PROJECT MANUAL

FOR

Coeur d’Alene District #1 HQ
Main Generator Replacement

OWNER
State of Idaho
Idaho Transportation Department
3311 State Street
Boise, Idaho 83707

Architects West
210 E. Lakeside Avenue
Coeur d’Alene, Idaho 83814
(208) 667-9402

DATE: May 15, 2018
SECTION 000101 – PROJECT TITLE PAGE

PROJECT MANUAL
FOR
IDAHO TRANSPORTATION DEPARTMENT
COEUR D'ALENE MAIN GENERATOR REPLACEMENT
PROJECT NUMBER: 18-104
STATE OF IDAHO – IDAHO TRANSPORTATION DEPARTMENT
3311 STATE STREET
BOISE, IDAHO 83707

END OF SECTION 000101
SECTION 000103 – PROJECT DIRECTORY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Identification of project team members and their contact information.

1.02 OWNER:

A. State of Idaho – Idaho Transportation Department – District #1
   600 Prairie Avenue
   Coeur d’Alene, Idaho 83815
   (208) 772-1200

B. Primary Contact:
   Mike Lenz
   (208) 772-1225 – office
   (208) 758-5807 – cell
   Mike.lenz@idt.idaho.gov

1.03 Architect:

Architects West
210 East Lakeside Avenue
Coeur d’Alene, Idaho 83814

Primary Contact:
Scott Fischer
(208) 667-9402 – office
(208) 661-7610 – cell
scottf@architectswest.com

1.04 Construction Manager:

Petra, Incorporated
1097 N. Rosario Street
Suite 200
Meridian, Idaho 83642

Primary Contact:
Roy Jackson
(208) 323-4500 – office
rjackson@petraine.net

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END OF SECTION 000115
LEGAL NOTICE ADVERTISEMENT FOR BID: The ITD (Idaho Transportation Department) is soliciting sealed proposals for Construction Services for

Coeur d’Alene District #1 HQ/Main Generator Replacement

Proposals will be received at the Idaho Transportation Department Headquarters, Business and Support Management Building at 3311 State Street, Boise, Idaho 83707 on Tuesday, June 12th, 2018 at 9:00am Local Time.

A Pre-Bid Conference will be held at the Site at 10:00 AM on Friday June 1st, 2018 to discuss the work, address any concerns and provide opportunity to visually inspect the site and conditions of the work. Attendance is strongly encouraged. Bid Forms for the work are bound with the Project Manual. Mike Lenz, Operations TSEA will conduct the tour. Cell Phone: 208-758-5807.

Bidders are invited to attend a public bid opening where bids will be read aloud at the Idaho Transportation Department Headquarters, Business and Support Management Building at 3311 State Street, Boise, Idaho 83707, immediately following the closing time for receipt of bids. Owner reserves the right to reject any or all bids, or to waive informalities.

Bids must be accompanied by a Bid Bond issued by an Idaho Licensed Surety Company or accompanied by a certified or cashier's check from an Idaho Bank payable to the Owner in an amount no less than 5% of the total bid. This surety shall be forfeited by the bidder should the bidder fail to sign the contract or furnish the required 100% Performance and 100% Payment Bonds.


Bidder shall be licensed in the State of Idaho in accordance with Idaho State Public Works license law, Title 54 - Chapter 19 - Idaho Code Amended. Bidder shall comply with all Equal Employment Opportunity provisions required by federal regulations. Bidder shall be in compliance with State of Idaho Title 44 - Chapter 13, Idaho Code Amended as it relates to payment of wages and employment practices.
Instructions to Bidders

for the following PROJECT:
(Name and location or address)
Coeur d'Alene District #1 HQ Main Generator Replacement
Idaho Transportation Department
600 W. Prairie Avenue
Coeur d'Alene, Idaho

THE OWNER:
(Name, legal status and address)
State of Idaho Transportation Department
3311 West State Street
Boise, Idaho 83707

THE ARCHITECT:
(Name, legal status and address)
Architects West
210 East Lakeside Avenue
Coeur d'Alene, Idaho 83814

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

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.
ARTICLE 1 DEFINITIONS

§ 1.1 Bidding Documents include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of the Advertisement or Invitation to Bid, Instructions to Bidders, Supplementary Instructions to Bidders, the bid form, and other sample bidding and contract forms. The proposed Contract Documents consist of the form of Agreement between the Owner and Contractor, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications and all Addenda issued prior to execution of the Contract.

