

Professional

Engineering

Services

Fire Department Bunk Room and Restroom Remodel

Contract 4-2024

Project Manual

City of Whitewater

Whitewater, Wisconsin

Issued for Bid

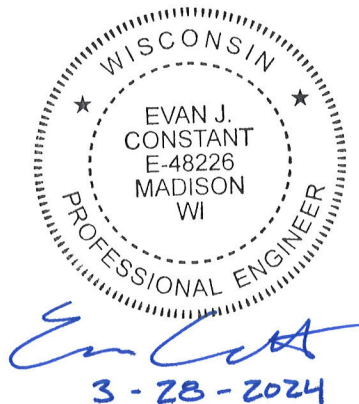
March 28, 2024



PLAN HOLDER: _____

Set No.: _____

PROJECT MANUAL
CITY OF WHITEWATER
WHITEWATER, WISCONSIN
FIRE DEPARTMENT BUNK ROOM AND RESTROOM REMODEL
CONTRACT 4-2024



Prepared by:

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Issued for Bid
March 28, 2024



SECTION 00 01 10

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WHITEWATER, WISCONSIN
FIRE DEPARTMENT BUNK ROOM AND RESTROOM REMODEL
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END OF SECTION

BIDDING AND CONTRACTING REQUIREMENTS

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ADVERTISEMENT TO BID

CITY OF WHITEWATER
WHITEWATER, WISCONSIN
FIRE DEPARTMENT BUNK ROOM AND RESTROOM REMODEL
CONTRACT 4-2024

The City of Whitewater (OWNER), located at 312 West Whitewater Street, Whitewater, WI 53190, is requesting Bids for the construction of the following Project:

Fire Department Bunk Room and Restroom Remodel
Contract 4-2024

Electronic Bids for the construction of the Project will be received by OWNER until Friday, April 12, 2024, at 1 P.M., local time. At that time the Bids received will be publicly downloaded and read aloud via teleconference. The login information for the teleconference is as follows: (608) 571-7149, Conference ID 354 178 620#.

The Project includes the following Work: Remodel of the Fire Department to include renovation of the men's and women's restrooms and transition of the adjacent staff breakroom into individual bunk rooms.

Complete digital Project Bidding Documents are available at www.strand.com or at www.questcdn.com. Download the digital Bidding Documents for \$75 by inputting Quest project number 8980730 on the website's project search page. Please contact QuestCDN.com at (952) 233-1632 or info@questcdn.com for assistance with free membership registration, downloading, and working with this digital Project information.

For this Project, Bids will **ONLY** be received and accepted via the online electronic Bid service through QuestCDN.com. To access the electronic Bid Form, download the Project Documents and click the Online Bidding button.

The Issuing Office is Strand Associates, Inc.[®], 910 West Wingra Drive, Madison, WI 53715.

All Bidders submitting a sealed Bid shall obtain the Bidding Documents from QuestCDN.com.

Bidders who submit a Bid must be a Plan Holder of record at the Issuing Office. Bids from Bidders who are not on the Plan Holders List may be returned as not being responsive.

The Bid must be accompanied by Bid security made payable to OWNER in an amount of 10% of the Bidder's maximum Bid price.

The City of Whitewater reserves the right to reject any or all Bids, to waive any technicality, and to accept any Bid which it deems advantageous. All Bids shall remain subject to acceptance for 85 days after the time set for receiving Bids.

Contract award shall be made based on the lowest responsive and responsible Bidder.

The Strand Associates, Inc.® project manager is Evan J. Constant, P.E. and can be contacted at Strand Associates, Inc.®, 910 West Wingra Drive, Madison, WI 53715, (608) 251-4843, regarding the Project.

For further requirements regarding Bid submittal, qualifications, procedures, and Contract Award, refer to the Instructions to Bidders that are included in the Bidding Documents.

Published by the authority of the City of Whitewater
Heather Boehm, City Clerk

Dated at City of Whitewater, Wisconsin
March 28, 2024 and April 4, 2024

END OF SECTION

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INSTRUCTIONS TO BIDDERS

- A. These Instructions to Bidders establish requirements for Bidding and Award of Contract.
- B. These articles are not necessarily numbered consecutively.
- C. Table of Contents

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ARTICLE 1–DEFINED TERMS

1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and the Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof:

- A. Issuing Office–The office from which the Bidding Documents are to be issued and which registers planholders.

ARTICLE 2–BIDDING DOCUMENTS

2.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder's responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.

2.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.

2.03 Electronic Documents

A. When the Bidding Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the Bidders as Electronic Documents in the manner specified.

1. Bidding Documents will be provided in Adobe PDF (Portable Document Format) (.pdf) that is readable by Adobe Acrobat Reader Version 6.0 or later. It is the intent of ENGINEER and OWNER that such Electronic Documents are to be exactly representative of the paper copies of the documents. However, because OWNER and ENGINEER cannot totally control the transmission and receipt of Electronic Documents nor CONTRACTOR's means of reproduction of such documents, OWNER and ENGINEER cannot and do not guarantee that Electronic Documents and reproductions prepared from those versions are identical in every manner to the paper copies.

B. Unless otherwise stated in the Bidding Documents, the Bidder may use and rely upon complete sets of Electronic Documents of the Bidding Documents, described in Paragraph 2.03.A above. However, Bidder assumes all risks associated with differences arising from transmission/receipt of Electronic Documents versions of Bidding Documents and reproductions prepared from those versions and, further, assumes all risks, costs, and responsibility associated with use of the Electronic Documents versions to derive information that is not explicitly contained in printed paper versions of the documents, and for Bidder's reliance upon such derived information.

ARTICLE 3–QUALIFICATIONS OF BIDDERS

3.01 To demonstrate Bidder's qualifications to perform the Work, within five days of OWNER's request, Bidder shall submit the Qualifications Statement.

3.02 Bidder must be prepared to submit evidence of Bidder's qualifications to do business in the state where the Project is located prior to award of the Contract.

3.03 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.

3.04 Bidders shall submit the documentation listed in Paragraph 7.01 of the Bid Form (Section 00 41 00).

3.05 No requirement in this Article 3 to submit information will prejudice the right of OWNER to seek additional pertinent information regarding Bidder's qualifications.

3.06 Bidder is advised to carefully review those portions of the Bidding Documents requiring Bidder's representations and certifications.

ARTICLE 4—PRE-BID CONFERENCE

4.01 A pre-bid conference will not be held for this Project.

ARTICLE 5—SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

5.01 Site and Other Areas

A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by OWNER for the use of CONTRACTOR. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by CONTRACTOR.

5.02 Existing Site Conditions

A. Subsurface and Physical Conditions; Hazardous Environmental Conditions

1. The Supplementary Conditions identify the following regarding existing conditions at or adjacent to the Site:

a. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data.

b. Those drawings known to OWNER of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data.

c. Reports and drawings known to OWNER relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.

d. Technical Data contained in such reports and drawings.

2. OWNER will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.

B. Underground Facilities: Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05 of the General Conditions, and not in the drawings referred to in Paragraph 5.02.A of these Instructions to Bidders. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

5.03 Other Site-Related Documents

A. No other Site-related documents are available.

5.04 Site Visit and Testing by Bidders

A. Bidder is required to visit the Site and conduct a thorough visual examination of the Site and adjacent areas. During the visit the Bidder must not disturb any ongoing operations at the Site.

B. Bidders visiting the Site are required to arrange their own transportation to the Site.

C. All access to the Site other than during a regularly scheduled Site visit must be coordinated through the OWNER. Bidder must conduct the required Site visit during normal working hours.

D. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.

E. On request, and to the extent OWNER has control over the Site, and schedule permitting, OWNER will provide Bidder general access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. OWNER will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on OWNER's authority regarding the Site. Bidder is responsible for establishing access needed to reach specific selected test sites.

F. Bidder must comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by OWNER or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.

G. Bidder must fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

5.05. OWNER'S Safety Program

A. Site visits and work at the Site may be governed by an OWNER safety program. If an OWNER safety program exists, it will be noted in the Supplementary Conditions.

5.06 Other Work at the Site

A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which OWNER is aware (if any) that is to be performed at the Site by OWNER or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If OWNER is party to a written contract for such other work, then on request, OWNER will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

ARTICLE 6–BIDDER’S REPRESENTATIONS AND CERTIFICATIONS

6.01 Express Representations and Certifications in Bid Form, Agreement

A. The Bid Form that each Bidder will submit contains express representations regarding the Bidder's examination of Project documentation, Site visit, and preparation of the Bid, and certifications regarding lack of collusion or fraud in connection with the Bid. Bidder should review these representations and certifications, and assure that Bidder can make the representations and certifications in good faith, before executing and submitting its Bid.

B. If Bidder is awarded the Contract, Bidder (as CONTRACTOR) will make similar express representations and certifications when it executes the Agreement.

ARTICLE 7–INTERPRETATIONS AND ADDENDA

7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to ENGINEER in writing. Interpretations or clarifications considered necessary by ENGINEER in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by Issuing Office as having received the Bidding Documents.

7.02 All requests for interpretation must be received at least five days prior to the day set for receiving Bids. Addenda will be issued not later than three days prior to the day set for receiving Bids. Failure of any Bidder to receive any such Addendum or interpretation shall not relieve such Bidder from any obligations under the Bid as submitted. All Addenda so issued shall become part of the Contract Documents.

7.03 Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the Contract Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

ARTICLE 8–BID SECURITY

8.01 A Bid must be accompanied by Bid security made payable to OWNER in an amount of 10% of the Bidder's maximum Bid price and in the form of Surety2000, a certified check, bank money order, or a Bid Bond (on form attached) issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions. A PDF copy of the Bid Bond can be attached to electronically submitted Bids.

8.02 The Bid security of the apparent Successful Bidder will be retained until OWNER awards the contract to such Bidder, and such Bidder has executed the Contract, furnished the required Contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract and furnish the required Contract security within 15 days after the Notice of Award, OWNER may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited, in whole in the case of a Penal Sum Bid Bond, and to the extent of OWNER's damages in the case of a damages-form bond. Such forfeiture will be OWNER's exclusive remedy if Bidder defaults.

8.03 The Bid security of other Bidders that OWNER believes to have a reasonable chance of receiving the award may be retained by OWNER until the earlier of 7 days after the Effective Date of the Contract or 86 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.

8.04 Bid security of other Bidders that OWNER believes do not have a reasonable chance of receiving the award will be released within 7 days after the Bid opening.

ARTICLE 9—CONTRACT TIMES

9.01 The number of days within which, or the dates by which, the Work is to be (a) substantially completed and (b) ready for final payment, and (c) Milestones (if any) are to be achieved, are set forth in the Agreement.

9.02 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 10—SUBSTITUTE OR “OR EQUAL” ITEMS

10.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without evaluation of Equipment Alternatives listed in the Lump Sum Base Bid, if any, and without evaluation of possible substitute or “or equal” items. Whenever it is specified or described in the Bidding Documents that an Equipment Alternative listed in the Lump Sum Base Bid or that a substitute or “or equal” item of material or equipment may be furnished or used by CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be evaluated by ENGINEER until after the Effective Date of the Contract.

10.02 All prices that Bidder sets forth in its Bid shall be based on the presumption that CONTRACTOR will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of “or-equal” or substitution requests are made at Bidder’s sole risk.

ARTICLE 11—SUBCONTRACTORS, SUPPLIERS, AND OTHERS

11.01 A Bidder must be prepared to retain specific Subcontractors and Suppliers for the performance of the Work if required to do so by the Bidding Documents or in the Specifications. If a prospective Bidder objects to retaining any such Subcontractor or Supplier and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.

11.02 Subsequent to the submittal of the Bid, OWNER may not require the Successful Bidder or CONTRACTOR to retain any Subcontractor, Supplier, or other individual or entity against which CONTRACTOR has reasonable objection.

11.03 The apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to OWNER a list of the Subcontractors or Suppliers proposed for the Work. If requested by OWNER, such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, or other individual or entity. If OWNER or ENGINEER, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, OWNER may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder shall submit a substitute, Bidder’s Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and OWNER may consider such price adjustment in evaluating Bids and making the Contract award.

11.04 If apparent Successful Bidder declines to make any such substitution, OWNER may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, or other individuals or entities. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against

which OWNER or ENGINEER makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER and ENGINEER subject to subsequent revocation of such acceptance as provided in Paragraph 7.07 of the General Conditions.

ARTICLE 12—PREPARATION OF BID

12.01 The Bid Form is included with the Bidding Documents.

A. All blanks on the Bid Form shall be completed and the Bid Forms shall be signed. A Bid price shall be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.

B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words “No Bid” or “Not Applicable.”

C. All blanks on the Bid Form must be filled and all required documents uploaded before QuestCDN.com will accept the Bid. The Bid shall be signed electronically where required and in accordance with the instructions included in this Article.

12.02 A Bid by a corporation shall be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation shall be shown.

12.03 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address and state of incorporation shall be shown.

12.04 A Bid by a limited liability company shall be executed in the name of the firm by a member, if the LLC is member-managed, or by a manager, if manager-managed, and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown.

12.05 A Bid by an individual shall show the Bidder’s name and official address.

12.06 A Bid by a joint venture must be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture must have been formally established prior to submittal of a Bid, and the official address of the joint venture must be shown.

12.07 All names shall be printed below the signatures.

12.08 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.

12.09 The Bid must contain evidence of Bidder's authority to do business in the state where the Project is located, or Bidder must certify in writing that it will obtain such authority within the time for acceptance of Bids and attach such certification to the Bid.

12.10 If Bidder is required to be licensed to submit a Bid or perform the Work in the state where the Project is located, the Bid must contain evidence of Bidder's licensure, or Bidder must certify in writing that it will obtain such licensure within the time for acceptance of Bids and attach such certification to the Bid. Bidder's state contractor license number, if any, must also be shown on the Bid Form.

12.11 All Bids shall be signed in the presence of and be notarized by a Notary Public or other Officer authorized to administer oaths.

ARTICLE 13–BASIS OF BID

13.01 Lump Sum

A. Bidders shall submit a Bid on a Lump Sum basis as set forth in the Bid Form.

13.02 Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

ARTICLE 14–SUBMITTAL OF BID

14.01 Bids will be received for all divisions of the Specifications and all other provisions of the Bidding Documents.

14.02 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the Advertisement or Invitation to Bid.

14.03 Bids received after the date and time prescribed for the opening of Bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 15–MODIFICATION AND WITHDRAWAL OF BIDS

15.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time set for receiving Bids.

15.02 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with OWNER and promptly thereafter demonstrates to the reasonable satisfaction of OWNER that there was a material and substantial mistake in the preparation of its Bid, the Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, the Bidder will be disqualified from further Bidding on the Work.

ARTICLE 16–OPENING OF BIDS

16.01 Bids will be downloaded at the time and place indicated in the Advertisement or Invitation to Bid and, unless obviously nonresponsive, read aloud publicly. An abstract of the amounts of the Base Bids and major alternatives and components, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 17–BIDS TO REMAIN SUBJECT TO ACCEPTANCE

17.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but OWNER may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 18–EVALUATION OF BIDS AND AWARD OF CONTRACT

18.01 OWNER reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. OWNER also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.

18.02 OWNER will reject the Bid of any Bidder that OWNER finds, after reasonable inquiry and evaluation, to not be responsible.

18.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, whether in the Bid itself or in a separate communication to OWNER or ENGINEER, then OWNER will reject the Bid as nonresponsive.

18.04 In evaluating Bids, OWNER will consider whether or not the Bids comply with the prescribed requirements, and such alternatives, unit prices, and other data as may be requested in the Bid Form or prior to the Notice of Award.

18.05 In evaluating Bids, OWNER will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the Supplementary Conditions. OWNER also may consider the operating costs, maintenance requirements, performance data, and guarantees of major items of materials and equipment proposed for incorporation in the work when such data is required to be submitted prior to the Notice of Award.

18.06.1 OWNER may conduct such investigations as OWNER deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals or entities to perform the Work in accordance with the Contract Documents to OWNER's satisfaction within the prescribed time. Bidder shall furnish to OWNER all such information and data for this purpose as OWNER may request. OWNER reserves the right to reject any Bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy OWNER that such Bidder is properly qualified to carry out the obligations of the Contract Documents and to complete the work contemplated therein.

18.06.2 OWNER shall be satisfied that Bidder involved (1) maintains a permanent place of business, (2) has adequate plant and equipment to do the work properly and expeditiously, (3) has a suitable financial status to meet obligations incident to the work, (4) has appropriate technical experience, and (5) can submit a satisfactory performance record.

18.07 If a Contract is to be awarded, it will be awarded to the responsible Bidder with the lowest responsive Bid whose evaluation by OWNER indicates to OWNER that the award will be in the best interests of the Project.

18.08 If a Contract is to be awarded, OWNER will give the successful Bidder a Notice of Award within 60 days after the time set for opening Bids.

ARTICLE 19–BONDS AND INSURANCE

19.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth OWNER's requirements as to performance and payment bonds, other required bonds

(if any), and insurance. When the Successful Bidder delivers the executed Agreement to OWNER, it must be accompanied by required bonds and insurance documentation.

19.02 Article 8, Bid Security, of these Instructions, addresses any requirements for providing Bid Bonds as part of the Bidding process.

ARTICLE 20—SIGNING OF AGREEMENT

20.01 When OWNER gives a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unexecuted counterparts of the Agreement along with all other Contract Documents which are identified in the Agreement as attached thereto. Within 15 days thereafter, Successful Bidder shall execute and deliver the required number of counterparts of the Agreement and attached documents to ENGINEER with the required Bonds and insurances. Within 10 days after receipt of properly executed documents and Bonds and insurances which meet all requirements of the Contract Documents, ENGINEER will deliver one fully signed counterpart to Successful Bidder.

ARTICLE 21—RETAINAGE

21.01 Provisions concerning retainage are set forth in the Agreement.

ARTICLE 22—WAGE RATE DETERMINATION

22.01 A wage rate determination is not a requirement of this Project.

ARTICLE 23—INCOME TAX

23.01 Bidders, whether a corporation, partnership, or individual, who are nonresidents of the state of Wisconsin, shall comply with Section 71.80 (16) of the Wisconsin Statutes.

ARTICLE 24—OTHER TAXES

24.01 The Bid shall include all taxes in effect at the time the Bid is submitted. Bidders who are uncertain as to what items are subject to tax, or who require further explanation or clarification, are requested to contact the State of Wisconsin Department of Revenue. Refer to the Supplementary Conditions SC-7.10 for additional information on taxes including exemptions for sales and use taxes.

ARTICLE 25—LAWS, ORDINANCES, AND REGULATIONS

25.01 Bidder must familiarize itself with all laws, ordinances, and regulations by federal, state, city, or other governmental agency, which by reason of being neglected or violated may affect the Work contemplated and must secure and pay the fee required for any permits which may be necessary unless such fees are otherwise indicated to be paid in the Bidding Documents.

END OF SECTION

SECTION 00 41 00

BID

CITY OF WHITEWATER
WHITEWATER, WISCONSIN
FIRE DEPARTMENT BUNK ROOM AND RESTROOM REMODEL
CONTRACT 4-2024

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- ARTICLE 8. DEFINED TERMS
- ARTICLE 9. COMMUNICATIONS
- ARTICLE 10. BID SUBMITTAL

ARTICLE 1–BID RECIPIENT

1.01 Bids to be received until 1 P.M., local time, April 12, 2024.

1.02 Online electronic Bidding through QuestCDN.com is the only way the Bid will be accepted. To access the electronic Bid Form, download the Project Documents and click the Online Bidding button.

1.03 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with OWNER in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2–BIDDER'S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

2.01 Bid Acceptance Period

A. This Bid will remain subject to acceptance for 85 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of OWNER.

2.02 Instructions to Bidders

A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.

2.03 In submitting this Bid, Bidder represents the following:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and

reference items identified in the Bidding Documents, and hereby acknowledges receipt of the addenda.

2.04 Bidder will sign and deliver the required number of counterparts of the Agreement with the bonds, insurance certificates, and other documents required by the Bidding Requirements within 15 days after the date of OWNER's Notice of Award.

ARTICLE 3–BIDDER'S REPRESENTATIONS

3.01 Bidder's Representations

A. In submitting this Bid, Bidder represents the following:

1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as CONTRACTOR; and (c) Bidder's (CONTRACTOR's) safety precautions and programs.
7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
8. Bidder is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents.
9. Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.
10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4–BIDDER’S CERTIFICATIONS

4.01 Bidder certifies the following:

A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.

B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.

C. Bidder has not solicited or induced any individual or entity to refrain from Bidding.

D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:

1. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the Bidding process.

2. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the Bidding process to the detriment of OWNER, (b) to establish Bid prices at artificial non-competitive levels, or (c) to deprive OWNER of the benefits of free and open competition.

3. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of OWNER, a purpose of which is to establish Bid prices at artificial, non-competitive levels.

4. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the Bidding process or affect the execution of the Contract.

ARTICLE 5–BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

The following abbreviations may be used in this Bid:

CIP	-	Complete in Place	LS	-	Lump Sum
CY	-	Cubic Yard	LT	-	Left
DI	-	Ductile Iron	MBF	-	Thousand Board Feet
DIA	-	Diameter	MFOB	-	Thousand Freight-On-Board
EA	-	Each	MH	-	Manhole
EST	-	Estimate(d)	RCP	-	Reinforced Concrete Pipe
EXCL	-	Excluding	RT	-	Right
FT	-	Feet	SF	-	Square Foot
GAL	-	Gallon	STA	-	Station
HERCP	-	Horizontal Elliptical RCP	SY	-	Square Yard
HRS	-	Hours	T	-	Ton
IN	-	Inch	VLF	-	Vertical Linear Foot
INCL	-	Including	W/	-	With
LBS	-	Pounds	W/O	-	Without
LF	-	Linear Foot			

BIDDERS SHOULD NOT ADD ANY CONDITIONS OR QUALIFYING STATEMENTS TO THIS BID OR THE BID MAY BE DECLARED IRREGULAR AS NOT BEING RESPONSIVE TO THE INSTRUCTIONS TO BIDDERS.

BID

CITY OF WHITEWATER
WHITEWATER, WISCONSIN
FIRE DEPARTMENT BUNK ROOM AND RESTROOM REMODEL
CONTRACT 4-2024

LUMP SUM BID:

_____ Dollars \$ _____
(Words) (Numbers)

ARTICLE 6–TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before November 8, 2024.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the Contract Times.

ARTICLE 7–ATTACHMENTS TO THIS BID

7.01 The following documents are attached to and made a condition of this Bid:

A. Required Bid security in the form of _____
(Surety2000, Certified Check, Bank Money Order, or Bond)

B. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license, if applicable, within the time for acceptance of Bids.

C. Where applicable, Bidder shall provide CONTRACTOR's License Number for the state of the Project, where noted at end of Bid or Bidder shall provide evidence of Bidder's ability to obtain a State Contractor's License and a covenant by Bidder to obtain said license within the time for acceptance of Bids.

ARTICLE 8–DEFINED TERMS

8.01 The terms used in this Bid with initial or all capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9–COMMUNICATIONS

9.01 Communications concerning this Bid shall be addressed to the address of Bidder indicated below:

Name: _____

Street: _____

City, State, Zip Code: _____

Phone No.: _____ Fax No.: _____

E-mail address: _____

ARTICLE 10–BID SUBMITTAL

Submitted on _____

State Contractor License Number _____ (if applicable).

If Bidder is:

An Individual

By: _____
(Individual's signature)

Name (typed or printed): _____

Doing business as: _____

Business address: _____

Phone No.: _____ Fax No.: _____

E-mail address: _____

A Partnership

Partnership Name: _____

By: _____
(Signature of general partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Business address: _____

Phone No.: _____ Fax No.: _____

E-mail address: _____

A Corporation

Corporation Name: _____

State of Incorporation: _____

Type (General Business, Professional, Service, Limited Liability): _____

By: _____
(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Attest _____
(Signature of Corporate Secretary)

Business address: _____

Phone No.: _____ Fax No.: _____

E-mail address: _____

Date of Qualification to do business in (State where the Project is located) is _____

Sworn and subscribed to before me this
_____ day of _____, _____

Notary Public or Other Officer
Authorized to Administer Oaths.
My Commission expires: _____

A Limited Liability Company (Note: If member-managed, an authorized member must sign; if manager-managed, the authorized manager must sign. Attach evidence of authority to sign on behalf of LLC).

(Fill in complete name of LLC)

State of Formation: _____

By: _____
(Signature)

_____, [Member] [Manager]
(Print Name)

Business Address: _____

Telephone.: _____

Email: _____

Fax: _____

A Joint Venture

Name of Joint Venture: _____

First Joint Venturer Name: _____

By: _____
(Signature of first joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business address: _____

Phone No.: _____ Fax No.: _____

E-mail address: _____

Second Joint Venturer Name: _____

By: _____
(Signature of second joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business address: _____

Phone No.: _____ Fax No.: _____

E-mail address: _____

Phone No., Fax No., and postal and E-mail address for receipt of official communications:

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

Sworn and subscribed to before me this
_____ day of _____, _____

Notary Public or Other Officer
Authorized to Administer Oaths.
My Commission expires: _____

END OF SECTION

10% BID BOND

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

Bidder Name: [Full formal name of Bidder] Address <i>(principal place of business)</i> : [Address of Bidder's principal place of business]	Surety Name: [Full formal name of Surety] Address <i>(principal place of business)</i> : [Address of Surety's principal place of business]
Owner Name: [Full formal name of Owner] Address <i>(principal place of business)</i> : [Address of Owner's principal place of business]	Bid Project <i>(name and location)</i> : [Owner project/contract name, and location of the project] Bid Due Date: [Enter date bid is due]
Bond Penal Sum: [Amount] Date of Bond: [Date]	
Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.	
Bidder	Surety
By: _____ <i>(Full formal name of Bidder)</i> _____ <i>(Signature)</i>	By: _____ <i>(Full formal name of Surety) (corporate seal)</i> _____ <i>(Signature) (Attach Power of</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.</i>	

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond will be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder occurs upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation will be null and void if:
 - 3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2. All Bids are rejected by Owner, or
 - 3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions does not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action will be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety, and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond will be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder must be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Postal Service registered or certified mail, return receipt requested, postage pre-paid, and will be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond will be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute governs and the remainder of this Bond that is not in conflict therewith continues in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

QUALIFICATIONS STATEMENT

THE INFORMATION SUPPLIED IN THIS DOCUMENT IS CONFIDENTIAL TO THE EXTENT PERMITTED BY LAWS AND REGULATIONS

ARTICLE 1—GENERAL INFORMATION

1.01 Provide contact information for the Business:

Legal Name of Business:			
Corporate Office			
Name:		Phone number:	
Title:		Email address:	
Business address of corporate office:			
Local Office			
Name:		Phone number:	
Title:		Email address:	
Business address of local office:			

1.02 Provide information on the Business's organizational structure:

Form of Business:	<input type="checkbox"/> Sole Proprietorship <input type="checkbox"/> Partnership <input type="checkbox"/> Corporation		
<input type="checkbox"/> Limited Liability Company <input type="checkbox"/> Joint Venture comprised of the following companies:			
1.			
2.			
3.			
Provide a separate Qualification Statement for each Joint Venturer.			
Date Business was formed:		State in which Business was formed:	
Is this Business authorized to operate in the Project location?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Pending	

- 1.03 Identify all businesses that own Business in whole or in part (25% or greater), or that are wholly or partly (25% or greater) owned by Business:

Name of business:		Affiliation:	
Address:			
Name of business:		Affiliation:	
Address:			
Name of business:		Affiliation:	
Address:			

- 1.04 Provide information regarding the Business's officers, partners, and limits of authority.

Name:		Title:	
Authorized to sign contracts: <input type="checkbox"/> Yes <input type="checkbox"/> No		Limit of Authority:	\$
Name:		Title:	
Authorized to sign contracts: <input type="checkbox"/> Yes <input type="checkbox"/> No		Limit of Authority:	\$
Name:		Title:	
Authorized to sign contracts: <input type="checkbox"/> Yes <input type="checkbox"/> No		Limit of Authority:	\$
Name:		Title:	

ARTICLE 2—LICENSING

- 2.01 Provide information regarding licensure for Business:

Name of License:			
Licensing Agency:			
License No:		Expiration Date:	
Name of License:			
Licensing Agency:			
License No:		Expiration Date:	

ARTICLE 3—DIVERSE BUSINESS CERTIFICATIONS

3.01 Provide information regarding Business's Diverse Business Certification, if any. Provide evidence of current certification.

Certification	Certifying Agency	Certification Date
<input type="checkbox"/> Disadvantaged Business Enterprise		
<input type="checkbox"/> Minority Business Enterprise		
<input type="checkbox"/> Woman-Owned Business Enterprise		
<input type="checkbox"/> Small Business Enterprise		
<input type="checkbox"/> Disabled Business Enterprise		
<input type="checkbox"/> Veteran-Owned Business Enterprise		
<input type="checkbox"/> Service-Disabled Veteran-Owned Business		
<input type="checkbox"/> HUBZone Business (Historically Underutilized) Business		
<input type="checkbox"/> Other		
<input type="checkbox"/> None		

ARTICLE 4—SAFETY

4.01 Provide information regarding Business's safety organization and safety performance.

Name of Business's Safety Officer:		
Safety Certifications		
Certification Name	Issuing Agency	Expiration

4.02 Provide Worker's Compensation Insurance Experience Modification Rate (EMR), Total Recordable Frequency Rate (TRFR) for incidents, and Total Number of Recorded Manhours (MH) for the last 3 years and the EMR, TRFR, and MH history for the last 3 years of any proposed Subcontractor(s) that will provide Work valued at 10% or more of the Contract Price. Provide documentation of the EMR history for Business and Subcontractor(s).

Year									
Company	EMR	TRFR	MH	EMR	TRFR	MH	EMR	TRFR	MH

ARTICLE 5—FINANCIAL

- 5.01 Provide information regarding the Business's financial stability. Provide the most recent audited financial statement, and if such audited financial statement is not current, also provide the most current financial statement.

Financial Institution:			
Business address:			
Date of Business's most recent financial statement:		<input type="checkbox"/> Attached	
Date of Business's most recent audited financial statement:		<input type="checkbox"/> Attached	
Financial indicators from the most recent financial statement			
Contractor's Current Ratio (Current Assets ÷ Current Liabilities)			
Contractor's Quick Ratio ((Cash and Cash Equivalents + Accounts Receivable + Short Term Investments) ÷ Current Liabilities)			

ARTICLE 6—SURETY INFORMATION

- 6.01 Provide information regarding the surety company that will issue required bonds on behalf of the Business, including but not limited to performance and payment bonds.

Surety Name:			
Surety is a corporation organized and existing under the laws of the state of:			
Is surety authorized to provide surety bonds in the Project location?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Is surety listed in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" published in Department Circular 570 (as amended) by the Bureau of the Fiscal Service, U.S. Department of the Treasury? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Mailing Address (principal place of business):			
Physical Address (principal place of business):			
Phone (main):		Phone (claims):	

ARTICLE 7—INSURANCE

- 7.01 Provide information regarding Business's insurance company(s), including but not limited to its Commercial General Liability carrier. Provide information for each provider.

Name of insurance provider, and type of policy (CLE, auto, etc.):			
Insurance Provider		Type of Policy (Coverage Provided)	
Are providers licensed or authorized to issue policies in the Project location?		<input type="checkbox"/> Yes <input type="checkbox"/> No	
Does provider have an A.M. Best Rating of A-VII or better?		<input type="checkbox"/> Yes <input type="checkbox"/> No	
Mailing Address (principal place of business):			
Physical Address (principal place of business):			
Phone (main):		Phone (claims):	

ARTICLE 8—CONSTRUCTION EXPERIENCE

- 8.01 Provide information that will identify the overall size and capacity of the Business.

Average number of current full-time employees:	
Estimate of revenue for the current year:	
Estimate of revenue for the previous year:	

- 8.02 Provide information regarding the Business's previous contracting experience.

Years of experience with projects like the proposed project:			
As a general contractor:		As a joint venturer:	
Has Business, or a predecessor in interest, or an affiliate identified in Paragraph 1.03:			
Been disqualified as a bidder by any local, state, or federal agency within the last 5 years? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Been barred from contracting by any local, state, or federal agency within the last 5 years? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Been released from a bid in the past 5 years? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Defaulted on a project or failed to complete any contract awarded to it? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Refused to construct or refused to provide materials defined in the contract documents or in a change order? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Been a party to any currently pending litigation or arbitration? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Provide full details in a separate attachment if the response to any of these questions is Yes.			

- 8.03 List all projects currently under contract in Schedule A and provide indicated information.
- 8.04 List a minimum of three and a maximum of six projects completed in the last 5 years in Schedule B and provide indicated information to demonstrate the Business's experience with projects similar in type and cost of construction.
- 8.05 In Schedule C, provide information on key individuals whom Business intends to assign to the Project. Provide resumes for those individuals included in Schedule C. Key individuals include the Project Manager, Project Superintendent, Quality Manager, and Safety Manager. Resumes may be provided for Business's key leaders as well.

ARTICLE 9—REQUIRED ATTACHMENTS

- 9.01 Provide the following information with the Statement of Qualifications:
- A. If Business is a Joint Venture, separate Qualifications Statements for each Joint Venturer, as required in Paragraph 1.02.
 - B. Diverse Business Certifications if required by Paragraph 3.01.
 - C. Certification of Business's safety performance if required by Paragraph 4.02.
 - D. Financial statements as required by Paragraph 5.01.
 - E. Attachments providing additional information as required by Paragraph 8.02.
 - F. Schedule A (Current Projects) as required by Paragraph 8.03.
 - G. Schedule B (Previous Experience with Similar Projects) as required by Paragraph 8.04.
 - H. Schedule C (Key Individuals) and resumes for the key individuals listed, as required by Paragraph 8.05.
 - I. Additional items as pertinent.

This Statement of Qualifications is offered by:

Business: _____
(typed or printed name of organization)

By: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(date signed)

(If Business is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Address for giving notices:

Designated Representative:

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Address: _____

Phone: _____

Email: _____

Schedule A—Current Projects

Name of Organization					
Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Schedule B—Previous Experience with Similar Projects

Name of Organization					
Project Owner		Project Name			
General Description of Project					
Project Cost		Date Project			
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					
Project Owner		Project Name			
General Description of Project					
Project Cost		Date Project			
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					
Project Owner		Project Name			
General Description of Project					
Project Cost		Date Project			
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Schedule B—Previous Experience with Similar Projects

Name of Organization					
Project Owner		Project Name			
General Description of Project					
Project Cost		Date Project			
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					
Project Owner		Project Name			
General Description of Project					
Project Cost		Date Project			
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					
Project Owner		Project Name			
General Description of Project					
Project Cost		Date Project			
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Schedule C—Key Individuals

Project Manager			
Name of individual			
Years of experience as project manager			
Years of experience with this organization			
Number of similar projects as project manager			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	
Project Superintendent			
Name of individual			
Years of experience as project superintendent			
Years of experience with this organization			
Number of similar projects as project superintendent			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	

Safety Manager			
Name of individual			
Years of experience as project manager			
Years of experience with this organization			
Number of similar projects as project manager			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	
Quality Control Manager			
Name of individual			
Years of experience as project superintendent			
Years of experience with this organization			
Number of similar projects as project superintendent			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	

SECTION 00 52 00

AGREEMENT

THIS AGREEMENT is by and between _____
(hereinafter called OWNER) and _____
(hereinafter called CONTRACTOR).

Terms used in this Agreement have the meanings stated in the General Conditions and the Supplementary Conditions.

OWNER and CONTRACTOR, in consideration of the mutual covenants set forth herein, agree as follows:

Article 1. WORK

1.01 CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

Article 2. THE PROJECT

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

Article 3. ENGINEER

3.01 OWNER has retained Strand Associates, Inc.[®] ("ENGINEER") to act as OWNER's representative, assume all duties and responsibilities of ENGINEER, and have the rights and authority assigned to ENGINEER in the Contract except for resident project representative services. OWNER will assume these duties and responsibilities and the rights and authority thereto in accordance with the Contract Documents.

3.02 The part of the Project that pertains to the Work has been designed by ENGINEER.

Article 4. CONTRACT TIMES

4.01 Time of the Essence

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 Dates for Substantial Completion and Final Payment

A. The Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before November 8, 2024.

4.03 Liquidated Damages

A. CONTRACTOR and OWNER recognize that time is of the essence as stated in Paragraph 4.01 above and that OWNER will suffer financial and other losses if the Work is not completed and Milestones not achieved within the Contract Times, as duly modified. The parties also recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty):

1. Substantial Completion and Ready for Final Payment: CONTRACTOR shall pay OWNER \$700 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is completed and ready for final payment. This amount is comprised of \$200 per day for engineering, construction administration services, and construction observation services, and \$500 per day for administration, labor, expenses, and other costs that will be incurred by OWNER.

Article 5. CONTRACT PRICE

5.01 OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents an amount in current funds as follows, subject to adjustment under the Contract:

A. For all Work, at the prices stated in CONTRACTOR's Bid, attached hereto as an exhibit.

Article 6. PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

A. CONTRACTOR shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

6.02 Progress Payments; Retainage

A. OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR's Applications for Payment as established at the preconstruction conference during performance of the Work as provided in Paragraphs 6.02.A.1 and 6.02.A.2 below. All such payments will be measured by the schedule of values established in Paragraph 2.05.A of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements:

1. Prior to Substantial Completion, OWNER will retain an amount equal to 5% of each progress payment application until 50% of the Work has been completed. At 50% completion, further progress payment applications shall be paid in full to CONTRACTOR and no additional amounts will be retained unless ENGINEER certifies to OWNER that the job is not proceeding satisfactorily. Amounts previously retained shall not be paid to CONTRACTOR until substantial completion of the Work. At 50% completion of the Work, or any time thereafter when the character and progress of the Work is not satisfactory to OWNER on recommendation of ENGINEER, additional amounts may be retained, but in no event shall the total retainage be more than 10% of the value of the work completed.

2. Upon Substantial Completion, OWNER shall pay an amount sufficient to increase total payments to CONTRACTOR to 98% of the Work completed, less such amounts as ENGINEER shall determine in accordance with Paragraph 15.01.C.5 and 15.01.C.6 of the General Conditions and less 100% of ENGINEER's estimate of the value of Work to be completed or corrected as shown on the tentative list of items to be completed or corrected attached to the certificate of Substantial Completion.

6.03 Final Payment

A. Upon final completion and acceptance of the Work in accordance with Paragraph 15.06 of the General Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said Paragraph 15.06.

6.04 Consent of Surety

A. OWNER will not make final payment unless CONTRACTOR submits written consent of the surety to such payment, return, or release.

Article 7. HIERARCHY

7.01 In resolving inconsistencies among two or more sections of the Contract Documents, precedence shall be given in the following order:

- | | |
|----------|---------------------------------------------------|
| First: | WRITTEN AMENDMENTS |
| Second: | CHANGE ORDERS/FIELD ORDERS/WORK CHANGE DIRECTIVES |
| Third: | ADDENDA |
| Fourth: | AGREEMENT |
| Fifth: | SUPPLEMENTARY CONDITIONS |
| Sixth: | GENERAL CONDITIONS |
| Seventh: | SPECIFICATIONS |
| Eighth: | DRAWINGS |

For categories that have the same order of precedence, the document that includes the latest date shall control. Figure dimensions (numerical) on Drawings shall take precedence over dimensions measured utilizing a scale.

Article 8. REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

8.01 CONTRACTOR's Representations

A. In order to induce OWNER to enter into this Contract, CONTRACTOR makes the following representations:

1. CONTRACTOR has examined and carefully studied the Contract Documents, including Addenda.
2. CONTRACTOR has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
3. CONTRACTOR is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
4. CONTRACTOR has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site, if any, that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
5. CONTRACTOR has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
6. CONTRACTOR has considered the information known to CONTRACTOR itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR; and (c) CONTRACTOR's safety precautions and programs.
7. Based on the information and observations referred to in the preceding paragraph, CONTRACTOR agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
8. CONTRACTOR is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Contract Documents.
9. CONTRACTOR has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that CONTRACTOR has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.
10. The Contract Documents are generally sufficient to indicate and convey

understanding of all terms and conditions for performance and furnishing of the Work.

11. CONTRACTOR's entry into this Contract constitutes an incontrovertible representation by CONTRACTOR that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

8.02 CONTRACTOR's Certifications

A. CONTRACTOR certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 8.02:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of OWNER, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive OWNER of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of OWNER, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

Article 9. CONTRACT DOCUMENTS

9.01 Contents

A. The Contract Documents consist of the following:

1. This Agreement (pages 00 52 00-1 through 00 52 00-____, inclusive);
2. Performance bond (pages to 00 61 13.13-1 through 00 61 13.13-4, inclusive);
3. Payment bond (pages 00 61 13.16-1 through 00 61 13.16-4, inclusive);
4. Other bonds
 - a. _____ (pages _____ to _____, inclusive);
 - b. _____ (pages _____ to _____, inclusive);
 - c. _____ (pages _____ to _____, inclusive);
5. General Conditions (pages 00 72 00-1 through 00 72 00-____, inclusive);

6. Supplementary Conditions (pages 00 73 00-1 through 00 73 00-____, inclusive);
7. Specifications as listed in the table of contents of the Project Manual;
8. Drawings—Sheets No. ____ through No. _____

inclusive incorporated herein by reference with each sheet bearing the following general title:

as well as drawings listed in the table of contents that are bound at the back of these specifications.

9. Addenda (_____).

10. Exhibits to this Agreement (enumerated as follows:)

- a. CONTRACTOR's Bid (pages ____ to ____);
- b. Documentation submitted by CONTRACTOR prior to Notice of Award
(_____);
- c. (_____);

11. The following may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:

- a. Notice to Proceed (pages {____} to {____}, inclusive);
- b. Work Change Directives (not attached to this Agreement);
- c. Change Order(s) (not attached to this Agreement);
- d. Warranty Bond, if any.

B. The Contract Documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).

C. There are no Contract Documents other than those listed above in this Article 9.

D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 11.01 of the General Conditions.

Article 10. MISCELLANEOUS

10.01 Severability

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.02 Integration

A. The parties' entire agreement is contained in the Contract Documents, and the provisions of the Contract Documents supersede all prior discussions or writings between the parties.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in duplicate. One counterpart each has been delivered to OWNER and CONTRACTOR. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR or identified by ENGINEER on their behalf.

This Agreement will be effective on _____, _____ (which is the Effective Date of the Contract).

OWNER _____

Signature and Title

ATTEST:

By: _____
Signature and Title

Address for Giving Notices:

Name: _____
Street: _____
City, State, Zip Code: _____
Phone: _____
Facsimile: _____
E-mail: _____
Designated Representative: _____

CONTRACTOR _____

Signature and Title

ATTEST:

By: _____

Signature and Title

Address for Giving Notices:

Name: _____

Street: _____

City, State, Zip Code: _____

Phone: _____

Facsimile: _____

E-mail: _____

Designated Representative: _____

License No.: _____

(Where applicable)

(If CONTRACTOR is a corporation, limited liability company, or a partnership, attach evidence of authority to sign.)

Approved as to form:

OWNER's Attorney

Date

Provision has been made to pay the liability that will accrue under this Agreement:

Countersigned:

OWNER's Comptroller or Treasurer

Date

INSTRUCTIONS FOR EXECUTING CONTRACT

The full name and business address of CONTRACTOR should be inserted and the Agreement should be signed with CONTRACTOR's official signature. Please have the name of the signing party printed under all signatures to the Agreement.

If CONTRACTOR is operating as a partnership, each partner should sign the Agreement. If the Agreement is not signed by each partner, there should be attached to the Agreement a duly authenticated power of attorney evidencing the signer's (signers') authority to sign such Agreement for and on behalf of the partnership.

If CONTRACTOR is an individual, the trade name (if CONTRACTOR is operating under a trade name) should be indicated in the Agreement and the Agreement should be signed by such individual. If signed by other than CONTRACTOR, there should be attached to the Agreement a duly authenticated power of attorney evidencing the signer's authority to execute such Agreement for and on behalf of CONTRACTOR.

If CONTRACTOR is operating as a limited liability company, and it is member-managed, each member should sign the Agreement, or an authorized member should sign. If the LLC is manager-managed, an authorized manager should sign. If the Agreement is not signed by each member, there should be attached to the Agreement a duly authenticated power of attorney evidencing the signer's (signers') authority to sign such Agreement for and on behalf of the LLC.

If CONTRACTOR is a corporation, the Secretary of the corporation should sign the certificate below. If the Agreement itself is signed by the Secretary of the corporation, the certificate below should be executed by some other officer of the corporation. In lieu of the following certificate, there may be attached to the Agreement copies of so much of the records of the corporation which will show the official character and authority of the officers signing, duly certified by the Secretary or Assistant Secretary to be true copies.

I, _____, certify that I am the _____
(Print Name) (Title of Officer Signing Certificate)

of the corporation named as CONTRACTOR herein above; that _____
(Print Name of Officer Signing Agreement)

who signed the foregoing Agreement on behalf of CONTRACTOR was then

_____ of said corporation; that said Agreement was duly signed
(Title of Officer Signing Agreement)

for and on behalf of said Corporation by authority of its governing body, and is within the scope of its corporate powers.

(Officer Signature)

END OF SECTION

SECTION 00 55 00
NOTICE TO PROCEED

Dated: _____

TO: _____
(CONTRACTOR)

ADDRESS: _____

PROJECT: _____

OWNER'S CONTRACT NO.: _____

CONTRACT FOR: _____

(Insert name of Contract as it appears in the Bidding Documents)

You are notified that the Contract Time under the above Contract will commence to run on _____ day of _____, 20____. On that date, you are to start performing your obligations under the Contract Documents.

Before you may start any work at the site, Paragraph 2.01.B of the General Conditions provides that you must deliver to OWNER (with copies to ENGINEER and other identified additional insureds) certificates of insurance, copies of endorsements, and other evidence of insurance which you are required to purchase and maintain in accordance with the Contract Documents.

Also before you may start any work at the site, you must _____

(Add Other Requirements)

(OWNER)

By: _____
(Authorized Signature)

(Title)

END OF SECTION

PERFORMANCE BOND

Contractor Name: [Full formal name of Contractor] Address <i>(principal place of business)</i> : [Address of Contractor's principal place of business]	Surety Name: [Full formal name of Surety] Address <i>(principal place of business)</i> : [Address of Surety's principal place of business]
Owner Name: [Full formal name of Owner] Mailing address <i>(principal place of business)</i> : [Address of Owner's principal place of business]	Contract Description <i>(name and location)</i> : [Owner's project/contract name, and location of the project] Contract Price: [Amount from Contract] Effective Date of Contract: [Date from Contract]
Bond Bond Amount: [Amount] Date of Bond: [Date] <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 16	
Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Performance Bond, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.	
Contractor as Principal	Surety
By: _____ <i>(Full formal name of Contractor)</i> _____ <i>(Signature)</i>	By: _____ <i>(Full formal name of Surety) (corporate seal)</i> _____ <i>(Signature)(Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i>	

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.
2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond will arise after:
 - 3.1. The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice may indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 will be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement does not waive the Owner's right, if any, subsequently to declare a Contractor Default;
 - 3.2. The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
 - 3.3. The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.
4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 does not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.
5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
 - 5.1. Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;
 - 5.2. Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;
 - 5.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

- 5.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:
- 5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
- 5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.
6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment, or the Surety has denied liability, in whole or in part, without further notice, the Owner shall be entitled to enforce any remedy available to the Owner.
7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner will not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety will not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:
- 7.1. the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
- 7.2. additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and
- 7.3. liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.
8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.
9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price will not be reduced or set off on account of any such unrelated obligations. No right of action will accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.
10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
11. Any proceeding, legal or equitable, under this Bond must be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and must be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit will be applicable.

12. Notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears.
13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted therefrom and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.
14. Definitions
 - 14.1. *Balance of the Contract Price*—The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.
 - 14.2. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.
 - 14.3. *Contractor Default*—Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.
 - 14.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
 - 14.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
16. ~~Modifications to this Bond are as follows: [Describe modification]~~

PAYMENT BOND

Contractor Name: [Full formal name of Contractor] Address <i>(principal place of business)</i> : [Address of Contractor's principal place of business]	Surety Name: [Full formal name of Surety] Address <i>(principal place of business)</i> : [Address of Surety's principal place of business]
Owner Name: [Full formal name of Owner] Mailing address <i>(principal place of business)</i> : [Address of Owner's principal place of business]	Contract Description <i>(name and location)</i> : [Owner's project/contract name, and location of the project] Contract Price: [Amount, from Contract] Effective Date of Contract: [Date, from Contract]
Bond Bond Amount: [Amount] Date of Bond: [Date] <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 18	
Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.	
Contractor as Principal	Surety
By: _____ <i>(Full formal name of Contractor)</i> _____ <i>(Signature)</i>	By: _____ <i>(Full formal name of Surety) (corporate seal)</i> _____ <i>(Signature)(Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i>	

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond will arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond will arise after the following:
 - 5.1. Claimants who do not have a direct contract with the Contractor
 - 5.1.1. have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2. Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1. Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2. Pay or arrange for payment of any undisputed amounts.

- 7.3. The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 will not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.
8. The Surety's total obligation will not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond will be credited for any payments made in good faith by the Surety.
 9. Amounts owed by the Owner to the Contractor under the Construction Contract will be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfying obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
 10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
 11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
 12. No suit or action will be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit will be applicable.
 13. Notice and Claims to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, will be sufficient compliance as of the date received.
 14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted here from and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.
 15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

16. Definitions

16.1. *Claim*—A written statement by the Claimant including at a minimum:

16.1.1. The name of the Claimant;

16.1.2. The name of the person for whom the labor was done, or materials or equipment furnished;

16.1.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;

16.1.4. A brief description of the labor, materials, or equipment furnished;

16.1.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;

16.1.6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;

16.1.7. The total amount of previous payments received by the Claimant; and

16.1.8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2. *Claimant*—An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond is to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

16.3. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

16.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

16.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.

