12.10, 6.1.3, 6.1.4, 6.2.5, 9.3.2, 9.6.1, 9.6.4, 9.9.2, 9.10.3, 10.3.3, 11.2, 11.3, 13.5.1, 13.5.2, 14.1.1.4, 14.1.4, 15.1.3

Owner's Authority

1.5, 2.1.1, 2.3.1, 2.4.1, 3.4.2, 3.8.1, 3.12.10, 3.14.2, 4.1.2, 4.1.3, 4.2.4, 4.2.9, 5.2.1, 5.2.4, 5.4.1, 6.1, 6.3, 7.2.1, 7.3.1, 8.2.2, 8.3.1, 9.3.1, 9.3.2, 9.5.1, 9.6.4, 9.9.1, 9.10.2, 10.3.2, 11.1.3, 11.3.3, 11.3.10, 12.2.2, 12.3.1, 13.2.2, 14.3, 14.4, 15.2.7

Owner's Financial Capability

2.2.1, 13.2.2, 14.1.1.4

**Owner's Liability Insurance**

#### **11.2**

Owner's Relationship with Subcontractors

1.1.2, 5.2, 5.3, 5.4, 9.6.4, 9.10.2, 14.2.2

**Owner's Right to Carry Out the Work**

**2.4**, 14.2.2

**Owner's Right to Clean Up**

#### **6.3**

**Owner's Right to Perform Construction and to Award Separate Contracts**

#### **6.1**

**Owner's Right to Stop the Work**

#### **2.3**

Owner's Right to Suspend the Work

14.3

Owner's Right to Terminate the Contract

14.2

**Ownership and Use of Drawings, Specifications and Other Instruments of Service**

1.1.1, 1.1.6, 1.1.7, **1.5**, 2.2.5, 3.2.2, 3.11.1, 3.17, 4.2.12, 5.3.1

**Partial Occupancy or Use**

9.6.6, **9.9**, 11.3.1.5

**Patching, Cutting and**

**3.14**, 6.2.5

Patents

3.17

**Payment, Applications for**

4.2.5, 7.3.9, 9.2, **9.3**, 9.4, 9.5, 9.6.3, 9.7, 9.8.5, 9.10.1, 14.2.3, 14.2.4, 14.4.3

**Payment, Certificates for**

4.2.5, 4.2.9, 9.3.3, **9.4**, 9.5, 9.6.1, 9.6.6, 9.7, 9.10.1, 9.10.3, 13.7, 14.1.1.3, 14.2.4