§ 1.2 Definitions set forth in the General Conditions of the Contract for Construction, AIA Document A201, or in other Contract Documents are applicable to the Bidding Documents.

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

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

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

§ 1.6 An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

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

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

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

ARTICLE 2 BIDDER’S REPRESENTATIONS

§ 2.1 The Bidder by making a Bid represents that:
§ 2.1.1 The Bidder has read and understands the Bidding Documents or Contract Documents, to the extent that such documentation relates to the Work for which the Bid is submitted, and for other portions of the Project, if any, being bid concurrently or presently under construction.

§ 2.1.2 The Bid is made in compliance with the Bidding Documents.

§ 2.1.3 The Bidder has visited the site, become familiar with local conditions under which the Work is to be performed and has correlated the Bidder’s personal observations with the requirements of the proposed Contract Documents.

§ 2.1.4 The Bid is based upon the materials, equipment and systems required by the Bidding Documents without exception.

ARTICLE 3 BIDDING DOCUMENTS

§ 3.1 COPIES
§ 3.1.1 Bidders may obtain complete sets of the Bidding Documents from the issuing office designated in the Advertisement or Invitation to Bid in the number and for the deposit sum, if any, stated therein. The deposit will be refunded to Bidders who submit a bona fide Bid and return the Bidding Documents in good condition within ten days after receipt of Bids. The cost of replacement of missing or damaged documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the Bidding Documents and the Bidder’s deposit will be refunded.

§ 3.1.2 Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the Advertisement or Invitation to Bid, or in supplementary instructions to bidders.
§ 3.1.3 Bidders shall use complete sets of Bidding Documents in preparing Bids; neither the Owner nor Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

§ 3.1.4 The Owner and Architect may make copies of the Bidding Documents available on the above terms for the purpose of obtaining Bids on the Work. No license or grant of use is conferred by issuance of copies of the Bidding Documents.

§ 3.2 INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS
§ 3.2.1 The Bidder shall carefully study and compare the Bidding Documents with each other, and with other work being bid concurrently or presently under construction to the extent that it relates to the Work for which the Bid is submitted, shall examine the site and local conditions, and shall at once report to the Architect errors, inconsistencies or ambiguities discovered.

§ 3.2.2 Bidders and Sub-bidders requiring clarification or interpretation of the Bidding Documents shall make a written request which shall reach the Architect at least seven days prior to the date for receipt of Bids.

§ 3.2.3 Interpretations, corrections and changes of the Bidding Documents will be made by Addendum. Interpretations, corrections and changes of the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely upon them.

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

§ 3.3.2 No substitution will be considered prior to receipt of Bids unless written request for approval has been received by the Architect at least ten days prior to the date for receipt of Bids. Such requests shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitution including drawings, performance and test data, and other information necessary for an evaluation. A statement setting forth changes in other materials, equipment or other portions of the Work, including changes in the work of other contracts that incorporation of the proposed substitution would require, shall be included. The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

§ 3.3.3 If the Architect approves a proposed substitution prior to receipt of Bids, such approval will be set forth in an Addendum. Bidders shall not rely upon approvals made in any other manner.

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

§ 3.4 ADDENDA
§ 3.4.1 Addenda will be transmitted to all who are known by the issuing office to have received a complete set of Bidding Documents.

§ 3.4.2 Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.

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

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

ARTICLE 4 BIDDING PROCEDURES
§ 4.1 PREPARATION OF BIDS
§ 4.1.1 Bids shall be submitted on the forms included with the Bidding Documents.
§ 4.1.2 All blanks on the bid form shall be legibly executed in a non-erasable medium.

§ 4.1.3 Sums shall be expressed in both words and figures. In case of discrepancy, the amount written in words shall govern.

§ 4.1.4 Interlineations, alterations and erasures must be initialed by the signer of the Bid.

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

§ 4.1.6 Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder's refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall make no additional stipulations on the bid form nor qualify the Bid in any other manner.

§ 4.1.7 Each copy of the Bid shall state the legal name of the Bidder and the nature of legal form of the Bidder. The Bidder shall provide evidence of legal authority to perform within the jurisdiction of the Work. Each copy shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further give the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached certifying the agent's authority to bind the Bidder.

§ 4.2 BID SECURITY

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

§ 4.2.2 If a surety bond is required, it shall be written on AIA Document A310, Bid Bond, unless otherwise provided in the Bidding Documents, and the attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of the power of attorney.