17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.

~~18. Modifications to this Bond are as follows: [Describe modification]~~

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared By



Endorsed By



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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*
 - a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract Price or Contract Times; contesting an initial decision by Engineer concerning the

requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.

- b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.
 - c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.
 - d. A demand for money or services by a third party is not a Claim.
- 11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
 - 12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.
 - 13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
 - 14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.
 - 15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
 - 16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
 - 17. *Cost of the Work*—See Paragraph 13.01 for definition.
 - 18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
 - 19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
 - 20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.
 - 21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the

recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

22. *Engineer*—The individual or entity named as such in the Agreement.
23. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.
 - a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.
 - b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.
 - c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.
25. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.
28. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
29. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
30. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
31. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor's plan to accomplish the Work within the Contract Times.
32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.
34. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals.
36. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.
37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
38. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands or areas furnished by Owner which are designated for the use of Contractor.
39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
40. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers' instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.
42. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion of such Work.

43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.
44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
45. *Supplier*—A manufacturer, fabricator, supplier, distributor, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
46. *Technical Data*
- a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.
 - b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.
 - c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.
47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.
48. *Unit Price Work*—Work to be paid for on the basis of unit prices.
49. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.
50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

- A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:* The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day:* The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:* The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - 1. does not conform to the Contract Documents;
 - 2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - 3. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or Paragraph 15.04).
- E. *Furnish, Install, Perform, Provide*
 - 1. The word “furnish,” when used in connection with services, materials, or equipment, means to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 - 2. The word “install,” when used in connection with services, materials, or equipment, means to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
 - 3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, means to furnish and install said services, materials, or equipment complete and ready for intended use.
 - 4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

- F. *Contract Price or Contract Times*: References to a change in “Contract Price or Contract Times” or “Contract Times or Contract Price” or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term “or both” is not expressed.
- G. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Performance and Payment Bonds; Evidence of Insurance*

- A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.
- C. *Evidence of Owner’s Insurance*: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), Contractor shall submit to Engineer for timely review:
 - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
 - 2. a preliminary Schedule of Submittals; and
 - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work

into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work, and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will be made to Contractor until acceptable schedules are submitted to Engineer.
 - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
 - 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
 - 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.
 - 4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.
- B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one Contract Document is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.
- F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.
- G. Nothing in the Contract Documents creates:
 - 1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or
 - 2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

3.02 *Reference Standards*

- A. *Standards Specifications, Codes, Laws and Regulations*
 - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 - 2. No provision of any such standard specification, manual, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner or Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility

inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
 - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.

- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers shall not:
 - 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media versions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or
 - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein precludes Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work may be done at the Site prior to such date.

4.03 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the

established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
 - 1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 - 2. Abnormal weather conditions;
 - 3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and
 - 4. Acts of war or terrorism.

- D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:
1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.
 2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.
 3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.
- E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:
1. The circumstances that form the basis for the requested adjustment;
 2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;
 3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;
 4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and
 5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.
- Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.
- F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.
- G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor in writing of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.

- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
 2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.
- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will conform to applicable Laws and Regulations.
 - C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment

and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

- D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:

1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;
2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and
3. Technical Data contained in such reports and drawings.

- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

- C. *Reliance by Contractor on Technical Data:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.

- D. *Limitations of Other Data and Documents:* Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;
 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;
 3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or
 4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;
 2. is of such a nature as to require a change in the Drawings or Specifications;
 3. differs materially from that shown or indicated in the Contract Documents; or
 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- E. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in

Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. Such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,
 - c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise;
 - b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice required by Paragraph 5.04.A.
 3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
 4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.
- F. *Underground Facilities; Hazardous Environmental Conditions:* Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:
1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 2. complying with applicable state and local utility damage prevention Laws and Regulations;

3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;
 4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.
- C. *Engineer's Review:* Engineer will:
1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;
 2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;
 3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and
 4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- F. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown

or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
 - b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and
 - c. Contractor gave the notice required in Paragraph 5.05.B.
2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.
 4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 *Hazardous Environmental Conditions at Site*

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;
2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
3. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures

- of construction to be employed by Contractor, and safety precautions and programs incident thereto;
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.
- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.
- H. If, after receipt of such written notice, Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special

conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.
- B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.
- C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or

Regulations, and must be issued and signed by a surety named in “Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies” as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual’s authority to bind the surety. The evidence of authority must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

- D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.
- E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.
- F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner’s termination rights under Article 16.
- G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.
- H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Alternative forms of insurance coverage, including but not limited to self-insurance and “Occupational Accident and Excess Employer’s Indemnity Policies,” are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.
- D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by

Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.

- E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.
- F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner's option, may purchase and maintain Owner's own liability insurance. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.
- H. Contractor shall require:
 - 1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and
 - 2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.
- I. If either party does not purchase or maintain the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.
- K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.

- L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.
- M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.
- N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 *Contractor's Insurance*

- A. *Required Insurance:* Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.
- B. *General Provisions:* The policies of insurance required by this Paragraph 6.03 as supplemented must:
 - 1. include at least the specific coverages required;
 - 2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;
 - 3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;
 - 4. apply with respect to the performance of the Work, whether such performance is by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable; and
 - 5. include all necessary endorsements to support the stated requirements.
- C. *Additional Insureds:* The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:
 - 1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;
 - 2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;
 - 3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);

4. not seek contribution from insurance maintained by the additional insured; and
5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

6.04 *Builder's Risk and Other Property Insurance*

- A. *Builder's Risk:* Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.
- B. *Property Insurance for Facilities of Owner Where Work Will Occur:* Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.
- C. *Property Insurance for Substantially Complete Facilities:* Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.
- D. *Partial Occupancy or Use by Owner:* If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.
- E. *Insurance of Other Property; Additional Insurance:* If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

6.05 *Property Losses; Subrogation*

- A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against

Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.

1. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils, risks, or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused.
 2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.
1. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.
- C. The waivers in this Paragraph 6.05 include the waiver of rights due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other insured peril, risk, or cause of loss.
- D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

6.06 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

- A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall maintain good discipline and order at the Site.

- B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.
- C. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.04 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment must be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.05 *"Or Equals"*

- A. *Contractor's Request; Governing Criteria:* Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that the proposed item:
 - 1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

- 2) will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) has a proven record of performance and availability of responsive service; and
 - 4) is not objectionable to Owner.
- b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:
- 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense*: Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.
- D. *Effect of Engineer's Determination*: Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.
- E. *Treatment as a Substitution Request*: If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 Substitutes

- A. *Contractor's Request; Governing Criteria*: Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.
1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.
 2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:
 - a. will certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design;
 - 2) be similar in substance to the item specified; and
 - 3) be suited to the same use as the item specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from the item specified; and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

- E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.
- B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.
- E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.
- F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

- H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.
- J. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.
- K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.
- L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.
- M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If an invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights will be disclosed in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.09 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.11 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.
- C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations.
- B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.
- C. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;
 - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- E. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.
- F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
- G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.
- H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

- I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).
- J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as material safety data sheets) or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued.

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

- 1. Before submitting a Shop Drawing or Sample, Contractor shall:
 - a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determine and verify:
 - 1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;
 - 2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - 3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;
 - c. confirm that the Submittal is complete with respect to all related data included in the Submittal.
- 2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.

3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.
- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.
1. *Shop Drawings*
 - a. Contractor shall submit the number of copies required in the Specifications.
 - b. Data shown on the Shop Drawings must be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide, and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.C.
 2. *Samples*
 - a. Contractor shall submit the number of Samples required in the Specifications.
 - b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the Submittal for the limited purposes required by Paragraph 7.16.C.
 3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Engineer's Review of Shop Drawings and Samples*
1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. Engineer's review and approval will be only to determine if the items covered by the Submittals will, after installation or incorporation in the Work, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
 2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.
 3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
 4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will

document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.

5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.
8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. Resubmittal Procedures for Shop Drawings and Samples

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous Submittals.
2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

E. Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:
 - a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.
 - b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.
 - c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.

- d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.
- 2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03, 2.04, and 2.05.
- F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 Contractor's General Warranty and Guarantee

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer is entitled to rely on Contractor's warranty and guarantee.
- B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:
 - 1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and
 - 2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.
- C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 - 1. abuse, or improper modification, maintenance, or operation, by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 - 2. normal wear and tear under normal usage.
- D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:
 - 1. Observations by Engineer;
 - 2. Recommendation by Engineer or payment by Owner of any progress or final payment;
 - 3. The issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 - 4. Use or occupancy of the Work or any part thereof by Owner;
 - 5. Any review and approval of a Shop Drawing or Sample submittal;
 - 6. The issuance of a notice of acceptability by Engineer;
 - 7. The end of the correction period established in Paragraph 15.08;
 - 8. Any inspection, test, or approval by others; or

9. Any correction of defective Work by Owner.
- E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 Indemnification

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from losses, damages, costs, and judgments (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A will not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

7.19 Delegation of Professional Design Services

- A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.
- B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.
- C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.

- D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.
- E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:
 - 1. Checking for conformance with the requirements of this Paragraph 7.19;
 - 2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and
 - 3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.
- F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.
- G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

ARTICLE 8—OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.
- D. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

- E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.
- F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
 - 1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 - 2. An itemization of the specific matters to be covered by such authority and responsibility; and
 - 3. The extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

- A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.
 - 1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.
 - 2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.
- C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9—OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents will be that of the former Engineer.

9.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe, as an experienced and qualified design professional, the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.07. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Resident Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.
- B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

10.04 *Engineer's Authority*

- A. Engineer has the authority to reject Work in accordance with Article 14.
- B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.
- C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.
- D. Engineer's authority as to changes in the Work is set forth in Article 11.

E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.06 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, will create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation, and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Contractor under Paragraph 15.06.A, will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 10.07 also apply to the Resident Project Representative, if any.

10.08 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs of which Engineer has been informed.

ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

- A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
- B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.
- C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 *Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
 - 1. Changes in Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 - 2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 - 3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and
 - 4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

11.03 *Work Change Directives*

- A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.

- B. If Owner has issued a Work Change Directive and:
 - 1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.
 - 2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders*

- A. Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.
- B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.
- B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.
- C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.06 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

11.07 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:

1. Where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);
 2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or
 3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).
- C. *Contractor's Fee:* When applicable, the Contractor's fee for overhead and profit will be determined as follows:
1. A mutually acceptable fixed fee; or
 2. If a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. For costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee will be 15 percent;
 - b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 percent;
 - c. Where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;
 - d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and
 - f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

11.08 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.
- B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

- A. *Purpose and Content:* Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

- B. *Change Proposal Procedures*

- 1. *Submittal:* Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.
- 2. *Supporting Data:* The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.
 - a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.
 - b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

- 3. *Engineer's Initial Review:* Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.
- 4. *Engineer's Full Review and Action on the Change Proposal:* Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change

Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

5. *Binding Decision*: Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- C. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.
- D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12—CLAIMS

12.01 *Claims*

- A. *Claims Process*: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:
 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;
 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and
 4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.
- B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge

and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

- C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation*
 - 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.
 - 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.
 - 3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
 - 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included:* Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will include only the following items:
1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will be included in the above to the extent authorized by Owner.
 2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will accrue to Owner, and Contractor shall make provisions so that they may be obtained.
 3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, which will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
 4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.
 5. Other costs consisting of the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, which are

consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

- 1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

c. *Construction Equipment Rental*

- 1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.
 - 2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.
 - 3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.
- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of builder's risk or other property insurance established in accordance with Paragraph 6.04), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will be included in the Cost of the Work for the purpose of determining Contractor's fee.

- g. The cost of utilities, fuel, and sanitary facilities at the Site.
 - h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
 - i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.
- C. *Costs Excluded:* The term Cost of the Work does not include any of the following items:
- 1. Payroll costs and other compensation of Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
 - 2. The cost of purchasing, renting, or furnishing small tools and hand tools.
 - 3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
 - 4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
 - 5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
 - 6. Expenses incurred in preparing and advancing Claims.
 - 7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.
- D. *Contractor's Fee*
- 1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:
 - a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.
 - b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:
 - 1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.
 - 2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.
 - 2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change

Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

- E. *Documentation and Audit*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances*: Contractor agrees that:
1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment for any of the foregoing will be valid.
- C. *Owner's Contingency Allowance*: Contractor agrees that an Owner's contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

13.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision

thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
 - a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 - b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
3. Adjusted unit prices will apply to all units of that item.

ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply with such procedures and programs as applicable.

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 3. by manufacturers of equipment furnished under the Contract Documents;
 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs,

losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 - 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work,

or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work will not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 Owner May Correct Defective Work

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace defective Work as required by Engineer, then Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 Progress Payments

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments*
 - 1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.
 - 2. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation

establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. Review of Applications

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work;
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
 - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner*

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

- b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. The Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. The Contract Price has been reduced by Change Orders;
 - i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;
 - j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens; or
 - l. Other items entitle Owner to a set-off against the amount recommended.
2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
 3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time

submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without

significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.
2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.04 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

A. *Application for Payment*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.
2. The final Application for Payment must be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

- d. a list of all duly pending Change Proposals and Claims; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
- 3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.
- B. *Engineer's Review of Final Application and Recommendation of Payment:* If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.
- C. *Notice of Acceptability:* In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.
- D. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.
- E. *Final Payment Becomes Due:* Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

15.07 *Waiver of Claims*

- A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim,

appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such adjacent areas;
 - 2. correct such defective Work;
 - 3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.
- B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.
- C. If, after receipt of a notice of defect within 60 days and within the correction period, Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.
- D. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

- F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
 - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment, or failure to adhere to the Progress Schedule);
 - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:
 - 1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and
 - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects,

attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate for Convenience*

- A. Upon 7 days' written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
 - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 days' written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, 7 days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The

provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this article:
 - 1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and
 - 2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this article, Owner or Contractor may:
 - 1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;
 - 2. agree with the other party to submit the dispute to another dispute resolution process; or
 - 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:
 - 1. in person, by a commercial courier service or otherwise, to the recipient's place of business;
 - 2. by registered or certified mail, postage prepaid, to the recipient's place of business; or
 - 3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination of the Contract or of the services of Contractor.

18.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Assignment of Contract*

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract.

18.09 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

18.10 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

SECTION 00 73 00

SUPPLEMENTARY CONDITIONS

A. These Supplementary Conditions amend or supplement EJCDC® C-700, Standard General Conditions of the Construction Contract (2018). The General Conditions remain in full force and effect except as amended.

B. The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

C. The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

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SC-1.01.A Defined Terms

Insert in the first sentence after the phrase “printed with initial capital letters” the following phrase:

“or with all capital letters”

SC-1.01.A.8 Change Order

Insert a comma and the word “ENGINEER” immediately after the word “CONTRACTOR” in this definition.

SC-1.01.A.18 Drawings

Add the following to the end of Paragraph 1.01.A.18:

The following Drawings are part of the Contract Documents:

Drawings titled “Fire Department Bunk Room and Restroom Remodel, Contract 4-2024, City of Whitewater,” Sheets No. 1 through No. 12, prepared by Strand Associates, Inc.®

Electronic files were provided for the convenience of CONTRACTOR. The data on which CONTRACTOR may rely is limited to the paper copy.

SC-1.01.A.50 Work Change Directive

Amend the phrase “signed by OWNER” in the first sentence of Paragraph 1.01.A.50 to read as follows:

“signed by OWNER and CONTRACTOR.”

Add the following language to the end of Paragraph 1.01.A.50:

A Work Change Directive cannot change Contract Price or Contract Times without a subsequent Change Order.

SC-1.01.A.51 Request for Information

Add the following new paragraph immediately after Paragraph 1.01.A.50:

51. Request for Information:

Written request submitted by CONTRACTOR to ENGINEER on a form supplied by

ENGINEER requesting clarification, interpretation, or additional information pertaining to Contract Documents.

SC-2.01 Delivery of Bonds and Evidence of Insurance

Delete Paragraphs 2.01.B. and C. in their entirety and insert the following in their place:

B. Evidence of CONTRACTOR's Insurance: When CONTRACTOR delivers the signed counterparts of the Agreement to OWNER, CONTRACTOR shall also deliver to OWNER copies of the policies (including all endorsements, and identification of applicable self-insured retentions and deductibles) of insurance required to be provided by CONTRACTOR in this Contract. CONTRACTOR may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

SC-2.03 Before Starting Construction

Add the following subparagraph to Paragraph 2.03:

4. a proposed listing of subcontractors and major material and equipment suppliers. The list shall include any proposed substitutions in accordance with Paragraph 7.06.

SC-2.05 Acceptance of Schedules

Add the following language to the end of Paragraph 2.05.A.2:

The schedule for submittals shall show all submittals complete before 50% of completion of the Work and the schedule for maintenance manuals shall show all submittals complete before 75% of completion of the Work.

Add the following new paragraph immediately after Paragraph 2.05.A:

B. The times included in this paragraph apply to the preliminary schedules. See Division 01 for other submittal and time requirements for the construction progress schedule and submittal schedule.

SC-3.03 Reporting Discrepancies

Add the following language at the end of Paragraph 3.03.A:

4. CONTRACTOR shall report apparent discrepancies to ENGINEER using a Request for Information form on a form supplied by ENGINEER. The Request for Information form shall:
 - a. be submitted by CONTRACTOR only;
 - b. be legible and complete;
 - c. not be used for the purposes of only confirming or verifying issues; and,
 - d. be prioritized by CONTRACTOR in the event that multiple Requests for Information are outstanding.

Requests for Information that are not in conformance with the requirements above shall be returned to CONTRACTOR without response.

5. CONTRACTOR shall not be relieved of its responsibility to coordinate the Work to prevent adverse impacts to CONTRACTOR's Project Schedule while submitting Requests for Information.

6. If CONTRACTOR believes the Scope of Work included in the Request for Information has a cost and/or time impact, CONTRACTOR should submit a claim in accordance with Article 12 of these General Conditions.

7. If CONTRACTOR proceeds with work when CONTRACTOR had actual knowledge or should have known that a conflict, error, ambiguity, or discrepancy existed as indicated above, correction of work constructed without such notification to ENGINEER shall be at CONTRACTOR's expense, (except in an emergency as authorized by Paragraph 7.15.A).

SC-3.04 Requirements of the Contract Documents

Delete Paragraph 3.04.C in its entirety.

SC-4.01 Commencement of Contract Times; Notice to Proceed

In the last sentence of Paragraph 4.01.A, change "60th day" to "85th day."

SC-4.03 Reference Points

Add the following new paragraph immediately after Paragraph 4.03.A:

B. CONTRACTOR is referred to the General Requirements for additional requirements for laying out the work.

SC-5.03 Subsurface and Physical Conditions

Add the following new paragraphs immediately after Paragraph 5.03.D:

E. No reports of explorations or tests of subsurface conditions at or adjacent to the Site containing technical data are known to OWNER. CONTRACTOR shall conduct its own personal investigation to determine conditions at the site which may affect the Work.

F. No drawings of physical conditions relating to existing surface or subsurface structures at the Site containing technical data, are known to OWNER. CONTRACTOR shall conduct its own personal investigation to determine conditions at the site which may affect the Work.

SC-5.05 Underground Facilities

Add the following paragraph immediately after Paragraph 5.05.F:

G. CONTRACTOR is referred to the General Requirements for requirements for keeping records of Underground Facilities and allowing facility owners to inspect.

SC-5.06 Hazardous Environmental Conditions at the Site

- A. No reports or drawings related to Hazardous Environmental Conditions at the Site are known to OWNER.
- B. Not Used.

SC-6.01 Performance, Payment and Other Bonds

Add the following new paragraphs immediately after Paragraph 6.01.H:

- I. The forms of the performance and payment or other Bonds attached hereto shall be used for the Contract. Note instructions thereon as to the form applicable. Each form contemplates one corporate surety only. In case co-sureties or individual sureties will be furnished, proper forms therefore shall be obtained. Besides the stipulations of Paragraphs 6.01 through 6.03, the surety on the Bonds shall provide a certificate indicating surety is licensed to underwrite contracts in the jurisdiction of the project location which shall be attached to the Bonds.
- J. Bonds shall be placed with surety with a Best's rating of no less than A-.

SC-6.03 CONTRACTOR's Insurance

Add the following new language to the end of Paragraph 6.03.C.3:

CONTRACTOR shall provide an executed endorsement form CG 20 01 04 13, or equal, supporting this requirement.

Add the following new paragraphs under Paragraphs 6.03.C:

- D. Other Additional Insureds: As a supplement to the provisions of Paragraph 6.03.C of the General Conditions, the commercial general liability, automobile liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies must include as additional insureds (in addition to OWNER and ENGINEER) the following: None.
- E. Worker's Compensation and Employer's Liability: CONTRACTOR shall purchase and maintain workers' compensation and employer's liability insurance, including, as applicable, United States Longshoreman and Harbor Workers' Compensation Act, Jones Act, stop-gap employer's liability coverage for monopolistic states, and foreign voluntary workers' compensation (from available sources, notwithstanding the jurisdictional requirement of Paragraph 6.02.B of the General Conditions).

Workers' Compensation and Related Policies	Policy limits of not less than:
Workers' Compensation	
State	Statutory
Applicable Federal (e.g., Longshoreman's)	Statutory
Foreign voluntary workers' compensation (employer's responsibility coverage), if applicable	Statutory
Employer's Liability	
Each accident	\$100,000

Workers' Compensation and Related Policies	Policy limits of not less than:
Each employee	\$100,000
Policy limit	\$500,000

F. *Commercial General Liability—Claims Covered:* CONTRACTOR shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of CONTRACTOR, on an occurrence basis, against claims for:

1. damages because of bodily injury, sickness or disease, or death of any person other than CONTRACTOR's employees,
2. damages insured by reasonably available personal injury liability coverage, and
3. damages because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.

G. *Commercial General Liability—Form and Content:* CONTRACTOR's commercial liability policy must be written on a 1996 (or later) Insurance Services Organization, Inc. (ISO) commercial general liability form (occurrence form) and include the following coverages and endorsements:

1. Products and completed operations coverage.
 - a. Such insurance must be maintained for three years after final payment.
 - b. CONTRACTOR shall furnish OWNER and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
2. Blanket contractual liability coverage, including but not limited to coverage of CONTRACTOR's contractual indemnity obligations in Paragraph 7.18.
3. Severability of interests and no insured-versus-insured or cross-liability exclusions.
4. Underground, explosion, and collapse coverage.
5. Personal injury coverage.
6. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together), or equal, for each required additional insured. If CONTRACTOR demonstrates to OWNER that the specified ISO endorsements are not commercially available, then CONTRACTOR may satisfy this requirement by providing equivalent endorsements.
7. Insurance certificates for commercial general, automobile, and umbrella shall specifically indicate by name the additional insureds which are to include OWNER and ENGINEER as well as other persons or entities so identified. Certificates shall be Acord 25-S or equivalent.
8. Endorsements or General Liability policy shall not exclude supervisory or inspection services.

H. *Commercial General Liability—Excluded Content:* The commercial general liability insurance policy, including its coverages, endorsements, and incorporated provisions, must not include any of the following:

1. Any modification of the standard definition of “insured contract” (except to delete the railroad protective liability exclusion if CONTRACTOR is required to indemnify a railroad or others with respect to Work within 50 feet of railroad property).
2. Any exclusion for water intrusion or water damage.
3. Any provisions resulting in the erosion of insurance limits by defense costs other than those already incorporated in ISO form CG 00 01.
4. Any exclusion of coverage relating to earth subsidence or movement.
5. Any exclusion for the insured’s vicarious liability, strict liability, or statutory liability (other than worker’s compensation).
6. Any limitation or exclusion based on the nature of CONTRACTOR’s work.
7. Any professional liability exclusion broader in effect than the most recent edition of ISO form CG 22 79.

I. *Commercial General Liability—Minimum Policy Limits*

Commercial General Liability	Policy limits of not less than:
General Aggregate	\$2,000,000
Products—Completed Operations Aggregate	\$2,000,000
Personal and Advertising Injury	\$1,000,000
Bodily Injury and Property Damage—Each Occurrence	\$1,000,000

General Aggregate Limits specified above shall apply separately to this project by attachment of:

“Amendment of Limits of Insurance—Designated Location(s) General Aggregate Limit” Endorsement (ISO Form No. CG 25 04 05 09) or “Designated Construction Project(s) General Aggregate Limit” Endorsement (ISO Form CG 25 03 05 09) or equivalent endorsement coverage.

J. *Automobile Liability:* CONTRACTOR shall purchase and maintain automobile liability insurance for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy must be written on an occurrence basis.

Automobile Liability	Policy limits of not less than:
Combined Single Limit	
Combined Single Limit (Bodily Injury and Property Damage)	\$1,000,000

CONTRACTOR shall also provide an Additional Insured Endorsement for the automobile policy. Endorsement form shall be CA 20 48, or equal.

K. *Umbrella or Excess Liability*: CONTRACTOR shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the Paragraphs above. The coverage afforded must be at least as broad as that of each and every one of the underlying policies.

Excess or Umbrella Liability	Policy limits of not less than:
Each Occurrence	\$2,000,000
General Aggregate	\$2,000,000

L. *Contractor's Pollution Liability Insurance*: CONTRACTOR shall purchase and maintain a policy covering third-party injury and property damage, including cleanup costs, as a result of pollution conditions arising from CONTRACTOR's operations and completed operations. This insurance must be maintained for no less than three years after final completion.

Contractor's Pollution Liability	Policy limits of not less than:
Each Occurrence/Claim	Not Applicable
General Aggregate	Not Applicable

☒ If box is checked, CONTRACTOR is not required to provide this insurance.

CONTRACTOR's Pollution Liability coverage shall include coverage for fungus, mold, and bacteria.

M. *Contractor's Professional Liability Insurance*: If CONTRACTOR will provide or furnish professional services under this *Contract*, through a delegation of professional design services or otherwise, then CONTRACTOR shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance must cover negligent acts, errors, or omissions in the performance of professional design or related services by the insured or others for whom the insured is legally liable. The insurance must be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. The retroactive date on the policy must pre-date the commencement of furnishing services on the Project.

CONTRACTOR's Professional Liability	Policy limits of not less than:
Each Claim	Not Applicable
Annual Aggregate	Not Applicable

☒ If box is checked, CONTRACTOR is not required to provide this insurance.

N. *Railroad Protective Liability Insurance*: Prior to commencing any Work within 50 feet of railroad-owned and controlled property, CONTRACTOR shall (1) endorse its commercial general liability policy with ISO CG 24 17, removing the contractual liability exclusion for work within 50 feet of a railroad, (2) purchase and maintain railroad protective liability insurance meeting the following requirements, (3) furnish a copy of the endorsement to OWNER, and (4) submit a copy of the railroad protective policy and other railroad-required documentation to the railroad, and notify OWNER of such submittal.

Railroad Protective Liability Insurance	Policy limits of not less than:
Each Claim	Not Applicable
Aggregate	Not Applicable

☒ If box is checked, CONTRACTOR is not required to provide this insurance.

O. *Unmanned Aerial Vehicle Liability Insurance:* If CONTRACTOR uses unmanned aerial vehicles (UAV—commonly *referred* to as drones) at the Site or in support of any aspect of the Work, CONTRACTOR shall obtain UAV liability insurance in the amounts stated; name OWNER, ENGINEER, and all individuals and entities identified in the Supplementary Conditions as additional insureds; and provide a certificate to OWNER confirming CONTRACTOR’s compliance with this requirement. Such insurance will provide coverage for property damage, bodily injury or death, and invasion of privacy.

Unmanned Aerial Vehicle Liability Insurance	Policy limits of not less than:
Each Claim	Not Applicable
General Aggregate	Not Applicable

☒ If box is checked, CONTRACTOR is not required to provide this insurance.

P. *Waiver of Subrogation:* CONTRACTOR’s commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall provide a waiver of subrogation covering OWNER and ENGINEER, and any individuals or entities identified in the Supplementary Conditions. CONTRACTOR shall obtain all necessary endorsements to support these requirements. Endorsement shall be CG 24 04 05 09, or equal.

Q. General Liability, Automobile Liability, and Umbrella Liability shall include coverage for mental anguish and punitive damages.

SC-6.04.A CONTRACTOR’s Installation Floater Insurance

Delete Paragraph 6.04.A of the General Conditions and substitute the following in its place:

A. *Installation Floater*

1. CONTRACTOR shall provide and maintain installation floater insurance on a broad form or “all risk” policy providing coverage for materials, supplies, machinery, fixtures, and equipment that will be incorporated into the Work (“Covered Property”). Coverage under CONTRACTOR’s installation floater will include loss from covered “all risk” causes (perils) to Covered Property:

- a. of CONTRACTOR, and Covered Property of others that is in CONTRACTOR’s care, custody, and control;
- b. while in transit to the Site, including while at temporary storage sites;
- c. while at the Site awaiting and during installation, erection, and testing;

- d. continuing at least until the installation or erection of the Covered Property is completed, and the Work into which it is incorporated is accepted by OWNER.
2. The installation floater coverage cannot be contingent on an external cause or risk, or limited to property for which CONTRACTOR is legally liable.
3. The installation floater coverage will be in an amount sufficient to protect CONTRACTOR's interest in the Covered Property. CONTRACTOR will be solely responsible for any deductible carried under this coverage.
4. This policy will include a waiver of subrogation applicable to OWNER, CONTRACTOR, ENGINEER, all Subcontractors, and the officers, directors, partners, employees, agents and other consultants and subcontractors of any of them.

SC-7.03.C. Labor; Working Hours

Add the following new subparagraphs immediately after Paragraph 7.03.C:

1. Regular working hours will be 7 A.M. to 7 P.M.
2. OWNER's legal holidays are Independence Day, Labor Day, Thanksgiving, Christmas Eve, Christmas Day, New Years' Day, Martin Luther King Jr. Day, Good Friday, and Memorial Day.

Amend the first and second sentences of Paragraph 7.03.C to state "...all Work at the Site shall be performed during regular working hours, Monday through Friday. CONTRACTOR will not perform Work on a Saturday, Sunday, or any legal holiday, unless otherwise approved at least two days in advance by OWNER."

Add the following new paragraph immediately after Paragraph 7.03.C:

D. CONTRACTOR shall be responsible for the cost of any overtime pay or other expense incurred by OWNER for ENGINEER's services (including those of the Resident Project Representative, if any), OWNER's representative, and construction observation services, occasioned by the performance of Work on Saturday, Sunday, any legal holiday, or as overtime on any regular work day. If CONTRACTOR is responsible but does not pay, or if the parties are unable to agree as to the amount owed, then OWNER may impose a reasonable set-off against payments due under Article 15.

SC-7.04.B Services, Materials, and Equipment Warranty

Add the following to the end of Paragraph 7.04.B:

Suppliers shall be deemed to impliedly warrant that their products and all component materials incorporated into them are suitable and fit for the intended use of such products and shall be free from defect in material, workmanship or design, such warranty to run to the benefit of OWNER and ENGINEER. The foregoing applies whether the products or their component materials are specified in the Contract Documents or are of Supplier's design.

SC-7.09 Permits

Delete last sentence of Paragraph 7.09.A and add the following in its place:

See General Requirements and technical specification sections for utility charge provisions.

Add Paragraph 7.09.B as follows:

- B. See General Requirements for additional permit information.

SC-7.10 Taxes

Add the following new paragraph immediately after Paragraph 7.10.A:

B. OWNER is exempt from payment of sales and compensating use taxes of the State of Wisconsin, and the County of Walworth on all materials to be incorporated into the Work.

1. OWNER will furnish the required certificates of tax exemption to CONTRACTOR for use in the purchase of supplies and materials to be incorporated into the Work.

2. OWNER's exemption does not apply to highway, street, or road construction included in the Work.

3. OWNER's exemption also does not apply to construction tools, machinery, equipment, or other property purchased by or leased by CONTRACTOR, or to supplies or materials not incorporated into the Work.

C. CONTRACTOR, if not a resident, shall comply with the provisions of Section 71.80 (16) Wisconsin Statutes.

SC-7.12 Record Documents

In Paragraph 7.12.A delete last sentence and insert the following:

Upon completion of the Work, these record documents, samples, and shop drawings shall be delivered by CONTRACTOR to OWNER.

SC-7.13 Safety and Protection

Add the following language to the end of Paragraph 7.13.A:

If the Work includes excavation or trenches, CONTRACTOR shall keep at the Site at all times during the progress of the Work a competent person to comply with OSHA trenching and excavation requirements. The competent person shall be one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions that are unsanitary, hazardous or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

SC-7.17 CONTRACTOR's General Warranty and Guarantee

Add the following new paragraph immediately after Paragraph 7.17.E:

F. At a minimum, CONTRACTOR's general warranty shall extend throughout the correction period as defined in Paragraph 15.08.

SC-7.18 Indemnification

Add the following to the end of Paragraph 7.18.A:

In addition, CONTRACTOR shall indemnify, hold harmless, and pay for the defense of OWNER and ENGINEER from and against claims, losses, or damages in regard to any act or failure to act by OWNER or ENGINEER in connection with general supervision, inspection and/or coordination of CONTRACTOR's operations.

CONTRACTOR shall, at its own expense, appear, defend, and pay all fees of attorneys and all costs and other expenses arising therefrom or incurred in connection therewith; and, if any judgments shall be rendered against any individual or entity indemnified hereunder in any such action, CONTRACTOR shall, at its own expense, satisfy and discharge same. CONTRACTOR expressly understands and agrees that any Letter of Credit or insurance protection required by the Contract, or otherwise provided by CONTRACTOR, shall in no way limit the responsibility to indemnify, keep and save harmless, and defend any individual or entity indemnified hereunder as herein provided.

Add the following new paragraph immediately after Paragraph 7.18.B:

C. For any matter for which OWNER and ENGINEER are indemnified under Paragraph 7.18.A, CONTRACTOR shall pay for OWNER's and ENGINEER's reasonable defense, including, but not limited to, all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs or awards until OWNER or ENGINEER are found negligent.

SC-7.19 Delegation of Professional Design Services

Add the following new paragraphs immediately after Paragraph 7.19.G:

H. The design professional providing the design calculations and design drawings shall be licensed in the State of the Project.

I. The design calculation and design drawings are not shop drawings, but shall be submitted to ENGINEER separately along with the required shop drawings for the system, material, or equipment specified. These calculations will be forwarded to OWNER for their records.

SC-9 OWNER's Responsibilities

Add the following new paragraph immediately after Paragraph 9.12:

SC-9.13 OWNER's Site Representative

A. OWNER will furnish an "OWNER's Site Representative" to represent OWNER at the Site and assist OWNER in observing the progress and quality of the Work. OWNER's Site Representative is not ENGINEER's consultant, agent, or employee.

SC-10.03 Resident Project Representative

Add the following new subparagraph immediately after Paragraph 10.03.A:

1. Strand Associates, Inc.® provided design services for the Project and will assume all duties and responsibilities of ENGINEER in Article 10 with the exception of Paragraph 10.03.

Add the following new paragraphs immediately after Paragraph 10.03.B:

C. The Resident Project Representative (RPR) will be ENGINEER's representative at the Site when requested by OWNER. RPR's dealings in matters pertaining to the Work in general will be with ENGINEER and CONTRACTOR. RPR's dealings with Subcontractors will only be through or with the full knowledge or approval of CONTRACTOR. The RPR will not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
2. Exceed limitations of ENGINEER's authority as set forth in the Contract Documents.
3. Undertake any of the responsibilities of CONTRACTOR, Subcontractors, or Suppliers.
4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction.
5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of OWNER or CONTRACTOR.
6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by ENGINEER.
7. Authorize OWNER to occupy the Project in whole or in part.

SC-11.01 Amending and Supplementing the Contract

Delete the second sentence in Paragraph 11.01.C in its entirety.

SC-11.07 Change of Contract Price

Amend the phrase at the end of Paragraph 11.07.B.2 to read:

(which may include an allowance for overhead and profit in accordance with Paragraph 11.07.C.2. unless OWNER and CONTRACTOR agree that these allowances are not appropriate for the Work involved.)

SC-11.09.C Change Proposals

Delete Paragraph 11.09.C in its entirety and insert the following in its place:

"Not used."

SC-11.10 Notification to Surety

Add the following new paragraphs immediately after Paragraph 11.10.A:

B. CONTRACTOR shall be responsible for notifying the surety of any assignment, modification, or change of the Contract, change in the Work covered thereby, or extension of time for the completion of the project.

C. Failure to provide notice to the surety of any such change shall not exonerate the surety from its obligations under the bond.

SC-12.01.A Claims Process

Delete Paragraph 12.01.A.3 in its entirety and insert the following in its place:

“Not used.”

SC-14.02.A Tests and Inspections

Add the following to the beginning of Paragraph 14.02.A:

All Work is subject to testing to indicate compliance with Contract Document requirements. Copies of test results of all tests required shall be submitted to ENGINEER. Tests and inspection of work may be conducted by OWNER or an independent laboratory employed by OWNER. Tests may also be performed in the field by ENGINEER as a basis for acceptance of the Work.

Add the following to the end of Paragraph 14.02.A:

Samples required for testing shall be furnished by CONTRACTOR at no cost to OWNER. In the event that completed Work does not conform to specification requirements during the initial test, the Work shall be corrected and retested for conformance. The entire cost of retesting completed Work shall be borne by CONTRACTOR. This shall include the extra cost for inspection to OWNER which will be deducted from the final amount due CONTRACTOR.

SC-15.01 Progress Payments

Add the following language at the end of Paragraph 15.01.B.1:

An updated Progress Schedule shall be submitted with each Application for Payment. Applications for Payment submitted without an acceptable updated Progress Schedule will be returned to CONTRACTOR without review. Progress Schedules that are submitted which do not reflect current project conditions, will not be considered acceptable.

In accordance with Wisconsin Statute sec. 779.14(1m)(d), CONTRACTOR shall pay all claims for labor and materials, CONTRACTOR shall maintain a list of all Subcontractors and Suppliers, and OWNER may make direct payment to a Subcontractor or pay CONTRACTOR with checks made payable to CONTRACTOR and to one or more Subcontractors.

SC-15.01.B Applications for Progress Payment

Delete Paragraph 15.01.B.3 in its entirety and renumber Paragraph 15.01.B.4 as 15.01.B.3.

Add the following language at the end of Paragraph 15.01.B.3:

No payments will be made that would deplete the retainage, place in escrow any funds that are required for retainage, or invest the retainage for the benefit of CONTRACTOR.

Add the following paragraphs immediately after Paragraph 15.01.B.3:

4. CONTRACTOR shall submit with each pay request CONTRACTOR's partial waiver of lien for the full amount of the requested payment. Beginning with the second pay request, and with each succeeding pay request, CONTRACTOR shall submit partial waivers of lien for each Subcontractor and Supplier showing that the amount paid to date to each is at least equivalent to the total value of Subcontractor's or Supplier's work, less retainage, included on the previous pay request. CONTRACTOR shall submit with each pay request a signed Waiver of Lien Log clearly documenting the following:

- a. The names of all Subcontractors/Suppliers on the project.
- b. Contract amounts for each Subcontractor/Supplier.
- c. Amount paid to date to each Subcontractor/Supplier.
- d. Lien waivers provided with current pay application for previous month's payments.
- e. Amount to be paid to each Subcontractor/Supplier included in the pending pay request.
- f. Remaining balance for each Subcontractor/Supplier.

5. No advanced payment for shop drawing preparation will be made. Shop drawing costs will be paid when equipment and materials are delivered and suitably stored on the site.

6. All stored equipment and materials for which payment is requested shall have invoices included with the pay request. Equipment shall be identified thoroughly on the invoices, including serial numbers.

7. Payment for the stored equipment and material which are on the site shall not exceed the invoiced amount for each item, less the Contract retainage. The overhead and profit for the stored items shall not be invoiced until the item is installed.

8. Payment for off-site storage is normally reserved for sensitive or very large pieces of equipment that in ENGINEER's opinion would not be practical to have stored on the site. Payment for off-site stored items shall be limited to 75% of the invoiced value of the item, less Contract retainage. CONTRACTOR shall reimburse OWNER the cost of inspecting off-site stored items. When off-site storage is approved, CONTRACTOR shall provide Insurance Certificates and Document of Ownership to OWNER.

SC-15.02 CONTRACTOR's Warranty of Title

Amend Paragraph 15.02.A by striking out the following text: "no later than seven days after the time of payment by OWNER" and inserting "no later than the time of payment by OWNER."

SC-15.03 Substantial Completion

Add the following new subparagraph to Paragraph 15.03.B:

1. If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by ENGINEER, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, will be paid by CONTRACTOR to OWNER. If CONTRACTOR does not pay, or the parties are unable to agree as to the amount owed, then OWNER may impose a reasonable set-off against payments due under this Article 15.

SC-15.04 Partial Use or Occupancy

Add the following new paragraph immediately after Paragraph 15.04.A.4:

5. OWNER may at any time request CONTRACTOR in writing to permit OWNER to take over operation of any part of the Work although it is not substantially complete. A copy of such request will be sent to ENGINEER, and within a reasonable time thereafter, OWNER, CONTRACTOR, and ENGINEER shall make an inspection of that part of the Work to determine its status of completion and will prepare a list of the items remaining to be completed or corrected thereon before final payment. If CONTRACTOR does not object in writing to OWNER and ENGINEER that such part of the Work is not ready for separate operation by OWNER, ENGINEER will finalize the list of items to be completed or corrected and will deliver such lists to OWNER and CONTRACTOR together with a written recommendation as to the division of responsibilities pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, maintenance, utilities, insurance, warranties, and guarantees for that part of the Work which will become binding upon OWNER and CONTRACTOR at the time when OWNER takes over such operation (unless they shall have otherwise agreed in writing and so informed ENGINEER). During such operation and prior to Substantial Completion of such part of the Work, OWNER shall allow CONTRACTOR reasonable access to complete or correct items on said list and to complete other related Work.

SC-15.08 Correction Period

Delete in Paragraph 15.08.A the phrase "If within one year after the date of Substantial Completion" and insert in its place the following:

"If within one year of the date of final payment or from the date established by ENGINEER that the Work or portion thereof began operating or was used in a continuous, satisfactory manner for its intended purpose, whichever is earlier,"

SC-16.02 OWNER May Terminate for Cause

Add the following new paragraphs immediately after Paragraph 16.02.B.2:

3. complete the Work as OWNER may deem expedient at the expense of CONTRACTOR and surety;
4. apply the amounts retained from partial payments to the completion of the Work;
- and
5. authorize the surety to complete the steps in Paragraphs 16.02.B.1 through 4.

SC-16.03 OWNER May Terminate for Convenience

Add the following paragraph after Paragraph 16.03.B:

C. CONTRACTOR shall require similar provisions contained in Paragraph 16.03 in each of its subcontracts to protect CONTRACTOR from claims by Subcontractors arising from OWNER's termination for convenience, or to minimize claims by such subcontractors. The remedy provided to CONTRACTOR under this Paragraph 16.03 shall be CONTRACTOR's sole remedy in the event of termination for convenience by OWNER.

END OF SECTION



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Insurance Agency	CONTACT NAME:	
	PHONE (A/C, No, Ext):	FAX (A/C, No):
INSURED Contractor	E-MAIL ADDRESS:	
	PRODUCER CUSTOMER ID #:	
	INSURER(S) AFFORDING COVERAGE	
	NAIC #	
	INSURER A : Insurance Company	
	INSURER B :	
	INSURER C :	
	INSURER D :	
INSURER E :		
INSURER F :		

COVERAGES

CERTIFICATE NUMBER:

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
	GENERAL LIABILITY						EACH OCCURRENCE \$ 1,000,000
	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence) \$
	<input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR						MED EXP (Any one person) \$
							PERSONAL & ADV INJURY \$ 1,000,000
							GENERAL AGGREGATE \$ 2,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						PRODUCTS - COMP/OP AGG \$ 2,000,000
	<input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input type="checkbox"/> LOC						\$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000
	<input checked="" type="checkbox"/> ANY AUTO						BODILY INJURY (Per person) \$
	<input type="checkbox"/> ALL OWNED AUTOS						BODILY INJURY (Per accident) \$
	<input type="checkbox"/> SCHEDULED AUTOS						PROPERTY DAMAGE (Per accident) \$
	<input type="checkbox"/> HIRED AUTOS						\$
	<input type="checkbox"/> NON-OWNED AUTOS						\$
	UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR						EACH OCCURRENCE \$ 2,000,000
	EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE						AGGREGATE \$ 2,000,000
							\$
							\$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY						<input checked="" type="checkbox"/> WC STATUTORY LIMITS <input type="checkbox"/> OTHER
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)						E.L. EACH ACCIDENT \$ 100,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE \$ 100,000
							E.L. DISEASE - POLICY LIMIT \$ 500,000
	INSTALLATION FLOATER						See SC-6.04

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Fire Department Bunk Room and Restroom Remodel, Contract 4-2024, City of Whitewater, Wisconsin

The City of Whitewater and Strand Associates, Inc. are additional insured with respect to General Liability, Automobile Liability, and Excess/Umbrella Liability. In addition, see attached Additional Insured Endorsements for the General Liability and Automobile Liability policies.

CERTIFICATE HOLDER

CANCELLATION

City of Whitewater
312 W. Whitewater Street
Whitewater, Wisconsin 53190

(Provide separate certificate to each party.)

Strand Associates, Inc.
910 West Wingra Drive
Madison, WI 53715**SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.**

AUTHORIZED REPRESENTATIVE

SPECIFICATIONS

SECTION 01 11 00

SUMMARY OF WORK

PART 1—GENERAL

1.01 DIVISION ONE

- A. The requirements of Division 01 apply to all sections of the Contract.

1.02 PROJECT SCOPE

- A. CONTRACTOR shall provide all items, articles, materials, operations or methods mentioned or scheduled on the Drawings or herein specified: including all labor, supervision, equipment, incidentals, taxes, and permits necessary to complete the Work as described within the Contract Documents. CONTRACTOR shall install all items provided by OWNER as mentioned or scheduled on the Drawings or herein specified.

1.03 CONTRACT DOCUMENTS—INTENT AND USE

A. Intent of Documents:

1. Singular notations and specifications shall be considered plural where application is reasonably inferred.
2. Mention or indication of extent of work under any division or Specification section is done only for convenience of CONTRACTOR and shall not be construed as describing all work required under that division or section.
3. Some individual sections may contain a list of related sections. The list of related sections in individual sections is provided for the convenience of CONTRACTOR and is not necessarily all-inclusive. CONTRACTOR may not rely upon this listing for determination of scope of work. Other sections of the Specifications not referenced in individual sections shall apply as required for proper performance of the Work.
4. Command type sentences may be used in the Contract Documents. These sentences refer to and are directed to CONTRACTOR.
5. Symbols for various elements and systems are shown on the Drawings. Should there be any doubt regarding the meaning or intent of the symbols used, a written interpretation shall be obtained from ENGINEER.

B. Use of Documents:

1. CONTRACTOR shall examine all Specifications and Drawings for the Work, including those that may pertain to Work CONTRACTOR does not normally perform with its own forces.
2. CONTRACTOR shall use all of the Project Drawings and Specifications:
 - a. For a complete understanding of the Project.
 - b. To determine the type of construction and systems required.
 - c. For coordination with other contractors.
 - d. To determine what other work may be involved in various parts or phases.
 - e. To anticipate and notify others when work by others will be required.
 - f. And all other relevant matters related to the project.
3. CONTRACTOR is also bound by all requirements of the Contract Documents which are applicable to, pertain to, or affect its Work as may be shown or inferred by the entire set of Project Drawings and Specifications.

1.04 CONTRACTOR USE OF SITE

A. General:

1. The "area of the site" referred to in these Specifications shall be as shown on the Drawings. If the "area of the site" is not shown, OWNER's property lines, the Project right-of-way and/or any easements obtained for the Project shall be considered the "area of the site."
2. Construction activities shall be confined within the "area of the site" limits.
3. From the start of work to completion CONTRACTOR is responsible for the care of the site and the premises which are affected by operations of Work of this Contract.
4. Except for permanent site improvements provided under the Contract, CONTRACTOR shall restore property disturbed during the Work, to the conditions which previously existed.
5. Work in occupied spaces shall be restricted to specified Work and essential activities, such as making necessary connections and extending services or constructing temporary access ways. Such work shall be scheduled in advance with OWNER.

B. Parking and Deliveries:

1. CONTRACTOR is responsible for control of traffic by vehicles and persons within the limits of its operations.
2. Parking for employees, subcontractors, and agents of CONTRACTOR shall be in areas subject to approval of OWNER.
3. Access to the site for delivery of construction material or equipment shall be subject to approval of OWNER.

1.05 EXISTING SERVICES, INCLUDING STRUCTURES

- A. Interruption of existing services and systems including heating, ventilating, air conditioning, water, sanitary, lighting and power, signal and security systems, and similar work shall be kept to an absolute minimum and shall be limited to times approved by OWNER.
- B. If deemed necessary by OWNER, such work shall be accomplished after OWNER's normal office hours.
- C. Work shall not commence until all labor, materials, and equipment are available so Work can continue without interruption or delay.
- D. Should uncharted or incorrectly charted services be encountered during installation, notify OWNER and consult with utility owner immediately.
- E. Cooperate with OWNER and utility companies in keeping respective services in operation and repair any damage.
- F. CONTRACTOR shall not interrupt existing services occupied and used by OWNER or others, except when permitted in writing by OWNER.
- G. Any accidental interruption of services shall be repaired immediately, including provision of temporary facilities until permanent repairs can be made.
- H. CONTRACTOR shall keep an accurate and complete record of all such services encountered and shall provide OWNER a copy of this record. The record shall include a description of the item encountered, opinion as to conditions, and adequate measurements so that the item can be located in the future.