**Payment, Failure of**

9.5.1.3, **9.7**, 9.10.2, 13.6, 14.1.1.3, 14.2.1.2

Payment, Final

4.2.1, 4.2.9, 9.8.2, 9.10, 11.1.2, 11.1.3, 11.4.1, 12.3.1, 13.7, 14.2.4, 14.4.3

**Payment Bond, Performance Bond and**

**7.3.7.4**, 9.6.7, 9.10.3, **11.4**

**Payments, Progress**

9.3, **9.6**, 9.8.5, 9.10.3, 13.6, 14.2.3, 15.1.3

## **PAYMENTS AND COMPLETION**

### **9**

Payments to Subcontractors

5.4.2, 9.5.1.3, 9.6.2, 9.6.3, 9.6.4, 9.6.7, 14.2.1.2

PCB

10.3.1

**Performance Bond and Payment Bond**

7.3.7.4, 9.6.7, 9.10.3, **11.4**

**Permits, Fees, Notices and Compliance with Laws**

2.2.2, **3.7**, 3.13, 7.3.7.4, 10.2.2

## **PERSONS AND PROPERTY, PROTECTION OF**

### **10**

Polychlorinated Biphenyl

10.3.1

**Product Data**, Definition of  
**3.12.2**  
**Product Data and Samples, Shop Drawings**  
3.11, **3.12**, 4.2.7  
**Progress and Completion**  
4.2.2, **8.2**, 9.8, 9.9.1, 14.1.4, 15.1.3  
**Progress Payments**  
9.3, **9.6**, 9.8.5, 9.10.3, 13.6, 14.2.3, 15.1.3  
**Project**, Definition of  
**1.1.4**  
Project Representatives  
4.2.10  
**Property Insurance**  
10.2.5, **11.3**  
**PROTECTION OF PERSONS AND PROPERTY**  
**10**  
Regulations and Laws  
1.5, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 4.1.1, 9.6.4, 9.9.1,  
10.2.2, 11.1, 11.4, 13.1, 13.4, 13.5.1, 13.5.2, 13.6, 14,  
15.2.8, 15.4  
Rejection of Work  
3.5, 4.2.6, 12.2.1  
Releases and Waivers of Liens  
9.10.2  
Representations  
3.2.1, 3.5, 3.12.6, 6.2.2, 8.2.1, 9.3.3, 9.4.2, 9.5.1,  
9.8.2, 9.10.1  
Representatives  
2.1.1, 3.1.1, 3.9, 4.1.1, 4.2.1, 4.2.2, 4.2.10, 5.1.1,  
5.1.2, 13.2.1  
Responsibility for Those Performing the Work  
3.3.2, 3.18, 4.2.3, 5.3.1, 6.1.3, 6.2, 6.3, 9.5.1, 10  
Retainage  
9.3.1, 9.6.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3  
**Review of Contract Documents and Field**  
**Conditions by Contractor**  
**3.2**, 3.12.7, 6.1.3  
Review of Contractor's Submittals by Owner and  
Architect  
3.10.1, 3.10.2, 3.11, 3.12, 4.2, 5.2, 6.1.3, 9.2, 9.8.2  
Review of Shop Drawings, Product Data and  
Samples by Contractor  
3.12  
**Rights and Remedies**  
1.1.2, 2.3, 2.4, 3.5, 3.7.4, 3.15.2, 4.2.6, 5.3, 5.4, 6.1,  
6.3, 7.3.1, 8.3, 9.5.1, 9.7, 10.2.5, 10.3, 12.2.2, 12.2.4,  
**13.4**, 14, 15.4  
**Royalties, Patents and Copyrights**  
**3.17**  
Rules and Notices for Arbitration  
15.4.1  
**Safety of Persons and Property**  
**10.2**, 10.4  
**Safety Precautions and Programs**  
3.3.1, 4.2.2, 4.2.7, 5.3.1, **10.1**, 10.2, 10.4  
**Samples**, Definition of  
**3.12.3**

**Samples, Shop Drawings, Product Data and**  
3.11, **3.12**, 4.2.7  
**Samples at the Site, Documents and**  
**3.11**  
**Schedule of Values**  
**9.2**, 9.3.1  
Schedules, Construction  
3.10, 3.12.1, 3.12.2, 6.1.3, 15.1.5.2  
Separate Contracts and Contractors  
1.1.4, 3.12.5, 3.14.2, 4.2.4, 4.2.7, 6, 8.3.1, 12.1.2  
**Shop Drawings**, Definition of  
**3.12.1**  
**Shop Drawings, Product Data and Samples**  
3.11, **3.12**, 4.2.7  
**Site, Use of**  
**3.13**, 6.1.1, 6.2.1  
Site Inspections  
3.2.2, 3.3.3, 3.7.1, 3.7.4, 4.2, 9.4.2, 9.10.1, 13.5  
Site Visits, Architect's  
3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.5.1, 9.9.2, 9.10.1, 13.5  
Special Inspections and Testing  
4.2.6, 12.2.1, 13.5  
**Specifications**, Definition of  
**1.1.6**  
**Specifications**  
1.1.1, **1.1.6**, 1.2.2, 1.5, 3.11, 3.12.10, 3.17, 4.2.14  
Statute of Limitations  
13.7, 15.4.1.1  
Stopping the Work  
2.3, 9.7, 10.3, 14.1  
Stored Materials  
6.2.1, 9.3.2, 10.2.1.2, 10.2.4  
**Subcontractor**, Definition of  
**5.1.1**  
**SUBCONTRACTORS**  
**5**  
Subcontractors, Work by  
1.2.2, 3.3.2, 3.12.1, 4.2.3, 5.2.3, 5.3, 5.4, 9.3.1.2,  
9.6.7  
**Subcontractual Relations**  
**5.3**, 5.4, 9.3.1.2, 9.6, 9.10, 10.2.1, 14.1, 14.2.1  
Submittals  
3.10, 3.11, 3.12, 4.2.7, 5.2.1, 5.2.3, 7.3.7, 9.2, 9.3,  
9.8, 9.9.1, 9.10.2, 9.10.3, 11.1.3  
Submittal Schedule  
3.10.2, 3.12.5, 4.2.7  
**Subrogation, Waivers of**  
6.1.1, **11.3.7**  
**Substantial Completion**  
4.2.9, 8.1.1, 8.1.3, 8.2.3, 9.4.2, **9.8**, 9.9.1, 9.10.3,  
12.2, 13.7  
**Substantial Completion**, Definition of  
**9.8.1**  
Substitution of Subcontractors  
5.2.3, 5.2.4  
Substitution of Architect  
4.1.3