§ 4.2.3 The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until either (a) the Contract has been executed and bonds, if required, have been furnished, or (b) the specified time has clapsed so that Bids may be withdrawn or (c) all Bids have been rejected.

§ 4.3 SUBMISSION OF BIDS

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

§ 4.3.2 Bids shall be deposited at the designated location prior to the time and date for receipt of Bids. Bids received after the time and date for receipt of Bids will be returned unopened.

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

§ 4.3.4 Oral, telephonic, telegraphic, facsimile or other electronically transmitted bids will not be considered.

§ 4.4 MODIFICATION OR WITHDRAWAL OF BID

§ 4.4.1 A Bid may not be modified, withdrawn or canceled by the Bidder during the stipulated time period following the time and date designated for the receipt of Bids, and each Bidder so agrees in submitting a Bid.

§ 4.4.2 Prior to the time and date designated for receipt of Bids, a Bid submitted may be modified or withdrawn by notice to the party receiving Bids at the place designated for receipt of Bids. Such notice shall be in writing over the
signature of the Bidder. Written confirmation over the signature of the Bidder shall be received, and date- and
time-stamped by the receiving party on or before the date and time set for receipt of Bids. A change shall be so worded
as not to reveal the amount of the original Bid.

§ 4.4.3 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids provided that
they are then fully in conformance with these Instructions to Bidders.

§ 4.4.4 Bid security, if required, shall be in an amount sufficient for the Bid as resubmitted.

ARTICLE 5 CONSIDERATION OF BIDS
§ 5.1 OPENING OF BIDS
At the discretion of the Owner, if stipulated in the Advertisement or Invitation to Bid, the properly identified Bids
received on time will be publicly opened and will be read aloud. An abstract of the Bids may be made available to
Bidders.

§ 5.2 REJECTION OF BIDS
The Owner shall have the right to reject any or all Bids. A Bid not accompanied by a required bid security or by other
data required by the Bidding Documents, or a Bid which is in any way incomplete or irregular is subject to rejection.

§ 5.3 ACCEPTANCE OF BID (AWARD)
§ 5.3.1 It is the intent of the Owner to award a Contract to the lowest qualified Bidder provided the Bid has been
submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available.
The Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which,
in the Owner’s judgment, is in the Owner’s own best interests.

§ 5.3.2 The Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically
provided in the Bidding Documents, and to determine the low Bidder on the basis of the sum of the Base Bid and
Alternates accepted.

ARTICLE 6 POST-BID INFORMATION
§ 6.1 CONTRACTOR’S QUALIFICATION STATEMENT
Bidders to whom award of a Contract is under consideration shall submit to the Architect, upon request, a properly
executed AIA Document A305, Contractor’s Qualification Statement, unless such a Statement has been previously
required and submitted as a prerequisite to the issuance of Bidding Documents.

§ 6.2 OWNER’S FINANCIAL CAPABILITY
The Owner shall, at the request of the Bidder to whom award of a Contract is under consideration and no later than
seven days prior to the expiration of the time for withdrawal of Bids, furnish to the Bidder reasonable evidence that
financial arrangements have been made to fulfill the Owner’s obligations under the Contract. Unless such reasonable
evidence is furnished, the Bidder will not be required to execute the Agreement between the Owner and Contractor.

§ 6.3 SUBMITTALS
§ 6.3.1 The Bidder shall, as soon as practicable or as stipulated in the Bidding Documents, after notification of
selection for the award of a Contract, furnish to the Owner through the Architect in writing:
.1 a designation of the Work to be performed with the Bidder’s own forces;
.2 names of the manufacturers, products, and the suppliers of principal items or systems of materials and
equipment proposed for the Work; and
.3 names of persons or entities (including those who are to furnish materials or equipment fabricated to a
special design) proposed for the principal portions of the Work.

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

§ 6.3.3 Prior to the execution of the Contract, the Architect will notify the Bidder in writing if either the Owner or
Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner
or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder’s option, (1)

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withdraw the Bid or (2) submit an acceptable substitute person or entity with an adjustment in the Base Bid or Alternate Bid to cover the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

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

ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND

§ 7.1 BOND REQUIREMENTS
§ 7.1.1 If stipulated in the Bidding Documents, the Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Bonds may be secured through the Bidder’s usual sources.

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

§ 7.1.3 If the Owner requires that bonds be secured from other than the Bidder’s usual sources, changes in cost will be adjusted as provided in the Contract Documents.