- I. CONTRACTOR shall inspect all services for condition and soundness. Unsound conditions shall be reported to OWNER immediately after exposing. CONTRACTOR shall not proceed with the Work until the service or facility owner has been notified. Service or facility owner shall then be given time to inspect and correct, if required, the service. CONTRACTOR may make claim under the provisions of Articles 11 and 12 of the General Conditions should CONTRACTOR feel a price or time adjustment is justified.
- J. Any additional costs incurred because of failure of CONTRACTOR to report the condition of any and all existing services encountered shall be paid for by CONTRACTOR.
- K. Whenever ENGINEER feels it is necessary to explore to determine the location of existing services, CONTRACTOR shall make explorations for such purposes. If CONTRACTOR is required to perform additional Work in making the explorations, extra compensation will be allowed as provided for in the General Conditions.

1.06 PROTECTION OF WORK AND IMPROVEMENTS

- A. CONTRACTOR shall protect the property of OWNER, existing improvements, and the Work installed by CONTRACTOR and others from abuse, damage, dust, debris, and other objectionable materials resulting from construction activities.
- B. CONTRACTOR shall provide suitable covers, partitions, or other dust and fume containment devices to suit construction operations.
- C. CONTRACTOR shall keep property, existing improvements, and the Work including structures, mains, fittings, and accessories free from dirt and foreign matter at all times.
- D. CONTRACTOR shall provide temporary plugging of openings, holes, and pipe ends that are existing or that CONTRACTOR has installed.
- E. Property, improvements, and Work damaged by CONTRACTOR shall be repaired or replaced by CONTRACTOR to the satisfaction of OWNER.

1.07 AVAILABILITY OF LANDS

- A. Easements were not obtained for this Project. CONTRACTOR shall confine its operations, equipment and storage areas to the lands and rights-of-way in which the Project is to be located. CONTRACTOR may enter into written agreements with property owners for use of other lands during construction. Copies of such agreements shall be provided to OWNER.

PART 2-PRODUCTS

NOT APPLICABLE

PART 3-EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01 29 00

CONTRACT CONSIDERATIONS

PART 1—GENERAL

1.01 SUMMARY

- A. Work Included: Measurement and Payment—Lump Sum.

1.02 MEASUREMENT AND PAYMENT—LUMP SUM

- A. Payment for Lump Sum projects will be based on the accepted schedule of values for the project.
- B. An acceptable schedule of values will include the following features:
 - 1. Schedule shall list the installed value of the component parts of the work in sufficient detail to serve as a basis for computing values for progress payments during construction. Schedule shall be subdivided as necessary by specification section and work area.
 - 2. Identify each line item with the number and title of the respective Specification Section.
 - 3. For each major line item list sub-values of major products or operations under the item.
 - 4. For the various portions of the work:
 - a. Each item shall include a directly proportional amount of CONTRACTOR's overhead and profit.
 - b. For items on which progress payments will be requested for stored materials, break down the value into:
 - (1) The cost of the materials, delivered and unloaded, with taxes paid. Paid invoices are required for materials upon request by ENGINEER.
 - (2) The total installed value.
 - 5. The sum of all values listed in the schedule shall equal the total Contract Sum.
 - 6. Schedule shall include a separate listing of general items such as bonds, insurance, mobilization, demobilization, field supervision, and record documents.
- C. Once a schedule of values is accepted, it shall not be revised, except for changes associated with subsequently executed change orders.
- D. No separate measurement for payment will be performed for Lump Sum Work.
- E. CONTRACTOR shall estimate percentage of Work completed. ENGINEER will review CONTRACTOR's estimate of quantity of Work completed.
- F. Payment will be made based on the percentage of the Contract completed less retainage and/or liquidated damages.
- G. Unless noted otherwise, all Work described in the Specifications and/or shown on the Drawings shall be included in the Lump Sum Bid.
- H. Some technical specification sections may include payment provisions. These provisions are in addition to the provisions of this section which apply to all of the Work.

PART 2-PRODUCTS

NOT APPLICABLE

PART 3-EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01 31 00

COORDINATION AND MEETINGS

PART 1—GENERAL

1.01 SUMMARY

- A. Work Included:
 - 1. Coordination.
 - 2. Progress Meetings.

1.02 COORDINATION

- A. CONTRACTOR shall coordinate scheduling, submittals, and work of the various sections of the work to provide an efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. CONTRACTOR shall verify utility requirements and characteristics of operating equipment are compatible with building utilities and coordinate Work of various sections having interdependent responsibilities for installing, connecting to, and placing in service such equipment.
- C. CONTRACTOR shall coordinate space requirements and installation of mechanical and electrical work which are indicated diagrammatically on the Drawings and shall follow routing shown for pipes, ducts, and conduit as closely as practicable; place runs parallel with line of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- D. In finished areas, except as otherwise indicated, CONTRACTOR shall conceal pipes, ducts, and wiring within the construction and coordinate locations of fixtures and outlets with finish elements.
- E. CONTRACTOR shall coordinate completion and cleanup of Work of separate sections in preparation for substantial completion and for portions of Work designated for OWNER's occupancy.
- F. After OWNER occupancy of premises, CONTRACTOR shall coordinate access to Site for correction of defective Work and Work not in accordance with Contract Documents to minimize disruption of OWNER's activities.

1.03 PROGRESS MEETINGS

- A. Progress meetings will be held throughout progress of the Work at intervals agreed to by OWNER, ENGINEER, and CONTRACTOR. Interval will generally be monthly.
- B. CONTRACTOR's project manager, job superintendent, major subcontractors, and suppliers shall attend as appropriate to address agenda topics for each meeting. CONTRACTOR's representatives shall have authority to bind CONTRACTOR to decisions at the meetings.
- C. The project schedule shall be updated monthly and shall be reviewed at each progress meeting.

- D. CONTRACTOR shall also provide the following information in written form at each meeting.
1. Construction progress, including:
 - a. Activities completed this reporting period.
 - b. Activities in progress this reporting period.
 - c. Activities scheduled to commence this reporting period.
 2. Description of problem areas.
 3. Current and anticipated delays.
 - a. Cause of the delay.
 - b. Corrective action and schedule adjustments to correct the delay.
 - c. Impact of the delay on other activities, on milestones, and on completion dates.
 4. Changes in construction sequence.
- E. ENGINEER will prepare and distribute minutes to all attending parties.

PART 2-PRODUCTS

NOT APPLICABLE

PART 3-EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01 33 00

SUBMITTALS

PART 1—GENERAL

1.01 SUMMARY

- A. Work Included:
 - 1. Whenever possible throughout the Contract Documents, the minimum acceptable quality of workmanship and materials has been defined either by manufacturer's name and catalog number or by reference to recognized industry standards.
 - 2. To facilitate CONTRACTOR's understanding of the design intent, procedures have been established for advance submittal of design data and for its review or rejection by ENGINEER.
 - 3. The type of submittal requirements specified in this section include construction progress schedule, submittal schedule, shop drawings, product data, samples, maintenance manuals, and other miscellaneous work-related submittals.
- B. Related work described elsewhere: More detailed requirements for submittals are described in other sections of these specifications for some materials and equipment. They are to be considered additional requirements to supplement the requirements specified in this section. Submittals shall conform to Article 7 of the General Conditions.
- C. Definitions: "Electronic Submittal" is defined as any submittal transmitted electronically to ENGINEER for review.

1.02 IDENTIFICATION OF SUBMITTALS

- A. CONTRACTOR shall completely identify each submittal and resubmittal by showing at least the following information:
 - 1. Name and address of submitter, plus name and telephone number of the individual who may be contacted for further information.
 - 2. Name and location of project and identification number.
 - 3. Drawing number and specifications section number to which the submittal applies.
 - 4. Include the date of each submittal or resubmittal.

1.03 GROUPING OF SUBMITTALS

- A. Unless otherwise specifically permitted by ENGINEER, CONTRACTOR shall make all submittals in groups containing all associated items so that information is available for checking each item when it is received.
- B. Partial submittals may be rejected as not complying with the provisions of the Contract Documents.

1.04 TIMING OF SUBMITTALS

- A. CONTRACTOR shall make all submittals far enough in advance of scheduled dates of installation to provide required time for reviews, for securing necessary approval, for possible revision and resubmittal, and for placing orders and securing delivery.

- B. The review period for submittals that are received after 3 P.M. shall commence on the following business day.

1.05 CONSTRUCTION PROGRESS AND SUBMITTAL SCHEDULES

- A. Submit preliminary schedules within 10 days of the Effective Date of the Contract.
- B. Revise schedules incorporating any comments provided at the schedule review conference required in GC-2.05 and resubmit.
- C. As a minimum, the construction progress schedule shall consist of a horizontal bar chart with a separate line for each major portion of Work or operation, identifying first workday of each week.
- D. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration for each activity. Identify activities that are on the critical path.
- E. Include line items for milestones (if any), Substantial, and Final Completion.
- F. Submit updated schedules with each Application for Payment, identifying changes since previous version.
- G. Indicate estimated percentage of completion for each item of Work at each submission.
- H. Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates.

1.06 SHOP DRAWINGS

- A. Shop drawings shall include specially prepared technical data for this project including drawings, diagrams, performance curves, data sheets, schedules, templates, patterns, reports, calculations, instructions, measurements, and similar information not in standard printed form for general application to a range of similar projects. Shop drawings shall be submitted for all manufactured or fabricated items. See individual technical sections for special requirements.
- B. CONTRACTOR shall make all shop drawings accurately to scale and sufficiently large to show all pertinent aspects of the item and its method of connection to the work.
- C. Shop drawings shall be checked, approved, and stamped by CONTRACTOR in accordance with the General Conditions before transmittal to ENGINEER for review and approval.
- D. Complete shop drawings and descriptive data shall be submitted on all manufactured or fabricated items prior to 50% completion of the Work. Applications for payment beyond 50% of the Contract amount will not be recommended for payment until all shop drawings are submitted, including color hard copies if requested by OWNER, or a revised schedule for any remaining submittals is agreed to by OWNER and ENGINEER.

- E. CONTRACTOR shall submit shop drawings following the electronic submittal procedure described below.
- F. Shop drawings submitted to ENGINEER will be reviewed and stamped "Approved," "Approved as Noted," "Approved as Noted-Resubmit," or "Not Approved." CONTRACTOR shall resubmit shop drawings stamped "Approved as Noted-Resubmit" and "Not Approved," and will continue this process until shop drawings are stamped "Approved" or "Approved as Noted." If drawings are stamped "Approved as Noted-Resubmit," fabrication may proceed in accordance with the marked-up shop drawings. Installation shall not proceed until shop drawings have been resubmitted and stamped "Approved" or "Approved as Noted."
- G. If shop drawings are stamped "Approved as Noted" or "Approved as Noted-Resubmit" and CONTRACTOR does not agree with revisions or cannot conform with revisions, fabrication shall not proceed and shop drawings shall be resubmitted with explanation of CONTRACTOR's position.
- H. All shop drawings used for construction site activities shall bear the "Approved" or "Approved as Noted" stamp of ENGINEER.
- I. PDF Submittal Procedures:
 - 1. Summary:
 - a. Shop drawing and product data submittals shall be transmitted to ENGINEER in electronic (PDF) format.
 - b. The intent of PDF submittals is to expedite the construction process by reducing paperwork, improving information flow, and decreasing turnaround time.
 - c. The PDF submittal process is not intended for color samples, color charts, or physical material samples.
 - 2. Procedures:
 - a. CONTRACTOR shall review and apply a stamp certifying that the submittal complies with the requirements of the Contract Documents including verification of manufacturer/product, dimensions and coordination of information with other parts of the work.
 - b. CONTRACTOR shall transmit each cover letter and submittal to ENGINEER as an e-mail attachment.
 - c. ENGINEER will return the reviewed shop drawing via e-mail with a transmittal letter, after review, indicating the status of the shop drawing review.
 - d. Distribution of reviewed submittals to subcontractors and suppliers is the responsibility of CONTRACTOR.
 - e. Electronically submitted shop drawings shall follow the following format:
 - (1) All files shall be delivered in PDF format with a minimum resolution of 300 dpi unless otherwise requested by ENGINEER. Scanned in material shall be scanned in color and any markings by CONTRACTOR shall be made in red. Pages shall be rotated to the appropriate position for easy reading on a computer monitor such that the majority of text is vertical.
 - (2) Files shall be delivered without security features activated.
 - (3) Shop Drawings shall be uploaded as individual files. All pages of one submittal should be contained in one file.
 - (4) The file shall open to a cover page containing, at a minimum, the following information:
 - (a) CONTRACTOR's stamp.
 - (b) Name, e-mail, and telephone number of the individual who may be contacted for further information.

- (c) Project number.
- (d) Submittal number.
- (e) Submission date, if resubmittal, all previous submission dates.
- (f) Index detailing contents and the total number of pages in the submittal.

J. Shop drawings shall include verification that the item meets applicable codes and standards.

1.07 COLORS AND PATTERNS

- A. Unless the precise color and pattern is specifically described in the Contract Documents, whenever a choice of color or pattern is available in a specified product, CONTRACTOR shall submit accurate color charts and pattern charts to ENGINEER for OWNER's review and selection.
- B. Unless all available colors and patterns have identical wearing capabilities and are identically suited for the installation, CONTRACTOR shall completely describe the relative capabilities of each.

1.08 SAMPLES AND FIELD MOCKUPS

- A. CONTRACTOR shall provide samples and field mockups where noted or specified.
- B. Samples are physical examples which illustrate materials, equipment, or workmanship and establish standards by which the work will be judged.
- C. Samples shall be of sufficient size and quantity to clearly illustrate the functional characteristics of the product and full range of color, texture, and pattern.
- D. Samples shall have labels firmly attached, bearing the following information:
 - 1. Name of project.
 - 2. Description of product and finish.
 - 3. Name of CONTRACTOR.
 - 4. Trade name and number of product.
 - 5. Standards met by the product.
- E. Approval of samples must be obtained prior to proceeding with any work affected by material requiring sample approval.
- F. Samples, unless otherwise noted, become the property of OWNER.
- G. In situations specifically approved by ENGINEER, the retained sample may be used in the construction as one of the installed items.
- H. Field Mockups:
 - 1. CONTRACTOR shall erect field mockups at the project site in a location acceptable to ENGINEER and OWNER.
 - 2. When accepted by ENGINEER, the mockup will become the basis for comparison of the actual work.
 - 3. Remove mockup at conclusion of the work if it was not incorporated into the work.

1.09 PRODUCT DATA

- A. CONTRACTOR shall provide product data as required to supplement shop drawings.
- B. Product data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by CONTRACTOR to illustrate a material, product, or system for some portion of the work.
- C. CONTRACTOR shall collect required product data into one submittal for each unit of work or system.
- D. CONTRACTOR shall include manufacturer's standard printed recommendations for application and use, compliance with standards, performance characteristics, wiring and piping diagrams and controls, component parts, finishes, dimensions, required clearances, and other special coordination requirements.
- E. CONTRACTOR shall mark each copy of standard printed data to identify pertinent products, models, options, and other data.
- F. CONTRACTOR shall supplement manufacturer's standard data to provide information unique to the work.

1.10 RESUBMISSION REQUIREMENTS

- A. Make any corrections or changes in the submittals required by ENGINEER.
- B. Shop Drawings and Product Data:
 - 1. Revise initial drawings or data and resubmit as specified for initial submittal.
 - 2. Itemize in a cover letter any changes which have been made other than those requested by ENGINEER.

1.11 MANUFACTURER'S DIRECTIONS

- A. Manufactured articles, materials, and equipment shall be stored, commissioned, operated, applied, installed, connected, erected, used, cleaned, and conditioned as directed by the manufacturer, unless specified to the contrary.
- B. Wherever specifications call for work to be performed or materials to be installed in accordance with the manufacturer's printed instructions or directions, CONTRACTOR shall furnish copies as required for shop drawings of those instructions or directions to ENGINEER before installing the material or performing the work.

1.12 MAINTENANCE MANUAL

- A. Prior to 75% completion of the Contract or at a minimum of 45 days prior to the scheduled start-up date of any individual item of equipment, whichever is earlier, CONTRACTOR shall furnish to ENGINEER two complete color hard copies of a maintenance manual for all equipment furnished. Applications for payment beyond 75% of the contract amount will not be recommended for payment until all maintenance manuals are submitted or a revised schedule for remaining maintenance manuals is agreed to by OWNER and ENGINEER.
- B. The manuals shall include manufacturer's instructions for maintenance and operation for each item of mechanical and electrical equipment. Manuals shall be specific for the

equipment as installed; provide project specific inserts as required. Manuals shall contain: operation instructions, lubrication schedules, types and quantities, preventative maintenance program, spare parts list, parts lists, I.D. No. and exploded views, assembly instructions, parts supplier location, trouble shooting and startup procedures and, where applicable, test data and curves.

- C. All sheets shall have reduced dimensions as described for shop drawings. Only one copy shall be submitted in a 3-ring binder or 3-tab report cover, and the remaining copies shall be furnished in 3-tab report covers, binder clips, or large envelopes.
- D. CONTRACTOR is responsible for producing an electronic version of the Equipment Operations and Maintenance (O&M) Manuals Manual. The Electronic Equipment O&M Manual shall be delivered in Portable Document Format (PDF). The entire manual may be converted to PDF via scanning or other method of conversion. Drawings or other graphics must be converted to PDF format and made part of the PDF document. CONTRACTOR shall provide all Equipment O&M Manuals in the electronic format as defined below.
- E. The filename for the Equipment O&M Manual submittal will be provided with the request for final Equipment O&M Manuals. Filenames use the "eight dot three" convention (XX XX XX_YY.PDF) where XX XX XX is the specification section number and YY is an ID number. No one file shall be larger than 10 MB. If technical problems require that the submittal be divided into more than one file, a letter extension shall be added to the end of each filename.
- F. The number of files shall be kept to a minimum. Equipment O&M Manuals that span more than one file shall have the final Bookmark "Return to Table of Contents" which shall take the User to the first file on the Equipment O&M Manual.
- G. All text (word processed), spreadsheets, and electronic graphics shall be delivered in portable document format (*.PDF). The resolution of all scanned images shall be a minimum of 300 dpi unless otherwise requested by ENGINEER. Scanned images shall be processed with the "original image with hidden text" option (Adobe Acrobat 6 or higher). This results in a clear image and provides for optical character recognition (OCR) and word search functionality. Graphical files shall be fully searchable. All submittals must be indexed with the Adobe Catalog feature. Placement and structure of index files shall be in accordance with Adobe's recommendations to minimize problems when transferring files. Successful searches for words or strings in the PDF document shall demonstrate proof of OCR.
- H. Rotate pages viewed in landscape to the appropriate position for easy reading on a computer monitor.
- I. Bookmarks shall be created in the navigation frame for each entry in the Table of Contents. Three levels deep is usually enough (i.e., "Chapter," "Section," "Subsection"); however, complex submittals like instrumentation and electrical may be required at the discretion of ENGINEER. When setting bookmarks for Chapter level heading, the page shall be displayed at Full Page. Section and Subsection level heading pages shall be displayed as a magnified view. Bookmarks shall be displayed as subordinate to other bookmarks in their hierarchy set so that only the Chapter level headings are displayed.
- J. Thumbnails shall be generated and embedded in each PDF file.
- K. Files shall be delivered without Security features activated. Password protected files will be unacceptable.

- L. The opening view for PDF files shall be set as follows:
 - 1. Initial View: Bookmarks and Page.
 - 2. Magnification: Fit In Window.
 - 3. Page Layout: Single Page.
- M. The file shall open to the cover page of the Equipment O&M Manual with bookmarks to the left. The first bookmark shall be the name of Equipment O&M Manual.
- N. O&M Manual PDFs shall be delivered electronically.
- O. CONTRACTOR shall reprocess any portion of the document that does not view or print to OWNER's satisfaction.
- P. CONTRACTOR is fully responsible for obtaining any and all copyright permissions associated with conversion of this information to electronic format.

PART 2-PRODUCTS

NOT APPLICABLE

PART 3-EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01 41 00
REGULATORY REQUIREMENTS

PART 1–GENERAL

1.01 SUMMARY

- A. Work Included:
 - 1. OSHA Requirements.
 - 2. Roadway Limits.
 - 3. Permits.
 - 4. Wage Rates.

1.02 OSHA REQUIREMENTS

- A. All work including site safety, equipment, materials, and fabricated items provided under the Contract shall comply with the provisions of the “Occupational Safety and Health Act.”

1.03 ROADWAY LIMITS

- A. CONTRACTOR shall comply with roadway weight restrictions including seasonal weight restrictions.

1.04 PERMITS

- A. No permits were obtained by OWNER for this Project. CONTRACTOR shall obtain required permits. Where the requirements of any permit are more restrictive than the Drawings or the Specifications, the permit requirements shall govern.
- B. A building permit will be required from OWNER. However, OWNER will waive fees associated with the permit.

1.05 WAGE RATES

- A. A wage rate determination is not a requirement of this Project.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3–EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01 42 00

REFERENCE STANDARDS AND DEFINITIONS

PART 1-GENERAL

1.01 SUMMARY

- A. Work Included:
 - 1. Reference Standards:
 - a. Throughout the Contract Documents, reference is made to codes and standards which establish qualities and types of workmanship and materials, and which establish methods for workmanship and materials, and which establish methods for testing and reporting on the pertinent characteristics.
 - b. Where materials or workmanship are required by these Contract Documents to meet or exceed the specifically named code or standard, it is CONTRACTOR's responsibility to provide materials and workmanship which meet or exceed that specifically named code or standard.
 - c. It is also CONTRACTOR's responsibility, when so required by the Contract Documents, to deliver to ENGINEER all required proof that the material or workmanship, or both, meet or exceed the requirements of the specifically named code or standard.
 - 2. Definitions:
 - a. A substantial amount of specification language constitutes definitions for terms found in other Contract Documents, including the Drawings which must be recognized as diagrammatic in nature and not completely descriptive of requirements indicated thereon.
 - b. Certain terms used in the Contract Documents are defined generally in this section to supplement definitions of the Agreement, General Conditions, Supplementary Conditions, and other general contract documents.
 - c. Definitions and explanations of this section are not necessarily either complete or exclusive, but are general for the Work.
- B. Related Work Described Elsewhere: The specific naming of codes or standards occurs on the Drawings and in other sections of these Specifications.

1.02 QUALITY ASSURANCE

- A. Familiarity with Pertinent Codes and Standards:
 - 1. It is CONTRACTOR's responsibility to verify the requirements of the specifically named codes and standards and to verify that the items procured for use in this Work meet or exceed the specified requirements.
 - 2. When required by individual sections of these specifications, CONTRACTOR shall obtain a copy of each pertinent code or standard and maintain the copies at the job site during submittals, planning, and progress of the Work until Substantial Completion of the Work is attained.
- B. Overlapping or Conflicting Requirements:
 - 1. Where compliance with two or more industry standards or sets of requirements are specified, and the overlapping of those standards or requirements establishes different or conflicting minimums or levels of quality, the most stringent requirement (which is

generally recognized to be also most costly) is intended and will be enforced, unless more detailed language written directly into Contract Documents clearly indicates that a less stringent requirement is acceptable.

2. Refer all uncertainties to ENGINEER for decision before proceeding.

1.03 REFERENCE STANDARDS

- A. Applicable standards of the construction industry are made a part of the Contract Documents by reference as if copied directly into the Contract Documents, or as if published copies were bound herewith. See Article 3.02 of the General Conditions for additional provisions regarding references.
- B. Standards referenced directly in the Contract Documents or by governing regulation, have precedence over nonreferenced standards which are recognized in industry for applicability to the Work.
- C. Nonreference standards are hereby defined to have no particular applicability to the Work except as a general measurement of whether the Work complies with standards recognized in the construction industry.
- D. Reference standards and codes listed in these specifications may include, but are not necessarily limited to, standards or codes published by the following agencies and organizations:

1. AA Aluminum Association
1525 Wilson Boulevard, Arlington, VA 22209
2. AAMA American Architectural Manufacturer's Association
1827 Walden Office Square Suite 550, Schaumburg, IL 60173-4268
3. AASHTO American Association of State Highway & Transportation Officials
444 North Capitol Street NW Suite 249, Washington, DC 20001
4. ACI American Concrete Institute
38800 Country Club Drive, Farmington Hills, MI 48331-3439
5. AI Asphalt Institute
2696 Research Park Drive, Lexington, KY 40511-8480
6. AISC American Institute of Steel Construction
One East Wacker Drive Suite 700, Chicago, IL 60601-1802
7. AISI American Iron and Steel Institute
25 Massachusetts Avenue NW Suite 800, Washington, DC 20001
8. ANSI American National Standards Institute
25 West 43rd Street, New York, NY 10036
9. APA American Plywood Association
7011 South 19th, Tacoma, WA 98466-5333

10. API American Petroleum Institute
1220 L Street NW, Washington, DC 20005-4070
11. ARI Air-Conditioning & Refrigeration Institute
4100 North Fairfax Drive Suite 200, Arlington, VA 22203
12. ASHRAE American Society of Heating, Refrigerating, and Air Conditioning Engineers
1791 Tullie Circle NE, Atlanta, GA 30329
13. ASME American Society of Mechanical Engineers
Two Park Avenue, New York, NY 10016-5990
14. ASSE American Society of Sanitary Engineering
901 Canterbury Suite A, Westlake, OH 44145
15. ASTM ASTM International
100 Barr Harbor Drive, West Conshohocken, PA 19428-2959
16. AWI Architectural Woodwork Institute
46179 Westlake Drive Suite 120, Potomac Falls, VA 20165-5874
17. AWPA American Wood Protection Association
P.O. Box 361784, Birmingham, AL 35236-1784
18. AWS American Welding Society
8669 Doral Boulevard Suite 130, Doral, FL 33166
19. AWWA American Water Works Association
6666 West Quincy Avenue, Denver, CO 80235
20. BHMA Builder's Hardware Manufacturers Association
355 Lexington Avenue 15th floor, New York, NY 10017
21. BIA Brick Industry Association
1850 Centennial Park Drive Suite 301, Reston, VA 20191
22. CRSI Concrete Reinforcing Steel Institute
9333 North Plum Grove Road, Schaumburg, IL 60173
23. DOT U.S. Department of Transportation
1200 New Jersey Avenue, SE, Washington, DC 20590
24. EJMA Expansion Joint Manufacturers Association
25 North Broadway, Tarrytown, NY 10591
25. FM FM Global
FM Global Corporate Offices, 270 Central Avenue, Johnston, RI 02919

26. FTI Facing Tile Institute
Box 8880, Canton, OH 44711
27. GA Gypsum Association
6525 Belcrest Road Suite 480, Hyattsville, MD 20782
28. GANA Glass Association of North America
800 SW Jackson Street Suite 1500, Topeka, KS 66612-1200
29. ICC International Code Council
500 New Jersey Avenue NW 6th Floor, Washington, DC 20001
30. IES Illuminating Engineering Society
120 Wall Street, Floor 17, New York, NY 10005-4001
31. MIL Military Specifications
Naval Publications and Forms Center
5801 Tabor Avenue, Philadelphia, PA 19120
32. NAAMM National Association of Architectural Metal Manufacturers
800 Roosevelt Road Building C Suite 312, Glen Ellyn, IL 60137
33. NCMA National Concrete Masonry Association
13750 Sunrise Valley Drive, Herndon, VA 20171-4662
34. NECA NECA
National Electrical Contractors Association
3 Bethesda Metro Center Suite 1100, Bethesda, MD 20814
35. NEMA National Electrical Manufacturers Association
1300 North 17th Street Suite 1752, Rosslyn, VA 22209
36. NFPA National Fire Protection Association
1 Batterymarch Park, Quincy, MA 02169-7471
37. NIST National Institute of Standards and Technology
(U.S. Department of Commerce), 100 Bureau Drive, Stop 1070
Gaithersburg, MD 20899-1070
38. NRCA National Roofing Contractors Association
10255 West Higgins Road Suite 600, Rosemont, IL 60018-5607
39. NSF National Sanitation Foundation International
P.O. Box 130140, 789 North Dixboro Road, Ann Arbor, MI 48113-0140
40. OSHA Occupational Safety & Health Administration
200 Constitution Avenue NW, Washington, DC 20210
41. PCA Portland Cement Association
5420 Old Orchard Road, Skokie, IL 60077

- | | |
|------------|--------------------------------------------------------------------------------------------------------------------------------|
| 42. PCI | Prestressed Concrete Institute
200 West Adams Street Suite 2100, Chicago, IL 60606 |
| 43. SAE | Society of Automotive Engineers
SAE World Headquarters
400 Commonwealth Drive, Warrendale, PA 15096-0001 |
| 44. SDI | Steel Deck Institute
P.O. Box 25, Fox River Grove, IL 60021 |
| 45. SDI | Steel Door Institute
30200 Detroit Road, Westlake, OH 44145-1987 |
| 46. SIGMA | Sealed Insulating Glass Manufacturers Assoc.
401 North Michigan Avenue Suite 2400, Chicago, IL 60611 |
| 47. SJI | Steel Joist Institute
234 Cheves Street, Florence, SC 29501 |
| 48. SMACNA | Sheet Metal and Air Conditioning
Contractor's National Association
4201 Lafayette Center Drive, Chantilly, VA 20151-1219 |
| 49. SSPC | Society for Protective Coatings
40 24th Street 6th Floor, Pittsburgh, PA 15222-4656 |
| 50. TCA | Tile Council of America
100 Clemson Research Boulevard, Anderson, SC 29625 |
| 51. UL | Underwriters Laboratories
333 Pfingston Road; Northbrook, IL 60062 |

1.04 SUBMITTALS

- A. For OWNER's records, CONTRACTOR shall submit copies of permits, licenses, certifications, inspection reports, and similar documents, correspondence and records established in conjunction with compliance with standards and regulations bearing upon performance of the Work.

1.05 DEFINITIONS

- A. Indicated:
 - 1. The term "indicated" is a cross-reference to details, notes, or schedules on the drawings, to other paragraphs or schedules in the specifications and to similar means of recording requirements in the Contract Documents.
 - 2. Where terms such as "shown," "noted," "scheduled," and "specified" are used in lieu of "indicated," it is for the purpose of helping the reader locate cross-reference, and no limitation is intended except as specifically noted.

- B. Approve (or Words of Similar Nature):
1. Where used in conjunction with ENGINEER's response to submittals, requests, applications, inquiries, reports, and claims by CONTRACTOR, the meaning of the term "approve" will be held to the limitation of ENGINEER's responsibilities and duties as specified in Paragraph 1.02.B of the General Conditions.
 2. In no case will "approval" by ENGINEER be interpreted as a release of CONTRACTOR from responsibility to fulfill requirements of the Contract Documents.
- C. Minimum Requirements:
1. Indicated requirements are for a specific minimum acceptable level of quality or quantity, as recognized in the industry.
 2. Actual work must comply with (or within specified tolerances) or exceed minimums.
 3. CONTRACTOR shall refer uncertainties to ENGINEER before proceeding.
- D. Abbreviations: Abbreviations, where not defined in the Contract Documents, will be interpreted to mean the normal construction industry terminology.

PART 2-PRODUCTS

NOT APPLICABLE

PART 3-EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01 45 00

QUALITY CONTROL

PART 1—GENERAL

1.01 SUMMARY

- A. Work Includes:
 - 1. Quality Assurance—Control of Installation.
 - 2. Tolerances.
 - 3. Manufacturers' Field Services and Reports.

1.02 QUALITY ASSURANCE—CONTROL OF INSTALLATION

- A. CONTRACTOR shall monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship to produce Work of specified quality.
- B. CONTRACTOR shall comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, CONTRACTOR shall request clarification from ENGINEER before proceeding.
- D. CONTRACTOR shall comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Work shall be performed by persons qualified to produce workmanship of specified quality.
- F. CONTRACTOR shall secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.03 TOLERANCES

- A. CONTRACTOR shall monitor tolerance control of installed products to produce acceptable work and shall not permit tolerances to accumulate.
- B. CONTRACTOR shall comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, CONTRACTOR shall request clarification from ENGINEER before proceeding.
- C. CONTRACTOR shall adjust products to appropriate dimensions; position before securing products in place.

1.04 MANUFACTURERS' FIELD SERVICES AND REPORTS

- A. When specified in individual specification sections or when requested by ENGINEER, CONTRACTOR shall require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, and quality of workmanship.

- B. CONTRACTOR shall submit qualifications of observer to ENGINEER 30 days in advance of required observations.
- C. CONTRACTOR shall report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.
- D. CONTRACTOR shall submit report in duplicate within 30 days of observation to ENGINEER for information.

PART 2-PRODUCTS

NOT APPLICABLE

PART 3-EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES

PART 1—GENERAL

1.01 SUMMARY

- A. Work Included:
 - 1. Temporary Utilities.
 - 2. Removal of Temporary Facilities.
- B. CONTRACTOR shall arrange for and provide temporary facilities as required for proper and expeditious prosecution of the Work.
- C. CONTRACTOR shall pay all costs, except as otherwise specified, until final acceptance of the Work unless OWNER makes arrangements for use of completed portions of the Work after substantial completion in accordance with the provisions of the General Conditions.
- D. CONTRACTOR shall make all temporary connections to utilities and services in locations acceptable to OWNER and local authorities having appropriate jurisdiction.
 - 1. Furnish all necessary labor and materials.
 - 2. Make all installations in a manner subject to the acceptance of such authorities and OWNER.
 - 3. Maintain such connections.
 - 4. Remove temporary installation and connection when no longer required.
 - 5. Restore services and sources of supply to proper operating conditions.

1.02 TEMPORARY UTILITIES

- A. Temporary Toilets: CONTRACTOR shall provide and maintain sanitary temporary chemical toilets located where approved by OWNER and in sufficient number required for the work force employed by CONTRACTOR.
- B. Weather Protection and Temporary Heat: CONTRACTOR shall provide weather protection to protect the Work from damage because of freezing, rain, snow, and other inclement weather.
- C. Temporary Electrical Services:
 - 1. Existing outlets and wiring shall not be used for motors larger than fractional HP or for welding equipment. Circuits for larger motors and welding equipment may be provided with special circuits to mains of electrical panels at the expense of those trades requiring them, provided that written permission is obtained from OWNER and ENGINEER.
 - 2. Any temporary electrical services required during power outages shall be obtained and paid for by CONTRACTOR.
 - 3. All temporary lighting required for construction as well as OWNER's full use of the entire facility throughout construction shall be provided by CONTRACTOR.
 - 4. No permanent electrical equipment or wiring shall be used without express written permission of OWNER. Such approval, if given, shall not affect guarantee period.

1.03 TEMPORARY SUPPORT FACILITIES

- A. CONTRACTOR shall provide whatever facilities and services which may be needed to properly support primary construction process and meet compliance requirements and governing regulations.
- B. CONTRACTOR shall not use permanent facilities except as otherwise indicated, unless authorized by OWNER.

1.04 REMOVAL OF TEMPORARY FACILITIES

- A. Remove temporary materials, equipment, services, and construction as soon as practicable but no later than just prior to final completion inspection.
- B. Clean and repair damage caused by installation or use of temporary facilities and restore existing facilities used during construction to specified, or to original, condition.

PART 2-PRODUCTS

NOT APPLICABLE

PART 3-EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01 57 00

TEMPORARY CONTROLS

PART 1-GENERAL

1.01 SUMMARY

- A. Work Included:
 - 1. Dust Control.
 - 2. Noise Control.
 - 3. Site Security.
 - 4. Daily Cleanup.

PART 2-PRODUCTS

NOT APPLICABLE

PART 3-EXECUTION

3.01 DUST CONTROL

- A. CONTRACTOR shall execute the Work by methods to minimize raising dust from construction operations.
- B. CONTRACTOR shall provide positive means to prevent airborne dust from dispersing into atmosphere.
- C. CONTRACTOR shall provide partitions, enclosures, etc., within buildings as necessary to confine dust and protect adjacent areas.

3.02 NOISE CONTROL

- A. Provide methods, means, and facilities to minimize noise produced by construction operations.

3.03 SITE SECURITY

- A. CONTRACTOR shall have the sole responsibility of safeguarding the Site perimeter to prevent unauthorized entry to the Site throughout the duration of the Project. CONTRACTOR shall at all times provide such permanent and temporary fencing or barricades or other measures as may be necessary to restrict unauthorized entry to its construction area including construction in public rights-of-way or easements. Site security measures shall include safeguards against attractive nuisance hazards as a result of construction activity.
- B. CONTRACTOR shall at all times be responsible for the security of the Work including materials and equipment. OWNER will not take any responsibility for missing or damaged equipment, tools, or personal belongings. CONTRACTOR shall have the sole responsibility of safeguarding the Work and the Site throughout the duration of the Project.

3.04 DAILY CLEANUP

- A. CONTRACTOR shall clean up the Site and remove all rubbish on a daily basis.
- B. CONTRACTOR shall clean up public streets and highways and remove any dirt, mud, or other materials due to project traffic on daily basis and shall comply with all local and state ordinances and permit requirements.

END OF SECTION

SECTION 01 60 00

MATERIALS AND EQUIPMENT

PART 1—GENERAL

1.01 SUMMARY

- A. Work Included: CONTRACTOR shall be responsible for the delivery, handling, storage and protection of all material and equipment required to complete the Work as specified herein.
- B. Related Sections and Divisions: Specific requirements for the handling and storage of material and equipment are described in other sections of these Specifications.

1.02 PRODUCTS

- A. Components required to be supplied in quantity within a Specification section shall be the same, and shall be interchangeable.
- B. CONTRACTOR shall not use materials and equipment removed from existing construction, except as specifically required, or allowed, by the Contract Documents.
- C. When any construction deviations from the Drawings and/or Specifications necessary to accommodate equipment supplied by CONTRACTOR, result in additional costs to CONTRACTOR or other contractors, such additional costs shall be borne by CONTRACTOR. CONTRACTOR shall also pay any additional costs necessary for revisions of Drawings and/or Specifications by ENGINEER.
- D. Each major component of equipment shall bear a nameplate giving the name and address of the manufacturer and the catalogue number or designation.

1.03 TRANSPORTATION AND HANDLING

- A. Materials, products and equipment shall be properly containerized, packaged, boxed, and protected to prevent damage during transportation and handling.
- B. CONTRACTOR shall not overload any portion of the structure in the transporting or storage of materials.
- C. CONTRACTOR shall not damage other construction by careless transportation, handling, spillage, staining or impact of materials.
- D. CONTRACTOR shall provide equipment and personnel to handle products, including those provided by OWNER, by methods to prevent soiling and damage.
- E. CONTRACTOR shall provide additional protection during handling to prevent marring and otherwise damaging products, packaging, and surrounding surfaces.
- F. CONTRACTOR shall handle product by methods to avoid bending or overstressing. Lift large and heavy components only at designated lift points.

1.04 DELIVERY AND RECEIVING

- A. CONTRACTOR shall arrange deliveries of products in accordance with the Progress Schedule, allowing time for observation prior to installation.
- B. CONTRACTOR shall coordinate deliveries to avoid conflict with the Work and conditions at the Site; work activities of other contractors or OWNER; limitations on storage space; availability of personnel and handling equipment and OWNER's use of premises.
- C. CONTRACTOR shall deliver products in undamaged, dry condition, in original unopened containers or packaging with identifying labels intact and legible.
- D. CONTRACTOR shall clearly mark partial deliveries of component parts of equipment to identify equipment and contents to permit easy accumulation of parts and to facilitate assembly.
- E. Immediately on delivery, CONTRACTOR shall inspect shipment to review that:
 - 1. Product complies with requirements of Contract Documents and reviewed submittals.
 - 2. Quantities are correct.
 - 3. Accessories and installation hardware are correct.
 - 4. Containers and packages are intact and labels legible.
 - 5. Products are protected and undamaged.

1.05 STORAGE AND PROTECTION

- A. General:
 - 1. CONTRACTOR shall store products, immediately on delivery, in accordance with manufacturer's instructions, with all seals and labels intact and legible.
 - 2. Any additional off-site space required shall be arranged by CONTRACTOR.
 - 3. CONTRACTOR shall allocate the available storage areas and coordinate their use by the trades on the job.
 - 4. CONTRACTOR shall arrange storage in a manner to provide access for maintenance of stored items and for observation.
- B. In enclosed storage, CONTRACTOR shall:
 - 1. Provide suitable temporary weather tight storage facilities as may be required for materials that will be damaged by storage in the open.
 - 2. Maintain temperature and humidity within ranges stated in manufacturer's instructions.
 - 3. Provide ventilation for sensitive products as required by manufacturer's instructions.
 - 4. Store unpacked and loose products on shelves, in bins, or in neat groups of like items.
 - 5. Store solid materials such as insulation, tile, mechanical and electrical equipment, fittings, and fixtures under shelter, in original packages, away from dampness and other hazards.
 - 6. Store liquid materials away from fire or intense heat and protect from freezing.
- C. At exterior storage, CONTRACTOR shall:
 - 1. Store unit materials such as concrete block, brick, steel, pipe, conduit, door frames, and lumber off ground, out of reach of dirt, water, mud and splashing.
 - 2. Store tools or equipment that carry dirt outside.
 - 3. Store large equipment so as not to damage the Work or present a fire hazard.
 - 4. Cover products subject to discoloration or deterioration from exposure to the elements, with impervious sheet material and provide ventilation to avoid condensation.

5. Completely cover and protect any equipment or material which is prime coated or finish painted with secured plastic or cloth tarps. Store out of reach of dirt, water, mud and splashing.
6. Store loose granular materials on clean, solid surfaces such as pavement, or on rigid sheet materials, to prevent mixing with foreign matter.
7. Provide surface drainage to prevent erosion and ponding of water.
8. Prevent mixing of refuse or chemically injurious materials or liquids.
9. Cover aggregates such as sand and gravel in cold wet weather.
10. Remove all traces of piled bulk materials at completion of work and return site to original or indicated condition.

1.06 MAINTENANCE OF STORAGE

- A. CONTRACTOR shall periodically inspect stored products on a scheduled basis.
- B. CONTRACTOR shall verify that storage facilities comply with manufacturer's product storage requirements, and verify that manufacturer required environmental conditions are maintained continually.
- C. CONTRACTOR shall verify that surfaces of products exposed to the elements are not adversely affected and that any weathering of finishes is acceptable under requirements of Contract Documents.
- D. CONTRACTOR shall perform scheduled maintenance of equipment in storage as recommended by the manufacturer. A record of the maintenance shall be kept and turned over to ENGINEER when the equipment is installed.

1.07 INSTALLATION REQUIREMENTS

- A. Manufactured articles, materials, and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned as directed by the respective manufacturers, unless otherwise specified.
- B. After installation, CONTRACTOR shall protect all materials and equipment against weather, dust, moisture, and mechanical damage.
- C. CONTRACTOR shall be responsible for all damages that occur in connection with the care and protection of all materials and equipment until completion and final acceptance of the Work by OWNER. Damaged material and equipment shall be immediately removed from the Site.

1.08 EQUIPMENT WARRANTIES

- A. Warranties shall be nonprorated, include all parts and labor, and be in written form. Warranties shall specifically exclude buyer's indemnification language. Warranty language shall not eliminate manufacturer's responsibility for sizing of the equipment. During warranty period, manufacturer shall be responsible for any travel expenses, outside contractor fees, and rental equipment fees associated with providing warranty service. Manufacturer shall pay expenses incurred for repairs and parts replacement not made by manufacturer if manufacturer's response is not within 72 hours of notification by OWNER. Warranty language shall be provided with the shop drawings.

PART 2-PRODUCTS

NOT APPLICABLE

PART 3-EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01 73 29

CUTTING, PATCHING, AND ALTERATIONS

PART 1—GENERAL

1.01 SUMMARY

- A. Work Included: CONTRACTOR shall be responsible for all cutting, fitting, patching, and other alterations required to complete the Work as specified herein or to:
 - 1. Make its several parts fit together properly.
 - 2. Uncover portions of the Work to install improperly sequenced Work.
 - 3. Remove and replace defective Work.
 - 4. Remove and replace Work not conforming to requirements of the Contract Documents.
 - 5. Remove samples of installed Work as specified for testing.
 - 6. Provide penetrations of surfaces for installation of piping and electrical conduit.
 - 7. Rehabilitate or renovate existing spaces.

1.02 REFERENCES

- A. ANSI A10 Safety Requirements for Construction and Demolition.

1.03 QUALITY ASSURANCE

- A. CONTRACTOR shall perform all cutting, patching, and alterations in strict accordance with pertinent requirements of these Specifications.
- B. Except as modified by governing codes, CONTRACTOR shall comply with the applicable provision and recommendations of ANSI A10.

1.04 SUBMITTALS

- A. CONTRACTOR shall submit a written request to OWNER well in advance of executing any cutting or alteration which affects the following:
 - 1. Work of OWNER or any separate contractor.
 - 2. Structural value or integrity of any element of the Project.
 - 3. Integrity or effectiveness of weather-exposed or moisture-resistant elements or systems.
 - 4. Efficiency, operational life, maintenance, or safety of operational elements.
 - 5. Visual qualities of sight-exposed elements.
- B. The request shall include:
 - 1. Description of affected work.
 - 2. The necessity for cutting, patching, or alteration.
 - 3. Effect on work of OWNER, any separate contractor, or on the structural or weather-proof integrity of the Project.
 - 4. Description of proposed work to include:
 - a. Scope of cutting, patching, or alteration.
 - b. Trades who will execute the Work.
 - c. Products proposed to be used.
 - d. Extent of refinishing to be done.

- 5. Alternatives to cutting and patching.
 - 6. Written permission of any separate contractor whose work will be affected.
- C. Submit written notice to OWNER designating the date and the time the Work will be uncovered or executed.

1.05 SCHEDULING AND COORDINATION

- A. All work under this section shall be coordinated with OWNER's work forces and those of other contractors and shall be accomplished at times acceptable to OWNER.
- B. Before starting any work relating to existing utilities (electrical, sewer, water, heat, gas, fire lines, etc.) that will temporarily discontinue or disrupt service to the existing building, notify ENGINEER and OWNER 72 hours in advance and obtain OWNER's approval before proceeding with this phase of the Work. Temporary facilities, if required, shall be in place prior to disruption of service.

PART 2-PRODUCTS

2.01 NEW MATERIALS

- A. For replacement of work removed, CONTRACTOR shall use materials which comply with the pertinent sections of these Specifications.
- B. All new materials for patching and extending work shall match existing products and work.
- C. CONTRACTOR shall determine type and quality of existing products by inspection and any necessary testing and workmanship by use of existing as the standard.

2.02 SALVAGEABLE MATERIAL

- A. Materials or items designated to be reinstalled or to become the property of OWNER shall be as specified or as shown on the Drawings.
- B. CONTRACTOR shall remove such items with care under the supervision of the trade responsible for reinstallation.
- C. CONTRACTOR shall store these materials (off-site if necessary) and protect from damage until they are incorporated into the new work.
- D. Items which are not to be reinstalled but are to become the property of OWNER shall be removed by CONTRACTOR with care, cleaned, and stored in a location at the Site to be approved by OWNER.
- E. Materials or items damaged in its removal shall be replaced by CONTRACTOR with similar new material at no additional cost to OWNER.

2.03 UNSALVAGEABLE MATERIALS

- A. Materials or items demolished and not designated to become the property of OWNER or not designated to be reinstalled shall become the property of CONTRACTOR and shall be removed from the site and legally and properly disposed of by CONTRACTOR.

- B. Materials shall be removed by CONTRACTOR in a manner that will avoid damage to materials or equipment to remain.

PART 3-EXECUTION

3.01 INSPECTION

- A. CONTRACTOR shall inspect existing conditions including elements subject to movement or damage during cutting, patching, and other alterations.
- B. After uncovering the Work, CONTRACTOR shall inspect conditions affecting installation of new products or performance of new work.
- C. CONTRACTOR shall report unsatisfactory or questionable conditions to ENGINEER in writing.
- D. CONTRACTOR shall not proceed with work until unsatisfactory or questionable conditions are resolved.
- E. Beginning of cutting, patching, and alterations work means acceptance of existing conditions by CONTRACTOR.

3.02 PREPARATION AND PROTECTION

- A. CONTRACTOR shall provide temporary bracing, shoring, needling, and support of the structure during alterations work as necessary to prevent collapse, settling, or deflection and to protect persons and property from injury or damage.
- B. Temporary supports must adequately carry all existing and imposed load.
- C. CONTRACTOR shall provide and maintain temporary protection of surface finishes, equipment, and adjacent work designated to remain where demolition, removal, and new work is being done, connections are being made, materials are being handled, or equipment is being removed.
- D. CONTRACTOR shall provide temporary partitions or barriers to contain all dust, dirt, and debris from entering into finished areas or areas where OWNER is operating, storing, or manufacturing products.
- E. CONTRACTOR shall provide adequate fire protection in accordance with local Fire Department requirements.
- F. CONTRACTOR shall provide waterproofing, weather protection, heat, and other facilities for that portion of the Work which may be exposed by cutting and patching, demolition, or other alterations.
- G. CONTRACTOR shall cut, move, or remove items as necessary for access to alterations and renovations work and replace and restore at completion of the Work.
- H. CONTRACTOR shall prepare surfaces and remove surface finishes to provide for proper installation of new work and new finishes.

- I. CONTRACTOR shall be responsible for any damage to the existing structure or its contents directly or indirectly by its crews or those of its subcontractors.

3.03 PERFORMANCE

- A. CONTRACTOR shall accomplish all work of cutting, removal, demolition, patching, or other alterations using only persons skilled in the appropriate trade.
- B. CONTRACTOR shall execute the Work in a careful and orderly manner with the least possible disturbance to the public and to the occupants of the building.
- C. CONTRACTOR shall execute cutting and demolition by methods which will prevent damage to other work and will provide proper surfaces to receive installation of repairs.
- D. CONTRACTOR shall execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances, and finishes.
- E. CONTRACTOR shall fit work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- F. CONTRACTOR shall thoroughly clean and prepare all surfaces to receive new finish or covering to completely remove all dirt, dust, grease, oil, paint, loose materials, and soil.
- G. CONTRACTOR shall refinish entire surface as necessary to provide an even finish to match adjacent finishes:
 - 1. For continuous surfaces, refinish to nearest intersection.
 - 2. For an assembly, refinish entire unit.