Substitutions of Materials  
3.4.2, 3.5, 7.3.8  
**Sub-subcontractor**, Definition of  
**5.1.2**  
Subsurface Conditions  
3.7.4  
**Successors and Assigns**  
**13.2**  
**Superintendent**  
**3.9**, 10.2.6  
**Supervision and Construction Procedures**  
1.2.2, **3.3**, 3.4, 3.12.10, 4.2.2, 4.2.7, 6.1.3, 6.2.4,  
7.1.3, 7.3.7, 8.2, 8.3.1, 9.4.2, 10, 12, 14, 15.1.3  
Surety  
5.4.1.2, 9.8.5, 9.10.2, 9.10.3, 14.2.2, 15.2.7  
Surety, Consent of  
9.10.2, 9.10.3  
Surveys  
2.2.3  
**Suspension by the Owner for Convenience**  
**14.3**  
Suspension of the Work  
5.4.2, 14.3  
Suspension or Termination of the Contract  
5.4.1.1, 14  
**Taxes**  
**3.6**, 3.8.2.1, 7.3.7.4  
**Termination by the Contractor**  
**14.1**, 15.1.6  
**Termination by the Owner for Cause**  
5.4.1.1, **14.2**, 15.1.6  
**Termination by the Owner for Convenience**  
**14.4**  
Termination of the Architect  
4.1.3  
Termination of the Contractor  
14.2.2  
**TERMINATION OR SUSPENSION OF THE CONTRACT**  
**14**  
**Tests and Inspections**  
3.1.3, 3.3.3, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3, 9.9.2,  
9.10.1, 10.3.2, 11.4.1.1, 12.2.1, **13.5**  
**TIME**  
**8**  
**Time, Delays and Extensions of**  
3.2.4, 3.7.4, 5.2.3, 7.2.1, 7.3.1, 7.4, **8.3**, 9.5.1, 9.7,  
10.3.2, 10.4.1, 14.3.2, 15.1.5, 15.2.5  
Time Limits  
2.1.2, 2.2, 2.4, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2,  
5.2, 5.3, 5.4, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3,  
9.4.1, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 11.1.3, 12.2, 13.5,  
13.7, 14, 15.1.2, 15.4

**Time Limits on Claims**  
3.7.4, 10.2.8, **13.7**, 15.1.2  
Title to Work  
9.3.2, 9.3.3  
**Transmission of Data in Digital Form**  
**1.6**  
**UNCOVERING AND CORRECTION OF WORK**  
**12**  
**Uncovering of Work**  
**12.1**  
Unforeseen Conditions, Concealed or Unknown  
3.7.4, 8.3.1, 10.3  
Unit Prices  
7.3.3.2, 7.3.4  
Use of Documents  
1.1.1, 1.5, 2.2.5, 3.12.6, 5.3  
**Use of Site**  
**3.13**, 6.1.1, 6.2.1  
**Values, Schedule of**  
**9.2**, 9.3.1  
Waiver of Claims by the Architect  
13.4.2  
Waiver of Claims by the Contractor  
9.10.5, 13.4.2, 15.1.6  
Waiver of Claims by the Owner  
9.9.3, 9.10.3, 9.10.4, 12.2.2.1, 13.4.2, 14.2.4, 15.1.6  
Waiver of Consequential Damages  
14.2.4, 15.1.6  
Waiver of Liens  
9.10.2, 9.10.4  
**Waivers of Subrogation**  
6.1.1, **11.3.7**  
**Warranty**  
**3.5**, 4.2.9, 9.3.3, 9.8.4, 9.9.1, 9.10.4, 12.2.2, 13.7  
Weather Delays  
15.1.5.2  
**Work**, Definition of  
**1.1.3**  
Written Consent  
1.5.2, 3.4.2, 3.7.4, 3.12.8, 3.14.2, 4.1.2, 9.3.2, 9.8.5,  
9.9.1, 9.10.2, 9.10.3, 11.4.1, 13.2, 13.4.2, 15.4.4.2  
Written Interpretations  
4.2.11, 4.2.12  
**Written Notice**  
2.3, 2.4, 3.3.1, 3.9, 3.12.9, 3.12.10, 5.2.1, 8.2.2, 9.7,  
9.10, 10.2.2, 10.3, 11.1.3, 12.2.2, 12.2.4, **13.3**, 14,  
15.4.1  
Written Orders  
1.1.1, 2.3, 3.9, 7, 8.2.2, 12.1, 12.2, 13.5.2, 14.3.1,  
15.1.2