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

§ 7.2.2 Unless otherwise provided, the bonds shall be written on AIA Document A312, Performance Bond and Payment Bond. Both bonds shall be written in the amount of the Contract Sum.

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

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

ARTICLE 8 FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR
Unless otherwise required in the Bidding Documents, the Agreement for the Work will be written on AIA Document A101, Standard Form of Agreement Between Owner and Contractor Where the Basis of Payment Is a Stipulated Sum.
SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

The following supplements modify, change, delete from or add to the Instructions to Bidders, AIA Document A701, 1997 Edition. Where any Article of the Instruction to Bidders is modified or any Paragraph, Subparagraph or Clause thereof is modified or deleted by the Supplementary Instructions to Bidders, the unaltered provisions of that Article, Paragraph, Subparagraph or Clause shall remain in effect.

ARTICLE 3 BIDDING DOCUMENTS
Add to or supplement Article 3, with the following:
3.2.1.1 Where Owner can reasonably establish that a bidder has knowledge or and failed to report a material error, inconsistency, or inaccuracy, Owner may find bidder non-responsive or unresponsible.

ARTICLE 4 BIDDING PROCEDURES
Add to or supplement Article 4, with the following:
4.1.1 A photocopy of the form bound in the Project Manual or a modified form included in an addendum is acceptable.
4.1.7 A corporate seal is not required if not required by the state of incorporation.
4.1.8 Bidder shall be a legal resident of the United States of America and shall only employ legal residents.
4.1.8.1 If the Bidder is a corporation, partnership, sole proprietorship or other legal entity, and employs individual persons, by submitting its bid, the Bidder warrants that it does not knowingly hire or engage any illegal aliens or persons not authorized to work in the United States; it takes steps to verify that it does not hire or engage any illegal aliens or persons not authorized to work in the United States; and that any misrepresentation in this regard or any employment of persons not authorized to work in the United States constitutes a material breach and shall be cause for the imposition of monetary penalties and/or termination of any contract resulting from this bid; or
4.1.8.2 If the Bidder is a natural person eighteen (18) years of age or older,
   a. by submitting its bid, Bidder warrants that its bid is subject to Idaho Code section 67-7903 and, pursuant thereto, by submitting its bid, Bidder attests, under penalty of perjury, that it is a United State citizen or legal permanent resident or that it is otherwise lawfully present in the United State pursuant to federal law; and
   b. prior to being issued a contract, Bidder will be required to submit proof of lawful presence in the United State in accordance with Idaho Code section 67-7903.
4.1.9 Bids submitted must contain all original signatures in ink on all required forms, including the following:
   • Bid Proposal Form
   • Contractor's Affidavit concerning Alcohol and Drug-Free Workplace
   • Bidders Acknowledgement Statement
   • Bid Bond

4.2.1 Delete the last sentence.
4.2.1.1 To be considered, proposals must be accompanied by an acceptable security in the amount not less than five (5) percent of the total amount of the bid including all alternates. The security may be in the form of a bond or certified or cashier's check.
4.2.1.2 A successful bidder who fails to sign the contract for the work or furnish the required bonds within 10 days following the receipt of Notice of Intent to Award a Contract, shall forfeit the security. The Owner may then award the contract to the next lowest bidder.
4.2.2 A standard surety bid bond form meeting all the conditions of the AIA Document A310 is acceptable.
4.2.3.1 The specified time for retainage of the bid security is 45 days after the opening of bids, so long as the
bidder has not been notified of the acceptance of the bid.

4.3.1.1 The mailing envelope containing the bid shall be addressed as follows:

Idaho Transportation Department  
P.O. Box 83720  
Boise, Idaho 83720-0072  
Attn: Tony Pire – Bid Proposal/Coeur d’Alene Generator Replacement

4.3.5 Along with his bid the bidder shall submit an affidavit certifying his compliance with Idaho Code, Title 72, Chapter 17, requiring the contractor and his subcontractors at the time of bid to provide a drug-free workplace program and to maintain such program throughout the duration of the contract.

4.3.6 Along with his bid the bidder shall submit an executed copy of the Bidder’s Acknowledgement Statement provided herein.

ARTICLE 5 CONSIDERATION OF BIDS
Add to Article 5, the following:

5.4 PUBLIC WORKS CONTRACTORS LICENSE
5.4.1 This Public Works project is not financed in whole or in part by Federal Aid Funds. Bid Proposals will be accepted from those contractors only (prime contractors, subcontractor, and/or specialty contractors) who, prior to the bid opening, hold current licenses as public works contractors in the State of Idaho.