3.04 DEMOLITION, CUTTING, AND REMOVAL

- A. Cutting and removal of construction shall be performed by CONTRACTOR so as not to cut or remove more than is necessary and so as not to damage adjacent work.
- B. CONTRACTOR shall cut out embedded anchorages and attachment items as required to properly provide for patching and repair of the respective finishes.
- C. CONTRACTOR shall not cut structural work in a manner resulting in a reduction of load-carrying capacity or load/deflection ratio.
- D. CONTRACTOR shall not cut operational elements and safety components in a manner resulting in decreased performance, shortened useful life, or increased maintenance.
- E. CONTRACTOR shall not cut work exposed to view (exterior or interior) in a manner resulting in noticeable reduction of visual qualities as determined by OWNER.
- F. Construction that is to remain which is loosened, cracked, or otherwise damaged or defaced as a result of careless cutting or demolition and is unsuitable for use intended shall be removed and replaced at no additional cost to OWNER.
- G. CONTRACTOR shall clean demolished areas and remove debris, waste, and rubbish from the building at the conclusion of each day's work.
- H. CONTRACTOR shall not let piled waste material endanger the structure.

3.05 PATCHING, EXTENDING, AND MATCHING

- A. Patching work shall conform to the standards of the Specifications where applicable, and where not specified, work shall conform to the highest standards of the applicable trade.
- B. CONTRACTOR shall patch construction to match adjacent work unless noted otherwise.
- C. Patching or restoration shall be carried to natural breaks (e.g., corners) wherever possible.
- D. CONTRACTOR shall provide adequate support to substrate for patching finishes.
- E. At locations in existing areas where partitions are removed, CONTRACTOR shall patch floors, walls, and ceiling with finish material to match adjacent surfaces.
- F. Transitions:
 - 1. Where new work abuts or finishes flush with existing work, CONTRACTOR shall make the transition as smooth as possible.
 - 2. Patched work shall match adjacent work in texture and appearance so as to make the patch or transition invisible to the eye at a distance of 3 feet.
 - 3. Where masonry, tile, plaster, metal, or other finished surface is cut in such a way that a smooth transition is not possible, CONTRACTOR shall terminate the existing surface in a neat fashion along a straight line at a natural line of division and provide trim appropriate to the finished surface.
 - 4. Where two or more spaces are indicated to become one space, CONTRACTOR shall rework floors and ceilings so that horizontal planes are without breaks, steps, or bulkheads, unless shown otherwise.
 - 5. CONTRACTOR shall restore existing work that is damaged during patching operations to a condition equal to its construction at the time of the start of the Work.

3.06 UNANTICIPATED MECHANICAL AND ELECTRICAL WORK EXPOSED

- A. Where unanticipated mechanical piping or electrical conduit is exposed during removal of partitions or walls, removal or rerouting shall be accomplished by CONTRACTOR as applicable.
 - 1. Rerouted piping shall be located and shall be connected to maintain all functions in proper operations.
 - 2. Abandoned piping may be left in place where it is buried in floors or walls, providing that it is completely disconnected from its source.
 - 3. There shall be no "dead end" gas, water, sewer, or vent piping existing in the completed work.
 - 4. Unless otherwise shown, abandoned piping, ductwork, conduit, or other mechanical or electrical items in chases, vertical enclosures, or concealed above ceilings shall be completely removed.
- B. Removals, capping, or otherwise terminating services which are abandoned shall be accomplished without additional cost to OWNER.
- C. Relocation of services resulting from unanticipated conflicts of new and existing work in concealed spaces shall be paid for in accordance with the General Conditions.

END OF SECTION

SECTION 01 77 00

CONTRACT CLOSEOUT

PART 1—GENERAL

1.01 SUMMARY

- A. Work Included:
 - 1. Closeout Procedures.
 - 2. Final Cleaning.
 - 3. Adjusting.
 - 4. Project Record Documents.
 - 5. Warranties.

1.02 CLOSEOUT PROCEDURES

- A. CONTRACTOR shall provide submittals to ENGINEER that are required by governing or other authorities.
- B. CONTRACTOR shall comply with General Conditions and Supplementary Conditions and complete the following before requesting ENGINEER's observation of the Work or designated portion thereof for substantial completion.
 - 1. Submit executed warranties, workmanship bonds, maintenance agreements, inspection certificates, and similar required documentation for specific units of Work, enabling OWNER's unrestricted occupancy and use.
 - 2. Submit record documentation, maintenance manuals, tools, spare parts, keys, and similar operational items.
 - 3. Submit consent of surety (if surety required in Contract).
 - 4. Complete final cleaning, touch-up work of marred surfaces, and remove temporary facilities and tools.

1.03 FINAL CLEANING

- A. It is CONTRACTOR's responsibility to completely clean up the inside and outside of all buildings and the construction site at the completion of the Work.
- B. CONTRACTOR shall clean areas of the building in which painting and finishing work is to be performed just prior to the start of this work and maintain these areas in satisfactory condition for painting and finishing. This cleaning includes:
 - 1. Removal of trash and rubbish from these areas.
 - 2. Broom cleaning of floors.
 - 3. Removal of any plaster, mortar, dust, and other extraneous materials from finish surfaces, including but not limited to exposed structural steel, miscellaneous metal, masonry, concrete, mechanical equipment, piping, and electrical equipment.
- C. In addition to the cleaning specified above and the more specific cleaning that may be required in various technical sections of the Specifications, CONTRACTOR shall prepare the Project for occupancy by a thorough cleaning throughout, which shall include the following:

1. Clean interior and exterior glass surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
2. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
3. Replace filters of operating equipment.
4. Clean debris from roofs, gutters, downspouts, and drainage systems.
5. Clean site; sweep paved areas, rake clean landscaped surfaces.
6. Remove waste and surplus materials, rubbish, and construction facilities from the Site.

1.04 ADJUSTING

- A. CONTRACTOR shall adjust operating products and equipment to provide smooth and unhindered operation.

1.05 PROJECT RECORD DOCUMENTS

- A. CONTRACTOR shall maintain on Site one set of the following record documents to record actual revisions to the Work:
 1. Drawings.
 2. Specifications.
 3. Addenda.
 4. Change orders and other modifications to the Contract.
 5. Reviewed shop drawings, product data, and samples.
 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. CONTRACTOR shall make entries that are complete and accurate, enabling future reference by OWNER.
- C. CONTRACTOR shall store record documents separate from documents used for construction.
- D. CONTRACTOR shall record information concurrent with construction progress.
- E. Specifications: CONTRACTOR shall legibly mark and record at each Product section description of actual products installed, including the following:
 1. Manufacturer's name and product model and number.
 2. Product substitutions or alternates utilized.
 3. Changes made by addenda and modifications.
- F. Record Drawings: CONTRACTOR shall legibly mark each item to record actual construction including:
 1. Measured depths of foundations in relation to finish floor datum.
 2. Measured horizontal and vertical locations of underground utilities and appurtenances referenced to permanent surface improvements.
 3. Measured locations of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of the Work.
 4. Field changes of dimension and detail.
 5. Details not on original Contract drawings.

1.06 WARRANTIES

- A. CONTRACTOR shall provide warranties beyond project one-year warranty as required by technical sections.
- B. Submit warranty information as follows:
 - 1. Provide original copies bearing authorized signatures.
 - 2. Execute and assemble transferable warranty documents from Subcontractors, suppliers, and manufacturers, and provide Table of Contents and assemble in three-ring binder with durable cover.
 - 3. Submit with request for certificate of Substantial Completion.
 - 4. For items of work delayed beyond date of Substantial Completion, provide updated submittal within 10 days after acceptance listing date of acceptance as start of warranty period.

PART 2-PRODUCTS

NOT APPLICABLE

PART 3-EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 02 41 00

DEMOLITION

PART 1–GENERAL

1.01 SUMMARY

- A. Work Included: All demolition, removal, and salvage work as shown on the Drawings or specified herein to include, but not necessarily limited to the following: Fire Department Bunk Room and Restrooms.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 SUBMITTALS

- A. CONTRACTOR shall submit permits and notices, if required, authorizing building demolition.

1.03 QUALITY ASSURANCE

- A. CONTRACTOR shall perform demolition, removal, and salvage in conformity with applicable federal, state, and local safety practices and code requirements.
- B. CONTRACTOR shall contact all public utilities and shall shut off, cut and cap all utility services in accordance with utility requirements, codes, rules and regulations.
- C. Obtain and pay for all necessary permits, licenses and certificates required.

1.04 SEQUENCE

- A. No demolition, removal, or salvage work shall commence until approval to proceed has been granted by OWNER. Such work shall be completed in accordance with the construction sequence included in Division 01 of these specifications and in accordance with the construction phases of this project and work to be done by other contractors.

PART 2–PRODUCTS

2.01 GENERAL

- A. Pipe fittings and materials shall meet the requirements of Section 40 05 00–Piping and Appurtenances.

PART 3–EXECUTION

3.01 EQUIPMENT

- A. CONTRACTOR shall remove all equipment specified herein or indicated.

- B. CONTRACTOR shall remove associated exposed conduit, power wiring, controls, switches, instrumentation, control wiring, control boxes, appurtenances, and their supports serving equipment to be removed. Electrical items shall be removed to their junction with motor control center, control panel, or their junction with conduit serving other equipment that is to remain.
- C. CONTRACTOR shall remove all piping and appurtenances and their supports serving equipment indicated to be removed. Piping shall be removed to its junction with the main service header serving other equipment that is to remain or new equipment as indicated. Remaining piping and tubing shall be fitted with an appropriate blind flange or plug and insulated as required.
- D. CONTRACTOR shall patch floors, walls, and ceilings as required to match existing or as indicated where equipment, piping, electrical, bases, or supports are removed.

3.02 INTERIOR PIPING, DUCTWORK, AND APPURTENANCES

- A. CONTRACTOR shall remove all piping, ductwork, and appurtenances as indicated. The location and elevations of existing piping are approximate.
- B. CONTRACTOR shall remove all supports for piping, ductwork, and appurtenances indicated to be removed. Repiping and connections to new piping shall be as specified for new piping. Remaining piping and tubing, not reconnected for new piping, shall be fitted with an appropriate blind flange or plugged and insulated as required.
- C. CONTRACTOR shall patch all holes resulting from removal of piping, ductwork, appurtenances, and their supports. Patching of concrete shall be with nonshrink grout and as indicated. Patching of masonry shall be with matching material toothed in. Patch other material as indicated.

3.03 SALVAGE

- A. OWNER has first right of refusal to all material, piping, and equipment removed.
- B. All equipment, material, and piping, except as specified hereinafter, within the buildings and structures to be demolished and additional items as noted shall be removed by CONTRACTOR. CONTRACTOR shall inspect each structure and determine the type and amount of equipment, materials, and piping to be removed.
- C. All equipment, material, and piping, except as specified hereinafter, within the limits of the demolition and additional items noted to be removed, will become the property of CONTRACTOR if OWNER does not claim under first right of refusal and shall be removed from the project site. Comply with State and local ordinances and regulations for disposing of materials.

END OF SECTION

SECTION 04 05 13

MORTAR

PART 1—GENERAL

1.01 SUMMARY

- A. The work includes mortar for masonry.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

- A. Wisconsin Commercial Building Code.
- B. ASTM C91—Masonry Cement.
- C. ASTM C144—Aggregate for Masonry Mortar.
- D. ASTM C150—Portland Cement.
- E. ASTM C207—Hydrated Lime for Masonry Purposes.
- F. ASTM C404—Aggregates for Masonry Grout.
- G. ASTM C476—Grout for Masonry
- H. ASTM C979—Pigments for Integrally Colored Mortar/Concrete.

1.03 SUBMITTALS

- A. Submit under provisions of Section 01 33 00—Submittals.
- B. Submit information on Portland cement, integral waterproofing compound, and hydrated lime for mortar. Include design mix with proportions of materials being used. Submit gradation on aggregates.
- C. Submit design mix for grout including gradation of aggregates.
- D. Manufacturer's certificate: Certify that products meet or exceed specified requirements.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. All cement shall be stored in a dry, weatherproof, properly ventilated structure which will protect it from dampness and freezing.

1.05 ENVIRONMENTAL REQUIREMENTS

- A. See Section 04 20 00—Unit Masonry System, for cold weather requirements.

PART 2-PRODUCTS

2.01 MORTAR

- A. Provide Portland cement-lime mortar or masonry cement mortar with proportion restrictions as stated in the Wisconsin Commercial Building Code. Provide integral waterproofing compound in mortar for all exterior masonry. Provide Type N mortar for exterior non-load bearing brick and split face block veneer. Provide Type S mortar for all other masonry.
- B. Portland cement shall conform to ASTM C150, Type I or III.
- C. Hydrated lime shall conform to ASTM C207, Type S.
- D. Masonry cement shall conform to ASTM C91.
- E. Integral waterproofing compound shall be Dry-Block by W.R. Grace Company, or equal.
- F. Mortar aggregate for ordinary tile, brick, stone, and block shall consist of clean, sharp sand, conforming to ASTM C144. The sand shall be graded within the following limits:

Sieve Number	Percent by Weight Passing
4	100
8	95 to 100
16	70 to 100
30	40 to 75
50	10 to 35
100	2 to 15
200	---

- G. Sand from any one source shall not vary over the extreme limits shown above. For unusually thin joints, such as occur with a unit having cut or ground edges, the aggregate used shall conform to these specifications except that 95% shall pass a No. 16 sieve.
- H. Water used in mixing water shall be clean and free of injurious materials.
- I. Mortar shall be thoroughly mixed until of uniform color and consistency. Only sufficient mortar to meet the immediate requirements of the work shall be mixed at one time. No mortar shall be retempered after it has begun to set, and no partially set mortar shall be used. No antifreeze material shall be used in the mortar to lower the freezing point.
- J. Mortar color shall match the mortar of the existing adjacent brick at the building.

PART 3-EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 04 20 00
UNIT MASONRY SYSTEM

PART 1—GENERAL

1.01 SUMMARY

- A. Work Included: Brick.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

- A. Wisconsin Commercial Building Code.
- B. ASTM C67—Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile.
- C. ASTM C90—Standard Specification for Loadbearing Concrete Masonry Units.
- D. ASTM C216—Standard Specification for Facing Brick (Solid Masonry Units Made from Clay or Shale).
- E. ASTM C744—Standard Specification for Prefaced Concrete and Calcium Silicate Masonry Units.
- F. UL—Fire Resistance Directory.

1.03 QUALITY ASSURANCE

- A. Variation from the plumb in the lines and surfaces of columns and walls shall not exceed 1/4 inch in 10 feet, 3/8 inch in a story height or 20 feet maximum or 1/2 inch in 40 feet or more. Variation from plumb for external corners, expansion joints, and other conspicuous lines shall not exceed 1/4 inch in any story or 20 feet maximum or 1/2 inch in 40 feet or more.
- B. Variation from the level of the grades indicated on the drawing for exposed lintels, sills, parapets, horizontal grooves, and other conspicuous lines shall not exceed 1/4 inch in any bay or 20 feet or 1/2 inch in 40 feet or more.
- C. Variation of the linear building line from an established position in plan and related portion of columns, walls, and partitions shall not exceed 1/2 inch in any bay or 20 feet maximum or 3/4 inch in 40 feet or more.
- D. Variation in cross-sectional dimensions of columns and thickness of walls shall not exceed minus 1/4 inch or plus 1/2 inch from the dimensions indicated on the drawings.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Masonry units, when delivered to the site, shall be thoroughly cured and shall be dry. When stored on the site, they shall not be in contact with the ground, shall be kept clean and covered.

1.05 COLD WEATHER REQUIREMENTS

- A. All masonry units delivered to use in freezing weather shall be fully protected by a weathertight covering to prevent accumulation of ice on the units. Loose board covering will not be permitted.
- B. Cold Weather Protection:
 - 1. Remove any ice or snow formed on masonry bed by carefully applying heat until top surface is dry to the touch.
 - 2. Remove all masonry determined to be frozen or damaged by freezing conditions.
 - 3. Perform the following construction procedure while the work is progressing. When air temperature is from 40°F (4°C) to 32°F (0°C), heat sand or mixing water to produce mortar temperature between 40°F (4°C) and 120°F (49°C):
 - a. When air temperature is from 32°F (0°C) to 25°F (-4°C), heat sand or water to produce mortar temperature between 40°F (4°C) and 120°F (49°C); maintain temperature of mortar on boards above freezing.
 - b. When air temperature is from 25°F (-4°C) to 20°F (-7°C), heat sand and mixing water to produce mortar temperatures between 40°F (4°C) and 120°F (49°C); maintain temperature of mortar on boards above freezing; use salamanders or other heat sources on both sides of walls under construction; use wind breaks when wind is in excess of 15 mph.
 - c. When air temperature is from 20°F (-7°C) and below, heat sand and mixing water to produce mortar temperatures between 40°F (4°C) and 120°F (49°C); provide enclosures and auxiliary heat to maintain air temperature above 32°F (0°C); do not lay units which have a surface temperature of 20°F (-7°C).
 - 4. Perform the following protections for completed masonry and masonry not being worked on:
 - a. When the mean daily air temperature is from 40°F (4°C) to 32°F (0°C), protect masonry from rain or snow for at least 24 hours by covering with weather-restrictive membrane.
 - b. When the mean daily air temperature is from 32°F (0°C) to 25°F (-4°C), completely cover masonry with weather-restrictive membrane for at least 24 hours.
 - c. When the mean daily air temperature is from 25°F (-4°C) to 20°F (-7°C), completely cover masonry with insulating blankets or similar protection for at least 24 hours.
 - d. When mean daily temperature is 20°F (-7°C) and below, maintain masonry temperature above 32°F (0°C) for 24 hours using enclosures, blankets, and supplementary heat.

PART 2—PRODUCTS

2.01 BRICK

- A. Face brick shall be ASTM C216, latest edition, Grade SW, Type FBS, made from clay, shale, fine clay, or mixture thereof. All brick shall be free from cracks, laminations, and other defects

that may interfere with proper laying of brick or impair the strength or permanence of the structure.

- B. A certificate of conformance as to grade and type shall be supplied by the manufacturer.
- C. CONTRACTOR shall submit brick samples to ENGINEER for selection. The bricks to be used shall be of modular size (7 5/8 by 2 1/4 by 3 5/8) and running bond. Brick color and patterns shall match existing exterior brick.
- D. Provide all brick masonry to complete work.

2.02 REINFORCEMENT AND ANCHORAGE

- A. Wall reinforcement and ties shall be hot-dipped galvanized having a minimum 1.50 ounce/square foot zinc coating in accordance with ASTM A153 Class B2.
- B. Masonry Ties to Stud Walls: Ties shall be minimum 22 gauge corrugated sheet steel, 7/8 inch wide with one tie per 2 square feet of wall area.

2.03 ACCESSORIES

- A. Cellular or honeycomb cell vents, 2 1/2 inches high, shall be provided at weep holes. Cell vents shall be UV-resistant polypropylene, QV-Quadro-Vent, or equal.
- B. See Section 07 26 00–Vapor and Air Barrier for air barrier on masonry walls.
- C. See Section 07 62 00–Flashing and Sheet Metal for masonry flashing specifications.

PART 3–EXECUTION

3.01 MASONRY WORKMANSHIP

- A. All masonry shall be laid plumb and true to lines. Brick shall be laid with complete full mortar joints. Mortar beds shall be spread smooth or only slightly furrowed. The ends of brick shall be buttered with sufficient mortar to fill the end joint.
- B. All masonry shall be laid in running bond, unless specified otherwise.
- C. Avoid over-plumbing and pounding of the corners and jambs to fit stretcher units after being set in position. Where an adjustment must be made after the mortar has started to harden, the mortar shall be removed and replaced with fresh mortar.
- D. In building cavity walls, the cavity shall be kept clean by slightly beveling the mortar bed to incline toward the cavity or by placing wood strips with attached wire pulls on the metal ties. The strips shall be withdrawn and cleaned before placing the next row of metal ties. Any mortar fins that protrude into the cavity space as the wall is built shall be troweled flat onto the inner face of the wythe.
- E. Where cutting of exposed masonry is necessary, the cuts shall be made with a motor-driven masonry saw or by other methods that provide cuts that are straight and true.

- F. Where flashing is to be laid on or against masonry, the surface of the masonry shall be smooth and free from projections that might puncture the flashing material. Through-wall flashing shall be placed on a bed of mortar, and mortar shall be placed above the flashing.
- G. Weep holes spaced 32 inches on center 2 1/2 inches high shall be provided in the first course immediately above all flashing. Weep holes shall be kept free of mortar droppings.
- H. Outside joints around the perimeter of exterior door and window frames or other wall openings shall be not less than 1/4 inch nor more than 3/8 inch wide and shall be cleaned out to a uniform depth of at least 3/4 inch ready for placement of caulk.
- I. All walls shall be adequately braced until they are completed and anchored to the roof construction.
- J. All brick having initial rates of absorption in excess of 0.25 ounce per square inch per minute shall be wetted sufficiently so that the rate of absorption when laid does not exceed this amount. Wetting of units shall be such so that each unit is nearly saturated, surface dry when laid. During freezing weather, units that require wetting shall be sprinkled with warm water just before laying.

3.02 MORTAR JOINTS

- A. All joints shall be laid plumb to lines. Unless specified otherwise, mortar beds shall be full 3/8 inch thick and shall be spread smooth or only slightly furrowed. Vertical joints shall be shoved not over 3/8 inch thick, unless otherwise shown. All joints shall be completely filled.
- B. Interior and exterior joints shall be tooled concave. All joints shall be tooled to uniform depth and shall be straight and true. Mortar joints shall be cut flush with masonry where rigid thermal insulation will be applied to interior masonry surfaces.

3.03 REINFORCEMENT AND ANCHORAGE

- A. Reinforcement shall be installed in the first and second bed joint 8 inches apart immediately above lintels and below sills at openings. Elsewhere, spacing shall be at 16-inch vertical intervals or as shown on the drawings. Extend reinforcement in the second joint above and below openings 2 feet beyond the jambs. All other reinforcing shall be continuous.
- B. Side rods shall be lapped 6 inches minimum at splices. Reinforcement units shall be of widths required for wall thicknesses as shown. Reinforcement shall be placed to allow for a 5/8-inch mortar cover on the exterior face of walls and 1/2-inch mortar cover on interior faces.

3.04 BUILT-IN WORK

- A. As work progresses, install all built-in work (such as window and door frames, anchor bolts, plates, and lintels) to be provided by other sections.
- B. Install built-in items plumb and level.
- C. Bed anchors of metal door frames in adjacent mortar joints. Grout all steel door frames full with mortar except those called for to be "removable."
- D. Do not use built-in organic materials subject to deterioration.

- E. Steel members embedded in exterior masonry shall be “battered” with not less than 1/2 inch of setting mortar on all surfaces.

3.05 JOINING OF WORK

- A. Where fresh masonry joins masonry that is partially set or totally set, the exposed surface of the set masonry shall be cleaned and lightly wetted so as to obtain the best possible bond with the new work. All loose brick and mortar shall be removed. If it becomes necessary to “stop-off” a horizontal run of masonry, this shall be done only by racking back brick in each course, and if grout is used, stopping grout 4 inches back of the rack. Toothing will not be permitted.

3.06 PROTECTION OF WORK

- A. During erection, all walls shall be kept dry by covering at the end of each day or shutdown period with a canvas or waterproof covering. Partially completed walls not being worked on shall be similarly protected at all times. All covering shall overhang at least 2 feet on each side of the wall and shall be securely anchored.

3.07 CLEANING NEW WORK

- A. Masonry faces to remain exposed shall be wiped with a damp cloth as the work progresses and thoroughly cleaned and pointed upon completion. If stiff brushes and water will not suffice, the surface shall be thoroughly wetted with plain water and then scrubbed with a 5% or 10% solution of hydrochloric acid. Alternatively, a commercial cleaner such as Sure Klean, or equal, may be used. Immediately after, the surface shall be washed to remove all traces of acid. All surfaces not being cleaned shall be protected from the acid. All mortar shall be removed from surfaces other than masonry.

END OF SECTION

SECTION 06 20 00

FINISH CARPENTRY

PART 1—GENERAL

1.01 SUMMARY

- A. Work included:
 - 1. On-site fabricated woodwork and cabinetwork.
 - 2. Installation of items furnished by others including, but not limited to:
 - a. Finish hardware.
 - b. Architectural woodwork items.
 - c. Miscellaneous specialties.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

- A. PS 1—Construction and Industrial Plywood.
- B. PS 20—American Softwood Lumber Standard.
- C. PS 51—Hardwood and Decorative Plywood.
- D. PS 56—Glued-up Lumber Standard.
- E. PS 60—Basic Hardboard.
- F. AWI—"Architectural Woodwork Quality Standards, Guide Specification and Quality Certification Program."
- G. NHLA—"Rules for Measurement and Inspection of Hardwood and Cypress Lumber."
- H. Wood Products Publications—"The Wood Book" (Current Issue).

1.03 SUBMITTALS

- A. Submit samples and shop drawings in accordance with Section 01 33 00—Submittals.
- B. Samples: Submit upon request samples of standing and running trim and plastic laminates.
- C. Shop Drawings: Submit shop drawings for on-site fabrications. Indicate materials, component profiles, fastening, jointing details, and accessories.

1.04 QUALITY ASSURANCE

- A. Perform finish carpentry work in accordance with recommendations of the Millwork Standards of the Architectural Woodwork Institute (AWI).

- B. Factory-mark each piece of lumber and plywood with type, grade, mill, and grading agency identification; except omit marking from surfaces to receive transparent finish, and submit mill certificate that material has been inspected and graded in accordance with requirements if it cannot be marked on a concealed surface.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver finish carpentry materials until painting, wet work, grinding, and similar operations which could damage, soil, or deteriorate woodwork have been completed in installation areas. If finish carpentry materials must be stored in other than installation areas, store only in areas meeting requirements specified for installation areas.

1.06 JOB CONDITIONS

- A. Do not install finish carpentry until a minimum temperature of 60°F (16°C) and relative humidity of 25 to 55% have been stabilized and will be maintained in installation areas.

PART 2-PRODUCTS

2.01 MATERIALS

- A. Nominal sizes are indicated, except as shown by detailed dimensions. Provide dressed or worked and dressed lumber, as applicable, manufactured to the actual sizes as required by PS 20 or to actual sizes and patterns as shown, unless otherwise indicated.
- B. Optimum Moisture Content: Kiln-dry finish carpentry woodwork to an average moisture content of 8% for interior use and 12% for exterior use or as otherwise recommended by applicable AWI Quality Standards for the regional climatic conditions involved.
- C. Laminates: Provide as specified in Section 06 40 00-Architectural Woodwork.
- D. Fasteners and Anchorages:
 - 1. Provide all nails, spikes, screws, lag screws, hangers, bolts, nuts, washers, and other anchoring devices of the type, size, material, and finish required for application indicated to provide secure attachment, concealed where possible, and complying with applicable Federal Specifications.
 - 2. Where finish carpentry is exposed on exterior or in areas of high relative humidity, provide fasteners and anchorages with a hot-dipped zinc coating (ASTM A153).

2.02 HARDWARE

- A. Flanges: KV764 CHR and 766 CHR.
- B. Standards: KV87 ANO.
- C. Brackets: KV186 x 211.
- D. Knappe & Vogt is specified to indicate quality and type. Other approved products may be used.

2.03 FABRICATION

- A. Fabricate on-site woodwork and cabinetwork in accordance with Section 06 40 00—Architectural Woodwork.

PART 3—EXECUTION

3.01 PREPARATION

- A. Field Measurements: Before proceeding with woodwork required to be fitted to other construction, obtain measurements and verify dimensions to provide accurate fit.
- B. Preparation of Surfaces: Deliver materials and fabrications for back priming and/or prefinishing prior to installation.
- C. Condition wood materials to average prevailing humidity conditions in installation areas prior to installing.

3.02 INSTALLATION

- A. Apply all nails, spikes, screws, lag screws, hangers, bolts, nuts, washers, anchors, and other items of hardware required for the assembling and securing of this work. Use best suitable type of nails and anchors for various types of carpentry. Use annular nails and other special nails where required. Correct any defective work caused by inadequate nailing, holding power or nails used, and the use of nails which result in the staining of other materials. All finish work shall have nails set for puttying. Recess all screws and bolt heads and provide flush hardwood plugs where exposed.
- B. Discard units of material which are unsound, warped, bowed, twisted, improperly treated, not adequately seasoned, or too small to fabricate work with minimum of joints or optimum jointing arrangements, or which are of defective manufacturer with respect to surfaces, sizes, or patterns.
- C. Install the work plumb, level, true, and straight with no distortions. Shim as required using concealed shims. Install to a tolerance of 1/8 inch in 8 feet 0 inch for plumb and level countertops; and with 1/16 inch maximum offset in flush adjoining surfaces and 1/8 inch maximum offsets in revealed adjoining surfaces.
- D. Scribe and cut work to fit adjoining work, and refinish cut surfaces or repair damaged finish at cuts.
- E. Standing and Running Trim: Install with minimum number of joints possible using full-length pieces (from maximum lengths of lumber available) to the greatest extent possible. Stagger joints in adjacent and related members. Cope at returns and miter at corners to produce tight-fitting joints with full-surface contact throughout length of joint. Use scarf joints for end-to-end joints. Use construction adhesives of type recommended by manufacturer for use intended. Sort trim to achieve close match of graining for each assembly, especially if splicing is required.
- F. Architectural Woodwork: Install and secure plumb and level. Cut, fit, and scribe in place. See Section 06 40 00—Architectural Woodwork for installation procedures.

- G. Doors: Install in accordance with requirements specified in Section 08 13 13–Standard Steel Doors and Section 08 14 16–Flush Wood Doors. Fabricate trim and inserts as detailed and install.
- H. Countertops: Cut, fit, scribe, and secure in place.
- I. Laminates: Apply as specified in Section 06 40 00–Architectural Woodwork.
- J. Hollow Metal Doors: Hang doors; drill and tap for all surface-applied hardware.
- K. Use hardware list as working instructions when applying hardware. Fit hardware before painter finishes work; remove for painting and put on after painter has completed last coat.
- L. Install all finish hardware in accordance with manufacturer’s written instructions and adjust so that latches, bolts, and other moving parts operate easily, quietly, and properly. Neatly fit butts, face plates, strikes, and other parts which are let into work.
- M. Secure thresholds in place with countersunk expansion bolts or to straps with machine screws. Drill holes for shields carefully to avoid cracking or otherwise damaging concrete. Drill and tap straps. Cut to fit profile of jamb and full bed in sealant as specified in Section 07 90 00–Caulking and Sealants.
- N. Prior to completion of building and after finish work is completed, examine doors and other movable parts, adjust and lubricate as required for correct operation, and leave hardware in working order, free of defects.

3.03 CLEANING, ADJUSTMENT, AND PROTECTION

- A. Repair damaged and defective finish carpentry work wherever possible to eliminate defects functionally and visually; where not possible to repair properly, replace woodwork at no cost to OWNER. Adjust joinery for uniform appearance.
- B. Adjustment: Adjust all hardware for proper operation.

END OF SECTION

SECTION 06 40 00

ARCHITECTURAL WOODWORK

PART 1–GENERAL

1.01 SUMMARY

- A. Work Included:
 - 1. Plastic laminate cabinets.
 - 2. Solid surfacing-material countertops.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

- A. AWI–Quality Standards.
- B. ANSI A156.9–American National Standard for Cabinet Hardware.
- C. BHMA Cabinet Hardware Standard 201.

1.03 SUBMITTALS

- A. Submit shop drawings showing location of each item, dimensioned plans and elevations, large scale details, attachment devices and other components.

1.04 QUALITY ASSURANCE

- A. Except as otherwise shown or specified, the work shall comply with specified provisions of the Architectural Woodwork Institute (AWI) “Quality Standards.”
- B. For following types of architectural woodwork; comply with indicated standards as applicable. Casework and Countertops: AWI Section 400.

PART 2–PRODUCTS

2.01 MATERIALS

- A. General: Provide materials that comply with requirements of the AWI quality standards for each type of woodwork and quality grade specified, unless otherwise noted.
- B. Wood Moisture Content: Provide kiln-dried lumber with an average content range of 9% to 13% for exterior work and 6% to 11% for interior work. Maintain temperature and relative humidity during fabrication, storage, and finishing operations so that moisture content values for woodwork at time of installation do not exceed 5% to 10%.
- C. Wood Panel Products: Comply with the following:
 - 1. Particle board: ANSI A208.1, Grade M-2.

2. Sky Blend particle board (SCS Certified 100% pre-consumer recycled wood fiber particle board with below .04 ppm formaldehyde emissions) as supplied by Roseburg Forest Products, 1-800-245-1115, or equal.
- D. Thermoset Decorative Overlay: Medium-Density fiberboard complying with ANSI A208.2, Grade MD, with surface of thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1.
- E. High Pressure Decorative Laminate:
1. NEMA LD3, grades as indicated, or if not indicated, as required by woodwork quality standard.
 2. Manufacturer to provide high-pressure decorative laminates to be Formica Corporation, Wilsonart International, or equal.
- F. Adhesive for bonding plastic laminate: water-based contact cement.
- G. Solid-Surfacing Material:
1. Homogeneous solid sheets of filled plastic resin complying with material and performance requirements in ANSI 2124.3 for Type 5 or Type 6, without a precoated finish.
 2. Manufacturer to be Corian, Dupont Polymers, Vendura, Vendura Industries, Wilsonart, or equal.
- H. Wood Casework for Transparent Finish:
1. Comply with AWI Section 400 requirements for wood cabinets.
 2. Manufacturer to be Kraft Maid Cabinetry, Custom Built Cabinetry, or equal.

2.02 HARDWARE

- A. General: Provide accessory materials associated with architectural woodwork, except for units which are specified as "door hardware" in other sections of these specifications.
- B. Hardware Standards: Except as otherwise indicated, comply with ANSI A156.9: Quality Level: Type 2 (institutional), unless otherwise indicated.
- C. Concealed Hardware Finish: Provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

2.03 FABRICATION, GENERAL

- A. Interior Woodwork Grade: Provide premium grade interior woodwork complying with the referenced quality standard.
- B. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.
- C. Complete fabrication, including assembly and hardware application to maximum extent possible before shipment to project site.
1. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming and fitting.

2. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements indicated on shop drawings before disassembling for shipment.
- D. Shop cut openings to maximum extent possible to receive hardware, appliances, plumbing fixtures, electrical work and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs. Seal edges of openings in countertops with a coat of varnish.

2.04 PLASTIC-LAMINATE MATERIAL

- A. Quality Standard: Comply with AWI Section 400 requirements for laminate cabinets.
- B. Grade: Premium.
- C. Core Materials: Sky Blend particle board.
- D. Laminate Cladding for Exposed Surfaces: High-pressure decorative laminate complying with the following requirements:
 1. Horizontal Surfaces Other than Tops: GP.
 2. Vertical Surfaces: VST.
 3. Door and Drawer Edges: VST.
- E. Materials for Semiexposed Surfaces: Provide surface materials indicated below:
 1. Surfaces Other Than Drawer Bodies: Thermoset decorative overlay.
 2. Drawer Sides and Backs: Thermoset decorative panels.
 3. Drawer Bottoms: Thermoset decorative panels.
- F. Colors, patterns, and finishes to be selected by OWNER from manufacturer's standard products.

2.05 SOLID-SURFACING-MATERIAL COUNTERTOPS

- A. Quality Standard: Comply with AWI Section 400 requirements for countertops.
- B. Grade: Premium.
- C. Products: Provide the following, or equal:
 1. Corian.
 2. Vendura.
 3. Wilsonart, Gibraltar.
- D. Solid-Surfacing-Material Thickness: 1/2 inch.
- E. Colors, Patterns and Finishes to be selected by OWNER for manufacturer's standard products.

- F. Fabricate tops in one piece with shop-applied backsplashes and edges unless otherwise indicated. Comply with solid-surfacing-material manufacturer's written recommendations for adhesives, sealers, fabrication and finishing.
- G. Integral Sink Bowls: Install integral sink bowls in countertops in shop.
 - 1. Sink bowl width: Not less than 16 inches.
 - 2. Sink bowl depth: Provide sink bowls that allow not less than 27 inches clearance between bottom of sink bowl and finished floor surface.
- H. Drill holes in countertops for plumbing fittings and soap dispensers in shop, as required.

2.06 SHOP FINISHING

- A. Quality Standard: Comply with AWI Section 1500, unless otherwise indicated.
- B. General: Finish paneling at fabrication shop as specified in this section. Defer only final touchup, cleaning and polishing until after installation.
- C. Preparations for Finishing:
 - 1. Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing paneling as applicable to each unit of work.
 - 2. Backpriming: Apply two coats of sealer compatible with finish coats to concealed surfaces of paneling.
- D. Transparent Finish: Comply with requirements indicated below for grade, finish system, staining and sheen, with sheen measured on 60° gloss meter per ASTM D523.
 - 1. Grade: Premium.
 - 2. AWI Finish System: Conversion Varnish Transparent.
 - 3. Sheen: Satin, 30-50 gloss units.
- E. Transparent Finish for Woodstalk Machinable Fiberboard: Polyureseal BP, Interior Clear Gloss Satin, Safecoat, or equal.
- F. Finish color to be selected by OWNER.

PART 3-EXECUTION

3.01 PREPARATION

- A. Condition woodwork to average prevailing humidity conditions in installation areas prior to installing.
- B. Prior to installation of architectural woodwork, examine shop-fabricated work for completion, and complete work as required including back priming and removal of packing.

3.02 INSTALLATION

- A. Install the work plumb, level, true, and straight with no distortions. Shim as required using concealed shims. Install to a tolerance of 1/8 inch in 8 feet 0 inch for plumb and level

(including countertops); and with 1/16-inch maximum offset in flush adjoining surfaces, 1/8-inch maximum offsets in revealed adjoining surfaces.

- B. Scribe and cut work to fit adjoining work, and refinish cut surfaces, or repair damaged finish at cuts.
- C. Anchor woodwork to anchors of blocking built-in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk concealed fasteners and blind nailing as required for a complete installation.
- D. Except where prefinished matching fastener heads are required, use fine finishing nails for exposed nailing, countersunk, and filled flush with woodwork and matching final finish where transparent finish is indicated.
- E. Casework: Install without distortion so that doors and drawers will fit openings properly and be accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete the installation of hardware and accessory items as indicated. Maintain veneer sequence matching (if any) of casework with transparent finish.
- F. Countertops: Anchor securely to base units and other support systems.
- G. Wood Storage Shelving: Complete the assembly of units and install in the areas indicated, including hardware and accessories as indicated.

3.03 PROTECTION

- A. Installer of architectural woodwork shall advise CONTRACTOR of final protection and maintained conditions necessary so that work will be without damage or deterioration.
- B. Cover completed work with 4 mil polyethylene film protective enclosure applied in a manner which will allow easy removal and without damage to woodwork or adjoining work. Remove cover immediately before time of final acceptance.

END OF SECTION

SECTION 07 21 12

BOARD INSULATION

PART 1–GENERAL

1.01 SUMMARY

- A. Work includes board insulation for cavity wall construction.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

PART 2–PRODUCTS

2.01 CAVITY WALL INSULATION

- A. Cavity wall insulation shall be 2-inch-thick polyisocyanurate foam board with foil facing on both sides. Aged thermal resistance (R-value) at 72°F shall be a minimum of 13.0.
- B. Acceptable products include the following, or equal: Thermax Sheathing by DuPont.
- C. Adhesive for adhering insulation to backup wall shall be as recommended by the insulation manufacturer.

PART 3–EXECUTION

3.01 INSTALLATION–CAVITY WALLS

- A. Insulation shall be installed horizontally within the cavity space between metal stud wall and new face brick.
- B. Take care during installation so that all insulation boards are butted and installed between ties and fit flush against inner wythe or backup wall.
- C. Cut insulation neatly to fit around obstructions across the cavity such as vents, louvers, pipes, and conduits.
- D. Secure insulation in place against backup wall with mastic adhesive and observe label directions.

END OF SECTION

SECTION 07 21 13

BATT INSULATION

PART 1–GENERAL

1.01 SUMMARY

- A. Work includes batt insulation in exterior stud wall construction and sound batt insulation in interior stud walls as called for on the Drawings.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

- A. ASTM C665–Specification for Mineral Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.

PART 2–PRODUCTS

2.01 EXTERIOR WALL INSULATION

- A. Batt wall insulation in exterior walls shall be 3 1/2-inch-thick unfaced fiberglass batt conforming to ASTM-C665, Type 1, and providing a minimum R-value of R-11.0. Thickness shall match depth of metal studs and widths of batts shall be compatible with wall framing spacing.
- B. Acceptable manufacturers include the following, or equal:
 - 1. Owens Corning.
 - 2. Manville.
 - 3. Certainteed.

2.02 SOUND BATT INSULATION

- A. Sound batt insulation in interior stud walls shall be an unfaced fiberglass acoustical insulation complying with ASTM C665, Type 1. The wall system shall have an STC of 46 with 3 1/2 inches of insulation.
- B. Acceptable manufacturers include the following, or equal:
 - 1. Owens Corning.
 - 2. Manville.
 - 3. Certainteed.

PART 3–EXECUTION

3.01 INSTALLATION–WALL INSULATION

- A. Install per manufacturer's recommendations.

- B. Carefully cut insulation around wall penetrations.
- C. Friction fit insulation between studs.

END OF SECTION

SECTION 07 26 00

VAPOR AND AIR BARRIER

PART 1—GENERAL

1.01 SUMMARY

- A. Work includes:
 - 1. Vapor barrier in exterior construction.
 - 2. Air barrier on exterior stud wall sheathing.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

PART 2—PRODUCTS

2.01 MATERIALS

- A. Vapor barrier for exterior wall construction: Vapor barrier shall consist of 6 mil ASTM D4397, Class B polyethylene sheeting with less than 0.3 perm water vapor permeance in accordance with ASTM E96
- B. Air barrier shall be a flash spun-bonded olefin, nonwoven, nonperforated secondary weather-resistant barrier, Tyvek Commercial Wrap D by DuPont, or equal. Provide Tyvek tape and wrap cap screws.

PART 3—EXECUTION

3.01 INSTALLATION IN EXTERIOR WALL CONSTRUCTION

- A. Provide continuous vapor barrier on inside face of metal stud walls.

3.02 INSTALLATION OF AIR BARRIER

- A. Install air barrier on exterior side of exterior wall sheathing.
- B. Install air barrier per manufacturer's recommendations and approved details.

END OF SECTION

SECTION 07 62 00
FLASHING AND SHEET METAL

PART 1—GENERAL

1.01 SUMMARY

- A. Work includes masonry wall flashing, custom-fabricated sheet metal flashing and counter flashing.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

- A. ASTM A653—Steel Sheet, Zinc-Coated (Galvanized) or Zinc Iron Alloy-Coated (Galvanealed) by the Hot-Dip Process.
- B. ASTM A924—General Requirements for Steel Sheet, Metallic Coated by the Hot-Dip Process.
- C. ASTM B32—Solder Metal.
- D. ASTM B209—Aluminum and Alloy Sheet and Plate.
- E. ASTM D4586—Asphalt Roof Cement, Asbestos-Free.
- F. SMACNA—Architectural Sheet Metal Manual.

1.03 SUBMITTALS

- A. See Section 01 33 00—Submittals for general submittal requirements.
- B. Shop drawings: Submit fabrication details, jointing details, fastening methods, and termination details.

1.04 QUALITY ASSURANCE

- A. Perform work in accordance with SMACNA standard details and requirements.

1.05 QUALIFICATIONS

- A. Fabricator and installer shall be a company specializing in sheet metal fabrication work with a minimum of 5 years of verifiable experience in that field.

1.06 WARRANTY

- A. Kynar 500 coating shall be provided with a 20-year guarantee against cracking, chipping, peeling, and fading.

PART 2-PRODUCTS

2.01 MATERIALS

- A. Masonry wall flashing and flashing around windows, doors, and other openings shall be 32 mil of self-adhesive rubberized asphalt integrally bonded to 8 mil of cross-laminated, high-density polyethylene film to provide a minimum 40 mil thick membrane. Flashing shall be PERM-A-BARRIER wall flashing as manufactured by Grace Construction Products, or equal. Provide primer or surface conditioner as recommended by manufacturer.
- B. Galvanized Steel Sheet: 26 gauge meeting ASTM A525, Grade A with G90 zinc coating.
- C. Aluminum Sheet: 0.032 inch thick meeting ASTM B209.
- D. Fasteners: Same material and finish as flashing sheet. Stainless steel fasteners may be used with any flashing material. Provide soft neoprene washers with fasteners.
- E. Primer: Zinc chromate type.
- F. Protective Backing Paint: Bituminous type.
- G. Sealant: See Section 07 90 00-Caulking and Sealants.
- H. Bedding Compound: Rubber asphalt or butyl type.
- I. Plastic Cement: ASTM D4586, Type I or II.
- J. Reglets: Galvanized steel or PVC, surface-mounted or recessed, or as shown on the Drawings.
- K. Solder: ASTM B32. Soldering is not permitted on aluminum or stainless steel sheet.

2.02 FABRICATION

- A. All flashing and fascia shall be formed to the configurations shown on the Drawings and/or the applicable manufacturer's details, or in accordance with SMACNA standard details where not shown on the Drawings, or in manufacturers details. Form sections true to shape, accurate in size, square, and free from buckles, kinks, or other defects.
- B. All exposed edges shall be folded or returned on themselves at least 1/2 inch. Corners shall be mitered and seamed.
- C. Form pieces in the longest possible lengths. Form material with flat lock seams.
- D. All sections shall be provided with slip joints at 8 feet on center.
- E. Cleats shall be fabricated of the same materials as the flashing sheets and shall be interlockable with the sheets.
- F. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form a drip.

- G. Fabricate corners from one piece with minimum 18-inch-long legs. Seam or solder for rigidity and seal with sealant.

2.03 FINISH

- A. Back paint all sheet metal with asphaltum paint where sheet metal surfaces come in contact with masonry or steel.
- B. Flashing and fascia shall be painted where exposed to view from the ground. Galvanized steel shall be painted in accordance with Section 09 91 00–Painting. Aluminum shall be coated with a Kynar 500 coating system.

PART 3–EXECUTION

3.01 INSTALLATION

- A. Through-wall flashing shall be installed 1/2 inch back of the outside face of the wall, carried through the outside wythe, turned up in the collar, and adhered to back-up wall as shown on the Drawings. At no time should any portion of the flashing be allowed to hang or drape beyond the width of the wall. All laps shall be sealed and shall not be less than 3 inches in width. Flashing around openings shall extend at least 3 inches beyond each side of opening.
- B. Fit flashing tight in place. Make corners square, surfaces true and straight in planes, and line accurate to profiles. Seal metal joints watertight.
- C. Secure flashings in place using concealed fasteners. Use exposed fasteners only where permitted by ENGINEER.
- D. Insert flashings into reglets where shown on the Drawings. Seal flashings into reglets with sealant.
- E. Counter flashing shall be provided at all vertical masonry and/or concrete walls which extend above the roof line. The counter flashing shall be installed in a reglet unless otherwise shown. Surface-mounted reglets shall be used where noted.

END OF SECTION

SECTION 07 90 00
CAULKING AND SEALANTS

PART 1–GENERAL

1.01 SUMMARY

- A. Work Included: Caulking and sealants on the project, including primers and backer rod material.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

- A. ASTM C920–Elastomeric Joint Sealants.

1.03 SUBMITTALS

- A. Submittals shall comply with provisions of Section 01 33 00–Submittals.
- B. Submit color chart for each sealant used on project. Colors will be selected by ENGINEER.
- C. Submit copies of warranty.

1.04 WARRANTY

- A. Caulked joints shall be weathertight and guaranteed watertight by installer for two years from the earlier of either the date established for partial utilization in accordance with GC 15.03 and 15.04, as modified in the Supplementary Conditions, or Substantial Completion of the project. Deliver original guarantee to OWNER with copies to ENGINEER.

PART 2–PRODUCTS

2.01 CAULK–NONSUBMERGED AND SUBMERGED NON-POTABLE APPLICATIONS–GENERAL

- A. Caulk for nonsubmerged and submerged non-potable water contact applications in all locations except floor joints shall be a one-part or two-part polyurethane sealant.
- B. Acceptable products include the following, or equal:
 - 1. Masterseal NP1 by Master Builders Solutions.
 - 2. Vulkem 116 by Tremco, Inc. (exterior applications only).
 - 3. Dymonic 100 by Tremco, Inc.
 - 4. Sikaflex-2c NS EZ Mix by Sika Products.

2.02 CAULK–NONSUBMERGED AND SUBMERGED NON-POTABLE WATER APPLICATIONS–FLOOR JOINTS

- A. Caulk for floor joints in nonsubmerged and submerged non-potable water contact applications shall be a one-part, self-leveling, polyurethane sealant.
- B. Acceptable products include the following, or equal:
 - 1. MasterSeal SL1 by Master Builders Solutions.
 - 2. Vulkem 45 SSL by Tremco, Inc.
 - 3. Sikaflex-2c SL by Sika Products.

2.03 CAULK–EXPANSION JOINTS–FLOORS

- A. Caulk at floor expansion joints in nonsubmerged and submerged non-potable water contact applications shall be a one-part or two-part polyurethane sealant.
- B. Caulk shall be capable of $\pm 50\%$ joint movement.
- C. Acceptable products include the following, or equal: Sikaflex-2c SL by Sika Products.