## **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 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 and certify termination of the Agreement under Section 14.2.2.

### **§ 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.

**§ 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 will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment 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 this 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 material or equipment suppliers are authorized to use and reproduce the Instruments of Service provided to them 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 material or equipment suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect’s consultants.

### **§ 1.6 TRANSMISSION OF DATA IN DIGITAL FORM**

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

## **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.

**§ 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 INFORMATION AND SERVICES REQUIRED OF THE OWNER**

**§ 2.2.1** Prior to commencement of the Work, the Contractor may request in writing that the Owner provide reasonable evidence that the Owner has made financial arrangements to fulfill the Owner’s obligations under the Contract. Thereafter, the Contractor may only request such evidence if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum; or (3) the Contractor identifies in writing a reasonable concern regarding the Owner’s ability to make payment when due. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or the portion of the Work affected by a material change. After the Owner furnishes the evidence, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

**§ 2.2.2** 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.

**§ 2.2.3** 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.

**§ 2.2.4** 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.

**§ 2.2.5** 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.

### **§ 2.3 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.

### **§ 2.4 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 written 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 deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor 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. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

## **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 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 2.2.3, 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's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract 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 make 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 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, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and 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 written notice to the Owner and Architect and shall not proceed with that portion of the Work without further written instructions from the Architect. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required 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 authorized by the Architect in accordance with Sections 3.12.8 or 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**

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.

### **§ 3.6 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.

### **§ 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 21 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 an equitable adjustment 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 in writing, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may proceed 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 furnish in writing to the Owner through the Architect the name and qualifications of a proposed superintendent. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to the proposed superintendent or (2) that the Architect requires additional time to review. Failure of the Architect to reply 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 SCHEDULES

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

§ 3.10.2 The Contractor shall prepare a submittal schedule, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Architect's approval. The Architect's approval shall not unreasonably be 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, 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 maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Architect and shall be 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 the way by which 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.

**§ 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 requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect in writing 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 written 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. 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 cause such services or certifications to be provided by a properly 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, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review, 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. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

### **§ 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, and 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 and patching shall be restored to the condition existing prior to the cutting, fitting and 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 such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

### **§ 3.15 CLEANING UP**

**§ 3.15.1** The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or 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 Owner shall be entitled to reimbursement from the Contractor.

### **§ 3.16 ACCESS TO WORK**

The Contractor shall provide the Owner and Architect 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 such 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 the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such 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 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.

**§ 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.

**§ 4.1.3** If the employment of the Architect is terminated, the Owner shall employ a successor architect as to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

### **§ 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 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, except as provided in Section 3.3.1.

**§ 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 report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) 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 FACILITATING CONTRACT ADMINISTRATION**

Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Architect about matters arising out of or relating to the Contract. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

**§ 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 13.5.2 and 13.5.3, whether or not such 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, material and equipment 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, unless otherwise specifically stated by the Architect, 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 authorize 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.

**§ 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 duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

**§ 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 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 or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to any such proposed person or entity or (2) that the Architect requires additional time for review. Failure of the Owner or Architect to reply 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 previously selected if the Owner or Architect makes reasonable objection to such substitution.

## § 5.3 SUBCONTRACTUAL RELATIONS

By appropriate agreement, written where legally required for validity, 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, which the Contractor, by these 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

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

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing; 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 such 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 Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Article 15.

§ 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 other separate contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to the 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, the Owner shall be deemed to be subject to the same obligations and to have the same rights that apply to the Contractor 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 report to the Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report 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, except as to defects not then reasonably discoverable.