2.04 ACCESSORIES

- A. Backer rod shall be flexible, closed-cell polyethylene rod stock sized to be under at least 25% compression when positioned in the joint. In shallow joints and where backer rod is not used, polyethylene bond breaker tape shall be used. It is essential that the caulk bond to the side of the joint but not to the base of the joint.
- B. Primer(s) shall be used where required by the manufacturer for the specific product(s) used and the specific application(s) intended. Specific product(s) shall be as recommended by the manufacturer.
- C. Cleaning fluid shall be methyl ethyl ketone (MEK), methyl isopropyl ketone (MIK), or similar solvent material which will not etch or mar metal finishes and shall be the product of a nationally recognized manufacturer, of type expressly recommended for use with the caulking or sealant compound used.

PART 3–EXECUTION

3.01 INSTALLATION

- A. Seal completely all joints around entire perimeter of all openings in all exterior walls (inside and outside faces), including joints at all exterior doors, windows, louvers, sills, and elsewhere as noted on the Drawings and as necessary to seal all open joints in the building in a complete manner. Joints in exterior walls shall be caulked in a completely weathertight manner. Joints between interior walls and concrete ceilings and other interior joints shall be caulked as indicated on the Drawings. Caulking not specified in other sections shall be performed under this heading.
- B. All caulking shall be done in accordance with manufacturer's specifications. Allow minimum 28-day curing period for concrete, grout, or mortar prior to caulking unless requested otherwise. Caulking work shall be done before the final coat of paint is applied except at

moving joints which shall be finish painted before caulking or caulking shall be protected during painting. All caulking shall occur only when the temperature is above 40°F.

- C. Joints shall be thoroughly cleaned and primed before caulking in accordance with manufacturer's instructions. Unless otherwise shown, joints shall be square in cross section 1/2-inch by 1/2-inch and shall comply with manufacturer's joint width/depth ratio limitations.
- D. Backer rod shall be used in all openings 3/4 inch or more in depth and shall be tightly packed to completely fill the space to 1/2 inch back of face. The 1/2 inch shall then be filled with caulking compound.
- E. Caulking shall be done by hand gun. Compound shall be driven into joint grooves with sufficient pressure to force out all air and fill joint grooves solidly. Caulking where exposed shall be free of wrinkles and shall be uniformly smooth.
- F. At completion of caulking, clean off all excess material from adjoining surfaces and material. Entire installation shall be left in a perfect appearing weathertight condition.

3.02 CAULKING EXISTING JOINTS

- A. All caulked joints in walls, ceilings, and floors requiring painting in the Room Finish Schedule (see Drawings) shall be recaulked. Existing caulk and backer shall be completely removed. Caulk joints as specified for new construction.
- B. Caulking of existing joints shall be coordinated with Section 09 91 00—Painting.

END OF SECTION

SECTION 08 11 00

STANDARD STEEL DOORS AND FRAMES

PART 1—GENERAL

1.01 SUMMARY

- A. Work included: Thermally-insulated steel doors and frames.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

- A. ANSI/SD1-100—Standard Steel Doors and Frames.

1.03 SUBMITTALS

- A. Submittals shall be in accordance with provisions of Section 01 33 00—Submittals.
- B. In addition to shop drawings and product data, indicate type of primer paint to be used and verify compatibility with field paint system specified.

PART 2—PRODUCTS

2.01 THERMALLY-INSULATED DOORS

- A. Thermally-insulated doors shall be hollow full flush, 1 3/4-inch-thick, 16 gauge steel sheet in accordance with ANSI/SD1-100 with polyurethane core rigid reinforcing full thickness.
- B. Acceptable products include the following, or equal:
 - 1. Ceko Imperial.
 - 2. Curries 707 Series.

2.02 FABRICATION—DOORS

- A. Doors shall be fully-sealed, continuously-welded construction with all surface welds, joints, and seams filled and ground smooth.
- B. Tops and bottoms of doors shall be completely closed with 16 gauge channels. Outside edges of doors shall be flush without depressions. No inverted channels will be allowed.
- C. Mortise, reinforce, drill, and tap doors to receive hardware. Reinforcement shall be welded within the stiles and rails. Reinforce top rails to accommodate closers on either side and reinforce bottom for kickplate.
- D. Glass in exterior doors shall be 1 inch thick.

2.03 FRAMES

- A. Steel door frames shall be made of 14 gauge, cold-rolled, prime-quality steel in accordance with ANSI/SD1-100.
- B. Frames shall be removable where shown on the Drawings.

2.04 FABRICATION–FRAMES

- A. Fabricate frames as welded unit. Weld joints continuously through full throat width of frames, including rabbets, soffits, and stops; grind, fill, dress, and make smooth, flush, and invisible.
- B. Welded frames shall be provided with two steel spreaders temporarily attached to the bottom of both jambs to serve as a brace during shipping and handling. Spreader bars are for bracing only and shall not be used to size the frame opening.
- C. Frames shall be 2 inches by 5 3/4 inches. Frames shall have 4-inch head member at 7 feet 0 inches doors in masonry walls.
- D. Fabricate frames with hardware reinforcement plates welded in place.
- E. Provide anchors appropriate to wall type.
- F. Provide steel frames for all steel and flush wood doors.

2.05 FINISH

- A. Doors and frames shall receive one coat of rust-inhibitive, shop-applied primer paint. Primer paint must be compatible with field-paint system specified.
- B. Frames shall be finish-painted as specified in Section 09 91 00–Painting prior to installation. This includes back sides of door frames.

PART 3–EXECUTION

3.01 INSTALLATION–FRAMES

- A. Install frames in accordance with ANSI/SD1-100.
- B. Coordinate installation of frames with wall construction for anchor placement.
- C. Coordinate installation of frames with installation of doors, hardware, joint sealers, and field painting.
- D. Set all frames as supplied by manufacturer.

3.02 INSTALLATION–DOORS

- A. Install doors in accordance with ANSI/SD1-100.

- B. Coordinate installation of doors with installation of frames, hardware, glass and glazing, and field painting.
- C. Set all doors as supplied by manufacturer. Hang all doors allowing for expansion and contraction at time of setting.
- D. Set all hardware in accordance with templates as supplied by hardware supplier.
- E. Cover all exposed hardware until completion of painting and finishing.
- F. Examine hardware at completion; test, oil, grease, and adjust for perfect operation.

3.03 SCHEDULE

- A. See Door Schedule on the Drawings.

END OF SECTION

SECTION 08 14 16

FLUSH WOOD DOORS

PART 1—GENERAL

1.01 SUMMARY

- A. Work Included:
 - 1. Solid core flush wood doors with veneer faces.
 - 2. Factory premachining for hardware.
 - 3. Factory finish.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 SUBMITTALS

- A. Submit in accordance with Section 01 33 00—Submittals.
- B. Product Data: Submit door manufacturer's technical data for each type of door, including details of core and edge construction, trim for openings and louvers, and factory finishing specifications.
- C. Shop Drawings: Submit shop drawings indicating location and size of each door, elevation of each kind of door, details of construction, location and extent of hardware blocking, fire ratings, trim for glass and louvers, and requirements for factory finishing and other pertinent data.

1.03 QUALITY ASSURANCE

- A. Comply with the following standards:
 - 1. WDMA Quality Standard: I.S.1 "Industry Standard for Wood Flush Doors," of Window and Door Manufacturer's Association (WDMA).
 - 2. AWI Quality Standard: "Architectural Woodwork Quality Standards," including Section 1300 "Architectural Flush Doors," of Architectural Woodwork Institute (AWI) for grade of door, core construction, finish, and other requirements exceeding those of NWWDA quality standard.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Protect doors during transit, storage, and handling to prevent damage, soiling, and deterioration. Comply with requirements of referenced standards and recommendations of NWWDA pamphlet "How to Store, Handle, Finish, Install, and Maintain Wood Doors," as well as with manufacturer's instructions.
- B. Identify each door with individual opening numbers which correlate with designation system used on schedule and shop drawings for door, frames, and hardware using temporary removable or concealed markings.

1.05 PROJECT CONDITIONS

- A. Conditioning:
 - 1. Do not deliver or install doors until conditions for temperature and relative humidity have been stabilized and will be maintained in storage and installation areas during remainder of construction period to comply with the following requirements applicable to project's geographical location.
 - 2. Referenced AWI quality standard including Section 100-S-3 "Moisture Content."

1.06 WARRANTY

- A. Submit two copies of written warranty on door manufacturer's standard form, signed by the manufacturer, installer, and CONTRACTOR agreeing to repair or replace defective doors which have warped (bow, cup, or twist), or which show telegraphing of core construction in face veneers, or do not conform to tolerance limitations as defined in WDMA Standard Door Warranty, except the WDMA provision for refunding the price received by the door manufacturer for any defective door shall not apply. The warranty shall also include refinishing and reinstallation that may be required because of repair or replacement of defective doors. Warranty shall be in effect during the life of installation.

PART 2-PRODUCTS

2.01 ACCEPTABLE MANUFACTURER'S AND PRODUCTS

- A. Doors shall be:
 - 1. Algoma Hardwoods, Inc.–Novodor.
 - 2. Eggers Industries–Architectural Wood Door-Particle.
 - 3. Weyerhaeuser Company–Timblend Particleboard Core (DPC-1), or equal.
- B. Core shall be 1 3/4 inches thick.
- C. Face veneer shall be AWI "premium" Grade A face veneers, rotary-cut book matched red oak plain-sliced, book matched select white hard maple for transparent finish. Provide exposed solid wood components of the same specie as face veneer for wood stops. Provide veneer samples to OWNER to review match with existing wood doors.
- D. Provide manufacturer's standard core reinforcement material at top rail and lock blocks at both vertical stiles to allow surface-mounted hardware to be attached with screws.
- E. Provide wood beads for light opening in doors.

2.02 FABRICATION

- A. Factory prefit and premachine doors to fit frame opening sizes indicated complying with tolerance requirements of AWI for prefitting. Comply with final hardware schedules and door frame shop drawings and with hardware templates.
- B. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before proceeding with factory premachining.

- C. Cut and trim openings through doors and panels as shown. Comply with applicable requirements of referenced standards for kind and quality of door shown and specified. Trim openings for nonrated doors with solid wood moldings of profile shown, or if not otherwise shown, with rectangular section, flush with faces of door.

2.03 FRAMES

- A. Frames for wood doors shall be hollow metal as noted in the Door Schedule. See Section 08 11 00—Standard Steel Doors and Frames.

2.04 FACTORY FINISH

- A. All doors (including beading and moldings) to be finished at the factory, with UV-cured system with performance properties equivalent to TR-6 Catalyzed Polyurethane. Factory prefinished doors to be individually protected at the factory. Final color, build, and sheen to be approved by OWNER based on actual review samples.

PART 3—EXECUTION

3.01 INSTALLATION

- A. Condition doors to average prevailing humidity in installation area prior to hanging.
- B. Prepare doors to receive hardware; refer to Section 08 71 00—Door Hardware for hardware.
- C. Install wood doors to comply with manufacturer's instructions and of referenced AWI standard and as indicated.
- D. Provide openings in doors as indicated or scheduled. Install glass and/or metal louvers in prepared openings in accordance with manufacturer's recommendations.
- E. Doors shall be finished prior to installation.

3.02 ADJUSTING AND PROTECTION

- A. Rehang or replace doors which do not swing or operate freely.
- B. Refinish or replace doors damaged during installation.
- C. Protect doors as recommended by door manufacturer so that wood doors will be without damage or deterioration at time of Substantial Completion.

3.03 SCHEDULE

- A. See Door Schedule on the Drawings.

END OF SECTION

SECTION 08 71 00

DOOR HARDWARE

PART 1—GENERAL

1.01 SUMMARY

- A. Work Included:
 - 1. Hardware to fully equip all doors.
 - 2. Thresholds and weatherstripping.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

- A. NFPA 80—Fire Doors and Windows.

1.03 REGULATORY REQUIREMENTS

- A. Hardware shall conform to the Wisconsin Commercial Building Code for requirements applicable to fire-rated doors and frames. Hardware shall comply with NFPA 80 and shall be properly stamped or labeled for easy identification.
- B. Hardware building shall comply with barrier-free requirements.

PART 2—PRODUCTS

2.01 LOCKSETS AND LATCHSETS

- A. Locksets and latchsets without stainless steel (ss) finish shall be Sargent cylindrical type Series 10L, Schlage D Line, Best Access Systems 9K Series, or equal.
- B. Locksets and latchsets shall have 2 3/4-inch backset. Strikes shall be curved lip.
- C. Lockset and latchset numbers listed in Paragraph 3.02 Schedule are Sargent (listed first) followed by Schlage number (listed second in parentheses).
- D. Provide removable core brass 6- or 7-pin cylinders for all locksets and latchsets.

2.02 HINGES

- A. Butt hinges shall be Stanley FBB 191, Hager BB 1191, or equal, full mortise, ball bearing, nonferrous, nonrising, loose pin, and flat bottom tip, unless otherwise specified. Provide three 4 1/2-inch by 4 1/2-inch hinges per door for doors 7 feet or less in height with one additional hinge for each additional 30 inches or fraction thereof, unless otherwise specified. Provide additional hinges or heavyweight hinges for all doors that are over 36 inches wide, unless specified otherwise. Finish on aluminum entrance doors shall match framing.

2.03 DOOR CLOSERS

- A. Door closers shall be LCN Series 1460 for exterior doors and 1461 for interior doors, or equal. Provide aluminum finish on closers. Provide full covers. Door closers for locations noted as (ss) shall have the SRI primer for corrosion resistance. Door closers specified in paragraph 3.02 are LCN. (H-Hold Open).

2.04 KICKPLATES

- A. Kickplates shall be Rockwood, or equal, 6 inches high. Kickplate width shall be 2 inches less than door width.

2.05 DOOR STOPS

- A. Provide wall- or floor-mounted door stops at all interior doors. Stops shall be Glynn Johnson GJFB-13, GJ60C, or GJ60W for locations noted as (ss), or equal.

2.06 THRESHOLD AND WEATHERSTRIPPING

- A. All exterior doors shall be weatherstripped with Reese DS75, National Guard Products, Inc. 156, or equal, weatherstripping. Provide Reese 323C, Pemko 315AN, or equal, sweeps; and Reese S425A, Pemko 171A (provide Reese S439A, Pemko 273A, for areas with thicker flooring on one side), or equal, thresholds.

2.07 KEYING

- A. Door keys shall be keyed to match existing system. Provide two keys per lock. Doors shall have temporary construction cylinders. Provide permanent cylinders at project completion.

2.08 FINISH

- A. Finish for all hardware, except as noted below, shall be US 26D or US 32D where stainless steel (ss) hardware is specified in Paragraph 2.
- B. Finish for surface bolts shall be US 26D; finish for kickplates shall be 32D.
- C. Where stainless steel (ss) is specified, all hardware, including threshold and weatherstripping, shall be installed with stainless steel fasteners.

PART 3-EXECUTION

3.01 INSTALLATION

- A. Provide finish hardware to fully equip all doors.
- B. Install hardware in accordance with manufacturer's instructions.

3.02 SCHEDULE

- A. Provide the following hardware groups in the amounts indicated on the door schedule or required for a complete and proper installation:

Group 1

EXTERIOR DOOR US26D
SARGENT (SCHLAGE)

Lockset-10G05 (ND92PD)
Door Closer-1460H
(Parallel Arm)
Hinges and Kickplate

Group 2

INTERIOR DOOR
SARGENT (SCHLAGE)

Latchset 10U15 (ND10S)
Door Closer-1460 BF (Regular Arm)
Hinges and Kickplate

Group 3

BUNKROOM PRIVACY LOCK
SARGENT (SCHLAGE)

Lockset 10U65 (ND40S)
Hinges

END OF SECTION

SECTION 08 81 00

GLAZING

PART 1—GENERAL

1.01 SUMMARY

- A. Work includes glass and glazing for door lites.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

- A. GANA—Glass Association of North America.

1.03 WARRANTY

- A. Exterior insulating glass shall be provided with a 10-year warranty against failure of the seal.
- B. Coated glass shall be provided with a 10-year warranty against peeling, cracking, or deterioration of the coating.

PART 2—PRODUCTS

2.01 EXTERIOR GLASS

- A. Glass in exterior door lights shall be 1-inch-thick insulating glass consisting of two pieces of 1/4-inch float glass separated by a 1/2-inch air space.
- B. Acceptable manufacturers include the following, or equal: Oldcastle Glass Company, PPG Solarban 70XL.
- C. Glass shall be Low-E with clear tint outboard light and clear tint inboard light with the following maximum values, or equal.

	Shading Coefficient	U-Value		SHGC
		Winter	Summer	
Clear	.32	.28	.26	.27

- D. Exterior door lights shall have an optically clear glass shatter resistant and abrasion resistant window film. Acceptable products include the following, or equal: S70X Security Film by 3M.

2.02 INTERIOR GLASS

- A. Glass in interior door lites, except as noted, shall be 1/4-inch-thick float glass, fully tempered.
- B. Acceptable manufacturers include the following, or equal: Oldcastle Glass Company, PPG.

2.03 GLAZING COMPOUNDS AND ACCESSORIES

- A. Glazing system shall consist of a polyisobutylene-butyl tape, liquid polymer sealant, and vinyl roll-in strip.
- B. Acceptable products include the following, or equal:
 - 1. Tremco Vision Strip System.
 - 2. General Electric Silglaze.

2.04 FABRICATION

- A. Glazing of windows shall be from the interior.
- B. Accessories such as setting blocks, clips, etc., shall be provided to properly set glass.
- C. Obtain sizes from work at the site or from the manufacturer of work into which the materials will be set. Responsibility for the correctness of measurements shall be assumed by CONTRACTOR.

PART 3-EXECUTION

3.01 INSTALLATION

- A. Comply with "Glazing Manual" by Glass Association of North America (GANA), except as specifically recommended otherwise by manufacturers of the glass and glazing materials.
- B. Completed installation shall be water- and airtight.

END OF SECTION

SECTION 09 22 16
METAL STUD FRAMING SYSTEM

PART 1—GENERAL

1.01 SUMMARY

- A. Work includes metal studs and accessories.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

- A. ASTM C754—Standard Specification for Installation of Steel Framing Members to Receive Screw Attached Gypsum Panel Products.
- B. ASTM C840—Standard Specification for Application and Finishing of Gypsum Board.

PART 2—PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Acceptable manufacturers include the following, or equal:
 - 1. Dietrich Industries, Inc.
 - 2. Clark Western.
 - 3. UNIMAST Incorporated.
 - 4. Marino/WARE.

2.02 MATERIALS

- A. Metal studs shall be 25 gauge, galvanized, except as otherwise shown or specified; channel shaped and punched for utility access. Depth as shown on the Drawings; 3 1/2 inches minimum if size not shown.
- B. Top and bottom runners shall be of same material and thickness as studs with 1 1/4-inch leg.
- C. Provide fasteners, 20 gauge sheet metal backing, and other accessories for a complete installation.

PART 3—EXECUTION

3.01 INSTALLATION

- A. Install metal framing to comply with ASTM C754 and with ASTM C840 requirements that apply to framing installation.

- B. Provide supplementary framing, blocking, and bracing at terminations in the work and for support of fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, and similar construction to comply with details indicated and with recommendations of gypsum board manufacturer, or if none available, with *Gypsum Construction Handbook* published by United States Gypsum Company.
- C. Framing shall be with studs and runners of depth shown or required.
- D. Provide continuous floor and ceiling runner tracks sized to match stud depth. Align runner tracks accurately to the partition layout at both sill and head. Secure runner tracks as recommended by the stud manufacturer for the sill and head construction involved, except do not exceed 24 inches on center spacing for nail- or power-driven fasteners or 16 inches on center for other types of attachment. Provide fasteners at all corners and ends of runner tracks.
- E. Erect studs from floor up to structural deck above and space 16 inches on center maximum, unless shown otherwise.
- F. Align stud web openings horizontally.
- G. Friction fit studs to runner tracks by positioning and rotating into place. Provide positive attachment to runner tracks for studs located at partition corners and intersections and adjacent to openings using 3/8-inch self-tapping screws or stud-clinching tool on both flanges of studs. Do not weld.
- H. Provide additional studs to support inside corners at partition intersections and corners and to support outside corners, terminations of partitions, both sides of expansion and control joints, and adjacent to all openings. Brace stud framing system rigid.
- I. Install full-length studs between runner tracks wherever possible. If necessary, splice studs by nesting with a minimum lap of 8 inches and fasten lap with two screws through each flange.
- J. Frame door openings less than 4 feet 0 inch wide with 20 gauge studs at head and side jambs. Frame door openings over 4 feet 0 inch wide with two 20 gauge studs back-to-back at head and side jambs. Install one additional 25 gauge stud within 6 inches of each side jamb.
- K. Refer to Drawings for indication of partitions extending to finished ceiling only.
- L. Frame drops, ceilings, and soffits for gypsum wallboard with studs, channels, or suspension system to support 20 psf superimposed load. Do not exceed 24-inch spacing for components to which gypsum wallboard is attached. Install miscellaneous braces and supports to maintain rigidity with structure. Minimum stud gauge is 20. Frame chases in similar manner as partitions.
- M. Frame and/or furr out to receive miscellaneous gypsum wallboard surfaces. Use applicable framing members and accessories for use intended.

END OF SECTION

SECTION 09 29 00

GYPSUM BOARD

PART 1—GENERAL

1.01 SUMMARY

- A. Work includes gypsum wallboard, accessories, and texture finish.
- B. Related Sections: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

- A. ASTM C475—Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
- B. ASTM C840—Standard Specification for Application and Finishing of Gypsum Board.
- C. ASTM C1396—Standard Specification for Gypsum Board.
- D. ASTM E119—Standard Test Methods for Fire Tests of Building Construction and Materials.

1.03 ENVIRONMENTAL CONDITIONS

- A. Establish and maintain environmental conditions for application and finishing gypsum board to comply with ASTM C840 and with gypsum board manufacturer's recommendations.
- B. For nonadhesive attachment of gypsum board to framing, maintain not less than 40°F. For adhesive attachment and finishing of gypsum board, maintain temperature uniformly within the range of 55°F to 70°F for 48 hours prior to application and continuously thereafter until drying is complete.
- C. Ventilate building spaces to remove moisture not required for drying joint treatment materials. Avoid drafts during dry hot weather to prevent materials from drying too rapidly.

PART 2—PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Acceptable manufacturers include the following, or equal:
 - 1. United States Gypsum Company (USG).
 - 2. Gold Bond Building Products Division, National Gypsum Company.

2.02 MATERIALS

- A. Gypsum Wallboard—Interior Sheathing:
 - 1. Provide gypsum board conforming to ASTM C1396, in maximum lengths available to minimize end-to-end joints.

2. Gypsum shall be 5/8-inch-thick by 48-inch-wide USG Sheetrock SW Gypsum Panels, Gold Bond Sta-Smooth Gypsum Wallboard, or equal.
- B. Gypsum Wallboard-Exterior Sheathing:
1. Provide gypsum board conforming to ASTM C1396, in maximum lengths available to minimize end-to-end joints.
 2. Gypsum board shall be 5/8-inch USG Sheetrock Brand Gypsum Sheathing, or equal.
- C. Accessories:
1. Provide materials complying with ASTM C475, ASTM C840, and recommendations of manufacturer of both gypsum board and joint treatment materials for the application indicated.
 2. Reinforcement at exterior corners shall be USG Galvanized Dura-Bead No. 101, Gold Bond Standard Cover Bead, or equal.
 3. Reinforcement at internal corners shall be USG No. 100 Perf-a-Tape, Gold Bond Joint Tape, or equal.
 4. Provide trim accessories as required.
 5. Provide No. 200 case beads and other accessories as detailed or required.
 6. Joint compound shall be USG Durabond 90, Gold Bond Sta-Smooth, or equal, at cased edge joints.
- D. Finish Materials: Interior textured finish shall be USG Spray Texture Finish; Gold Bond Spray Quick, medium-fine finish, or equal.

PART 3—EXECUTION

3.01 EXAMINATION

- A. Examine substrate to receive gypsum wallboard systems for alignment, support, bracing, etc., prior to installation. Shim, block as required to comply with tolerances.
- B. Verify that the installation of all blocking, mechanical, and electrical work is completed.

3.02 INSTALLATION

- A. Install and finish gypsum board to comply with ASTM C840.
- B. Direct Attachment:
1. All ends and edges of sheetrock shall occur over nailing members except when joints are at right angles to framing members.
 2. All wallboards shall be applied horizontally. All ends and edges shall fit neatly. End joints shall be staggered. Joints on opposite sides of a partition shall be arranged to occur on different studs.
 3. Sheetrock shall be applied to studs by power-driven 1 1/4-inch Type W screws, spacing not to exceed 12 inches on center.
 4. Fasteners shall be at least 3/8 inch from edges.
- C. Cut openings required for ducts, piping, etc., above ceiling or fit panels after installation.
- D. Provide edge trim at all exposed edges of board and where board abuts dissimilar material. No raw drywall shall abut another material without a bead.

- E. Treat cut edges and holes in moisture-resistant gypsum board with sealant.
- F. Provide control joints at locations indicated or, if not indicated, at spacings and locations required by referenced gypsum board application and finish standard to prevent cracking of finished drywall.
- G. Patch all existing areas that are modified or damaged.

3.03 JOINT TREATMENT

- A. Finish all exposed-to-view surfaces.
- B. Reinforce and trim all joints, vertical and horizontal corners, and exposed edges.
- C. Fill with finishing compound all joints, fastener heads, trim accessory flanges, and other depressions in the surface of the wallboard to obtain a smooth flush surface.
- D. Prefill all V-grooved SW board. Butter all joints. Embed tape and apply skim coat of joint compound.
- E. Do not use topping compound for embedding tape.
- F. Do not intermix joint compounds.
- G. Spot fastener heads and fill beads and trim.
- H. Apply second and third coats.
- I. Allow drying time between application of joint compound in accordance with manufacturer's recommendations for the relative humidity and temperature levels at the time of application. In no case, allow less than 24 hours drying time between applications of joint compound.
- J. Lightly sand joint compound smooth between coat applications.
- K. Apply not less than three separate coats of joint compound over joints, fastener heads, and metal flanges on surfaces exposed to view.
- L. Where not exposed to view within building, embed tape at joints and skim coat with joint compound.
- M. Finishing work will not be considered acceptable if corners of edges do not form true, level, straight, or plumb lines, or if joints, fasteners, head, flanges of trim accessories, or defects are visible after application of field-applied decoration.

3.04 TEXTURE FINISH

- A. All sheetrock shall be sprayed with a single coat of texture finish.
- B. Apply finish to an area of approximately 200 square feet and obtain OWNER's approval. Approved area shall establish standard for all the work.

- C. Protect adjacent surfaces from texture droppings or overspray.
- D. The spray shall be uniform and free from application patterns.
- E. The spray equipment shall be of such a size and type to provide acceptable results.
- F. Apply at a minimum rate of 200 square feet per gallon.

END OF SECTION

SECTION 09 30 00

TILES

PART 1—GENERAL

1.01 SUMMARY

- A. Work Included: Ceramic tiles (floors and walls).
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

- A. ANSI A108.1—Installation of Ceramic Tile.
- B. ANSI A137.1—Standard Specifications for Ceramic Tile.
- C. TCA (Tile Council of America)—Handbook for Ceramic Tile Installation.

1.03 SUBMITTALS

- A. Submittals shall be in accordance with provisions of Section 01 33 00—Submittals.
- B. Samples shall be submitted for approval and color selection.

1.04 ENVIRONMENTAL REQUIREMENTS

- A. CONTRACTOR shall maintain temperature of 50°F minimum during tile work and for 7 days after completion.

1.05 EXTRA MATERIALS

- A. Supply extra 2% of total quantity of each tile used and place in marked carton for OWNER's future use.

PART 2—PRODUCTS

2.01 CERAMIC TILE

- A. All ceramic tile shall be Standard Grade materials conforming to ANSI A137.1.
- B. Provide 1-inch by 1-inch unglazed tile for ceramic floors. Provide 4-inch by 4-inch glazed tile for ceramic tile walls. Ceramic tile shall be by American Olean, or equal.
- C. Provide bullnose cap, square incorners, bullnose outcorner, and bullnose jambs.
- D. Furnish all ceramic tile and accessories from same manufacturer.

- E. Grout for floors shall be commercial, gray, sanded Portland cement-type, Polyblend Sanded Grout by Custom Building Products, or equal, meeting requirements of ANSI A108.1. Color by OWNER.
- F. Sealants, where required, shall be American Olean Redi-Set Grout, Dow Corning 784, or equal, white fungicidal one-part silicone rubber.
- G. Color of wall and floor tile shall be selected by OWNER.

2.02 UNCOUPLING MEMBRANE

- A. Manufacturer to be Schluter-DITRA, or equal.
- B. Description: 1/8-inch-thick (3 mm), orange, high-density polyethylene membrane with a grid structure of 1/2-inch by 1/2-inch (12 mm by 12 mm) square cavities, each cut back in a dovetail configuration, and a polypropylene anchoring fleece laminated to its underside. Conforms to definition for uncoupling membranes in the Tile Council of North America Handbook for Ceramic Tile Installation; and meets or exceeds the requirements of the *American National Standard specifications for load bearing, bonded, waterproof membranes for thin-set ceramic tile and dimension stone installation A108.1,* and is listed by cUPC®, and is evaluated by ICC-ES (see Report No. ESR-2467).

2.03 WATERPROOFING MEMBRANE

- A. Manufacturer to be Schluter-KERDI, or equal.
- B. Description: 0.008-inch-thick (0.2 mm), orange polyethylene membrane, with polypropylene fleece laminated on both sides, which meets or exceeds the requirements of the *American National Standard specifications for load bearing, bonded, waterproof membranes for thin-set ceramic tile and dimension stone installation A108.1,* and is listed by cUPC®, and is evaluated by ICC-ES (see Report No. ESR-2467).

PART 3-EXECUTION

3.01 PREPARATION

- A. Floor and wall surfaces shall be level with maximum surface variations not exceeding 1/8 inch in 8 feet.
- B. Floors and walls to be tiled shall be cleaned and prepared in accordance with manufacturer's recommendations.
- C. Surfaces to be tiled shall be free from coatings, curing membranes, oil, grease, wax, and dust.
- D. Clean, etch, and otherwise prepare concrete floors so that there is an adequate bond of setting bed.

3.02 INSTALLATION

- A. Comply with ANSI A108.1 and TCA handbook for installation standards that apply.

- B. All surfaces shall be cleaned with cloth as work progresses.
- C. CONTRACTOR shall prohibit all traffic on newly tiled floors for at least 3 days. Where use is unavoidable, CONTRACTOR shall protect newly tiled floor with large flat boards for 7 days.

3.03 CLEANING

- A. At completion of tile installation, grout haze shall be removed according to tile manufacturer's recommendations.
- B. Protect completed floors from construction dirt and damage with plywood in traffic areas and with heavy-duty construction paper masked-in-place in other areas.
- C. Clean all floors and walls at project completion.

3.04 SCHEDULE

- A. Ceramic tile floors and walls shall be provided in rooms as indicated on the Finish Schedule on the Drawings.

END OF SECTION

SECTION 09 65 00

RESILIENT FLOORING

PART 1—GENERAL

1.01 SUMMARY

- A. Work Included:
 - 1. Vinyl flooring.
 - 2. Vinyl wall base.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 ENVIRONMENTAL REQUIREMENTS

- A. CONTRACTOR shall provide a constant temperature of 70°F 48 hours prior to the installation, during installation, and 48 hours after installation. A minimum temperature of 55°F shall be maintained thereafter.

PART 2—PRODUCTS

2.01 VINYL FLOORING

- A. Vinyl tile flooring shall be 0.125-inch-thick square vinyl composition, conforming to ASTM F1066, Composition 1, Class 2. Tile shall be Mannington Essentials commercial vinyl composition tile, or equal, as manufactured by Mannington Resilient Floors, Salem, New Jersey.
- B. Color shall be selected by OWNER.
- C. Adhesives, subfloor fillers, and other application materials shall be those as recommended by the vinyl flooring manufacturer.
- D. Provide 1-inch by 1/8-inch edging at doors where no threshold is provided.

2.02 WALL BASE

- A. Vinyl wall base shall be top set-type, ribbed back, rounded top, 1/8-inch-thick, 4-inch-high wall base.
- B. Color shall be selected by OWNER.

PART 3—EXECUTION

3.01 PREPARATION

- A. Floor surfaces shall be smooth and flat with maximum variation of 1/8 inch in 10 feet.

- B. All surfaces to receive resilient flooring shall be dry, clean, and smooth.
- C. Remove subfloor ridges and bumps. Fill low spots, cracks, joints, holes, and other defects with subfloor filler.
- D. Where curing compounds have been used, they shall be removed by CONTRACTOR by sanding, sandblasting, or grinding.

3.02 INSTALLATION

- A. Install materials in strict accordance with manufacturer's printed instructions.
- B. Terminate flooring at centerline of door openings where adjacent floor finish is dissimilar.
- C. Install edge strips at unprotected or exposed edges and where flooring terminates.
- D. Scribe flooring to walls, columns, cabinets, and other appurtenances to produce tight joints.
- E. Carry wall base around door jambs to meet frames. Do not install wall base at locations of baseboard heaters.

3.03 CLEANING

- A. Immediately after installation of the floor, CONTRACTOR shall damp-mop and clean all adhesive from exposed surfaces. Vinyl flooring shall receive a light coat of floor polish.
- B. The floor shall be protected from construction dirt and traffic as necessary.
- C. Clean the floors in accordance with the manufacturer's recommendations immediately prior to final completion.

3.04 SCHEDULE

- A. Resilient flooring and accessories shall be installed where indicated in the Finish Schedule on the Drawings.

END OF SECTION

SECTION 09 91 00

PAINTING

PART 1—GENERAL

1.01 SUMMARY

- A. Work Included: Surface preparation and application of paints and coatings.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

- A. ASTM B117—Standard Practice for Operating Salt Spray (Fog) Apparatus.
- B. ASTM D2247—Standard Practice for Testing Water Resistance of Coatings in 100 % Relative Humidity.
- C. ASTM D3363—Standard Test Method for Film Hardness by Pencil Test.
- D. ASTM D4060—Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser.
- E. ASTM D4541—Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers.
- F. ASTM D4585—Standard Practice for Testing Water Resistance of Coatings Using Controlled Condensation.
- G. Federal Register—Code of Federal Regulations (CFR).
- H. Federal Register—Resource Conservation and Recovery Act (RCRA).
- I. Federal Register—Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).
- J. ICRI—International Concrete Repair Institute.
- K. NACE—National Association of Corrosion Engineers.
- L. SSPC—The Society for Protective Coatings—Steel Structures Painting Manual.

1.03 SUBMITTALS

- A. Submittals shall be in accordance with provisions of Section 01 33 00—Submittals.
- B. Shop primer proposed for use shall be submitted with all material and equipment submittals. All shop primers shall be of the same generic type and quality as those specified herein.

- C. Submit manufacturer's Safety Data Sheets (SDS) for each type of paint with each shop drawing submittal. SDS sheets shall be posted at the construction site at all times painting is in progress.
- D. Substitution submittals shall include performance test data, as certified by a qualified testing laboratory, for the ASTM tests specified in Paragraph 2.01.

1.04 QUALITY ASSURANCE

- A. Regulatory Requirements: All paints, surface preparation, and application methods shall conform to federal requirements for allowable exposure to lead and other hazardous substances.
- B. Prepainting Meeting:
 - 1. A prepainting meeting shall be held immediately following the project preconstruction conference. The prepainting meeting is to be held prior to any material and equipment that requires painting is delivered to the site.
 - 2. CONTRACTOR, the paint subcontractor, and the paint manufacturer's representative shall be present to review the specifications and project scope.
 - 3. The paint manufacturer's representative shall review progress at the site as requested by ENGINEER. These are generally expected to be prior to monthly progress meetings.

1.05 FIELD QUALITY CONTROL

- A. Furnish testing apparatus as applicable for observing surface preparation, testing atmospheric conditions and testing coatings, prior to beginning surface preparation. Provide the following apparatus:
 - 1. One set of U.S. Department of Commerce thickness calibration plates, certified by the National Bureau of Standards, to test dry film thickness.
 - 2. One wet-film thickness gauge.
 - 3. One dry-film thickness gauge, Mikrotest III, 0-40 mils with calibration standard approved by the Bureau of Standards.
 - 4. One Bacharach Sling Psychrometer, Model 12-7011.
 - 5. Tinker and Razor Model M-1 Holiday Detector and recommended wetting agent.
 - 6. One set of SSPC-VIS 1-89 Visual Standards for Abrasive Blast Cleaned Steel.
- B. Provide access via scaffolding or staging for inspection.
- C. Entire surface of coated submerged concrete shall be tested with holiday detector. Mark and repair all pinholes, then retest until no pinholes are found.
- D. CONTRACTOR shall provide documentation to ENGINEER of conditions before and during painting operations for each area and each day's work. Documented conditions shall include the following at a minimum: date, area of work, system used, preparation methods, environmental conditions, quantity and thickness of coating placed, noted conditions, and nonconforming items. ENGINEER can provide sample report form if CONTRACTOR does not have their own.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Materials shall be delivered to the site in original containers with labels intact and seals unbroken.

- B. Drop cloths shall be used in all areas where painting is done to fully protect other surfaces.
- C. Oily rags and waste must be removed from the building each night or kept in an appropriate metal container.

1.07 ENVIRONMENTAL REQUIREMENTS

- A. CONTRACTOR shall dry-heat, dehumidify, and ventilate to obtain painting conditions recommended by the paint manufacturer during surface preparation, application, and cure.
- B. Relative humidity conditions as specified by the paint manufacturer's data sheet shall be adhered to. This includes times in which supplemental heat is used. Supplemental heat shall be indirect-fired hot air furnaces or electric heat. Open-flame heaters shall not be used.
- C. No unprotected, unheated exterior painting shall be undertaken when damp weather appears probable, nor when the temperature of the substrate is below 55°F, unless approval in writing is received from the paint manufacturer.

1.08 COLOR SELECTIONS

- A. Provide color charts for all coatings being used on the project. After initial selection of colors by OWNER, provide draw down samples of selected colors for OWNER's final approval. For stained wood, provide specified wood species sample with selected color for final approval.
- B. CONTRACTOR shall provide a summary sheet at the completion of the project listing the finish paint products used and the manufacturer's color identification for each item painted. This summary sheet should be submitted to ENGINEER and OWNER for review.

PART 2-PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. All materials required for painting shall be types and quality as manufactured by Tnemec Company, Inc., Sherwin-Williams Company, Carboline, PPG Protective and Marine Coatings, or equal, unless noted otherwise in the schedule.
- B. Where thinning is necessary, only the products of the manufacturer furnishing the paint will be allowed. All such thinning shall be done strictly in accordance with the manufacturer's instructions.
- C. Paint and paint products of Tnemec Company and Sherwin-Williams, listed in the following specifications, are set up as standard of quality. Carboline and PPG Protective and Marine Coatings have preapproved equivalent products that shall be used. Other manufacturer's products will be considered as a substitution if CONTRACTOR and paint manufacturer certify that the products offered are recommended for the service intended, are compatible with the shop primers used, are equal in solids content and composition, and are of the same type. Submittal shall include the following performance data as certified by a qualified testing laboratory. ASTM Specifications shall be the latest revision:
 - 1. Abrasion-ASTM D4060, CS-17 Wheel, 1,000 grams load.
 - 2. Adhesion-ASTM D4541.
 - 3. Hardness-ASTM D3363.
 - 4. Humidity-ASTM D2247 and D4585.

5. Salt (Fog) Spray–ASTM B117.

PART 3–EXECUTION

3.01 SURFACE PREPARATION

A. General:

1. All surfaces to be painted shall be prepared as specified herein and by the manufacturer's published data sheet and label directions. The objective shall be to obtain a uniform, clean, and dry surface.
2. No field painting shall be done before the prepared surfaces are observed by ENGINEER. Surfaces painted without such observation shall be abrasive-blast-cleaned and repainted.
3. Prior to field-blasting, a sample of the blast abrasive shall be provided to ENGINEER for pH testing. Additional samples of subsequent deliveries or batches of blast abrasive shall be provided to ENGINEER for pH testing.
4. For on-site abrasive-blasting, low-dust, low-silica content material shall be used. Coal slag abrasive shall be used on pipe and ferrous materials. Staurolite abrasive shall be used on concrete and concrete block.
5. Quality of surface preparations listed below are considered a minimum. If paint manufacturer requires a better preparation for a particular application, it shall be considered a requirement of this specification.
6. All concrete surfaces shall be tested for moisture in accordance with ASTM D4263 and, if necessary, F1869. Surfaces shall also be verified that the pH of the cleaned concrete surface to be coated is within the range of 8 to 11.

B. Ferrous Metal:

1. All ferrous metal to be primed in the shop shall have all rust, dust, and mill scale, as well as all other foreign substances, removed by abrasive blasting. Cleaned metal shall be primed or pretreated immediately after cleaning to prevent new rusting.
2. All ferrous metals not primed in the shop shall be abrasive-blasted in the field prior to application of the primer, pretreatment, or paint.
3. Abrasive blasting of metals in the shop shall be in accordance with SSPC-SP 10 Near White Blast Cleaning. Abrasive blasting of metals in the field for immersion service shall be in accordance with SSPC-SP 10 Near White Blast Cleaning. Abrasive blasting of metals in the field for nonimmersion service shall be in accordance with SSPC-SP6 Commercial Blast Cleaning.
4. Solvent cleaning in accordance with SSPC-SP1 shall precede all abrasive-blasting operations.
5. Prior to finish coating, all primed areas that are damaged shall be cleaned and spot-primed.

C. Existing Concrete and Concrete Block:

1. All previously coated walls and ceilings of concrete and concrete block of existing structures, except as noted, shall be pole-sanded and hand-sanded to remove all old peeling paints as well as roughen-up existing paints.
2. All concrete and precast concrete walls, floor, and ceiling which are not currently painted but are scheduled for painting shall be abrasive-blasted in accordance with SSPC-SP13/NACE No. 6. Abrasive blasting of concrete shall result in a texture similar to 40-60 grit sandpaper (ICRI SP3-5).
3. Concrete floors containing oil and grease residues shall be cleaned with detergent to remove all residues and allowed to dry.

4. All existing floors, unless otherwise specified, shall be power-sanded with a Clark HD floor scrubber, or equal, with a rubber pad and abrasive disc, followed by vacuuming and removing all oil and grease contamination and particulate matter.
 5. Bug holes, pits, voids, and cracks that are opened up shall be filled with an appropriate filler.
 6. Paint manufacturer shall observe and approve the surface preparation method and the prepared surface prior to painting.
 7. After cleaning, the surface shall be washed, and all dust, sand, and loose particles shall be removed by vacuuming. If CONTRACTOR elects to blow the surfaces off with air, it shall be oil-free air, and the methods shall conform to OSHA requirements.
- D. Copper: Where copper piping is not submerged or buried, it shall be solvent-cleaned in accordance with SSPC-SP1 and shall be lightly sanded.
- E. PVC and CPVC: All PVC and CPVC to be painted shall be solvent-cleaned in accordance with SSPC-SP1 and shall be lightly sanded.

3.02 APPLICATION

- A. All materials shall be used as specified by the manufacturer's published data sheets and label directions.
- B. No paint shall be applied on a wet or damp surface and in no case until the preceding coat is dry and hard. Each coat shall be allowed to dry in accordance with manufacturer's data sheets before the next coat is applied.
- C. Drying time shall be construed to mean "under normal conditions." Where conditions are other than normal because of the weather or because painting must be done in confined spaces, other drying times will be necessary.
- D. Additional coats of paint shall not be applied, nor shall units be returned to service until paints are thoroughly dry and cured.
- E. Steel that will be inaccessible in the completed work shall receive the final coat before enclosure.
- F. Paint shall be applied to provide an opaque, smooth surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, or other surface imperfections will not be acceptable. Tops and bottoms of walls and areas that are "cut-in" by brush prior to rolling shall have a uniform appearance in comparison with adjoining surfaces.
- G. Concrete block walls shall be back-rolled to achieve a pinhole-free surface coat.
- H. Walls and ceiling surfaces shall receive a minimum of one coat of paint before surface-mounted items such as conduits, boxes, piping, etc., are installed on these surfaces.
- I. Crevices and other hard-to-apply areas shall be back-rolled/back-brushed in conjunction with application of the first field coat of primer or intermediate coat. This includes, but is not limited to, between pipe flanges, pipe flange/pipe barrel joints, equipment fittings, and other narrow openings.

- J. No paint shall be applied to new or existing surfaces until joints have been caulked according to Section 07 90 00–Caulking and Sealants requirements, except at moving joints which shall be finish-painted before caulking or caulking shall be protected during painting.
- K. For PVC and CPVC piping, unions and valves shall not be painted.

3.03 FIELD QUALITY CONTROL

- A. Examination of work on the site by the manufacturer's representative shall be performed when requested by ENGINEER.

3.04 CLEANING

- A. All stains and marks shall be removed from other surfaces upon completion of the work.

3.05 SCHEDULE

A. General:

1. At the completion of the project, all painted surfaces which have been damaged shall be repainted or touched-up.
2. See Finish Schedule on the Drawings for an additional reference for areas to be painted.
3. The painter shall use some discretion in what should and should not be painted. Do not paint over labels and other information, bronze, machined surfaces, moving parts where painting may impair movement, hot surfaces which may peel, etc. If in doubt whether a part should be painted, ask ENGINEER.
4. Products listed first are Tnemec and second are Sherwin-Williams.

B. New Work:

1. All new work done by all trades shall be painted by CONTRACTOR in accordance with the following schedule and in accordance with paint manufacturer's recommendation. It is the intent of these specifications that all non-galvanized ferrous metal items scheduled for painting be shop-primed. If items are not shop-coated, surfaces shall be prepared and painted in the field as specified. If any items of new construction are not listed, CONTRACTOR shall request paint system from ENGINEER, and the items shall be painted as part of this Contract without additional cost.
2. Interior concrete block walls: Two coats Series N69 Hi-Build Epoxoline II, Macropoxy 646.
3. All exposed precast concrete ceilings: Two coats of Series N69 Hi-Build Epoxoline, Macropoxy 646.
4. Steel and equipment; not submerged (including pipes to be insulated):
 - a. One shop coat of N69-1255 Hi-Build Epoxoline, Macropoxy 646 Beige as primer.
 - b. Touch-up primer prior to finish coat, and either:
 - (1) Two coats of N69 Hi-Build Epoxoline II, Macropoxy 646 for interior surfaces;
or
 - (2) One coat of N69 Hi-Build Epoxoline II, Macropoxy 646; and one coat of 1074 Endura-Shield, Acrolon 218HS for exterior surfaces.

FIRST FIELD COAT SHALL BE APPLIED PRIOR TO INSTALLATION TO SURFACES INACCESSIBLE AFTER INSTALLATION INCLUDING BACK SIDES OF DOOR FRAMES. SEE DIVISION 08 FOR FACTORY-APPLIED DOOR PRIMERS.

5. Galvanized, copper, brass, CPVC, and PVC conduit and surface raceway; not submerged or buried:
 - a. One coat of N69-1255 Hi-build Epoxoline II, Macropoxy 646, and either:
 - b. Two coats of N69 Hi-Build Expoxoline, Macropoxy 646 for interior surfaces, or
 - c. One coat of N69 Hi-Build Epoxoline, Macropoxy 646, and one coat of 1074 Endura-Shield, Acrolon 218HS for exterior surfaces.
 6. Drywall:
 - a. Sherwin-Williams products.
 - b. One coat of ProMar 200 Interior Latex Wall Primer, B28W8200.
 - c. Two coats of ProMar 200 Latex Eg-Shel Enamel.
 7. Stainless steel: Not painted.
- C. Existing Areas: Existing areas damaged by removal of existing work and/or installation of new work shall be repainted to match existing and in accordance with the schedule for new work. Existing equipment and structures shall be painted in accordance with the following schedule and as listed in the Finish Schedule, or as noted on the Drawings.
1. Precast Concrete Ceilings–Interior which remain exposed and are currently painted.
 - a. Prepare as specified.
 - b. Coat in accordance with item 3 of new work.
 2. Interior concrete block walls which are currently painted and remain exposed:
 - a. Prepare and overcoat as specified.
 - b. Provide spot masonry filler coat as needed and two finish coats per Item 2 of new work.
 3. Drywall: Prepare and finish coat per new item 6 except for primer.
- D. Coverage:
1. Dry mil thickness shall conform to those specified. Mil test measurement shall conform to SSPC Steel Structures Painting Manual. Dry Film Thickness (DFT) shall be verified in accordance with SSPC-PA2.
 2. The coatings listed will provide the mil thickness given when applied at the coverages listed. Upon the request of ENGINEER, such surfaces shall be checked by the painter with a calibrated mil thickness gauge and any deficiencies found in the film shall be remedied by additional coat(s) at the expense of CONTRACTOR.
 3. On masonry, application rates will vary according to surface texture; however, in no case shall the manufacturer's stated coverage rate be exceeded. On porous surfaces, it shall be the painter's responsibility to achieve a protective and decorative pinhole-free finish either by decreasing the coverage rate or by applying additional coats of paint.
 4. Coverages reflect manufacturer's recommendations using spray application techniques. Where brushing or rolling is specified or performed at the discretion of the painter, one additional coat, minimum, will be required to achieve total DFT as specified and recommended by the manufacturer.

	Sq. Ft.** Coverage	Dry Mil** Thickness Per Coat
Products		
1029 Endurotone, DTM Acrylic B66100	200	
N69 Hi-Build Epoxoline II, Macropoxy 646		
Steel or Impervious Substrate Primer Coat	---	4.0
Steel or Impervious Substrate Intermediate Coat(s)	---	5.0
Steel or Impervious Substrate Finish coat	---	5.0
1074 Endura-Shield II, Acrolon 218HS	---	2.5
Epoxoblock WB 1254, Kem Cati-Coat HS	80	

	Sq. Ft.** Coverage	Dry Mil** Thickness Per Coat
N69 Hi-Build Epoxoline, Macropoxy 646 (Masonry and Concrete)	250	

	Sq. Ft.** Coverage	Dry Mil** Thickness Per Coat
Sherwin-Williams Products		
ProMar 200 Primer (sprayed)	200	
ProMar200 Primer (rolled/brushed)	260	
ProMar 200 Enamel (sprayed)	280	
ProMar 200 Enamel (rolled/brushed)	360	

** Roller or brush application requires two or more coats to obtain recommended film thickness. No allowance is made here for overspray, waste in handling, mixing, or application. Final total DFT shall be equal to that specified. Paint submittals shall note where roller or brush application is proposed and the paint manufacturer's recommendations of number of coats to achieve the required thickness shall be noted.

Primer, intermediate and/or final surface colors shall be of contrasting colors to promote coverage.

END OF SECTION

SECTION 10 21 13.19

SOLID PLASTIC TOILET COMPARTMENTS

PART 1–GENERAL

1.01 SUMMARY

- A. Work Included:
 - 1. HDPE toilet compartments and vision screens, floor-mounted and overhead-braced.
 - 2. HDPE urinal screens, wall-mounted with floor brace.
 - 3. Hardware and accessories.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

- A. ANSI A117.1–Safety Standards for the Handicapped.
- B. FS RR-P-1352–Partitions, Toilet, Complete.

1.03 SUBMITTALS

- A. Submit under provisions of Section 01 33 00–Submittals.
- B. Shop Drawings: Indicate partition plan, elevation views, dimensions, details of wall and floor supports, and door swings.
- C. Product Data: Provide data on panel construction, hardware, and accessories.

1.04 REGULATORY REQUIREMENTS

- A. Conform to ANSI A117.1 Code for Accessible and Usable Buildings and Facilities.

1.05 WARRANTY

- A. Manufacturer to supply a written warranty covering all HDPE components against breakage, corrosion, and delamination for a period of 15 years.

PART 2–PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Scranton Products, Inc. (Hiny Hiders), Scranton, Pennsylvania, Partition Systems Inc. of South Carolina, or equal.

2.02 MATERIALS

- A. Toilet compartments shall be floor-mounted, overhead-braced, with noncorrosive doors, panels, and pilasters, equal to High-Density Polyethylene (HDPE) compartments as manufactured by Scranton Products, Inc., or equal. Urinal screens, vision screens, and shower doors shall be constructed of the same materials as the toilet compartments.
- B. Panels, doors, and pilasters shall be fabricated from High-Density Polyethylene (HDPE) containing a minimum of 10% recycled material manufactured under high pressure forming a single-component section which is waterproof, nonabsorbent, and has a self-lubricating surface that resists marking with pens, pencils, or other writing utensils. All panels, doors, and pilasters to arrive at job site with special protective plastic covering.
- C. Doors, panels, and pilasters shall be a minimum of 1 inch thick and all edges machined to a radius of .250; all exposed surfaces to be free of saw marks.

2.03 ACCESSORIES

- A. Door hardware shall be as follows:
 - 1. Hinges shall be surface-mounted stainless steel (Type 304, 20 gauge) hinges affixed with vandal-resistant stainless steel screws (with head set flush with face of hinge). Door closures to be factory set to accommodate all conditions and allow for a positive opening and closing action free of impediment.
 - 2. Each barrier-free door to include one door pull and one wall stop.
 - 3. Door strike and keeper shall be fabricated from heavy aluminum extrusion (6364-T5 Alloy) with clear anodized finish with wraparound flange surface-mounted and through-bolted to pilaster with one-way sex bolts. Size of strike shall be 6 inches in length.
 - 4. Door latch housing shall be fabricated from heavy aluminum extrusion (6364-T5 Alloy) with clear anodized finish, surface-mounted and through-bolted to door with one-way sex bolts. Slide bolt and button shall be heavy aluminum with "Tough-Coat Black" finish.
- B. Solid color plastic pilaster shoes shall be anchored to finished floor with plastic anchors and No. 14 by 1 1/2-inch stainless steel Phillips head screws.
- C. Provide full-length continuous plastic wall brackets (shall be solid color). Brackets shall be used for all panels-to-pilaster, pilaster-to-wall, and panel-to-wall connections. Wall brackets shall be through-bolted to panels and pilasters with one-way sex bolts. Attachment of brackets to adjacent wall construction shall be accomplished by No. 14 by 1 1/2-inch stainless steel Phillips head screws anchored directly behind the vertical edge of panels and pilasters at 12-inch intervals along the full length of bracket and at each 12-inch interval, alternately spaced between anchor connections.
- D. Headrail shall be heavy aluminum extrusion (6364-T5 Alloy) with mill finish in anti-grip configuration weighing not less than 1.188 pounds per linear foot as manufactured by Scranton Products, Inc. Headrail shall be fastened to tops of pilasters and headrail brackets by through-bolting with one-way stainless steel sex bolts (no cadmium-plated sex bolts allowed).
- E. Headrail brackets shall be 18 gauge stainless steel.

2.04 FABRICATION

- A. Toilet compartment dimensions shall be as shown on the Drawings, except shall be minimum 36 inches wide by 60 inches deep for a typical stall and 60 inches wide by 60 inches deep for an accessible stall.
- B. Door widths shall be minimum 24 inches for a typical stall and 34 inches for an accessible stall.
- C. Dividing panels shall be 55 inches high and mounted at 14 inches above finished floor.
- D. Doors shall be 55 inches high and mounted at 14 inches above finished floor.
- E. Pilasters shall be 82 inches high, mounted within a one-piece plastic shoe with one-way theft-proof, stainless steel sex bolts.
- F. Aluminum edging strips to be fastened to the bottom edge of all doors and panels using vandal-proof stainless steel fasteners.

2.05 FINISH

- A. Finish of doors, panels, and pilasters shall be similar and equal to Scranton Products, Inc. Color and texture of doors, panels, and pilasters to be selected by OWNER from the Classic, Mosaic, and Designer Collections.

PART 3-EXECUTION

3.01 EXAMINATION

- A. Verify correct spacing of and between plumbing fixtures.
- B. Verify correct location of built-in framing, anchorage, and bracing.

3.02 INSTALLATION

- A. Install partitions secure, rigid, plumb, and level in accordance with manufacturer's instructions.
- B. Maintain 3/8 inch to 2-inch space between wall and panels and between wall and end pilasters.
- C. Attach panel brackets securely to walls using anchor devices specified.
- D. Attach panels and pilasters to brackets with hardware specified.
- E. All surfaces shall be cleaned after installation is completed and ready for use.

3.03 ERECTION TOLERANCES

- A. Maximum Variation From True Position: 1/4 inch.

- B. Maximum Variation From Plumb: 1/8 inch.
- C. Clearance at vertical edges of doors shall be uniform top to bottom and shall not exceed 1/4 inch.

3.04 SCHEDULE

- A. HDPE toilet compartments and screening walls are to be provided in the following locations: Fire Department Men Restroom B38 and Fire Department Women Restroom B37. HDPE urinal screens are to be provided in the following locations: Fire Department Men's Restroom B38.

END OF SECTION

SECTION 10 28 00
TOILET AND BATH ACCESSORIES

PART 1–GENERAL

1.01 SUMMARY

- A. Work Included:
 - 1. Toilet, shower, and washroom accessories.
 - 2. Grab bars.
 - 3. Attachment hardware.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

- A. ANSI A117.1–Safety Standards for the Handicapped.
- B. ASTM A123–Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- C. ASTM A269–Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
- D. ASTM A1008–Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.
- E. ASTM B456–Electro-deposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.

1.03 REGULATORY REQUIREMENTS

- A. Conform to ANSI A117.1 and Federal ADA-AG code and the Wisconsin Commercial Building Code for access for the handicapped.

PART 2–PRODUCTS

2.01 TOILET TISSUE DISPENSERS

- A. Multiroll dispensers shall be surface-mounted. Bradley 5402, or equal. Provide total of two. Provide permanent turn knob key in lieu of key for each unit. Turn knob key shall be furnished for operation of Bradley Washroom Accessory Models.
- B. Unit shall be Type 304 stainless steel with satin finish.

2.02 HOOKS

- A. Heavy-duty hooks shall be Bobrick B-2116, Bradley Model 911, or equal. Provide total of six.

- B. Hook and flange shall be brass castings with satin nickel-plated finish.

2.03 SOAP DISPENSER

- A. Surface-mounted foam soap dispensers shall be GOJO FMX-12 Push-Style Dispenser, or equal. Provide total of three.
- B. Unit shall be constructed of durable ABS plastic with rugged polycarbonate view windows.
- C. Install one above each toilet room sink.

2.04 TOWEL DISPENSER

- A. Towel dispenser and waste receptacle shall be surface-mounted Bradley Model 234 surface-mounted, or equal. Provide permanent turn knob key in lieu of key. Turn knob key shall be furnished for operation of Bradley Washroom Accessory Models.
- B. Units shall be stainless steel with satin finish.
- C. Provide one unit in Fire Department Men B38.

2.05 MIRRORS

- A. Mirrors shall be shelfless mirrors without frames, 24 inches by 36 inches high, Bradley 747 with clip fasteners, or equal. Provide total of three.

2.06 SHOWER CURTAIN, ROD, AND BENCH

- A. Shower curtain rod shall be 1 1/4 inches diameter, 18 BW gauge, 304 satin-finish stainless steel shower curtain rod, Bradley Model 9531, or equal.
- B. Flanges shall be 3-inch-diameter satin-finish stainless steel. Provide twelve chrome-plated brass curtain hooks for each curtain, Bradley 9536, or equal.
- C. Provide two antibacterial shower curtains, Bradley 9537, or equal.
- D. ADA bench in showers shall be a durable, water-resistant, 1/2-inch plastic laminate seat with Type 304 stainless steel foldup-frame and mounting brackets, Bobrick B-5171/B-5181, Bradley 9563/9564, or equal.

2.07 GRAB BARS

- A. Provide stainless steel, peen grip with satin finish, 1 1/4-inch-diameter grab bars. Bars shall be concealed mounted-type, Bobrick B-550.99X18, B-550.99X36 and B-550.99X42; Bradley 832-00118, 832-00136 and 832-00142, or equal.
- B. Provide stainless steel, peen grip with satin finish 1 1/4-inch-diameter grab bar. Bar shall be concealed mounted-type, Bobrick B-58616, Bradley 832-059, or equal.
- C. See Drawings for configuration of grab bars.

2.08 SOAP DISH

- A. Soap dish in showers shall be extra heavy-duty chrome-plated cast-bronze dish with rounded edges, Bradley B-973, or equal.

2.09 UNDERSINK PROTECTIVE PIPE COVERS

- A. ADA-conforming, wheelchair-accessible lavatory P-trap and angle valve assemblies shall be covered with molded, antimicrobial undersink protective pipe covers, TRUE BRO, INC. LAV GUARD 2 No. 103 E-Z and No. 402 with 105 E-Z accessory, 1-800-340-5969, or equal.
- B. Cover shall be secured with reusable fasteners and access covers.
- C. Coordinate protective pipe covers for tailpiece and extensions to fit lavatories.
- D. Standard color to be selected by OWNER.

2.10 KEYING

- A. Supply two keys for each accessory to OWNER.
- B. Key all accessories alike and to match OWNER's existing systems.

PART 3-EXECUTION

3.01 INSTALLATIONS

- A. Install accessories in accordance with manufacturers' instructions, ANSI A117.1, Federal ADA-AG, and the Wisconsin Commercial Building Code.
- B. Install plumb and level securely and rigidly anchored to substrate.

END OF SECTION

SECTION 10 44 43

FIRE EXTINGUISHERS AND ACCESSORIES

PART 1—GENERAL

1.01 SUMMARY

- A. Work Included:
 - 1. Fire extinguishers.
 - 2. Accessories.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

- A. ANSI/NFPA 10—Portable Fire Extinguishers.

1.03 SUBMITTALS

- A. Submit under provisions of Section 01 33 00—Submittals.
- B. Product Data: Provide extinguisher operational features, color and finish, anchorage details, and cabinet dimensions.

1.04 QUALITY ASSURANCE

- A. Provide units conforming to NFPA 10 requirements for portable fire extinguishers.
- B. Provide fire extinguisher and accessories by single manufacturer.

PART 2—PRODUCTS

2.01 MANUFACTURERS

- A. Larsen's Manufacturing Company, Product MP Series.
- B. Substitutions: Under provisions of Section 01 60 00—Materials and Equipment.

2.02 EXTINGUISHERS

- A. Provide two dry-chemical-type, Larsen's MP Series, 10-pound-capacity fire extinguishers. Fire extinguishers shall be UL-approved for Class A, Class B, and Class C fires.

PART 3-EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Place extinguishers in brackets where shown on the Drawings.
- C. Mount fire extinguisher so the handle is at 48 inches above the finished floor.
- D. The fire extinguishers will be located in the following locations: Hallway-Two.

END OF SECTION

SECTION 10 51 00

LOCKERS

PART 1–GENERAL

1.01 SUMMARY

- A. Work Included: Steel lockers.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

PART 2–PRODUCTS

2.01 LOCKERS

- A. Provide five 15-inch by 15-inch by 72-inch double-tier lockers on 6-inch legs with louvers top and bottom; as manufactured by Penco, Oaks, Pennsylvania, (610) 666-0500, "Vanguard" line, or Republic Storage Systems, Canton, Ohio, (800) 477-1255, "Standard" line, or equal.
- B. Lockers shall be provided with continuous sloping tops with a height of 5 inches.
- C. Lockers shall have minimum 24 gauge steel body with minimum 16 gauge steel door and frame.
- D. Provide hat shelf, coat hooks, wall and base anchors, hasp latch and coverplate for use with padlocks, latches, end panels, corner panel if required, end and side base, and baked enamel finish; color to be selected by OWNER. All locker appurtenances, including bolts, shall be rustproof.
- E. Lockers shall be anchored to walls and floor per manufacturer's recommendations.

PART 3–EXECUTION

3.01 INSTALLATION

- A. Lockers shall be installed in accordance with manufacturer's recommendations.

END OF SECTION

SECTION 22 05 00

COMMON WORK RESULTS FOR PLUMBING

PART 1–GENERAL

1.01 SUMMARY

- A. Work Included: This section includes information common to two or more technical plumbing specification sections or items that are of a general nature, not conveniently fitting into other technical sections.
- B. Related Sections and Divisions: Applicable provisions of Division 01 govern work under this section.

1.02 SUBMITTALS

- A. See Section 01 33 00–Submittals for shop drawing submittal procedures.

PART 2–PRODUCTS

2.01 SEALING AND FIRE STOPPING

- A. Non-Rated Penetrations:
 - 1. In exterior wall openings below grade, use a modular mechanical type seal consisting of interlocking synthetic rubber links shaped to continuously fill the annular space between the uninsulated pipe and the cored opening or a water-stop type wall sleeve. The operating bolts of the mechanical type seal shall be accessible from the interior of the building.
 - 2. At pipe penetrations of non-rated interior partitions, floors and exterior walls, use urethane caulk in annular space between pipe insulation and sleeve. For non-rated drywall, plaster or wood partitions where sleeve is not required use urethane caulk in annular space between pipe insulation and wall material.

PART 3–EXECUTION

3.01 DEMOLITION

- A. Perform all demolition as indicated on the Drawings to accomplish new work. Where demolition work is to be performed adjacent to existing work that remains in an occupied area, construct temporary dust partition to minimize the amount of contamination of the occupied space. Where pipe is removed and not reconnected with new work, cap ends of existing services as if they were new work. Coordinate work with OWNER to minimize disruption to the existing building occupants.
- B. All pipe, fixtures, equipment, wiring and associated conduit, insulation and similar items demolished, abandoned, or deactivated are to be removed from the site by CONTRACTOR except as specifically noted otherwise. All designated equipment is to be turned over to the user agency for their use at a place and time so designated. Maintain the condition of

material and/or equipment that is indicated to be reused equal to that existing before work began.

3.02 BUILDING ACCESS

- A. Arrange for the necessary openings in the building to allow for admittance or removal of all apparatus. When the building access was not previously arranged and must be provided by this Contractor, restore any opening to its original condition after the apparatus has been brought into the building.

3.03 EQUIPMENT ACCESS

- A. Install all piping, conduit and accessories to permit access to equipment for maintenance and service. Coordinate the exact location of wall and ceiling access panels and doors with the General Prime Contractor, making sure that access is available for all equipment and specialties. Access doors in general construction are to be furnished by the Plumbing Contractor and installed by the General Prime Contractor.
- B. Provide color coded thumb tacks or screws, depending on the surface, for use in accessible ceilings which do not require access panels.

3.04 COORDINATION

- A. Coordinate all work with other contractors prior to installation. Any work that is not coordinated and that interferes with other contractor's work shall be removed or relocated at the installing contractor's expense.
- B. Verify that all devices are compatible for the type of construction and surfaces on which they will be used.

3.05 SEALING AND FIRE STOPPING

- A. Non-Rated Partitions: At all interior partitions and exterior walls, pipe penetrations are required to be sealed. Apply sealant to both sides of the penetration in such a manner that the annular space between the pipe sleeve or cored opening and the pipe or insulation is completely blocked.

END OF SECTION

SECTION 22 42 00

COMMERCIAL PLUMBING FIXTURES

PART 1—GENERAL

1.01 SCOPE

- A. This section includes specifications for plumbing fixtures, faucets and trim.

1.02 REFERENCE

- A. Applicable provisions of Division 01 shall govern work under this section.

1.03 QUALITY ASSURANCE

- A. Substitution of Materials: Refer to Section GC—General Conditions of the Contract, Equals and Substitutions.
- B. Plumbing products requiring approval by the State of Wisconsin Department of Safety and Professional Services must be approved or have pending approval at the time of shop drawing submission.

1.04 SHOP DRAWINGS

- A. Include data concerning sizes, utility sizes, rough in-dimensions, capacities, materials of construction, ratings, weights, trim, finishes, manufacturer's installation requirements, manufacturer's performance limitations, and appropriate identification.

1.05 ENERGY EFFICIENCY REQUIREMENTS

- A. Plumbing fixtures must meet the following maximum water usage requirements which are based upon Federal Energy Management Program (FEMP) performance requirements.
 - 1. Lavatory Faucets: Flow of 2 gpm or less and .25 gallon per cycle or less (based on inlet pressure of 60 psi.)
 - 2. Showerheads: Flow of 2.2 gpm or less (based on inlet pressure of 80 psi).
 - 3. Urinal Flush Valves: 1.0 gallon per flush or less.
 - 4. Water Closet Flush Valves: 1.6 gallons per flush or less.

PART 2—PRODUCTS

2.01 PLUMBING FIXTURES

- A. Manufacturers: Fixture descriptions establish fixture type, quality, materials, features and size. Products of the following manufacturers determined to be equal by ENGINEER will be accepted.
 - 1. Water Closets: American Standard, Kohler, Zurn.
 - 2. Water Closet Seats: Bemis, Beneke, Centoco, Olsonite Sperzel.
 - 3. Lavatories: American Standard, Kohler, Zurn.
 - 4. Faucets: Chicago Faucet, Kohler, or Zurn.

5. Showers: Leonard, Powers, Speakman, Symmons.
- B. Water Closets (WC):
1. WC-1: Floor mount bottom outlet white vitreous china siphon jet water closet with elongated bowl, 1 1/2-inch top spud, 2 1/4-inch passageway, 16 1/2-inch rim height and 1.6-gallon flush. Flush valve handle 13 inches above rim, located to the wide side of the stall and be ADA compliant for activation force.
 - a. Fixture: Kohler Highcrest K-4302.
 - b. Flush Valve: Sloan Royal 113-1.5-YK.
 - c. Seat: Bemis 1655-SS/C white solid plastic open front seat.
 2. WC-2: Floor mount bottom outlet white vitreous china, gravity-style tank type water closet with elongated bowl, 1.6-gallon flush, polished chrome trip level.
 - a. Fixture: Kohler Highline K-3493-T.
 - b. Seat: Bemis 1655-SS/C white solid plastic open front seat.
- C. Lavatories (L-1):
1. Corian 810L self rimming vitreous china lavatory. Lavatory shall have 8 inch centers, overflow, 3 holes and grid drain.
 2. Faucet: Provide Chicago Faucet 420 series, or equal, with 0.5 gpm non-aerating outlet, volume control and hot water limit stop, 4-inch fixed centers, and polished chrome construction.
- D. Showers, Shower Fittings:
1. Manufacturers: Bradley (B), Speakman (S), or equal.
 2. SH-1: Shower shall be (B) HN300. Shower unit shall include the following standard equipment: hand-held shower spray with 24-inch slide bar; 1/2-inch NPT stainless steel hose (for hand spray) to be 60 inches with elevated inline backflow preventer and quick disconnect; wall-mounted. Include pressure balanced mixing valve with individual stops, diverter valve, and deluxe shower head with ball joint.
 3. SD-1: Shower drain shall be Kohler K-9132 or equal. Brass construction with polished chrome finish, 2-inch drain connection, perforate strainer and connection gasket.

PART 3-EXECUTION

3.01 INSTALLATION

- A. Install plumbing fixtures in accordance with manufacturer's instructions. Set level and plumb. Secure in place to counters, floors and walls providing solid bearing and secure mounting. Bolt fixture carriers to floor and wall. Secure rough-in fixture piping to prevent movement of exposed piping.
- B. Install each fixture with trap easily removable for servicing and cleaning. Install fixture stops in readily accessible location for servicing.
- C. Install barrier free fixtures in compliance with IBC 1108 and 3408, COMM 52, 69 and Federal ADA Accessibility Guidelines. Install barrier free lavatory traps parallel and adjacent to wall and supplies and stops elevated to 27 inches above floor to avoid contact by wheelchair users.
- D. Each fixture shall have a stop valve installation to control the fixture. Stop valves shall be heavy duty type with brass stems and screwed or sweat inlet connections. Compression type inlets are not acceptable.

- E. Set floor mounted water closets, floor mounted service sinks; counter-mounted lavatories and sinks; lavatory and sink faucets and drains with full setting bed of flexible non-staining plumber's putty. Cover exposed water closet bolts with bolt covers.
- F. Seal openings between walls, floors and fixtures with mildew-resistant silicone sealant same color as fixture.
- G. Test fixtures to demonstrate proper operation. Replace malfunctioning units or components. Adjust valves for intended water flow rate to fixtures without splashing, noise or overflow. Adjust self-closing lavatory faucets to 15 second cycle. Adjust shower valve temperature limit stops to 110-degree maximum outlet temperature.
- H. Protect fixtures during construction. At completion clean plumbing fixtures and trim using manufacturer's recommended cleaning methods and materials.

END OF SECTION

SECTION 23 05 93

TESTING, ADJUSTING, AND BALANCING

PART 1—GENERAL

1.01 SUMMARY

- A. Work Included:
 - 1. Balancing air systems.
 - 2. Thermal performance testing.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

- A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.
- B. All material, installation, and workmanship shall comply with the applicable requirements and standards addressed within the following references.
 - 1. ASHRAE 11—Practices for Measurement, Testing, Adjusting, and Balancing of Building Heating, Ventilation, Air Conditioning, and Refrigeration Systems.
 - 2. SMACNA—HVAC Systems Testing, Adjusting, and Balancing.

1.03 SUBMITTALS

- A. Submit under provisions of Section 01 33 00—Submittals.
- B. Prior to final balancing, submit a preliminary report that includes the following design information for all control modes. Design information shall be from approved shop drawings. Report shall compare design and field tested data. For each supply grille and exhaust grille:
 - 1. Room number.
 - 2. Type of register and outlet and catalog size.
 - 3. Air flow factor.
 - 4. Design CFM and velocity.
 - 5. Actual CFM and velocity.
 - 6. Percent of design CFM.
 - 7. Room pressure relationship.
- C. Provide summary sheet describing mechanical system deficiencies. Where not physically observable, provide pressure and/or flow readings to demonstrate suspected deficiencies. Describe objectionable noise or drafts found during testing, adjusting, and balancing. All deficiencies shall be corrected prior to final balancing.
- D. Upon completion of final balancing, provide updated report indicating changes to system during final balancing for all control modes including updated airflows, pressures, velocities, etc. Final report shall be submitted prior to substantial completion.

1.04 QUALITY ASSURANCE

- A. Obtain services of an independent testing organization to perform testing and balancing work. The organization shall have a certified membership in the Associated Air Balance Council (AABC) or certification by the National Environmental Balancing Bureau (NEBB).
- B. Division 23 shall provide a technician and/or controls contractor to observe and assist in balancing the system. Balancing report must include verification of participation, including name and contact information of assisting party.

PART 2-PRODUCTS

2.01 BALANCING EQUIPMENT

- A. CONTRACTOR shall have the following minimum equipment for balancing systems:
 - 1. Duct air velocities below 1,000 fpm: Pitot tube and Micro-Manometer or Alnor velometer and duct-jet using zero to 1,000 fpm range.
 - 2. Supply Register Velocities: Alnor velometer and applicable jet or Anemotherm.
 - 3. Fan Rotative Speed: Timec tachometer or RPM counter and stop watch (1-minute reading, minimum).
 - 4. Contact pyrometer 0 to 300°F range.
 - 5. Amprobe model RS-3, or equal.
 - 6. Calibrated pressure gauge (0 to 100 feet water head).
 - 7. Inclined manometer 0 to 30 inches of water.
 - 8. Instruments used for measurements shall be accurate, and calibration shall be calibrated by the manufacturer or an AABC-approved method.
 - 9. Instruments shall be applied in accordance with manufacturer's instructions.
- B. All instruments used for measurements shall be accurate, and calibration histories for each instrument to be available for examination upon request. Calibration and maintenance of all instruments to be in accordance with the requirements of NEBB or AABC Standards.

PART 3-EXECUTION

3.01 PRELIMINARY BALANCING

- A. Division 23 shall provide an experienced installer to review the air distribution system with the testing and balancing agency for completion to confirm the test openings and volume dampers indicated on the Drawings or called for in the specifications are installed, that dampers are in the open position, that the fans operate properly during all control modes, air filters are clean, and that the system is ready for balancing. Add test openings, volume dampers, air scoops, deflectrols, turning vanes, etc., as required. Adjust and change fan drives and belts, remove and reinstall ceilings, air terminals, access doors, and air devices as required to balance the system. Maintain the air handling equipment in good operating condition during the testing and balancing procedures.

3.02 SCHEDULE OF TOLERANCES

- A. Final air system measurements shall be within the following range of specified cfm:
 - 1. Supply grilles: 0% to +10%.

2. Exhaust grilles, registers: 0% to -10%.

3.03 GENERAL REQUIREMENTS

- A. Perform testing, balancing, and adjusting procedures in accordance with AABC or NEBB, unless specified below.
- B. Contact the mechanical contractor for assistance in operation and adjustment of controls during testing, adjusting, and balancing procedures. Cycle controls and verify proper operation and setpoints. Include in report description of temperature control operation for all control modes and any deficiencies found.
- C. Permanently mark equipment settings, including damper and valve positions, control settings, and similar devices allowing settings to be restored. Set and lock memory stops.
- D. Division 23 shall correct any installation deficiencies found by the test and balance agency that were specified and/or shown on the Contract Documents to be performed as part of that division of work, including sheave and pulley replacement or corrections to the controls system. Test and balance agency shall notify CONTRACTOR of these items and instructions will be issued to Division 23 for correction of the deficient work. Testing and balancing reports shall be submitted only after all deficiencies have been corrected and balancing completed upon the corrected system.

END OF SECTION

SECTION 23 31 00

DUCTWORK AND DUCTWORK SUPPORTS

PART 1—GENERAL

1.01 SUMMARY

- A. Work Included:
 - 1. Duct Pressure/System Class.
 - 2. Duct Materials.
 - 3. Fasteners, Hangers and Supports.
 - 4. Duct Sealants and Gaskets.
 - 5. Ductwork Fabrication.

1.02 REFERENCES

- A. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.03 SUBMITTALS

- A. Submit under provisions of Section 01 33 00—Submittals.
- B. Provide layout drawing for review prior to ductwork fabrication. Layout drawings shall be coordinated between all other trades prior to review.

1.04 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Section 01 77 00—Contract Closeout.
- B. Record actual locations and sizes of ducts and duct fittings. Record changes in fitting location sizes and types. Show additional fittings used.

1.05 QUALITY ASSURANCE

- A. Perform Work in accordance with SMACNA—HVAC Duct Construction Standards—Metal and Flexible.

1.06 REGULATORY REQUIREMENTS

- A. Construct ductwork to NFPA 90A standards.

1.07 ENVIRONMENTAL REQUIREMENTS

- A. Do not install duct sealants when temperatures are less than those recommended by sealant manufacturers.
- B. Maintain recommended minimum temperatures during and after installation of duct sealants.
- C. Ductwork shall be stored indoors or in durable, waterproof, abovegrade packing.

1.08 DUCTWORK DESIGN

- A. Duct layout and design shown on the Drawings are based on design of supply, return and exhaust system components. Any changes to the design for installation shall be submitted to and approved by OWNER and ENGINEER. Proposed changes shall be submitted with layout and pressure drop calculations. CONTRACTOR shall be responsible for the cost of any changes to the duct system or any system components.

1.09 DELIVERY, STORAGE AND HANDLING

- A. Store products inside and protect from weather.

PART 2-PRODUCTS

2.01 DUCT PRESSURE/SYSTEM CLASS (METAL DUCTWORK)

- A. Ductwork shall be constructed to the static pressure class as shown below, unless otherwise noted:
 - 1. Supply ductwork downstream of VAV boxes: 2-inch positive pressure class.
 - 2. Exhaust air ductwork: 2-inch negative pressure class.

2.02 DUCT MATERIALS

- A. All sheet metal used for construction of duct shall be 24 gauge, or heavier, except for round ductwork 12 inches and smaller shall be 26 gauge where allowed by SMACNA.
- B. Galvanized steel ducts shall be ASTM A653 galvanized steel sheet, lock-forming quality, having G90 zinc coating of 1.25 ounces per square foot in conformance with ASTM A90. Sheet metal for ductwork noted or specified to be painted shall include "Paint Grip" finish.

2.03 FASTENERS, HANGERS, AND SUPPORTS

- A. Ductwork shall be supported in accordance with SMACNA–HVAC Duct Construction Standards–Metal and Flexible. Secure wire method of support is not acceptable.
- B. Inserts and Fasteners:
 - 1. Concrete fasteners installed after pouring shall be epoxy-type.
 - 2. Fasteners for structural steel shall be beam clamps.
 - 3. Fasteners to ductwork shall be 316 stainless steel, unless otherwise indicated.
- C. Hangers:
 - 1. Strip hangers shall be only used in concealed areas and shall be galvanized steel.
 - 2. Hanger rod shall be ASTM A36 galvanized steel for galvanized ducts or 316 stainless steel for ducts other than galvanized, unless noted otherwise. Rods shall be continuously threaded.
- D. Supports:
 - 1. Duct support material shall be galvanized steel for galvanized duct. Material for supports in corrosive spaces shall be as noted below.

2. Provide all supporting steel required for the installation of ductwork and materials, whether or not it is specifically indicated or sized, including angles, channels, beams, etc. to suspend or floor support tanks and equipment.

2.04 DUCT SEALANTS AND GASKETS

- A. Duct sealant shall be United McGill–United Duct Sealer, or equal for indoor applications and United McGill–Uni-Weather Duct Sealer, or equal for outdoor applications. Sealant shall be UL classified for flame and smoke development and shall be suitable for mating materials.
- B. Gaskets at flanged joints shall be butyl rubber or EPDM.

2.05 DUCTWORK FABRICATION

- A. Rectangular Field and Shop Fabricated Ductwork:
 1. Fabricate and support in accordance with SMACNA–Duct Construction Standards–Metal and Flexible. Duct material, gauges, reinforcing, joint types and sealing shall be in accordance with required pressure class in the standard.
 2. Construct tees, bends, and elbows with radius of not less than 1 1/2 times width of duct on centerline.
 3. Increase duct sizes gradually, not exceeding 15 degree divergence wherever possible; maximum 30 degree divergence upstream of equipment and 45 degree convergence downstream.
 4. Provide 45 degree expanded entry takeoffs unless otherwise indicated. Flange ductwork for attachment to grille registers and outlets, unless otherwise noted.
 5. Provide reinforcement and rigidity required for pressure class.
 6. Provide cross breaking or cross beading on duct sides larger than 18 inches.
 7. Seal all joints airtight with gaskets and sealants.

PART 3–EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install and seal ducts in accordance with SMACNA HVAC Duct Construction Standards–Metal and Flexible.
- C. Duct sizes are inside clear dimensions.
- D. Provide openings in ductwork to accommodate testing equipment and controllers. Where openings are provided in insulated ductwork, install a metal insulation sleeve of same material as ductwork.
- E. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities. Make all necessary incidental changes in cross-section, offsets, etc., to avoid interference with other equipment and supports.
- F. Supports:
 1. Use double nuts and lock washers on threaded rod supports.
 2. Strip hangers are acceptable in concealed spaces only.

3. Inserts shall be coordinated with general contractor for installation in concrete.
 4. The weight of the ductwork shall be supported independently of connected equipment.
- G. Exposed ductwork shall be painted per Division 09–Finishes.
- H. Connect air diffusers, registers, and grilles to supply and return ducts directly. Where registers and grilles are to be mounted on exposed ductwork, provide flanged opening for finished appearance.
- I. During construction, provide temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system.
- J. Provide an experienced installer to go through the air distribution system with the balancer.
- K. Any modifications to the ductwork shown on the Drawings must be reviewed by ENGINEER prior to installation.
- L. Where ducts pass through non-fire rated partitions in interior or exterior walls, provide stainless steel flange on four sides on both sides of partition concealing opening. Flange shall overlap opening all around by 2 inches. Fill space with insulation if duct is insulated on either side of partition.
- M. Where ducts pass through fire rated partitions in interior or exterior walls, install fire damper sleeve in accordance with manufacturer's recommendations.

END OF SECTION

SECTION 23 37 13

REGISTERS

PART 1—GENERAL

1.01 SUMMARY

- A. Work Included: Registers.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

- A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.
- B. All material, installation, and workmanship shall comply with the applicable requirements and standards addressed within the following references.
 - 1. ADC 1062—Certification Rating and Test Manual.
 - 2. AMCA 500—Test Method for Louvers, Dampers, and Shutters.
 - 3. ARI 650—Air Outlets and Inlets.
 - 4. ASHRAE 70—Method of Testing for Rating the Air Flow Performance of Outlets and Inlets.
 - 5. NFPA 90A—Installation of Air Conditioning and Ventilating Systems.

1.03 QUALITY ASSURANCE

- A. All equipment or components of this specification section shall meet or exceed the requirements and quality of the items herein specified, or as denoted on the Drawings.
- B. Performance of air terminals shall be in accordance with ADC 1062.

1.04 SUBMITTALS

- A. Submit under provisions of Section 01 33 00—Submittals.
- B. Include data concerning dimensions, required clearances, capacities, materials of construction, ratings, weights, manufacturer's installation requirements, manufacturer's performance limitations, and appropriate identification.
- C. Submittal shall include a schedule that includes model, size, and finish type.
- D. For product requiring color selection, provide a hard copy color chart to OWNER for color selection.
- E. CONTRACTOR shall provide all required sizes and quantities as shown on Drawings.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to the site in such a manner as to protect the materials from shipping and handling damage. Provide materials on factory provided shipping skids and lifting lugs, if required for handling.
- B. Materials that could be damaged by the elements should be packaged in such a manner that they could withstand short-term exposure to the elements during transportation.
- C. Store materials in a clean, dry place and protect from weather and construction traffic. Handle carefully to avoid damage.
- D. Use all means necessary to protect equipment before, during, and after installation.
- E. All scratched, dented, and otherwise damaged units shall be repaired or replaced at no additional cost to OWNER.

PART 2-PRODUCTS

2.01 REGISTERS

- A. SR-1 and ER-1: Registers shall be Everbilt series 102M, or equal. Grille sizes shall be as shown on drawings and have 2-way deflection with smooth glide manual damper control. Register shall have steel construction and white powder coated finish.

PART 3-EXECUTION

3.01 INSTALLATION

- A. Install units level and plumb, maintaining manufacturer's recommended clearances and tolerances.
- B. Install in accordance with manufacturer's instructions and approved submittals.
- C. Provide all mounting hardware and accessories necessary for complete installation.
- D. Clean surface of diffusers, grilles, and registers after installation.
- E. Drawings and Specifications are based on the scheduled manufacturer and model number. CONTRACTOR shall be responsible for the cost of any changes because of substitutions or alternates of other manufacturers or model numbers including but not limited to, structural, mechanical, and electrical work. CONTRACTOR shall pay all costs for revisions of drawings by ENGINEER. Any changes shall be coordinated and provided at no additional cost to OWNER.

END OF SECTION

SECTION 23 82 39

UNIT HEATERS

PART 1—GENERAL

1.01 SUMMARY

- A. Work Included: Electric Unit Heaters.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

- A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.
- B. All material, installation, and workmanship shall comply with the applicable requirements and standards addressed within the following references.
 - 1. ARI 410—Forced Circulation Air-Cooling and Air-Heating Coils.
 - 2. NFPA 70—National Electrical Code.

1.03 QUALITY ASSURANCE

- A. All equipment or components of this specification section shall meet or exceed the requirements and quality of the items herein specified, or as denoted on the Drawings.
- B. Electrical components shall be UL listed for the service specified.
- C. Electrical components and work shall be in accordance with the National Electrical Code.
- D. Coil performance shall be certified in accordance with ARI 410.

1.04 SUBMITTALS

- A. Submit under provisions of Section 01 33 00—Submittals.
- B. Include data concerning dimensions, required clearances, capacities, materials of construction, ratings, weights, manufacturer's installation requirements, manufacturer's performance limitations, and appropriate identification. Include plans, elevations, sections, and details.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to the site in such a manner as to protect the materials from shipping and handling damage. Provide materials on factory provided shipping skids and lifting lugs, if required for handling.
- B. Materials that could be damaged by the elements should be packaged in such a manner that they could withstand short-term exposure to the elements during transportation.

- C. Store materials in a clean, dry place and protect from weather and construction traffic. Handle carefully to avoid damage.
- D. Use all means necessary to protect equipment before, during, and after installation.
- E. All scratched, dented, and otherwise damaged units shall be repaired or replaced at no additional cost to OWNER.

1.06 WARRANTY

- A. Standard One-Year Warranty: Unless otherwise stated below, manufacturer shall warrant the equipment to be free from defects in material and workmanship for a period of one year from the earlier of either the date established for partial utilization in accordance with GC15.03 and 15.04, as modified in the Supplementary Conditions, or Substantial Completion of the project.

PART 2-PRODUCTS

2.01 ELECTRIC UNIT HEATERS

- A. CONTRACTOR shall provide electric heaters of the type, size, capacity, and accessories as listed on the equipment schedule. All units shall be UL listed.
- B. All electric unit heaters shall be factory-assembled and tested.
- C. Electric Baseboard Heaters (EBH):
 - 1. Electric baseboard heaters shall be Cadet Model 3F750-1W, or equal.
 - 2. Heater case, cover, and deflector shall be constructed of 24-gauge steel with 20-gauge junction boxes containing a grounding screw.
 - 3. Provide built-in thermostat kit (Cadet model BTF1W, or equal). Thermostat kit shall be single pole and capable of 40°F to 85°F temperature range. Thermostat color shall match electric baseboard heater.
 - 4. Furnish and install baseboard heater of length and output as specified on drawing schedules.

PART 3-EXECUTION

3.01 INSTALLATION

- A. Install units level and plumb, maintaining manufacturer's recommended clearances and tolerances.
- B. Install in accordance with manufacturer's instructions and approved submittals. Test for proper operation and adjust until satisfactory results are obtained.
- C. Provide all mounting hardware and accessories necessary for complete installation.
- D. Installation of all equipment furnished under this Contract shall be supervised by a qualified representative of the equipment manufacturer. All equipment shall be placed in operation, and plant operators/building maintenance personnel shall be trained to the satisfaction of

OWNER by a qualified representative of the equipment manufacturer. OWNER may videotape training presentations given by manufacturer's representatives. Final payment for various items of equipment will not be made by OWNER until the equipment is operating to their satisfaction.

- E. Drawings and Specifications are based on the scheduled manufacturer and model number. CONTRACTOR shall be responsible for the cost of any changes because of substitutions or alternates of other manufacturers or model numbers including but not limited to, structural, mechanical, and electrical work. CONTRACTOR shall pay all costs for revisions of drawings by ENGINEER. Any changes shall be coordinated and provided at no additional cost to OWNER.

END OF SECTION

SECTION 26 05 00

GENERAL ELECTRICAL REQUIREMENTS

PART 1—GENERAL

1.01 SUMMARY

- A. Work includes general requirements for all electrical work.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern Work in this section.

1.02 REFERENCES

- A. ANSI/NFPA 70—National Electrical Code (NEC).
- B. ANSI/IEEE C2—National Electrical Safety Code.

1.03 CONTRACT DOCUMENTS

- A. Any equipment roughed in improperly and/or not positioned on implied centerlines or as dictated by good practice shall be repositioned at no cost to OWNER.
- B. The Drawings are generally diagrammatic, and CONTRACTOR shall coordinate the Work so that interferences are avoided. Provide all offsets in conduit, fittings, etc., necessary to properly install the work. All offsets, fittings, etc., shall be provided without additional expense to OWNER.

1.04 REGULATORY REQUIREMENTS

- A. Conform to ANSI/NFPA 70.
- B. Conform to ANSI/IEEE C2.
- C. The rules and regulations of the federal, state, local, and civil authorities and utility companies in force at the time of execution of the Contract shall become a part of this specification.
- D. Obtain electrical permits and inspections from authority having jurisdiction. Costs for permits and inspections shall be paid by CONTRACTOR.

1.05 CODES AND ORDINANCES

- A. CONTRACTOR is expected to know or to ascertain, in general and in detail, the requirements of all codes and ordinances applicable to the construction and operation of systems covered by this Contract. CONTRACTOR shall know or ascertain the rulings and interpretations of code requirements being made by all authorities having jurisdiction over the work to be performed by them.

- B. In preparing a Bid, CONTRACTOR shall include the cost of all items and procedures necessary to satisfy the requirements of all applicable codes, ordinances, and authorities, whether or not these are specifically covered by the Drawings and Specifications. All cases of apparent conflicts between the Drawings, Specifications, and codes shall be brought to ENGINEER's attention, as herein before specified. CONTRACTOR shall carry out work and complete construction as required by applicable codes and ordinances and in such a manner as to obtain approval of all authorities whose approval is required.
- C. When requested by ENGINEER, CONTRACTOR shall provide written calculations to show compliance with applicable codes or the Contract Documents. This shall include, but not be limited to, conduit and wire sizing, junction and pull box fill and sizing, manhole/handhole sizing, conductor derating, and voltage drop. CONTRACTOR shall indicate calculation method used as well as compliance with applicable code, drawing, or specification.

1.06 EQUIPMENT PROVIDED UNDER OTHER DIVISIONS

- A. Included in this Contract are electrical connections to equipment provided under other divisions. CONTRACTOR shall refer to final shop drawings for equipment being furnished under other divisions, for exact location of electrical equipment, and the various connections required.

1.07 ELECTRICAL DISTRIBUTION SYSTEM

- A. Provide a complete electrical distribution system consisting of components indicated on the Drawings or specified herein including, but not limited to:
 - 1. All control wiring.
 - 2. Access panels and access doors for access to equipment installed by Division 26.
 - 3. Wiring between system components if equipment is not prewired.
 - 4. Lighting fixtures, lighting controls, and associated wiring.
 - 5. Support system design and supports for electrical raceways.
 - 6. Code-required disconnects.
- B. CONTRACTOR shall connect all equipment furnished by other Divisions consisting of components indicated on the Drawings or specified herein.
- C. Provide balancing and adjusting of electrical loads.
- D. CONTRACTOR shall instruct OWNER's representative in the operation and maintenance of all equipment. The instruction shall include a complete operating cycle on all apparatus.
- E. Provide miscellaneous items for a complete and functioning system as indicated on the Drawings and specified herein.
- F. A partial list of work not included in Division 26 is as follows: Painting (except as otherwise specified herein).

1.08 NOISE

- A. Eliminate any abnormal noises that are not considered by ENGINEER to be an inherent part of the systems as designed. Abnormal buzzing in equipment components will not be acceptable.

1.09 DRAWINGS

- A. The Drawings indicate approximate locations of the various items of the electrical systems. These items are shown approximately to scale and attempt to show how these items should be integrated with building construction. Locate all the various items by on-the-job measurements in conformance with Contract Documents and cooperation with other trades.
- B. Prior to locating equipment, confer with ENGINEER as to desired location in the various areas. In no case should equipment locations be determined by scaling drawings. Relocate equipment and bear cost of redoing work or other trades' work necessitated by failure to comply with this requirement.
- C. In certain instances, receptacles, switches, light fixtures, or other electrical devices and equipment, etc., may be relocated. Where relocation is within 10 feet of location shown on the Drawings, and when CONTRACTOR is informed of necessary relocation before work is begun on this portion of the job, the relocation shall be at CONTRACTOR's expense.
- D. The Drawings are schematic in nature and are not intended to show exact locations of conduit, but rather to indicate distribution, circuitry, and control.

1.10 SUBMITTALS

- A. CONTRACTOR shall submit to ENGINEER for approval prior to beginning work, shop drawings on the equipment and materials proposed to be furnished and installed. See Section 01 33 00–Submittals for requirements.
- B. CONTRACTOR shall, in addition, submit drawings and/or diagrams for review and for job coordination in all cases where deviation from the Contract Drawings are contemplated because of job conditions, interference or substitution of equipment, or when requested by ENGINEER for purposes of clarification of CONTRACTOR's intent. CONTRACTOR shall also submit detailed drawings, rough-in sheets, etc., for all special or custom-built items or equipment.
- C. These drawings and diagrams shall show applicable electrical switch and breaker sizes as well as the manufacturer's name and catalog number for each piece of equipment used.
- D. Equipment and material submittals must show sufficient data to indicate complete compliance with Contract Documents as follows:
 - 1. Proper sizes and capacities.
 - 2. That the item will fit in the available space in the manner that will allow proper service.
 - 3. Construction materials and finishes.
- E. When the manufacturer's reference numbers are different from those specified, provide correct cross-reference number for each item. The shop drawings shall be clearly marked and noted accordingly.
- F. When equipment and items specified include accessories, parts, and additional items under one designation, shop drawings shall be complete and include all components.
- G. See additional requirements of shop drawings under Division 01–General Requirements.

PART 2-PRODUCTS

2.01 STANDARD PRODUCTS

- A. All equipment and products shall be of new manufacture per applicable specifications.
- B. All equipment shall be UL and NEMA approved.
- C. All equipment and wiring shall be selected and installed for conditions in which it will perform (e.g., general purpose, weatherproof, dustproof, or any other special type).

2.02 SUBSTITUTION OF MATERIALS AND EQUIPMENT

- A. While it is not the intention of OWNER to discriminate against any manufacturer of equipment which may be equivalent to specified equipment, a strict interpretation of such equivalency will be exercised in considering any equipment offered as a substitute for specified equipment. CONTRACTOR shall submit with each request for approval of substitute material or equipment sufficient data to show conclusively that it is equivalent to that specified in the following respects:
 - 1. Performance:
 - a. Capacity at conditions and operating speeds scheduled shall be equal to or greater than that of the specified equipment.
 - b. Energy consumption at the point of rating shall not exceed that of the specified equipment.
 - c. Vibration and noise production at the point of rating shall not exceed that of the specified equipment.
 - 2. Materials of construction.
 - 3. Gauges, weights, and sizes of all portions and component parts.
 - 4. Design arrangements, methods of construction, and workmanship.
 - 5. Coatings, finishes, and durability of wearing parts.
 - 6. National reputation of the manufacturer as a producer of first quality equipment of the type under consideration.
 - 7. Availability of prompt, reliable, and efficient service facilities franchised by or affiliated with the equipment manufacturer. This shall include the maintenance of local stocks of critical replacement parts equal to those maintained for the specified equipment.
- B. Requests for substitution shall include CONTRACTOR's reason for the request.
- C. If ENGINEER does not consider the items equivalent to those specified, CONTRACTOR shall provide those specified.
- D. See General Conditions for additional requirements.

2.03 LOW-VOLTAGE WIRING (LESS THAN 100 VOLTS)

- A. Low-voltage wiring specified in this section shall be applicable to all systems installed that utilize low-voltage wiring where such wiring is not specified in other technical sections.
- B. All wiring shall have copper conductors with 300-volt insulation rating and meet the requirements of NEC Article 725.

- C. All conductors must be suitable for the application intended. Conductors 16 AWG and larger shall be stranded. Conductors 18 AWG and smaller may be solid or stranded.
- D. Control Cable for Class 1 Remote Control and Signal Circuits: Individual conductors twisted together, shielded, and covered with an overall PVC jacket. Cable shall be UL listed, temperature rated, and plenum or nonplenum rated for the application as required in the National Electrical Code.
- E. Control Cable for Class 2 or Class 3 Remote Control and Signal Circuits shall be constructed, UL listed, temperature rated, and plenum or nonplenum rated for the application as required in the NEC Article 725.

PART 3-EXECUTION

3.01 CONTINUITY OF SERVICE

- A. CONTRACTOR shall provide and maintain continuous services (power, controls, alarms, etc.) during the entire construction period.
- B. No service shall be interrupted or changed without permission from OWNER. Written permission shall be obtained before any work is started.
- C. When interruption of service is required, all persons concerned shall be notified and a prearranged time agreed upon. Notice shall be a minimum of 72 hours prior to the interruption.

3.02 CLEANUP AND REMOVAL OF RUBBISH

- A. All lighting and appliance panelboards, disconnect switch enclosures, junction boxes, and pullboxes shall be cleaned of debris and wires neatly arranged with surplus length cut off before installation of covers.
- B. All lighting fixture lenses shall be cleaned at the time of installation, and all lens exteriors shall be cleaned just prior to final inspection.
- C. Equipment shall be thoroughly cleaned of all stains, paint spots, dirt, and dust. All temporary labels not used for instruction or operation shall be removed.