§ 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 the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or separate contractors 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, and the Contractor shall proceed promptly, 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:

- .1 The change in the Work;
- .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 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:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to 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 7.3.7.

§ 7.3.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 7.3.5 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.

§ 7.3.6 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.

**§ 7.3.7** If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the method and 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 7.3.7 shall be limited to the following:

- .1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;
- .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 related to the Work; and
- .5 Additional costs of supervision and field office personnel directly attributable to the change.

**§ 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.

**§ 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 has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes will be effected by written order signed by the Architect and shall be binding on the Owner and Contractor.

### **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, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be

furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

**§ 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 an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner; or by changes ordered in the Work; or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner pending mediation and arbitration; or by other causes that the Architect determines may justify delay, then the Contract Time shall be extended by Change Order 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.

## **ARTICLE 9 PAYMENTS AND COMPLETION**

### **§ 9.1 CONTRACT SUM**

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.

### **§ 9.2 SCHEDULE OF VALUES**

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit to the Architect, before the first Application for Payment, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's 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. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require, such as copies of requisitions from Subcontractors and material 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 material 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, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

#### **§ 9.4 CERTIFICATES FOR PAYMENT**

**§ 9.4.1** The Architect will, within seven days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part 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 comprising the Application for Payment, that, to the best of the Architect's knowledge, information and belief, the Work has progressed to the point indicated and that the quality of the Work is in accordance with the Contract Documents. 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. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. 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 material 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 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 the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

**§ 9.5.3** 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 material or equipment suppliers 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 Architect will reflect such payment on the next Certificate 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.

**§ 9.6.4** The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and material and equipment 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 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, except as may otherwise be required by law.

**§ 9.6.5** Contractor payments to material and equipment 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 and 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, shall create any fiduciary liability or tort liability on the part of the Contractor for breach of trust or shall entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

### **§ 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' written 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 shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

### **§ 9.8 SUBSTANTIAL COMPLETION**

**§ 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, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time 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 such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such 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 as required under Section 11.3.1.5 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**

**§ 9.10.1** Upon receipt of the Contractor's written 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 and, 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 terms and conditions of 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 and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial 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 and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, 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. If such lien 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 such lien, 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 Contract, make payment of the balance due for that portion of the Work fully completed 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 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; or
- .3 terms of special warranties required by the Contract Documents.

**§ 9.10.5** Acceptance of final payment by the Contractor, a Subcontractor or material 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;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; 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 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 owners and users of adjacent sites and utilities.

**§ 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, except damage or loss 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.

**§ 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, written notice of such 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**

**§ 10.3.1** The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials. 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 report the condition to the Owner and Architect in writing.

**§ 10.3.2** Upon receipt of the Contractor's written 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 such material or substance or who are to perform the task of removal or safe containment of such 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 in the amount of the Contractor's reasonable additional costs of shut-down, 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 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 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 indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance 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 indemnify the Contractor for all cost and expense thereby incurred.

## § 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 LIABILITY INSURANCE

§ 11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- .1 Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed;
- .2 Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- .3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- .4 Claims for damages insured by usual personal injury liability coverage;
- .5 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- .6 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
- .7 Claims for bodily injury or property damage arising out of completed operations; and
- .8 Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

§ 11.1.2 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

§ 11.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness.

§ 11.1.4 The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Owner, the Architect and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

### § 11.2 OWNER'S LIABILITY INSURANCE

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

### § 11.3 PROPERTY INSURANCE

§ 11.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's

risk “all-risk” or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

**§ 11.3.1.1** Property insurance shall be on an “all-risk” or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect’s and Contractor’s services and expenses required as a result of such insured loss.

**§ 11.3.1.2** If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance that will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order the cost thereof shall be charged to the Owner. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor in writing, then the Owner shall bear all reasonable costs properly attributable thereto.

**§ 11.3.1.3** If the property insurance requires deductibles, the Owner shall pay costs not covered because of such deductibles.

**§ 11.3.1.4** This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.

**§ 11.3.1.5** Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

### **§ 11.3.2 BOILER AND MACHINERY INSURANCE**

The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds.

### **§ 11.3.3 LOSS OF USE INSURANCE**

The Owner, at the Owner’s option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner’s property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner’s property, including consequential losses due to fire or other hazards however caused.