3.03 PAINTING

- A. All painting of electrical equipment shall be done by CONTRACTOR unless equipment is specified to be furnished with factory-applied finish coats.
- B. All electrical equipment shall be provided with factory-applied prime finish, unless otherwise specified.
- C. If the factory finish on any equipment furnished by CONTRACTOR is damaged in shipment or during construction, the equipment shall be refinished by CONTRACTOR.
- D. One can of touch-up paint shall be provided for each different color factory finish which is to be the final finished surface of the product.

3.04 CAULKING

- A. Caulk with a caulking sealant where indicated on the electrical drawings or hereinafter specified.
- B. Caulking sealant shall be silicone construction sealant as manufactured by General Electric or two-part polysulfide conforming to the requirements and bearing the seal of the Thiokol Chemical Corporation.
- C. Caulking sealant shall contain no acid or ingredients that will stain stone, corrode metal, or have injurious effect on painting. It shall be colored to match adjacent surroundings.

3.05 BUILDING ACCESS

- A. CONTRACTOR shall arrange for the necessary openings in the building to allow for admittance of all apparatus.
- B. When the installation requires openings and access through existing construction and the openings are not provided, CONTRACTOR shall provide the necessary openings.

3.06 COORDINATION

- A. Provide wiring for all motors and all electrically powered or electrically controlled equipment.
- B. All wire, conduit, and other devices for the power and control of motors or electrical equipment shall be provided by CONTRACTOR except as specifically noted elsewhere in these specifications or on the Drawings.
- C. CONTRACTOR shall provide all power and control wiring, including temperature control wiring for operation, control, and supervision of all motorized equipment, including wiring between control devices as specified herein and as shown on the Drawings. CONTRACTOR shall provide raceways for all wiring.
- D. CONTRACTOR shall connect and wire all apparatus according to approved wiring diagrams furnished by the various trades.

3.07 EQUIPMENT ACCESS AND LOCATION

- A. CONTRACTOR shall coordinate work of this division with that of other divisions so that all systems, equipment, and other components of the building will be installed at the proper time, will fit the available space, and will allow proper service access to those items requiring maintenance. This means adequate access to all equipment not just that installed under this division. Any components for the electrical systems that are installed without regard to the above shall be removed and relocated as required to provide adequate access at CONTRACTOR's expense.
- B. Where various items of equipment and materials are specified and scheduled, the purpose is to define the general type and quality level, not to set forth the exact trim to fit the various types of ceiling, wall, or floor finishes. Provide materials that will fit properly the types of finishes actually installed.

- C. All equipment, junction and pull boxes, and accessories shall be installed to permit access to equipment for maintenance. Any relocation of conduits, equipment, or accessories to provide maintenance access shall be accomplished by CONTRACTOR at no additional cost.
- D. Electrical equipment, devices, instruments, hardware, etc., shall be installed with ample space allowed for removal, repair, calibration or changes to the equipment. Ready accessibility to equipment and wiring shall be provided without moving other equipment that is to be installed or that is already in place.
- E. Locate electrical outlets and equipment to fit the details, panels, decorating, or finish of the space. ENGINEER shall reserve the right to make minor position changes of the outlets before the work has been installed. Verify door swings before installing room lighting switch boxes and install boxes on the latch side of door unless noted otherwise.

3.08 WORKMANSHIP

- A. All work shall be performed in compliance with the NEC.
- B. Install work using procedures defined in NECA Standard of Installation.
- C. Unless otherwise noted, conduit shall be fastened to building structure or equipment framework and not placed on the floor.
- D. Where materials, equipment apparatus, or other products are specified by manufacturer, brand name, and type or catalog number, such designation is to establish standards of desired quality and style and shall be the basis of the Bid.
- E. Materials and equipment of the types for which there are National Board of Fire Underwriters Laboratories (UL) listings shall be so labeled and shall be used by CONTRACTOR.

3.09 MODIFICATIONS TO EXISTING CONSTRUCTION

- A. Alterations:
 - 1. Alter, extend, and reconnect conduits as necessary.
 - 2. Reconnect existing conduits that were reused, cut, or exposed because of construction as quickly as possible.
 - 3. Where wiring is involved, new wires shall be "pulled in" between the nearest available accessible reused outlets to the extent allowed by the governing code.
 - 4. Provide new conduits for wires if they cannot be "pulled in" to existing conduits.
 - 5. All new conduits, wiring, and electrical items shall be connected to the existing systems so as to function as a complete unit.
 - 6. Where existing electrical equipment, devices, fixtures, electrically operated items, etc., interfere with any remodeling work, they shall be removed and reinstalled in another location to avoid such interferences. All existing and relocated equipment shall be left in good operating condition.
- B. CONTRACTOR shall remove all electrical equipment, conduit, and wiring associated with the structures, equipment, and control systems specified herein and/or shown on the Drawings to be removed.
- C. Include in Bid removal of existing electrical material and equipment as specified hereinafter, as noted on the Drawings, or as needed by field conditions.

- D. Provide stainless steel cover plates for all existing recessed outlet and junction boxes not being reused. Seal or cap all existing conduit penetrations not being reused.

END OF SECTION

SECTION 26 05 19

WIRE

PART 1—GENERAL

1.01 SUMMARY

- A. Work Included:
 - 1. Wire.
 - 2. Wiring connections and terminations.
 - 3. Terminal blocks and accessories.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 QUALITY ASSURANCE

- A. Manufacturers of Wire: Firms regularly engaged in the manufacture of electrical wire products of the types and ratings needed whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Installer: A firm with at least 5 years of successful installation experience on projects with electrical wiring installation work similar to that in this project.
- C. Code Compliance: Comply with National Electrical Code (NFPA 70) and any and all local codes as applicable to construction and installation of electrical wiring devices, material, and equipment herein specified.
- D. UL Labels: Provide electrical material, which has been listed and labeled by Underwriters Laboratories.
- E. NECA Standard: Comply with applicable portions of National Electrical Contractor's Association's "Standard of Installation."

1.03 SUBMITTALS

- A. Submit shop drawings and product data under the provisions of Section 01 33 00—Submittals.
- B. Submit shop drawings for wiring system including layout of distribution devices, branch circuit conduit and cables, circuiting arrangement, and outlet devices.
- C. Submit manufacturer's instructions.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Provide factory-wrapped, waterproof, flexible-barrier material for covering wire on wood reels, where applicable, and weather-resistant fiberboard containers for factory-packaging of wire, connectors, outlets, boxes, lamps, fuses, etc., to protect against physical damage in transit. Do not install damaged wire or other material; remove from project site.

- B. Store wire and other material in factory-installed coverings in a clean, dry, indoor space which provides protection against the weather.

PART 2—PRODUCTS

2.01 WIRE

- A. All wire for permanent installation shall be new stranded copper delivered to project in unopened cartons or reels, except where specifically noted and be UL listed for the use intended. No wire smaller than 12 AWG shall be used unless specifically noted. The use of multiconductor cable is not allowed.
- B. Motor circuit branch wiring and associated control wiring:
 - 1. Insulation type shall be THHN (indoors, nonVFD application).
 - 2. Minimum size for motor control wiring shall be 14 AWG.
 - 3. Control wiring for supervisory equipment shall be shielded, sized per equipment manufacturer's recommendations.
- C. Wiring in dry locations shall be THHN. Wiring in damp and wet locations shall be XHHW-2.
- D. Refer to Section 26 05 53—Electrical Identification for required wire insulation color coding and conductor labeling requirements. Initial phase color shall be used throughout the run, even for switch legs. Colors must meet code requirements for each class voltage. Do not duplicate colors, including neutral, on different voltages.
- E. Branch circuit wiring for exit lights and emergency lights in excess of 75 feet shall be minimum 10 AWG. Circuits 150 feet or over shall be sized for a maximum 2% voltage drop.

2.02 WIRING CONNECTIONS AND TERMINATIONS

- A. Provide crimp type UL or ETL listed terminations for 6 AWG and smaller stranded conductor connections to electrical devices and equipment such as receptacles, switches, and terminal strips. Crimp devices shall be Sta-kon, or equal.
- B. Provide insulated, silicone-filled spring wire connectors with plastic caps for 8 AWG conductors and smaller. Connectors shall be King Silicone-Filled Safety Connectors, or equal. Spring wire connectors shall only be allowed in junction, outlet, or switch boxes. Spring wire connectors are not allowed for terminating motor conductors.
- C. No splices will be allowed unless reviewed by ENGINEER. Where allowed, provide in-line splices for all conductor connections, 6 AWG and larger. Splice crimp component shall be Burndy UGSKIT2 or equal. Splice shall be made with crimp tool by manufacturer that allows expanded conductor ranges. Splice insulation component shall be Raychem heavy-wall, low-voltage tubing, type WCSM, or equal.

PART 3-EXECUTION

3.01 GENERAL WIRING METHODS

- A. Install electrical wire and connectors in accordance with the manufacturer's written instructions, applicable requirements of the NEC, the National Electrical Contractors Association's "Standard of Installation," and in accordance with recognized industry practices so that products serve the intended functions. Use appropriate wiring methods and materials for the equipment or environment.
- B. Stranded conductors shall be terminated using crimp-type devices specified herein. Conductors may not be wrapped around a terminal screw.
- C. Place an equal number of conductors for each phase of a circuit in the same raceway.
- D. Torque conductor connections and terminations with calibrated torque wrench to manufacturer's recommended values.
- E. Splice only in junction or outlet boxes. Splicing is not allowed in disconnects, panelboards, control panels, equipment, etc. Avoid splices between terminals of interconnecting power and control wiring.
- F. Spring wire connectors shall only be used in junction, outlet, or switch boxes. Equipment wireways (e.g., panelboards, disconnects, etc.), and control panels shall not have any spring-wire connectors installed; all terminations shall be on terminal strips.
- G. Neatly train, lace, and tie wrap all wiring inside boxes, equipment, and panelboards.
- H. Make conductor lengths for parallel circuits equal.
- I. The same color shall be used for each numbered wire throughout its entire length.
- J. Provide a dedicated neutral for each branch circuit or feeder requiring a neutral. Ampacity of neutral conductor shall match that of the branch circuit or feeder.
- K. Do not use a pulling means that can damage the raceway.
- L. Signal wiring (below 100 volts) must be in a conduit separate from power and/or control wiring (over 100 volts). Signal wire shall include, but not be limited to, data communications, and communication wiring (i.e., Ethernet, etc.). Analog wiring shall be in a conduit separate from all other wiring.
- M. Provide junction or pull boxes to facilitate the "pulling in" of wires or to make necessary connections. All raceways and apparatus shall be thoroughly blown out and cleaned of foreign matter prior to pulling in wires.
- N. Thoroughly clean wires before installing lugs and connectors.
- O. Make splices, taps, and terminations to carry full capacity of conductors without perceptible temperature rise.

- P. Terminate spare conductors within panels on terminal strips and label as "SPARE." Spare wiring in pull or junction boxes may be terminated with electrical tape and labeled as "SPARE." All spare conductor labels shall indicate where the conductors terminate. Refer to Section 26 05 53—Electrical Identification, for additional requirements.

3.02 GENERAL LOW-VOLTAGE WIRING METHODS (LESS THAN 100 VOLTS)

- A. Low-voltage wiring installation requirements specified herein shall be applicable to all systems installed that utilize low-voltage wiring where such wiring installation is not specified in other technical sections.
- B. Low-voltage wiring shall be installed in conduit.
- C. Low-voltage cable splices shall only be allowed in junction boxes.

3.03 LOW-VOLTAGE CABLE FREE-AIR CABLE INSTALLATION

- A. Free-air cabling may be installed above suspended ceilings and cabling shall be installed parallel and perpendicular to the structure. Raceways shall be provided in wall cavities and chases with nylon bushings at each conduit end.
- B. Cabling shall be supported at a maximum of 5-foot intervals utilizing J-hook-type supports anchored to ceiling concrete, piping supports, or structural steel beams. Maximum fill for supports shall be 50%. Cable sag at midspan shall not exceed 12 inches. Mounting hooks shall be installed to maintain NEC-required minimum cable bending radii.
- C. Cabling shall not be attached to, or supported by, existing cabling, plumbing or steam piping, ductwork, suspended ceiling supports or electrical conduit. Cabling shall not be laid directly on the ceiling grid or woven through building structural members.
- D. To reduce or eliminate Electro-Magnetic Interference (EMI), the following minimum separation distances for 'Free-Air' cabling installations shall be adhered to 18 inches from lighting fixtures.
- E. A coil of 2 feet in each cable shall be placed in the ceiling at each 'free-air' wired device. These coils shall be secured (wire tied) at the last cable support before the cable reaches the device and shall be coiled from 100% to 200% of the cable recommended minimum bend radius.
- F. Splices for low-voltage devices, including devices installed through suspended ceiling tiles, or free-air cabling installed in suspended ceilings shall be made in junction boxes. Junction boxes shall be supported as specified in Section 26 05 35—Boxes.
- G. All cable shall be free of tension at both ends. Nylon strain relief connectors shall be provided at each device and junction box where cables enter.
- H. Care shall be taken when using cable ties so that they are not overtightened compressing the cable jacket.
- I. All exposed vertical cable extensions to devices located below the finished ceiling shall be in conduit.

3.04 WIRING INSTALLATION IN RACEWAYS

- A. Pull all conductors into a raceway at the same time. Use UL-listed wire-pulling lubricant for pulling 4 AWG and larger wires. Wax-based pulling lubricant is not allowed unless it includes a Teflon additive.
- B. Install wire in raceway after interior of building is enclosed, watertight, and dry, and all mechanical work likely to injure conductors has been completed.
- C. Completely and thoroughly swab raceway system before installing conductors.
- D. Conductors No. 6 AWG and larger shall be pulled into conduits by hand or by utilizing a tugger with built-in tension meter. Other motorized machines of any type are not allowed for any wire pulling. CONTRACTOR shall provide a report to ENGINEER for each pull indicating maximum tension reached during the pull along with manufacturer's maximum pulling tension.
- E. Conductors shall be installed in conduit system in such a manner that insulation is not damaged, conductors are not overstressed in pulling, and walls are not damaged. No splices are permitted except in junction boxes or outlet boxes.
- F. CONTRACTOR shall observe code limitation on the number and size of wires in an outlet box. CONTRACTOR shall either lay out work so that the wires do not exceed the particular box limitation or provide larger boxes approved for additional capacity.
- G. Circuiting is indicated diagrammatically on the Drawings.

3.05 FIELD QUALITY CONTROL

- A. Inspect wire for physical damage and proper connection.
- B. Prior to energizing, check conduit, raceways, outlet boxes, and wire for continuity of circuitry and for short circuits. Correct malfunction when detected.
- C. Subsequent to wire hookups, energize circuitry and demonstrate functionality in accordance with these specifications.
- D. Perform continuity test on all power and equipment branch circuit conductors. Verify proper phasing connections.
- E. Perform field inspection and testing according to provisions of this section.

3.06 ACCEPTANCE TESTS

- A. CONTRACTOR shall furnish all materials, labor, and equipment necessary for the acceptance tests specified herein. Acceptance tests shall be performed in the presence of OWNER or OWNER's representative and must be passed before final acceptance of the work.
- B. CONTRACTOR shall be responsible for powered tests of each field-installed device unless specifically noted otherwise. CONTRACTOR shall be responsible for device operation as powered from its power source and signals as received at the I/O modules.

- C. Operation Test: By operational testing, OWNER will give final acceptance of the wiring system when all of the wiring is considered a complete system. All equipment shall function and operate in the proper manner as indicated in the details of the specifications and on the Drawings. All motors shall be properly connected to protective devices, and motor rotation shall be in the correct direction.
- D. At the request of OWNER's representative, demonstrate by test the compliance of the installation with these specifications and Drawings, the National Electrical Code, and the accepted standards of good workmanship. These tests shall include operation of equipment, continuity of the conduit system, grounding resistance and insulation resistance.
- E. A written record of performance tests on electrical and control and instrumentation systems and equipment shall be supplied to OWNER. Such tests shall show compliance with governing codes.

3.07 WIRE INSTALLATION SCHEDULE

- A. Install all wiring in raceways except as otherwise noted. This includes all low-voltage wiring such as temperature control, instruments, phone, network, etc.

END OF SECTION

SECTION 26 05 26
SECONDARY GROUNDING

PART 1–GENERAL

1.01 SUMMARY

- A. Work Included: Electrical equipment and raceway grounding and bonding.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 SUBMITTALS

- A. Indicate location of system grounding electrode connections and routing of grounding electrode conductor.
- B. Submit shop drawings and product data in accordance with provisions of Section 01 33 00–Submittals.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3–EXECUTION

3.01 INSTALLATION

- A. Provide a separate insulated equipment grounding conductor for each feeder and branch circuit. Terminate each end on a grounding lug, bus, or bushing.
- B. Ground and equipment as required by code and local ordinances.
- C. Include ground for grounded receptacles, light fixtures, motors, and equipment items shown on the Drawings.
- D. Flexible connections do not qualify for ground. All flexible connections must have separate green ground wire from motor base, lighting fixture, or equipment frame to conduit system.
- E. Provide a separate grounding conductor system for the grounding of all lighting fixtures and devices installed in the same conduit as the branch circuit conductors. Ground conductors shall be individually connected at each fixture or device.

3.02 TESTING

- A. Inspect grounding and bonding system conductors and connections for tightness and proper installation.

END OF SECTION

SECTION 26 05 29
SUPPORTING DEVICES

PART 1–GENERAL

1.01 SUMMARY

- A. Work Included:
 - 1. Conduit and equipment support members.
 - 2. Fastening hardware.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 QUALITY ASSURANCE

- A. Support systems shall be adequate for weight of equipment and conduit, including wiring, which they carry.

1.03 SUBMITTALS

- A. Submit shop drawings and product data in accordance with provisions of Section 01 33 00–Submittals.

PART 2–PRODUCTS

2.01 MATERIAL

- A. Support Members:
 - 1. 316 stainless steel in damp and wet locations.
 - 2. Hot-dipped galvanized steel in all other areas.
- B. Hardware:
 - 1. Stainless steel in damp and wet locations.
 - 2. PVC-coated steel clamps and stainless steel hardware with stainless steel members where used to support PVC-coated rigid steel conduits.
 - 3. Hot-dipped galvanized steel in all other areas.
- C. Manufacturers: Unistrut P-1000, B-line, Superstrut, or equal.

PART 3–EXECUTION

3.01 INSTALLATION

- A. All supporting devices and support structures shall be constructed such that the structure adequately supports the load of the equipment installed on it including any wind and/or snow loads. Provide additional support members to those shown on the Drawings to adequately support load.

- B. Fasten hanger rods, conduit clamps, and outlet and junction boxes to building structure using expansion anchors or support members. Do not use spring steel clips and clamps. Provide standoffs or suspended ceiling grid bridge supports as specified in other technical sections.
- C. Use toggle bolts or hollow wall fasteners in hollow masonry or gypsum board partitions and walls; expansion anchors or preset inserts in solid masonry walls; self-drilling anchors or expansion anchors on concrete surfaces; and wood screws in wood construction.
- D. The ends of all support members shall be ground smooth.
- E. Do not fasten supports to piping, ductwork, mechanical equipment, or conduit.
- F. Do not use powder-actuated anchors.
- G. Do not drill structural steel members.
- H. Fabricate supports with welded end caps and all welds and surfaces ground smooth for neat appearance. Use hexagon head bolts with steel spring-lock washers under all nuts.
- I. Install surface-mounted cabinets and panelboards with a minimum of four anchors.
- J. Do not use chain, wire rope, or perforated strap hangers.
- K. All welds shall be continuous and ground smooth.

END OF SECTION

SECTION 26 05 33

CONDUIT

PART 1—GENERAL

1.01 SUMMARY

- A. Work Included:
 - 1. Rigid metal conduit and fittings.
 - 2. Rigid aluminum conduit and fittings.
 - 3. PVC externally and internally coated galvanized rigid metal conduit and fittings.
 - 4. Intermediate metal conduit and fittings.
 - 5. Electrical metallic tubing.
 - 6. Flexible metal conduit and fittings.
 - 7. Liquidtight flexible metal conduit and fittings.
 - 8. Conduit seals and special fittings.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

- A. ANSI C80.1—Electrical Rigid Steel Conduit (ERSC).
- B. ANSI C80.3—Steel Electrical Metallic Tubing (EMT).
- C. ANSI C80.5—Electrical Rigid Aluminum Conduit (ERAC).
- D. ANSI C80.6—Electrical Intermediate Metal Conduit (EIMC).
- E. ANSI/NEMA FB 1—Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable.
- F. NEMA RN 1—Polyvinyl-Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal.

1.03 QUALITY ASSURANCE

- A. Manufacturers of Raceways: Firms regularly engaged in the manufacture of electrical raceways of the types and capacities required whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Installer: A firm with at least 5 years of successful installation experience on projects with electrical wiring installation work similar to that for the project.
- C. Code Compliance: Comply with National Electrical Code (NFPA 70) and any and all local codes as applicable to construction and installation of electrical wiring devices, material, and equipment herein specified.

- D. UL Labels: Provide electrical materials, which have been listed and labeled by Underwriters Laboratories.
- E. Prior to shipment to the site, all conduit provided shall be new, unused material, and shall not have been stored outdoors or exposed to weather.
- F. NECA Standard: Comply with applicable portions of National Electrical Contractor's Association's "Standard of Installation."

1.04 SUBMITTALS

- A. Submit shop drawings and product data in accordance with provisions of Section 01 33 00–Submittals.

1.05 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Provide color-coded thread protectors on the exposed threads of threaded rigid metal conduit.
- B. Handle conduit carefully to prevent end damage and to avoid scoring the finish.
- C. Store conduit inside and protect from weather. When necessary to store outdoors, elevate well above grade and enclose with durable, waterproof wrapping.

PART 2–PRODUCTS

2.01 RIGID METAL CONDUIT AND FITTINGS

- A. PVC-coated conduit and fittings shall be internally and externally hot dipped galvanized rigid metal conduit with hot dipped galvanized threads and PVC coating. PVC coating shall be UL listed with rigid metal conduit as the primary means of corrosion protection for the conduit, and PVC coating shall have an external 40 mil thickness with an internal 2 mil urethane coating. Acceptable manufacturers shall be Plasti-bond RedH₂OT by Robroy Industries, Ocal-Blue by ABB (Thomas & Betts), Calbond, or equal. All installers shall be field-certified from the factory for installation and shall provide proof of certification. PVC-coated conduit and fittings shall meet the following listings and manufacturing standards, without exception:
 - 1. ANSI C80.1.
 - 2. UL6.
 - 3. NEMA RN1.
- B. Conduit bodies for PVC-coated rigid conduit shall be as manufactured by Plasti-bond RedH₂OT by Robroy Industries, Ocal-Blue by ABB (Thomas & Betts), Calbond, or equal, and have a 40 mil PVC exterior coating and 2 mil red urethane interior coating. Conduit bodies shall be Form 8 style or pulling elbow and include domed, gasketed covers and stainless steel screws. Covers for conduit bodies must have bolts that thread into the conduit body. Snaptight and wedgenut covers are not allowed. CONTRACTOR shall select body style and size according to application.
- C. Fittings and Conduit Bodies: ANSI/NEMA FB 1 and UL 514B; threaded-type material to match conduit.

- D. Supports: PVC-coated rigid galvanized steel, one-hole straps with conduit clamps and backspacers shall be used for surface-mounted conduit. Where standoffs are required, provide conduit clamps and supporting devices as specified in Section 26 05 29—Supporting Devices.

2.02 INTERMEDIATE METAL CONDUIT (IMC) AND FITTINGS

- A. Conduit: ANSI C80.6 and UL797. Intermediate grade metallic tubing, seamless, with hot-dipped galvanized coating.
- B. Fittings and Conduit Bodies: Use fittings and conduit bodies specified above for rigid steel conduit.
- C. Supports: One-hole or two-hole pipe straps shall be used for surface-mounted conduit. Where one-hole straps are used, provide conduit clamp and back spacer. Where standoffs are required, provide pipe straps and supporting devices as specified in Section 26 05 29—Supporting Devices.

2.03 ELECTRICAL METALLIC TUBING (EMT) AND FITTINGS

- A. Conduit: ANSI C80.3 and UL797. Thin wall seamless tubing with hot-dipped galvanized coating. Maximum size 2 inches.
- B. Fittings: Compression-type only.
- C. Supports: Mineralac with nut and clamping bolt; one hole straps.

2.04 FLEXIBLE METAL CONDUIT AND FITTINGS

- A. Conduit: Electrogalvanized single-strip steel.
- B. Fittings: ANSI/NEMA FB 1 and UL 514B.

2.05 CONDUIT SEALS AND SPECIAL FITTINGS

- A. Conduit Seals: Duct sealing compound, OZ Gedney Type DUX, or equal.
- B. Expansion Fittings: Robroy Type XJG for PVC-coated rigid conduit. Carlon E945 Series, or equal for PVC conduit.
- C. Ground Bushings: Crouse Hinds Model GLL, or equal.
- D. Conduit Plugs: Kwik N Sure pipe plug as manufactured by Cherne Industries, or equal. Plug shall include natural rubber O-ring with galvanized wing nut and hex nut.

PART 3-EXECUTION

3.01 CONDUIT SIZING, ARRANGEMENT, AND SUPPORT

- A. Size conduits for branch circuit conductors and control wires so as to have not less than 25% spare capacity after installation, 3/4 inch minimum size. Minimum size for flexible metal conduit is 1/2 inch except 3/8 inch for lighting fixtures.
- B. Maintain at least 1 inch of separation between conduit sizes to 1 1/2 inches and 2 inches between conduits 1 1/2 inches or larger. Maintain 1 foot of separation between signal conduits (below 100 volts).
- C. All conduit shall be supported in accordance with the NEC and as specified herein. This shall apply to all conduit types, including flexible conduit.
- D. Provide for the proper application, installation, and location of inserts, supports, and anchor bolts for a satisfactory raceway system. Where any component of the raceway system is damaged, replace or provide new raceway system.
- E. Run conduits concealed to avoid adverse conditions such as heat and moisture, to permit drainage, and to avoid all materials and equipment of other trades. Maintain a minimum clearance of 6 inches from all hot water pipes, flues, or any high-temperature piping or ductwork.
- F. Conduits shall be attached to building surfaces and not suspended unless installed in a Unistrut-type conduit rack as specified herein. Individual conduits shall not be suspended. Clevis hangers are not allowed.
- G. Independently support or attach the raceway system to structural parts of construction in accordance with good industry practice.
- H. Conduit attached to building surfaces that may be damp or wet shall be spaced out to avoid rust and/or corrosion using fittings approved for the use. Use back straps on all conduit in damp and wet locations, or mount conduit with Unistrut straps, or equal.
- I. Conduits shall be securely fastened to building structure at intervals not exceeding 8 feet or closer, if necessary. Where hangers are necessary, 3/8-inch rod/eyelets/rings/or trapeze type in Unistrut channel and pipe clamps shall be used. Wire or perforated strap iron is not acceptable.
- J. Vertical conduit runs 1 1/4 inches and larger passing through floors shall be supported at each floor with conduit riser grips.

3.02 GENERAL CONDUIT INSTALLATION REQUIREMENTS

- A. Interior conduit shall be run concealed in walls, building cavities, and chases. Exposed conduit runs shall be avoided. Surface-mounted raceway shall be provided. Conduit may be run exposed only where it is impossible to conceal.
- B. Conduit may be run exposed in basements. Run exposed conduit grouped and parallel or perpendicular to construction. Do not route exposed conduits over boilers or other

high-temperature machinery nor in contact with such equipment. All conduit shall be run exposed in structures below grade.

- C. Ream conduit smooth at ends, cap upon installation, rigidly attach to structural parts of the building, and securely fasten to all outlet boxes, panel cabinets, junction boxes, pull boxes, splicing chambers, and all other components of the raceway system.
- D. All runs of flexible conduit and flexible conduit couplings to equipment and devices shall be as short as practicable, of the same size as the conduit it extends, and with enough slack to reduce the effects of vibration to a minimum. A minimum of 18 inches of flexible conduit shall be installed for each motor.
- E. Provide conduit expansion-deflection fittings as specified herein in all conduit runs where movement perpendicular to axis of conduit may be encountered.
- F. The PVC-coated rigid conduit manufacturer's touch-up compound shall be used on all conduit interior and exterior bare steel exposed because of nicks, cuts, abrasions, thread cutting, and reaming; minimum six coats.

3.03 CONDUIT PENETRATIONS AND TERMINATIONS

- A. Where fittings are brought into an enclosure with a knockout, a gasket assembly consisting of an O-ring and retainer shall be installed on the outside. Fittings shall be insulated throat type.
- B. Provide conduit expansion fittings as specified herein in all conduit runs that cross a structural expansion joint.
- C. Conduits passing through masonry, concrete, or similar construction shall be cast in place using PVC-coated rigid conduit extending completely through the construction.
- D. Where above-grade conduits pass through cores in existing structures or through masonry walls, grout openings between conduit and walls or floors with sand cement mortar.

3.04 CONDUIT INSTALLATION FOR EMERGENCY LIGHTING CIRCUITS

- A. All emergency egress lighting circuits shall be installed in dedicated conduits.
- B. Conduits for emergency egress lighting circuits shall be installed and permanently marked in accordance with the NEC.

3.05 CONDUIT INSTALLATION SCHEDULE

- A. The following schedule lists specific conduit types allowed in designated areas. Those areas not listed under a specific conduit type shall not have that type of conduit installed:
 - 1. IMC:
 - a. All concealed interior locations.
 - b. Interior locations requiring mechanical protection.
 - c. All exposed interior locations.
 - 2. EMT:
 - a. Interior partitions in new Bunk Rooms.
 - b. Above suspended ceilings.

3. PVC-coated rigid steel: Conduits protruding from concrete.
4. Flexible metal conduit not over 4 feet in length except 6-foot maximum length for fixture wiring for final connections for:
 - a. Equipment in dry locations arranged for flexible positioning or equipped with sliding bases.
 - b. Equipment in dry locations with vibrations isolation mounting.
 - c. Lighting fixtures installed in drywall ceilings.

END OF SECTION

SECTION 26 05 34

SURFACE RACEWAY

PART 1–GENERAL

1.01 SUMMARY

- A. Work included: Furnish and install surface raceways, including surface metal raceway, auxiliary gutters (wireways) and wall duct.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 QUALITY ASSURANCE

- A. Surface raceway sections and fittings shall be UL labeled.

1.03 SUBMITTALS

- A. Submit shop drawings and product data in accordance with provisions of Section 01 33 00–Submittals.

PART 2–PRODUCTS

2.01 SURFACE METAL RACEWAY

- A. Description: Sheet metal channel with fitted cover, suitable for use as surface metal raceway; 4000 Series manufactured by Legrand Wiremold, or equal.
- B. Size: 4 3/4 inches by 1 3/4 inches.
- C. Faceplate and Activation Fittings: Legrand Wiremold 4047 faceplates, corresponding components and “Open Connectivity Solutions Modules” shall be installed for all 4000 Series locations. Adapter CM-ARA with Insert CM2-U2ATT shall be used for all voice and data jack locations.
- D. Finish: Ivory, or to match existing, as approved by OWNER.
- E. Fittings: Couplings, elbows, ceiling trim rings and connectors designed for use with raceway system.
- F. Boxes and Extension Rings: Designed for use with raceway systems.
- G. Description: Sheet metal channel with fitted cover, suitable for use as surface raceway, manufactured by Wiremold Series V700 is acceptable at locations with two or less data, or power drops. Provide deep box and Lucent M14L faceplates for voice and data locations.

PART 3–EXECUTION

3.01 INSTALLATION–SURFACE METAL RACEWAY

- A. Use flathead screws to fasten channel to surfaces every 24 inches. In addition, mount plumb and level per the manufacturer's recommendations.
- B. Unless otherwise stated, all devices shall be approximately 24-inches above the finished floor.
- C. Use suitable insulating bushings and inserts at connections to outlets and corner fittings.
- D. Install trim rings at the ceiling when the raceway passes through the ceiling.
- E. Maintain grounding continuity between raceway components to provide a continuous grounding path per the manufacturer's installation requirements.
- F. Fastener Option: Use clips and straps suitable for the purpose. Use two hole straps for 700 size wiremold.

END OF SECTION

SECTION 26 05 35

BOXES

PART 1—GENERAL

1.01 SUMMARY

- A. Work Included:
 - 1. Switch, outlet, and small junction boxes.
 - 2. Pull and junction boxes.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern Work in this section.

1.02 REFERENCES

- A. ANSI/NEMA OS 1—Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports.
- B. ANSI/NEMA OS 2—Nonmetallic Outlet Boxes, Device Boxes, Covers, and Box Supports.
- C. NEMA 250—Enclosures for Electrical Equipment (1000 Volts Maximum).

1.03 QUALITY ASSURANCE

- A. Manufacturers of switches, outlets, boxes, lamps, fuses, lugs, etc.: Firms regularly engaged in the manufacture of these products, of the types and ratings required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Installer: A firm with at least 5 years of successful installation experience on projects with electrical wiring installation Work similar to that in this project.
- C. Code Compliance: Comply with National Electrical Code (NFPA 70) and any and all local codes as applicable to construction and installation of electrical wiring devices, material, and equipment herein specified.
- D. UL Labels: Provide electrical cable, boxes, raceways, wire, connectors, outlets, switches, etc. that have been listed and labeled by Underwriters Laboratories.
- E. NECA Standard: Comply with applicable portions of National Electrical Contractor's Association's "Standard of Installation."

1.04 SUBMITTALS

- A. Submit shop drawings and product data in accordance with provisions of Section 01 33 00—Submittals.

PART 2-PRODUCTS

2.01 SWITCH, OUTLET, AND SMALL JUNCTION BOXES

- A. Sheet Metal Boxes: ANSI/NEMA OS 1: galvanized steel, 4-inch square or octagon, minimum 2 1/8 inches deep, Raco, Appleton, or equal. Boxes with knockouts for multiple size conduits are not allowed. Suspended ceiling grid support bridges shall be as manufactured by Caddy, Model 512 HD, or equal.
- B. Cast Boxes: Aluminum or cast ferrous, deep-type, gasketed cover, threaded hubs, Eaton FD Series, or equal.
- C. Covers for switch and outlet boxes used as junction boxes shall have covers that match box type.

2.02 PULL AND JUNCTION BOXES

- A. Sheet Metal Boxes: ANSI/NEMA OS 1: Code gauge steel with galvanized or sheradised finish, secured by galvanized machine screws. Hoffman ASG Series without knockouts, or equal.
- B. NEMA 12 Boxes: Painted steel with hinged cover, recessed quarter-turn latches, and gasket. Boxes shall be Hoffman CSD, or equal.
- C. Boxes specified in this section are not allowed to have knockouts.

PART 3-EXECUTION

3.01 COORDINATION OF BOX LOCATIONS

- A. Provide electrical boxes as shown on the Drawings and as necessary for splices, taps, wire pulling, cable bending radii, equipment connections, and code compliance.
- B. Electrical box locations shown on the Drawings are approximate. Verify location and size of outlet boxes in all work areas prior to rough-in.
- C. Where dedicated raceways are provided for different voltage systems or wiring, separate boxes shall also be provided unless acceptable to ENGINEER. Where acceptable to ENGINEER, combined boxes shall be physically divided to separate the wiring.
- D. Locate and install boxes to allow access. Where installation is inaccessible, coordinate locations and sizes of access doors.
- E. Locate and install to maintain headroom and to present a neat appearance.

3.02 SWITCH, OUTLET, AND SMALL JUNCTION BOX INSTALLATION

- A. Provide knockout closures for unused openings.
- B. Support boxes independently of conduit.

- C. Use multiple gang boxes where more than one device is mounted together; do not use sectional boxes. Provide barriers to separate wiring of different voltage systems.
- D. Install boxes in walls without damaging wall insulation.
- E. Coordinate mounting heights and locations of outlets mounted above counters.
- F. Wiring for emergency egress lighting shall have dedicated pull and junction boxes provided. Wiring for different voltage systems (e.g., 24 V, 120 V, 480 V) shall have dedicated pull and junction boxes for each voltage.
- G. In inaccessible ceiling areas, position outlet boxes within 6 inches of recessed luminaire to be accessible through luminaire ceiling opening.
- H. Provide sheet metal recessed outlet boxes in finished areas; secure boxes to interior wall and partition studs accurately positioning to allow for surface finish thickness. Use stamped steel stud bridges for flush outlets in hollow stud wall and adjustable steel channel fasteners for flush ceiling outlet boxes.
- I. Align wall-mounted outlet boxes for switches and similar devices.
- J. All concealed lighting outlet boxes shall be sheet metal octagon boxes.
- K. All interior exposed wall and ceiling outlet boxes shall be cast boxes, unless otherwise noted.
- L. Knockout punches or saws shall be used for holes; boxes with prepunched holes are not acceptable, except when used in conjunction with EMT conduit in areas where allowed.
- M. Boxes shall be of a depth to accommodate wires and splices and shall be equipped with both fixture hanging studs and tapped fixture ears. Boxes shall be installed so that they will support the weight of the fixture. Conduit will not be considered as adequate supports.
- N. Cast boxes with 3/4-inch hubs and aluminum fittings and enclosures may be used with all conduit types.
- O. Sheet metal boxes installed in suspended ceilings for free-air splices or devices installed through the suspended ceiling shall be supported by the suspended ceiling grid system using grid support bridges. Provide mounting hardware, accessories, extensions, etc., based on ceiling grid installed for this project.

3.03 PULL AND JUNCTION BOX INSTALLATION

- A. Locate pull boxes and junction boxes above accessible ceilings or in unfinished areas.
- B. Support pull and junction boxes independent of conduit.
- C. Knockout punches or saws shall be used for holes; boxes with prepunched holes are not acceptable, except when used in conjunction with EMT conduit in areas where allowed.
- D. Refer to Section 26 05 53—Electrical Identification for junction box labeling requirements.
- E. All interior exposed junction and pull boxes shall be NEMA 12, unless noted otherwise.

- F. In inaccessible ceiling areas, position boxes within 6 inches of recessed luminaire to be accessible through luminaire ceiling opening.

END OF SECTION

SECTION 26 05 53

ELECTRICAL IDENTIFICATION

PART 1–GENERAL

1.01 SUMMARY

- A. Work Included:
 - 1. Nameplates.
 - 2. Wire and cable markers.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 SUBMITTALS

- A. Submit shop drawings and product data in accordance with provisions of Section 01 33 00–Submittals.
- B. Provide schedule for nameplates and labeling tags with shop drawings. Reference Drawings for type used.

PART 2–PRODUCTS

2.01 NAMEPLATES

- A. Nameplate material shall be multi-color, two-layer, nonconductive engraving plastic suitable for permanent installations in indoor and outdoor locations. The material shall be UV-resistant and suitable for installation in direct sunlight.
- B. Type “A”:
 - 1. Use:
 - a. Each separately mounted disconnect switch.
 - b. Cabinets, enclosures, pull, and junction boxes.
 - c. Field devices.
 - 2. Size: 2 inches by 4 inches.
 - 3. Background Color: Black.
 - 4. Character Color: White.
 - 5. Character Size: 1/2-inch.
 - 6. Engraving: As shown on Drawings or as requested by ENGINEER. Label shall include equipment number and description (i.e., SCAL-60-01, Fluoride Scale).
 - 7. Mounting Location: Front exterior.
- C. Type “B”:
 - 1. Use: Thermostats, conduit fittings, etc.
 - 2. Size: 1/2-inch by 4 inches.
 - 3. Background Color: Black.
 - 4. Character Color: White.
 - 5. Character Size: 1/4-inch.
 - 6. Engraving: Equipment description (e.g., T-15-01, Chlorine Room).

7. Mounting Location: Device front at top.

2.02 WIRE AND CABLE MARKERS

- A. Wire and cable markers shall be permanently-attached, heat-shrink type labels.
 1. Sleeve: Permanent, PVC, white, with legible machine-printed black markings.
 2. Acceptable Manufacturers: Raychem Model D-SCE or ZH-SCE, Brady Model 3PS, or equal.
 3. Grounding Conductor: Provide green wire marker; minimum 2 inches wide.
- B. Wire or cable numbering preprinted on the conductor or cable insulation, flag-type labels, and individual wraparound numbers (such as Brady preprinted markers) are not acceptable. All wire markers shall be the same throughout the project.

PART 3-EXECUTION

3.01 INSTALLATION

- A. Degrease and clean surfaces to receive nameplates.
- B. Install nameplates parallel to equipment lines.
- C. Affix nameplates with sticky back adhesive in indoor locations.
- D. Affix labeling tags with stainless steel leaders; vinyl locking wire ties are not acceptable. Provide 3/8-inch hole to accommodate wire tie.
- E. Prepare and install neatly-typed circuit directories and schedules in all existing panels where Work is done under this Contract.

3.02 WIRE IDENTIFICATION

- A. Provide wire markers on each conductor, including neutral and spare conductors, in panelboard gutters, pull boxes, outlet and junction boxes, and at load connection. Neutral conductor labels shall include the associated branch circuit number. Identify with branch circuit or feeder number for power and lighting circuits, and with control wire number as indicated on schematic and interconnection diagrams for control wiring. Spare conductors shall have control wire number or shall indicate termination point of wire.
- B. Conductors in pull boxes and panelboards shall be grouped as to circuits and arranged in a neat manner. All conductors of a feeder or branch circuit shall be grouped, bound together with nylon ties, and identified. Phase identification shall be consistent throughout the system. All wiring labels shall be able to be read without removing wire management (i.e., wiring trough covers, spiral windings, etc.) or twisting the wire/cable.
- C. Power Conductor Insulation Color Code:
 1. 8 AWG and Smaller: Provide conductors with color-coded insulation.
 2. Colors:

System	Conductor	Color
All Systems	Equipment Grounding	Green
120/208 Volts Three-Phase, Four-Wire	Grounded Neutral Phase A Phase B Phase C	White* Black Red Blue
Note: Phase A, B, C implies direction of positive phase rotation.		
* When installed as part of a 120-volt or 277-volt branch circuit, provide a color-coded stripe on the white neutral conductor insulation matching the branch circuit insulation.		

D. Circuit Identification:

1. Identify power, instrumentation, and control conductors at each termination and at accessible locations such as junction and pull boxes, panelboards, etc.
2. Conductors for panelboard circuits shall identify circuit matching the circuit directory designations, including the neutral conductor.
3. Control conductor identification shall match the associated terminal block label.
4. Circuits Not Listed in Circuit Directories:
 - a. Assign circuit name based on unique device or equipment at load end of circuit.
 - b. Where unique device or equipment names are not available or apparent, add a unique number or letter modifier to each otherwise identical circuit name.

3.03 DATA/VOICE CABLE AND COMMUNICATION EQUIPMENT IDENTIFICATION

- A. Individual labels shall be placed on all information outlets and both ends of all cables.
- B. Each component shall be clearly labeled using a code identifying each device's location throughout the facility along with a unique identifier. The Record Drawings shall identify the numbering at each rack, communication cabinet, and jack location. Each media type shall be uniquely labeled as follows:
 1. Cables:
 - a. Patch panel number, cable type (D=data, V=voice)-jack number.
 - b. For example: "R-80-01:C07.D-001" represents the first data jack served from a copper patch panel mounted in top RU space 7 of Rack No. 1, which is located in Structure 80.
 - c. For structures with a total of one rack or cabinet installed, the cable labels shall not include a preceding rack number.
 2. Jacks:
 - a. Provide a label on the top or bottom of the faceplate identifying the patch panel serving the associated jacks, as specified herein.
 - b. Label each jack with the cable type (D=data, V=voice): jack number.
 - c. For example: "D-001" represents the first data jack served from the associated patch panel.
- C. Refer to Section 27 10 00—Structured Cabling for cable insulation and jack color requirements.

3.04 JUNCTION BOX IDENTIFICATION

- A. All junction boxes shall be labeled with permanent nameplates. Nameplates shall indicate circuit or load served, as well as the power source and highest voltage present on any conductor.

3.05 CONDUIT FITTINGS IDENTIFICATION

- A. All conduit fittings that contain splices of any kind shall be labeled with permanent nameplates indicating "splice within." Nameplates shall be clearly visible at location installed. Nameplates shall be fastened to each conduit fitting with heavy duty, UV-resistant, cold weather cable ties.

3.06 COMPONENT IDENTIFICATION

- A. All components (e.g., timers, etc.) within enclosures shall be identified with sticky-back adhesive, self-laminating, machine-printed marking labels. Labels shall be installed on the enclosure back panel and not on the device itself, wireway covers, or any other removable devices. Labels shall be included on the as-built drawings.

3.07 LABELING FONT REQUIREMENTS

- A. The font for all conductor, cable, and device labels shall be Arial with black characters on white background, and minimum font size 12.
- B. The text for all conductor, cable, and device labels shall be machine printed. Handwritten labels are not acceptable.

END OF SECTION

SECTION 26 27 26

WIRING DEVICES

PART 1—GENERAL

1.01 SUMMARY

- A. Work Included:
 - 1. Wall switches.
 - 2. Receptacles.
 - 3. Cover plates.
 - 4. Ceiling-mounted occupancy sensors.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

- A. NEMA WD 1—General-Color Requirements for Wiring Devices.
- B. NEMA WD 5—Specific-Purpose Wiring Devices.
- C. Drawings—Bill of Materials.

1.03 QUALITY ASSURANCE

- A. Manufacturers of switches, outlets, boxes, lamps, fuses, lugs, etc.: Firms regularly engaged in the manufacture of these products, of the types and ratings required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Installer: A firm with at least 5 years of successful installation experience on projects with electrical wiring installation work similar to that in this project.
- C. Code Compliance: Comply with National Electrical Code (NFPA 70) and any and all local codes as applicable to construction and installation of electrical wiring devices, material, and equipment herein specified.
- D. UL Labels: Provide electrical material, etc., which have been listed and labeled by Underwriters Laboratories.
- E. NECA Standard: Comply with applicable portions of National Electrical Contractor's Association's "Standard of Installation."

1.04 SUBMITTALS

- A. Submit shop drawings and product data in accordance with provisions of Section 01 33 00—Submittals.
- B. Provide product data showing configurations, finishes, dimensions, and manufacturer's instructions.

PART 2-PRODUCTS

2.01 WALL SWITCHES

- A. A-C general use Industrial specification grade, snap switch, 20 amperes, 277 volts, one of the following: Eaton 122*, Leviton 122*, or Pass and Seymour PS20AC*.
- B. Manual motor switches for 120 V motors on circuits 20 amps or less shall be specification grade snap switch as specified above. Manual motor switches or manual motor controllers for 120-volt, 208-volt, or 240-volt motors and single-pole switches for other equipment up to 277 volts on circuits 30 amps or less shall be Eaton 303*, Leviton 303*, or Pass and Seymour PS30AC*.
- C. Provide ivory-colored handles.
- D. Dimmer switches shall be rated for LED use and shall be listed as compatible with the associated fixtures in the fixture manufacturer's literature.

2.02 RECEPTACLES

- A. Twenty ampere, 125-volt, NEMA 5-20R, Industrial specification grade, straight blade, 3-wire duplex grounded outlets, one of the following: Eaton 5362, Leviton 5362, Pass and Seymour 5362. Provide ivory color.
- B. GFCI Receptacle: GFCI receptacles shall be UL 943 listed, Pass and Seymour 2097, Eaton TRSGF20 receptacle with integral ground fault current interrupter. Provide ivory color.

2.03 COVER PLATES

- A. Surface boxes shall have plates to match Crouse-Hinds, Appleton, or equal, cast boxes.
- B. Thermoplastic ivory cover plates shall be used in all "finished" areas.

2.04 CEILING-MOUNTED OCCUPANCY SENSORS

- A. The sensor shall use both passive infrared and ultrasonic detection methods for detecting room occupancy. The unit shall fit on/in a standard octagon box and shall require two wires and a grounded box for proper operation.
- B. Sensors shall have selectable DIP switches to adjust sensitivity settings to fit occupants usage patterns.
- C. Sensors shall be mounted to the ceiling with a flat, unobtrusive appearance and provide 360 degrees of coverage.
- D. Sensor shall utilize a temperature compensated dual element sensor and a multielement Fresnel lens. Fresnel lens shall be a Poly IR 4-based material to filter short wavelength infrared, such as those emitted by the sun and other visible light sources.
- E. The sensors shall feature terminal-style wiring.
- F. The sensor shall have a 34-element Extended Range lens.

- G. Sensor shall cover 360 degrees, up to 2,000 square feet of walking motion with the Standard Lens mounted at 8 feet AFF.
- H. Sensors shall operate at 24 VDC/VAC and half-wave rectified and utilize a power pack.
- I. Power pack shall be a self-contained transformer and relay module and shall meet the following requirements:
 - 1. Power and auxiliary relay packs shall have 1/2-inch snap-in nipple for 1/2-inch knockouts. Power and auxiliary relay packs shall be mounted inside of junction boxes above suspended ceilings. If the occupancy sensor is installed in an unfinished exposed location, sensor shall be installed within a junction box. The junction box cover shall be permanently labeled "OS Control."
 - 2. Power and auxiliary relay packs shall have dry contacts capable of switching 20 amp ballast load, 13 amp incandescent, 1 hp @ 120 VAC, 60 Hz.
 - 3. Power packs shall provide a 24 VDC, 150 mA output.
 - 4. Power packs shall be capable of parallel wiring without regard to AC phases on the primary.
 - 5. Auxiliary relay packs shall be identical in physical size to power packs and contain no transformer power supply and shall switch 120 VAC.
 - 6. Power pack and auxiliary relay packs shall be UL 2043 listed, use UL 94 V-O plenum rated plastic, and have low voltage Teflon-coated leads, rated for 300 volts.
 - 7. Power and auxiliary relay packs shall be UL and CUL listed.
 - 8. Power and auxiliary relay pack shall be Model OPP20 as manufactured by Leviton, Eaton AHSP20-MV, or equal.
- J. The sensor shall have an additional single-pole, double-throw isolated relay with normally open, normally closed, and common outputs.
- K. Sensors shall have a time delay that is adjusted automatically or shall have a fixed time delay of 5 to 30 minutes set by DIP switches.
- L. The sensor shall have a LED indicator that remains active at all times in order to verify detection within the area to be controlled. The LED shall be able to be disabled for applications that require less visibility.
- M. Ceiling-mounted motion sensor shall be Model OSC20-M0 as manufactured by Leviton, Eaton AHAC-DT-2000, or equal.

PART 3-EXECUTION

3.01 INSTALLATION

- A. GFCI receptacles shall not be series wired.
- B. Install wall switches 48 inches above floor (top of box), "Off" position down, unless otherwise noted.
- C. Install wall dimmers 48 inches above floor (top of box) and derate ganged dimmers as instructed by the manufacturer. Do not use common neutral.

- D. Install receptacles vertically with the grounding pole on the top and at the heights shown on the Drawings, unless otherwise noted. Heights listed on the Drawings are to the bottom of the box.
- E. Install devices and cover plates flush and level.
- F. Back wiring is not allowed for switches and receptacles. Wires shall be terminated with the device screw terminal.
- G. Individual labels shall be placed on the back of all switch faceplates and receptacle faceplates indicating the lighting panel and circuit from which the switch or receptacle is fed. Labels shall be white background with black lettering no smaller than 12-point font. Provide permanently attached self-adhesive type, machine fed, and self-laminating labels, or equal. All labels must be by the same manufacturer, same size, and same font. Handwritten labels are not acceptable.
- H. Individually adjust each occupancy sensor's sensitivity and install sensor shields as required such that the sensor properly serves movement in all areas of the room but does not energize lighting due to movement in adjacent rooms or due to ambient noise in the space when unoccupied (e.g., noise from refrigerators, HVAC equipment, servers, etc.). Adjust off-delay timers as required so that sensors operate in a manner that is acceptable to OWNER.

END OF SECTION

SECTION 26 28 16
DISCONNECT SWITCHES

PART 1–GENERAL

1.01 SUMMARY

- A. Work Included: Fractional hp motor switches.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

- A. NEMA KS 1–Enclosed Switches.

1.03 SUBMITTALS

- A. Submit shop drawings and product data in accordance with provisions of Section 01 33 00–Submittals.
- B. Include outline drawings with dimensions and equipment ratings for voltage, capacity, horsepower, and short-circuit.

PART 2–PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Square D Class or Eaton.
- B. Substitutions: Under provisions of the General Conditions.

2.02 SINGLE-PHASE MOTOR SWITCHES (2 HP OR LESS)

- A. Where noted on the Drawings, motors rated 2 hp or less, for operation on 120 V or 240 V, single-phase, shall be provided with a specification-grade wall switch as disconnecting means. See Section 26 27 26–Wiring Devices for additional information.

PART 3–EXECUTION

3.01 INSTALLATION

- A. Provide disconnect switches where indicated on the Drawings. Maximum mounting height shall be 42 inches above finished floor unless noted otherwise, or acceptable to ENGINEER based on field conditions.
- B. Provide wall switch for each single-phase fractional horsepower motor where indicated on the Drawings.

- C. Wiring within disconnects shall only be for loads or equipment served by that disconnect. Foreign wiring within disconnect enclosures is not allowed. All wiring within disconnect enclosures shall be landed on lugs or terminals provided by the disconnect manufacturer, or on dedicated terminal strips for instrumentation equipment or field devices. Splices and spring wire connectors are not allowed within disconnect enclosures.

END OF SECTION

SECTION 26 51 13

LIGHTING

PART 1—GENERAL

1.01 SUMMARY

- A. Work includes a complete functional lighting system.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

- A. Underwriters Laboratories: Lighting fixtures shall be manufactured in accordance with the standards of the Underwriters Testing Laboratories and shall bear the UL label where practicable. In all cases the lighting fixtures shall be constructed with UL listed components.
- B. Applicable Codes: Fixtures shall be made and installed in accordance with the current version of the National Electrical Code, the Uniform Building Code, the Federal Occupational Safety & Health Act, and other applicable regulations.
- C. Code Compliance: Comply with National Electrical Code (NFPA 70) as applicable to construction and installation of electrical equipment, cable, wire, and connectors.
- D. NEMA/ANSI Compliance: Comply with National Electrical Manufacturers Association, American National Standards Institute, and other standards pertaining to material and construction and testing where applicable.
- E. Lighting Standards:
 - 1. LM-79-08 or latest—IES Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products.
 - 2. LM-80-08 or latest—IES Approved Method for Measuring Lumen Maintenance of LED Light Sources.
 - 3. NEMA SSL 1-2016 or latest—Electronic Drivers for LED Devices, Arrays, or Systems.
- F. Fire Codes: Where necessary to meet Code requirements, enclosure housings shall be constructed to provide a 1-hour fire rating.

1.03 SYSTEM DESCRIPTION

- A. Intent: It is the intent of these specifications to obtain a completed lighting fixture and lighting controls installation by CONTRACTOR. Completed means cleaned, adjusted, tested, and ready for occupancy and operation in accordance with the above-indexed paragraphs and in accordance with the other sections of these Contract Documents. It is the responsibility of CONTRACTOR to point out discrepancies, errors, and other problems.
- B. All lighting fixtures are to be provided complete with all necessary accessories for a proper installation. Catalog numbers shown are basic fixture types, and additional features,

accessories, and options specified, scheduled or required, are to be included for all fixtures provided.

1.04 SUBMITTALS

- A. Submit shop drawings and product data in accordance with provisions of Section 01 33 00—Submittals. Shop drawings shall include, but not be limited to, the following:
 - 1. Manufacturer's dimensioned scale drawings showing in complete detail the fabrication of all lighting fixtures including overall and detail dimensions, finishes, prefinishes, metal thickness, fabrication methods, support method, ballasts, drivers, sockets, type of shielding, reflectors, wiring sizes and insulation types, lenses, and all other information to show compliance with the Contract Documents.
 - 2. Installation instructions.
 - 3. Certified photometric test data and reports.
 - 4. Shop drawings shall not only clearly indicate the assigned fixture type, but also the equipment location.

1.05 QUALITY ASSURANCE

- A. Standards: Materials, equipment, and parts, as well as workmanship provided under this section, shall conform to the highest commercial standard as specified and as indicated on Drawings. Fixture parts and components not specifically identified or indicated shall use materials most appropriate to their intended use or function and as such be resistant to corrosion and thermal mechanical stresses encountered in the normal application and function of the fixtures.
- B. Measuring and Testing Equipment: CONTRACTOR shall have available at all times, instruments for the measurement of voltage, luminaire temperature, lighting level, and fixture brightness level.
- C. Manufacturers: Firms regularly engaged in the manufacture of lighting fixtures of the types and ratings for the project, whose products have been in satisfactory use in similar service for not less than 5 years.
- D. Installer: A firm with at least 5 years of successful installation experience on projects with electrical wiring installation work similar to that in this project.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Luminaires and lighting equipment shall be delivered to the project complete, including mounting devices and components necessary for the proper operation of the equipment.
- B. Marking: All equipment must be clearly and boldly identified as to the fixture type and, where practicable, the fixture location.
- C. Timely Purchasing: Luminaires and other appurtenances shall be ordered in a timely fashion and securely stored to be available to meet the project schedule.

1.07 WARRANTY

- A. Standard One-Year Warranty: Unless otherwise stated below, manufacturer shall warrant the equipment to be free from defects in material and workmanship for a period of one year from the earlier of either the date established for partial utilization in accordance with GC15.03 and 15.04, as modified in the Supplementary Conditions, or Substantial Completion of the project.

PART 2—PRODUCTS

2.01 LED LUMINAIRES

- A. LED Luminaires shall meet the following technical requirements:
 - 1. Light output of the LED system shall be measured using the absolute photometry method following IES LM-79 and IES LM-80 requirements and guidelines.
 - 2. Luminaire efficacy shall match or exceed that of the fixture model numbers shown in the fixture schedule on the Drawings.
 - 3. Luminaire Color Rendering Index (CRI) shall match or exceed that of the fixture model numbers shown in the fixture schedule on the Drawings; a minimum of 80 for interior luminaires and a minimum of 70 for exterior luminaires.
 - 4. Luminaire shall maintain 70% lumen output (L70) for a minimum of 50,000 hours.
 - 5. Luminaire lumen output shall match or exceed that of the fixture model numbers shown in the fixture schedule on the Drawings.
 - 6. Wattage shall be equal to that of the fixture model numbers shown in the fixture schedule on the Drawings.
 - 7. Luminaire color temperature shall match that of the fixture model numbers shown in the fixture schedule on the Drawings.
- B. Luminaire shall be mercury-free, lead-free, and RoHS compliant.
- C. Luminaire shall comply with FCC 47 CFR part 15 non-consumer RFI/EMI standards.
- D. Lumen output shall not depreciate more than 20% after 10,000 hours of use.
- E. Luminaire and driver shall be provided from a single manufacturer to promote compatibility.
- F. Luminaire shall operate normally for input voltage fluctuations of plus or minus 10%.
- G. Luminaire shall have a maximum Total Harmonic Distortion (THD) of $\leq 20\%$ at full input power and across specified voltage range.

2.02 WIRING

- A. All wiring within lighting fixtures or from the splice with the building wiring shall be as specified in Section 26 05 19—Wire.
- B. Wiring within fixture construction shall be concealed, except where the fixture design or mounting dictates otherwise.

- C. Wiring channels and wireways shall be free from projections and rough or sharp edges throughout and all points or edges over which conductors must pass and may be subject to injury or wear.
- D. Insulated bushings shall be installed at points of entrance and exit of flexible wiring.

2.03 LED DRIVERS

- A. General:
 - 1. Provide driver type (non-dimmed, step-dimmed, continuous-dimming, etc.) as indicated in the model numbers in the fixture schedule shown on the Drawings.
 - 2. Driver shall have a minimum rated life of 50,000 hours.
 - 3. Driver shall have a minimum power factor of 0.9 and a maximum crest factor of 1.5 at full input power and across the specified voltage range.
 - 4. Driver shall operate normally for input voltage fluctuations of plus or minus 10 percent.
 - 5. Driver shall have a maximum Total Harmonic Distortion (THD) of $\leq 20\%$ at full input power and across specified voltage range.
 - 6. Wiring connections to LED drivers shall utilize polarized quick-disconnects for field maintenance.
 - 7. Fuse Protection: All luminaires shall have built-in fuse protection. All power supply outputs shall be either fuse protected or be Polymeric Positive Temperature Coefficient (PTC)-protected per Class 2 UL listing.
 - 8. All fixtures located outdoors shall be provided with surge protection.
- B. Dimming Drivers:
 - 1. LED driver shall be compatible with dimming controls where dimming is indicated on the Drawings.
 - 2. Continuous Dimming Drivers: LED luminaires shall dim without visible flicker and buzzing/noise. Continuous Dimming Drivers shall use 0-10 VDC control.

2.04 FIXTURE TRIMS

- A. Trim Details: Provide trim details as shown on the Drawings or as specified. The trim finish and dimensions are subject to the shop drawing approval of ENGINEER. Mitered corners shall be smoothed before shop finish is applied. No lapping of trim metal for all flush-mounted ceiling trims for rectangular or square recessed fixtures.

PART 3-EXECUTION

3.01 LIGHTING CONTROLS

- A. Day Lighting: Driver fixtures shall be controlled using occupancy sensors in conjunction with override wall switches or dimmers, as shown on the Drawings, where applicable.
 - 1. If the override switch/dimmer is in the "On" position and the occupancy sensor is activated, the associated driver switching circuit input shall be controlled through the photocell sensor based on two operator-adjustable light level setpoints. If the light level in the room falls below the "On" setpoint (50 fc), the step-dimming driver switch circuit input shall be energized to 40% when one override switch is in the "On" position and to 100% when both override switches are in the "On" position. If the step-dimming driver switching circuit input is energized and the light level rises above the "Off" setpoint

- (75 fc), the step-dimming driver switching circuit input shall be de-energized until the level falls below the "On" setpoint as described above.
2. If the override wall switch is in the "On" position and the occupancy sensor is not activated, the associated step-dimming driver switch circuit input shall remain de-energized.
 3. If the override wall switch is in the "Off" position, the associated step-dimming driver switching circuit shall be deenergized.
- B. Complex Occupancy: Driver fixtures shall be controlled from the occupancy sensor(s) in conjunction with override-off or dimmers, as shown on the Drawings, wall switches.
1. The override switches shall control the respective LED driver as designated on the Drawings.
 2. If override switches/dimmers are in the "On" position, control shall be through the occupancy sensor.
 3. If override switches/dimmers are in the "Off" position the fixture shall be deenergized.

3.02 INSTALLATION

- A. Install fixtures, lenses, etc., after building is enclosed, weathertight, and environmental conditions are nominally the same as expected for the complete spaces. All glassware, reflectors, and refractors shall be clean and free of chips, cracks, and scratches.
- B. All wall-mounted fixtures and all ceiling-mounted surface fixtures including exit lights, shall be fed through a fixture Stud/Hickey/Nipple assembly and with provisions to prevent fixture turning.
- C. All fixtures shall be securely and adequately supported and installed. Recessed lighting fixtures in suspended ceilings shall have channel and supports provided by CONTRACTOR. CONTRACTOR shall provide plaster frames. Fixture shall be supported from structure and not from ceiling.
- D. Surface- or pendant-mounted fixtures shall be attached to and supported from structural part of the building in a manner acceptable to ENGINEER. Fixtures shall be supported by not fewer than two supports for each fixture. Where fixtures are to be suspended, they shall be mounted on steel channel with the channel supported directly from the structure by a minimum of 3/8-inch rod inside rigid conduit stems. All fittings and connectors shall be compression type. Cables must be secured to the building structure and to a point or points on the fixture to protect against falling parts.
- E. Industrial-type fixtures in unfinished areas which are near obstructions such as ducts and pipes shall be suspended so that the bottom of the fixture is no higher than the bottom of the obstruction. All fixtures in each room shall be located at the height of the lowest fixture, but not lower than 8 feet 0 inches above the finished floor. Fixtures shall not be located until the locations of these obstructions are determined, and fixtures shall be accessible after the installation of other equipment.
- F. Provide inscription for exit signs to conform to codes.
- G. Metal decking shall not be pierced for fixture support.
- H. All wiring for dimming circuits shall have an individual neutral provided for each circuit.

3.03 SUPPORTS

- A. Mounting Frames: Provide mounting frames (plaster frames for example), as necessary, for installation and as required under other sections. Frames shall be finished matte white baked enamel unless otherwise noted.
- B. Mounting Accessories: Provide bars, angles, or other supporting devices for all recessed fixtures. Fixtures shall be securely attached to prevent movement up, down, or sideways. Fixtures shall be mounted to permit access to wiring. Fastening devices shall be of a positive, locking type, and shall not require the use of special tools to apply or remove. Tie wires shall not be used in place of fastening devices.
- C. CONTRACTOR Responsibility: CONTRACTOR shall verify all ceiling conditions from the Drawings and provide appropriate mounting accessories for each lighting fixture.
- D. Adequate rigid, sturdy support shall be provided to prevent the possibility of fixture falling. Surface fixtures must be supported with two supports per 4-foot section. Support surface-mounted fixtures from structural members other than ceiling tees by providing Unistrut members spanning main ceiling tees or by mounting directly to structure.

3.04 ADJUSTMENT

- A. Focusing/Adjustment: After the installation of lighting fixtures is completed, fixtures so requiring (both interior and exterior units), shall be adjusted after dark under the observation of OWNER.

3.05 CLEANING

- A. Installation Sequence: Lighting fixture mounting frames, plaster rings, etc., shall be installed prior to the finishing assembly which shall not be installed until the Project is at Final Completion. When the fixture location or construction prevents sequential installation, CONTRACTOR shall carefully protect all reflectors, lenses, flanges, and other visible surfaces.
- B. Cleaning: Before final acceptance by OWNER, all protective (strippable) coatings, dust, finger marks, paint spots, and any other materials deleterious to the appearance or functioning of the lighting fixtures must be removed. Abrasive cleaners are not permitted.

3.06 FINAL INSPECTION

- A. Upon completion of the installation, lighting equipment must be in first-class operating order and free from defects in condition and finish:
 - 1. Fixtures shall be completely clean and free from finger marks, dust, plaster, or paint spots.
 - 2. Any reflectors, lenses, diffusers, side panels, or other parts damaged prior to the final inspection, shall be replaced at no expense to OWNER.
 - 3. Housing shall be rigidly installed and adjusted to a neat flush fit with the ceiling.

END OF SECTION

SECTION 27 10 00
STRUCTURED CABLING

PART 1—GENERAL

1.01 SUMMARY

- A. Work Included: This specification contains the requirements for telecommunications and data cabling, enclosures, termination components, and related subsystems as part of a structured cabling system.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern Work in this Section.

1.02 SYSTEM DESCRIPTION

- A. CONTRACTOR shall provide and test all cabling and components necessary for a complete and functional structured cabling system as specified herein and shown on the Drawings. Conduit, raceway, and outlet boxes for the "Information Outlets" shall be provided by CONTRACTOR.
- B. Provide all faceplates and all other items necessary for telephone and computer connections at all specified data outlets.

1.03 REGULATORY REFERENCES

- A. All Work and materials shall conform in every detail to the rules and requirements of the National Fire Protection Association, the National Electrical Code and present manufacturing standards.
- B. All materials shall be listed by UL and shall bear the UL label. If UL has no published standards for a particular item, then other national independent testing standards shall apply and such items shall bear those labels. Where UL has an applicable system listing and label, the entire system shall be so labeled.
- C. The cabling system shall comply with the following standards:
 - 1. ANSI/IEEE C2—National Electrical Safety Code.
 - 2. NFPA 70—National Electrical Code (currently-adopted edition).
 - 3. TIA/EIA Standards 526-14A (OFSPT-14A), 526-7 (OFSPT-7), TIA-568-C.0, TIA-568-C.1, TIA-568-C.2, TIA-568.3-D, TIA-569-B-1, TIA-606-A-1, and TIA J-STD-607-A.
 - 4. IEEE/ANSI 142—Recommended Practice for Grounding of Industrial and Commercial Power Systems.

1.04 SUBMITTALS

- A. Submit shop drawings and product data in accordance with provisions of Section 01 33 00—Submittals.

- B. Installation Reports:
 - 1. Cable pulling tension reports.
 - 2. Copper cable acceptance test reports.
- C. Technical Manual: CONTRACTOR shall furnish three complete technical service manuals containing the following:
 - 1. Description of maintenance/programming procedures for all equipment and systems.
 - 2. All warranty information required by manufacturers for submission of warranty claims for all equipment installed.
 - 3. All testing reports according to Paragraph 3.03.

1.05 QUALIFICATIONS

- A. CONTRACTOR shall have at least 10 years of experience in the installation of similar systems. CONTRACTOR shall provide documentation upon request to certify that all assigned staff have attended training courses corresponding to the type of cabling and equipment specified herein.
- B. CONTRACTOR shall currently be licensed to install low voltage electronic cabling systems in the state of the project.
- C. CONTRACTOR shall currently meet all manufacturer's requirements for the provision and installation of all equipment specified herein.
- D. CONTRACTOR shall utilize and have technicians trained in the utilization of the following test equipment: Copper cable certification equipment.

1.06 WARRANTY

- A. Standard One-Year Warranty: Unless otherwise stated below, manufacturer shall warrant the equipment to be free from defects in material and workmanship for a period of one year from the earlier of either the date established for partial utilization in accordance with GC15.03 and 15.04, as modified in the Supplementary Conditions, or Substantial Completion of the project.

PART 2-PRODUCTS

2.01 GENERAL

- A. CONTRACTOR shall provide all necessary mounting hardware, and accessories required to install the materials specified herein.

2.02 COPPER CABLE

- A. 300-volt Rated Unshielded Cable:
 - 1. Provide 4-pair, unshielded twisted-pair (UTP) cabling with solid, copper-only conductors meeting EIA/TIA Category 6 requirements for horizontal station cabling. Cable shall be listed as suitable for use in locations indicated on the Drawings. Provide Systimax Solutions 2071E Low Smoke PVC, or equal, for Plenum environments, or Systimax Solutions 1071E PVC, or equal, for nonplenum environments.

2. Refer to the Execution Section which details the required performance criteria for the permanent link of which the cable is a part. The jacket color for data cables shall be blue. The jacket color for voice cables shall be white.
 3. Provide nylon cable ties or reusable hook-and-loop bands, where specified herein, for bundling cables.
 - a. Nylon cable ties for bundling cables above suspended ceilings shall be Panduit Contour-Ty Model CBR, or equal. Provide plenum-rated, natural-color cable ties in plenum environments. Provide black cable ties in all other environments.
 - b. Reusable hook-and-loop bands for all other areas, including equipment racks, shall be Panduit Tak-Ty Model HLT, or equal, black.
- B. Category 6 Ethernet patch cables shall be provided premanufactured by the cable manufacturer or connector manufacturer in sufficient length to connect the associated equipment to any port on the equipment, patch panel, or switch. Field-attached plugs shall be insulation displacement type and shall be by the same manufacturer as the cable.

2.03 CONNECTORS

- A. Data Station Cables:
1. Faceplates: Systimax Solutions: L-Type flush-mounted, ivory, or equal, in finished areas and stainless steel, SP-L-Type, flush-mounted, or equal in all other areas.
 2. Jacks: Systimax Solutions MGS400-318 (Blue), or equal.

PART 3—EXECUTION

3.01 GENERAL

- A. Install all equipment and components in accordance with manufacturer's written instructions, in compliance with NEC, ANSI/TIA/EIA-569-B-1 and with recognized industry practices so that all items comply with these Specifications and serve the intended purposes.
- B. Refer to Section 26 05 53—Electrical Identification for cable and equipment label requirements.
- C. All cabling shall be installed in accordance with good engineering practices as established by the TIA/EIA and the NEC. Cabling shall meet all applicable local, state, and federal building codes. Voice and Data Cables shall be terminated according to the TIA-568B standard.
- D. All items must be complete as specified prior to final acceptance.
- E. Copper data cables installed between patch panels and data jacks shall be limited to 90 meters to allow for up to 10 meters of combined patch cable length. CONTRACTOR shall identify any cables that cannot be limited to 90 meters and notify ENGINEER prior to installation of any cabling.

3.02 INSTALLATION

- A. Cabling—General:
1. A dedicated cabling run shall be utilized for each jack.
 2. Provide faceplates and connections in outlet boxes for all jacks shown on the Drawings.

3. Excess cable behind faceplate connections shall be pulled back into junction boxes in the ceiling space and secured to prevent damage to cabling or connections. Provide minimum 10 feet of slack in all cables within the IT Room and manage slack for future use.
4. Provide grommets and/or bushings in conduit ends to prevent damage to insulation and cables.
5. Use cable tie tool to install cable ties with appropriate pressure to the cable bundles to prevent damage to cables and provide a smooth cut of excess cable tie. Cable ties shall be able to be turned freely around the bundle of cable. Cable bundles shall be limited to a 3-inch diameter. Cable ties shall be used for cable bundles above suspended ceilings and shall be plenum-rated where required.
6. Use hook-and-loop bands to secure cable bundles within IT Rooms, racks, cable trays, and network cabinets. Cable bundles shall be limited to a 3-inch diameter.
7. Tighten connectors and terminals including screws and bolts in accordance with the equipment manufacturer's published torque-tightening values for equipment connectors.
8. Allow sufficient slack in cables to prevent premature deterioration of cable system components, and to assist in the maintenance and servicing of cables and/or other building systems and components. Avoid excessive and sharp bends. Manufacturer's recommended pulling tensions shall not be exceeded.
9. Fittings or connections are allowed only at the input and output devices. Splicing is not acceptable in any cable run.
10. All cables shall be installed in conduit.
11. Conduit, raceways, and outlet boxes shall be provided as required.
12. Station cables may be routed free-air only above suspended ceilings. All cables shall be installed parallel to building structure and shall be supported by J-hooks at a minimum of 5 feet intervals.
13. J-hooks and all other cable supports shall be fastened to structural members (beams, concrete decks, etc.). Cables shall not be supported by, or tied to, piping, conduit, suspended ceilings, or other mechanical systems.
14. All copper cables shall be routed and installed to avoid light fixtures and other sources of EMI.
15. All cables shall be concealed within conduit, raceways, or above ceilings. No cables shall be installed where they will be exposed.

3.03 TESTING AND ACCEPTANCE

A. General:

1. CONTRACTOR is responsible to perform certification tests as indicated below for each subsystem as it is completed.
2. CONTRACTOR is responsible for supplying all equipment and personnel necessary to conduct the certification tests. Prior to testing, CONTRACTOR shall provide a summary of the proposed test plan for each cable type, including equipment to be used, set-up, test frequencies or wavelengths, results format, etc. The method of testing shall be subject to review by ENGINEER.
3. CONTRACTOR shall visually inspect all cabling and termination points to verify that they are complete and conform to the wiring pattern specified herein. CONTRACTOR shall provide ENGINEER with a written certification that this inspection has been made.
4. CONTRACTOR shall conduct certification testing according to a schedule coordinated with OWNER. Representatives of OWNER may be in attendance to witness the test procedures. CONTRACTOR shall provide a minimum of one week advance notice to

- ENGINEER to allow for such participation. The notification shall include a written description of the proposed tests, including copies of blank test result sheets to be used.
5. Failure to provide the above information shall be grounds for OWNER/ENGINEER to reject any and all Documentation of Results on related testing, and to require a repeat of the affected test.
 6. Tests related to connected equipment of others shall only be done with the permission and presence of CONTRACTOR involved. CONTRACTOR shall ascertain that testing only as required to prove the wiring connections are correct.
 7. CONTRACTOR shall provide test results and describe the method of the tests, including the date of the tests, the equipment used, and the procedures followed. At the request of ENGINEER, CONTRACTOR shall provide copies of the original test results.
 8. All cabling shall be 100% fault-free. If any cable is found to be outside the specification defined herein, that cable and the associated termination(s) shall be replaced at the expense of CONTRACTOR. The applicable tests shall then be repeated.
 9. Should it be found by ENGINEER that the materials or any portion thereof provided under this Contract fail to comply with the Specifications and Drawings, with respect or regard to the quality, amount of value of materials, appliances, or labor used in the Work, it shall be rejected and replaced by CONTRACTOR, and all Work disturbed by changes necessitated in consequence of said defects or imperfections shall be made good at CONTRACTOR's expense.

B. Copper Data and Voice Cabling:

1. Testing shall be from the jack to the patch panel on which the cables are terminated.
2. Cables shall be free of shorts within the pairs, and be verified for continuity, pair validity and polarity, and compliance with termination standards. Any defective, split or mispositioned pairs must be identified and corrected.
3. In addition to the above, Certification Testing shall be performed on all cables. Testing of the Transmission Performance of station cables (Category 6 and above) shall include the following:
 - a. Length.
 - b. Attenuation.
 - c. Pair to Pair NEXT Loss (new limits).
 - d. PSNEXT Loss.
 - e. Return Loss.
 - f. Pair to Pair ELFEXT Loss (Equal Level Far End Cross talk).
 - g. PSEFEXT Loss.
 - h. Propagation Delay.
 - i. Delay Skew.
 - j. Return Loss.
4. Cables shall be tested to the maximum frequency defined by the standards covering their performance category. Transmission performance testing shall be performed using a test instrument designed for testing to the specified frequencies. Test records shall verify "PASS" on each cable and display the specified parameters—comparing test values with standards based "templates" integral to the unit.
5. Testing shall be per ANSI/TIA/EIA 568-C.2 Basic Link test configurations.
6. In order to establish testing baselines, cable samples of known length and of the cable type and lot installed shall be tested. The cable may be terminated with an 8-position Category 6 Modular plug (8-pin) to facilitate testing. Net Propagation Velocity (NPV) and nominal attenuation values shall be calculated based on this test and be utilized during the testing of the installed cable. This requirement can be waived if NPV data is available from the cable manufacturer for the exact cable type under test.

7. In the event results of the tests are not satisfactory, CONTRACTOR shall make the necessary adjustments, replacement, and changes, and then repeat the test or tests which disclosed faulty or defective material, equipment, or installation method, and shall perform additional tests as required by ENGINEER at no additional cost to OWNER.
- C. Upon completion of the installation, CONTRACTOR shall provide complete test reports to ENGINEER for review. Documentation shall include the following items:
1. Test results submitted in the format specified for submittals under Section 01 33 00—Submittals. Where documentation provided in electronic form requires unique software for viewing test results, CONTRACTOR shall provide one licensed copy of the software along with the above documentation.
 2. Insertion loss test data, including a record of test wavelengths, cable type, fiber and cable (or Outlet) i.d., measurement direction, test equipment type, model and serial number, date, reference setup, and crew member name(s).

END OF SECTION

SECTION 28 46 00

FIRE ALARM SYSTEM

PART 1—GENERAL

1.01 SUMMARY

- A. Work includes the furnishing of all labor, equipment, materials, and performance of all operations associated with the installation of new initiation and notification devices and integration into the existing Fire Alarm System as shown on the Drawings and as specified herein to meet the requirements of a complete Fire Alarm System.
- B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

- A. NFPA 72 National Fire Alarm Code.
- B. NFPA 70 National Electrical Code.
- C. ADA.
- D. Underwriters Laboratories.
- E. NFPA 101 Life Safety Code.
- F. NFPA 90.
- G. International Building Code.
- H. International Fire Code.
- I. International Mechanical Code.

1.03 SCOPE

- A. Furnish and install additions to an existing Fire Alarm System to be wired, connected, and left in first class operating condition. The system shall be UL listed, cross-listed, and compatible for use with individual zone supervision, individual NAC supervision, and incoming and standby power supervision. The project includes furnishing a system which includes manual stations, smoke detectors, heat detectors, audible/visual devices, visual only devices, all wiring, connections to devices, outlet boxes, junction boxes, and all other necessary material for a complete operating system.
- B. The work covered by this section of the specifications includes the furnishing of all labor, equipment, materials, and performance of all operations in connection with additions to a Fire Alarm System as shown on the Drawings and as herein specified.

1.04 QUALITY ASSURANCE

- A. System Supplier shall be a nationally-recognized company specializing in smoke detection and fire alarm systems. This organization shall employ factory-trained and NICET-certified technicians, and shall maintain a service organization within 100 miles of this project location. The System Supplier and service organization shall have a minimum of 10 years' experience in the fire protective signaling systems industry.
- B. The System Supplier shall supply the final checkout, contractual service, and testing.
- C. The complete installation is to conform to the applicable sections of NFPA-72, NFPA-101 Local Code Requirements and National Electrical Code with particular attention to Article 760.
- D. Each and all items of the complete Fire Alarm System shall be listed as a product of a single fire alarm system manufacturer unless the primary equipment provider or manufacturer provides written documentation of compatibility and assumes responsibility for compatibility with the control equipment.
- E. Each and all items of the complete Fire Alarm System shall be listed under the appropriate category by Underwriters Laboratories, Inc. (UL), and shall bear the UL label.

1.05 MANUFACTURER PROVIDED SERVICES

- A. A manufacturer-trained service technician shall provide the following installation supervision. This technician shall be certified by the equipment manufacturer and shall have a minimum of two years of service experience in the fire alarm industry.
- B. The technician's name shall appear on equipment submittals and a letter of certification from the fire alarm manufacturer shall be sent to ENGINEER. The manufacturer's service technician shall be responsible for the following items:
 - 1. Pre installation visit to the job site to review equipment submittals and verify method by which the system should be wired.
 - 2. Periodic job site visits to verify installation and wiring of system, and to perform any partial system programming required to permit portions of the existing system to be removed.
 - 3. Upon completion of wiring, final connections shall be made under the supervision of this technician, and final checkout and certification of the system.
 - 4. At the time of final checkout, technician shall give operational instructions to OWNER and/or its representative on the system.
 - 5. All job site visits shall be dated and documented in writing and signed by the Division 26 Contractor. Any discrepancy shall be noted on this document and a copy kept in the system job folder that shall be available to ENGINEER any time during the project.

1.06 QUALIFICATIONS

- A. All equipment shall be supplied by a firm, which specializes in fire alarm and smoke detection systems with a minimum of five years-documented experience. The company shall be an authorized distributor of the proposed equipment.

- B. All work shall be performed by a licensed contractor, who is regularly engaged in the installation and servicing of fire alarm systems.

1.07 PRODUCT DELIVERY, STORAGE, AND HANDLING REQUIREMENTS

- A. Receive equipment at job site; verify applicable components and quantity delivered.
- B. Handle equipment to prevent internal components' damage and breakage, as well as denting and scoring of enclosure finish.
- C. Do not install damaged equipment.
- D. Store equipment in a clean, dry space and protect from dirt, fumes, water, and construction debris and physical damage. Make arrangements with OWNER at the pre-construction conference for storage of equipment on the premises.

1.08 SUBMITTALS

- A. Submit shop drawings and product data sheets in accordance with provisions of Section 01 33 00–Submittals.
- B. Submittals shall be sent to and approved by the Authority Having Jurisdiction prior to submitting to ENGINEER. Include copy of approval letters in submittal to ENGINEER.
- C. Provide wiring diagrams, equipment ratings, dimensions, and finishes for all proposed devices and equipment.
- D. Provide updated battery calculations to indicate both the Standby and Alarm loads because of various field devices and panel components/module. Battery calculations shall illustrate the minimum battery capacity required and the capacity actually provided. Battery shall contain date of installation and not the manufactured date.
- E. Provide an updated Fire Alarm System plan and riser diagram including: Point of origin of each circuit (usually a Panel, or a Module within a panel), circuit type and labeling, area served by each circuit, wire/cable type and size, locations of panelboards where primary system power is obtained and the device type circuit(s) to which device is connected, and locations of any End-Of-Line Resistor for each field device. Include room name and number for each device.
- F. Provide updated “worst-case” notification appliance circuit voltage drop calculation.

1.09 RECORD DRAWINGS

- A. Record Drawings shall include the location of all Fire Alarm System devices with their respective labels and the location of all end-of-line device locations.
- B. Upon completion of the work, and final acceptance by the local authority, CONTRACTOR shall submit Record Drawings to OWNER and ENGINEER under the provisions of Division 01.
- C. CONTRACTOR shall submit a copy of the Fire Alarm System; Record of Completion documentation to OWNER, ENGINEER, and AUTHORITY HAVING JURISDICTION.

Included with the Record of Completion documentation shall be a copy of final acceptance testing results.

- D. Record Drawings shall be provided to OWNER on a flash drive or DVD. Site-specific fire alarm system program shall be included on a flash drive or DVD.

1.10 OPERATION AND MAINTENANCE DATA

- A. Submit Manufacturer data sheets for all equipment installed.

1.11 WARRANTY

- A. Standard One-Year Warranty: Unless otherwise stated below, manufacturer shall warrant the equipment to be free from defects in material and workmanship for a period of one year from the earlier of either the date established for partial utilization in accordance with GC15.03 and 15.04, as modified in the Supplementary Conditions, or Substantial Completion of the project.

PART 2-PRODUCTS

2.01 SYSTEM DESCRIPTION

- A. Fire Alarm System: Provide new devices connected to the existing fire alarm system as shown on the Drawings.

2.02 ENCLOSURES

- A. All peripheral devices shall be the standard product of a single manufacturer and shall display the manufacturer's name on each component.

2.03 INTELLIGENT FIRE ALARM CONTROL PANEL (FACP)

- A. Intelligent fire alarm devices shall be installed where shown on the Drawings.
- B. Existing fire alarm control panel is Fire-Lite Alarms by Honeywell, model MS-9200UDLS. The existing system is serviced and configured by Midwest Alarms (608) 441-5476. Contractor is responsible for coordinating all equipment, configuration and approval of the system with Midwest Alarms.

2.04 NAC BOOSTER PANELS (REMOTE POWER SUPPLIES)

- A. Where they are used, "NAC Power Booster Panels" shall be individually supervised. Interconnecting NAC Booster Panels in a manner that prevents identification of individual panel TROUBLE conditions shall not be approved. NAC Booster Panels shall be wired to dedicated Emergency Power Branch Circuits, where available.
- B. If NAC Booster Panels are needed at locations other than those identified on the construction drawings, Division 26 Contractor shall obtain approval for their proposed installation locations. At such locations, Division 26 Contractor shall provide any required circuit breakers, associated power wiring, and local smoke detection at the approved location.

Power shall be obtained from the nearest available emergency panel. The cost of such equipment and installation shall be included within the Base Bid.

2.05 INTELLIGENT PERIPHERAL DEVICES

- A. All devices shall be supervised for trouble conditions. The system control panel shall be capable of displaying the type of trouble condition (open, short, device missing/failed). Failure of a device shall not hinder the operation of other system devices.

2.06 DEVICE IDENTIFICATION

- A. Each intelligent device shall be uniquely identified by an address code entered on each device at time of installation. The use of jumpers to set address shall not be acceptable. This address, along with the loop number, shall be indicated and be visible from the ground on the device in the field using machine-generated marking.
- B. Location of the end-of-line (EOL) device shall be indicated on the fire alarm system device containing the EOL device.
- C. Device identification schemes that do not use uniquely set addresses, but rely on electrical position along the communication channel are unacceptable. These systems cannot accommodate T-tapping, and the addition of an intelligent device between existing devices requires reprogramming all existing devices beyond the added device.
- D. The system must verify that the proper type device is in place and matches the desired software configuration.

2.07 HORN/STROBE UNITS

- A. Horns shall have Lexan housing with field-adjustable output taps, three taps minimum. Sound pressure level output shall be 87 dB at 10 feet. Horns shall have vandal-resistant Lexan grills and sealed backs to protect the phenolic impregnated cone.
- B. The unit shall be complete with a tamper-resistant Lexan lens with "FIRE" lettering visible from a 180 degree field of view. Strobes installed in open areas such as hallways, open office spaces, and assembly areas shall have an adjustable candela rating range from 15-75 candela. Strobes installed in mechanical areas shall have a peak candela rating of 110 candela. All strobes shall be in compliance with ADA requirements.

2.08 INTELLIGENT THERMAL DETECTORS

- A. The detectors shall be a combination rate-of-rise and fixed temperature (135°F unless noted).
- B. Detectors shall sense within a temperature range of 32°F to 158°F. The control panel shall be capable of sensing either a setpoint of 135°F, or a rate-of-rise of 15°F to 20°F per minute for fire sensing. For utility sensing, a setpoint may be chosen within the stated range, and the control panel programming shall be capable of using that information to determine specific response such as warning of failure of local temperature controls.

2.09 MULTI-CRITERIA DETECTORS

- A. The intelligent multi-criteria detector shall have advanced software to continuously sample the air in an environment and adjust its detection parameters and alarm threshold accordingly. It shall do this automatically, without user intervention.
- B. Detector shall incorporate either thermal and photoelectric technologies or thermal, photoelectric, and carbon monoxide technologies.
- C. Detector shall have on-board microprocessor and advanced software that focuses on rejecting nuisance alarms.

2.10 CARBON MONOXIDE DETECTORS

- A. Carbon monoxide detector shall be listed to UL 2075 for Gas and Vapor Detectors and Sensors. The detector shall be equipped with a sounder and a trouble relay. The detector's base shall be mountable to a single-gang electrical box. Wiring connections shall be made by means screws. The detector shall provide dual color LED indication that blinks to indicate normal standby, alarm, or end-of-life. When the sensor supervision is in a trouble condition, the detector shall send a trouble signal to the panel. The detector shall provide a means to test CO gas entry into the CO sensing cell. The detector shall provide this with a test mode that accepts CO gas from a test agent and alarms immediately upon sensing CO entry.
- B. Carbon monoxide alarm signals shall be displayed as SUPERVISORY signals on the fire alarm system displays.

PART 3—EXECUTION

3.01 INSTALLATION

- A. The complete installation shall be done in a neat, workmanlike manner in accordance with the applicable requirements of NFPA 70—Article 760 and the manufacturer's recommendations.
- B. If field conditions require, cover all smoke detection devices with plastic bags immediately after installation to maintain cleanliness.

3.02 FIRE ALARM SYSTEM CONFIGURATION

- A. The FACP in the Radio room of the Municipal Building shall function as the main panel for the entire site. All alarms and supervisory messages for the entire site shall be annunciated through this panel. Notification of alarms to off-site monitoring agency shall be through this panel.

3.03 FIRE ALARM SYSTEM OPERATION

- A. Smoke Detection Operation:
 - 1. The activation of any system smoke detector shall initiate an alarm verification operation whereby the FACP will reset the activated detector and wait for a second alarm activation. If after 20 seconds and within 1 minute after resetting a second alarm is reported from the same or any other smoke detector, the system shall process the

alarm as described previously. If no second alarm occurs within 1 minute, the system shall resume normal operation. The alarm verification shall operate only on single smoke or heat detector alarm. Other activated initiating devices or multiple smoke or heat detector alarms shall be processed and reported immediately. The alarm verification operation shall be selectable by device or zone.

2. The intelligent system shall have the capability of displaying the number of times (tally) a detector has gone into a verification mode.
3. The FACP shall maintain a moving average of the detector's smoke chamber value to automatically compensate (move the threshold) for dust and dirty conditions that could affect detection operations. The system shall automatically maintain a constant smoke obscuration sensitivity for each detector (via the floating threshold) by compensating for environmental factors. Photoelectric detector's smoke obscuration sensitivity shall be adjustable to within 0.3% of either limit of the UL window (0.5% to 4.0%) to compensate for any environment.
4. The system shall automatically indicate when an individual detector needs cleaning. When a detector's average value reaches a predetermined level, a trouble MESSAGE shall be audibly and visibly indicated at the FACP for the individual detector. Additionally, the LED on the detector base shall glow steady giving a visible indication at the detector's location. If the trouble condition is left unattended and the detector's average value increases to a second predetermined value, another trouble MESSAGE shall be indicated at the FACP for the individual detector. To prevent false alarms, these TROUBLE conditions shall in no way decrease the amount of smoke obscuration necessary for system activation. For scheduling of maintenance, the control panel shall be able to generate a MESSAGE indication for any detector approaching a trouble condition because of dirt or contamination.

3.04 ALARM SEQUENCE

- A. The system alarm operation subsequent to the alarm activation of any manual station or automatic detection device shall be as follows:
 1. All audible alarm notification appliances shall sound with the following characteristics: Temporal code pattern until silenced by the alarm silence switch at the FACP.
 2. All visible alarm notification appliances: Xenon Strobes shall display a continuous (synchronized where indicated on the Drawings) pattern until system is reset. Strobe intensities are indicated on the Drawings for adherence with ADA.
 3. Alarm horns and strobes shall be wired and operate independently.
 4. A supervised signal to notify the central station is to be activated.
- B. Activation of an auxiliary bypass means shall override the automatic functions either selectively or throughout the system.

3.05 SUPERVISION

- A. Auxiliary circuits for addressable relays shall be supervised so that a blown fuse or an open in the circuit shall be visibly and audibly annunciated.

3.06 RACEWAYS

- A. All wiring shall be in a conduit system separate from all other building wiring. Conduit and boxes shall be painted red. See Section 26 05 33—Conduit for specifications.
- B. All wiring shall be installed in minimum 3/4-inch conduit.

- C. Surface access to existing alarm initiating circuits in public areas shall be via UL listed surface metal raceways (minimum equivalent to 3/4-inch conduit) and box extensions.
- D. There shall be no sharp edges with installed materials.

3.07 CONDUCTORS

- A. All cable shall be installed according to NEC Article 760.
- B. All cables and wires shall be No. 14 AWG and larger and shall be stranded.
- C. All initiation and notification circuit cabling shall be listed Type FPL.
- D. All wiring shall be completely supervised. In the event of a primary power failure, disconnected standby battery, disarrangement of any components, any open circuits or grounds in the system, an audible and visual trouble signal shall be activated until the system is restored to normal.
- E. All conductors shall be color-coded. Coding shall be consistent throughout the facility. Green wire shall be used only for equipment ground.
- F. NAC panels shall be connected to separate dedicated branch circuit from the building emergency panel, maximum 20 amperes. Circuit breaker shall be red and labeled as "FIRE ALARM."
- G. Cable for Intelligent Detector Loops shall be 18 to 12 AWG twisted pair with a shield jacket installed in 3/4-inch conduit. Shield continuity must be maintained and connected to earth ground only at the control panel. Intelligent detector wiring must not be in the same conduit with 120/240 VAC power wiring or other high current circuits. T-taps or branch circuit connections are allowed for all class B intelligent loop circuits.
- H. Wiring of alarm horn circuits and alarm strobe circuits shall be No. 14 AWG minimum.
- I. Fire alarm cables shall be held in place at the device box by means of a two-screw connector (do not use squeeze- or crimp-type connectors).
- J. All splices or connections shall be made within approved junction boxes and with approved fittings. Boxes shall be red and/or labeled "FIRE ALARM SYSTEM" by decal or other approved markings.
- K. Strobe circuits shall have separate conductors and shall operate independently of each other.
- L. Strobe wiring shall be 14 AWG minimum or as recommend by manufacturer.
- M. Tray cable is not acceptable for use as fire alarm systems wiring.

3.08 DEVICE MOUNTING

- A. Unless otherwise noted on the Drawings, the recommended mounting heights and requirements are as follows:
 - 1. Audio-Visual Devices:

- a. Install flush, semiflush, or surface mount at 6 inches below finished ceiling or at 80 inches from the bottom of the device to the highest level of the finished floor. No devices protruding 4 inches or more shall be installed lower than 80 inches.
 - b. All audio/visual devices shall be installed at the same height throughout the facility.
 - c. For surface mounting, use manufacturer-supplied back boxes and trim plates. Mark each device with its circuit number.
2. Smoke and Carbon Monoxide Detectors:
- a. The location of detectors shown on the Drawings is schematic only. The detectors must be located according to code requirements.
 - b. Surface mounted detectors shall be installed using backboxes equal to the base's size. Standard octagon and square boxes are not acceptable.
 - c. Detectors shall be located on the highest part of a smooth ceiling so that the edge of the detector is no closer than 4 inches from a sidewall. Ceilings with beams, joists, or soffits that exceed 8 inches in depth require special planning and closer spacing. Verify with manufacturer.
 - d. If it is necessary to mount a detector upon a sidewall, the top of the detector shall be located no closer than 4 inches from the ceiling and no further away than 12 inches.
 - e. Smoke detectors shall be installed to favor the air flow towards return openings and not located closer than 3 feet from air supply diffusers which could dilute smoke before it reaches the detector. No detectors shall be installed in direct airflow.
 - f. Smoke detectors should be located near the center of the open area which they are protecting, thus providing coverage generally for 15-foot radius for smoke detectors and a 25-foot radius for heat detectors. Verify location with ENGINEER.
 - g. Mark the address and loop number on each detector's base.

3.09 IDENTIFICATION

- A. Attach the label containing the address and SLC designation to:
 - 1. Each addressable detector. Label shall be visible and readable from the floor, 3/16-inch minimum character size (1/4 inch is recommended).
 - 2. Each manual pull station. Label shall be placed on the top part.
 - 3. Each addressable module. Label shall be attached to the faceplate.
- B. Label shall consist of black writing on white or clear background.
- C. All fire alarm boxes shall be painted red and labeled "Fire Alarm" or "FA." When red conduit is used for the fire alarm system installation, there is no need to paint the boxes. Non-factory device boxes shall also be painted red.
- D. All circuits must be labeled with the name of circuit and the area being served by the circuit.
- E. Wire/cable splices in junction boxes shall be labeled indicating where the wire/cable is coming from and where it is going.
- F. All conductors terminated in control panels, annunciator panels, and extension panels shall be labeled.
- G. All audio-visual devices shall be labeled by each circuit and the order of the device on that circuit such as "Circuit No. 2, strobe No. 05 of 10."

- H. All labels shall be permanent and machine generated. No handwritten or non-permanent labels shall be allowed. Submit a sample for approval before using any labeling schemes.

3.10 FIELD START-UP AND COMMISSIONING

- A. Provide the services of a manufacturer's qualified NICET-certified technician to assist CONTRACTOR in installation and start-up of the equipment specified in this section. The manufacturer's representative shall provide technical direction and assistance to CONTRACTOR in general operation of the equipment, connections and adjustments, and testing of the assembly and components contained therein.
- B. The manufacturer's representative shall provide inspection of the final installation. The manufacturer's representative shall perform site start-up and functional checkout of the equipment. Upon completion of the manufacturer's start-up and checkout, the manufacturer shall generate a site start-up and functional checkout report, documenting all systems checked as well as any incomplete work remaining and operational deficiencies. CONTRACTOR shall provide three copies of the manufacturer's site start-up and functional checkout report to ENGINEER for review.
- C. CONTRACTOR shall be responsible for all costs required to check operation of the system.
- D. The completed fire alarm system shall be fully tested by the manufacturer in accordance with the Wisconsin Building Code, and all applicable local building codes in the presence of OWNER's representative and the local Fire Marshal. Upon completion of a successful test, a certification shall be issued in writing to OWNER and CONTRACTOR.

END OF SECTION

For more location information
please visit www.strand.com

Office Locations

Ames, Iowa | 515.233.0000

Brenham, Texas | 979.836.7937

Cincinnati, Ohio | 513.861.5600

Columbus, Indiana | 812.372.9911

Columbus, Ohio | 614.835.0460

Joliet, Illinois | 815.744.4200

Lexington, Kentucky | 859.225.8500

Louisville, Kentucky | 502.583.7020

Madison, Wisconsin* | 608.251.4843

Milwaukee, Wisconsin | 414.271.0771

Nashville, Tennessee | 615.800.5888

Phoenix, Arizona | 602.437.3733

*Corporate Headquarters