**§ 11.3.4** If the Contractor requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

**§ 11.3.5** 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, the Owner shall waive all rights in accordance with the terms of Section 11.3.7 for damages caused by fire or other causes of loss covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

**§ 11.3.6** Before an exposure to loss may occur, the Owner shall file with the Contractor a copy of each policy that includes insurance coverages required by this Section 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

#### **§ 11.3.7 WAIVERS OF SUBROGATION**

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, and (2) the Architect, Architect's consultants, separate contractors described in Article 6, 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 covered by property insurance obtained pursuant to this Section 11.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

**§ 11.3.8** A loss insured under the Owner's property insurance 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 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

**§ 11.3.9** If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach, or as determined in accordance with the method of binding dispute resolution selected in the Agreement between the Owner and Contractor. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 7.

**§ 11.3.10** The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute shall be resolved in the manner selected by the Owner and Contractor as the method of binding dispute resolution in the Agreement. If the Owner and Contractor have selected arbitration as the method of binding dispute resolution, the Owner as fiduciary shall make settlement with insurers or, in the case of a dispute over distribution of insurance proceeds, in accordance with the directions of the arbitrators.

#### **§ 11.4 PERFORMANCE BOND AND PAYMENT BOND**

**§ 11.4.1** The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

**§ 11.4.2** 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.

### **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.

**§ 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, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

## **§ 12.2 CORRECTION OF WORK**

### **§ 12.2.1 BEFORE OR AFTER SUBSTANTIAL COMPLETION**

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after 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 an 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 written 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 2.4.

**§ 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.

**§ 12.2.2.3** 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, whether completed or partially completed, of the Owner or separate contractors 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.

## ARTICLE 13 MISCELLANEOUS PROVISIONS

### § 13.1 GOVERNING LAW

The Contract shall be governed by the law of the place where the Project is located except that, 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 such 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 such assignment.

### § 13.3 WRITTEN NOTICE

Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity, or to an officer of the corporation for which it was intended; or if delivered at, or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

### § 13.4 RIGHTS AND REMEDIES

**§ 13.4.1** 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.

**§ 13.4.2** 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 there under, except as may be specifically agreed in writing.

### § 13.5 TESTS AND INSPECTIONS

**§ 13.5.1** 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 (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

**§ 13.5.2** 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 13.5.1, 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 13.5.3, shall be at the Owner's expense.

**§ 13.5.3** If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 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.

**§ 13.5.4** 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.

§ 13.5.5 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.

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

### § 13.6 INTEREST

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at such rate as the parties may 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.

### § 13.7 TIME LIMITS ON CLAIMS

The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time 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 13.7.

## 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 or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be 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 promptly, upon the Contractor's request, reasonable evidence as required by Section 2.2.1.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, 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' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor 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' written 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

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- .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 above reasons exist, the Owner, upon certification by the Initial Decision Maker that sufficient cause exists to justify such action, 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' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and 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.

§ 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 as described in 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 written notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; 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 Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

## ARTICLE 15 CLAIMS AND DISPUTES

### § 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, 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.

#### § 15.1.2 NOTICE OF CLAIMS

Claims by either the Owner or Contractor must be initiated by written 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 must be initiated within 21 days after 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 CONTINUING CONTRACT PERFORMANCE**

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. The Architect will prepare Change Orders and issue Certificates for Payment in accordance with the decisions of the Initial Decision Maker.

### **§ 15.1.4 CLAIMS FOR ADDITIONAL COST**

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

### **§ 15.1.5 CLAIMS FOR ADDITIONAL TIME**

**§ 15.1.5.1** If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided herein 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.

**§ 15.1.5.2** 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.

### **§ 15.1.6 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

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, 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 15.1.6 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

### **§ 15.2 INITIAL DECISION**

**§ 15.2.1** Claims, excluding those arising under Sections 10.3, 10.4, 11.3.9, and 11.3.10, 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 arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Initial Decision Maker with no 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 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 such 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 an initial decision, demand in writing that the other party file for mediation within 60 days of the initial decision. If such a demand is made and the party receiving the demand fails to file for mediation within the time required, 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 15.1.6 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** 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. 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** Either party, at its sole discretion, 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** Either party, at its sole discretion, 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 the Owner and Contractor under this Agreement.