5.5 EMPLOYMENT PRACTICES
5.5.1 Bids shall be based on the provisions of Section 44-1001 and 44-1002 of the Idaho Code dealing with labor preference.

5.6 NAMING OF SUBCONTRACTORS
5.6.1 Section 67-2310, Idaho Code, requires general (prime) contractors to include in their bid the name of the subcontractors who shall, in the event the contractor secures the contract, subcontract the plumbing, HVAC, and electrical work under the general prime contract. Failure to name subcontractors, as required, shall render any bid submitted by a general (prime) contractor unresponsive and void. Subcontractors named in accordance with the provisions of this section must possess an appropriate license or certificate of competency issued by the State of Idaho covering the contractor work classification in which the subcontractor is named.

The Idaho Transportation Department requires the bidder to complete Bid Proposal Page 2 in its entirety for all categories of work listed. The Idaho Transportation Department also requires that the general (prime) contractor name the entity that will perform the work, including if the entity is a subcontractor, a sub-subcontractor or the general (prime) contractor submitting the bid. Failure to complete Bid Proposal, Page 2 in full shall render a bid unresponsive and void.

With regard to possessing an appropriate license or certificate of competency all subcontractors listed by the general (prime) contractor must have at the time of the bid opening a current license in the appropriate category (class, type and specialty category) as issued by the Public Works Contractors State License Board. In addition, plumbing, HVAC and electrical subcontractors shall have at the time of the bid opening a valid plumbing contractor’s license, HVAC contractor’s license or electrical contractor’s license, respectively, as issued by the Idaho Division of Building Safety.

In determining if the above listed subcontractors are required on the project, the Idaho Transportation Department will refer to the plans and specifications. If doubt exists prior to bid
closing, potential bidders should contact the Idaho Transportation Department and the architect/engineer who prepare the plans and specifications will be requested to make the determination. If plumbing, HVAC, boiler, or electrical work in not shown on the plans and specifications, but is discovered by the bidder subsequent to the date of bid opening, then the bidder must request clarification form the architect/engineer. Absent such clarification, work will be considered incidental and naming of the subcontractor will not be required.

5.7 IDAHO DOMICILED CONTRACTORS

5.7.1 Section 67-2348, Idaho Code, requires the Idaho Transportation Department to apply a preference in determining which contractor submitted the lowest responsible bid. If the contractor who submitted the lowest dollar bid is domiciled in a state, which has preference law, which penalizes Idaho domiciled contractors then the Idaho Transportation Department must apply preference. The preference that will be applied is the preference of the domiciliary state of the contractor who submitted the lowest dollar bid.

Generally speaking, a contractor’s domiciliary state is the state in which the contractor’s home office is located. If federal fund are involved in the project then no preference will be used.

ARTICLE 6; POST BID INFORMATION

Delete paragraph 6.2

ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND

Modify and add to Article 7, the following:

In subparagraph 7.2.1, in the first sentence, delete “three days following the date of execution of the Contract”; and substitute “ten days following the receipt of Notice of Intent to Award”.

7.2.2.1 Performance bond and labor and material payment bond are required for this project; each in an amount of not less than 100% of the contract amount, and issued by a surety company authorized to do business in Idaho.

END OF SUPPLEMENTARY INSTRUCTIONS TO BIDDERS
IDAHO TRANSPORTATION DEPARTMENT
COEUR D'ALENE DISTRICT #1 HQ / MAIN GENERATOR REPLACEMENT

BID PROPOSAL FORM

TO: Idaho Transportation Department
    P.O. Box 83720
    Boise, Idaho  83720
    Attn: Tony Pire – Bid Proposal/Coeur d’Alene District #1 HQ/Main Generator Replacement

Bidding Contractor:

In compliance with your Invitation for Bid for the construction of (ITD Project No.18104, Coeur d’Alene District #1 HQ/Main Generator Replacement), having examined the bidding and contract documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project, including the availability of materials and labor, the Bidder hereby proposes to furnish all labor, materials and supplies, and to provide the service and insurance in accordance with the Bidding Requirements and Contract Documents, within the time set forth therein, and at the price(s) stated below. These prices are to cover all expenses incurred in performing the work required under the Contract Documents.

Bidder hereby agrees to commence work under this contract on a date to be specified in a written "Notice to Proceed" by the Construction Manager and to substantially complete the Work within 120 consecutive calendar days thereafter.

SCOPE OF WORK:

The complete work of removing and replacing the generator system.

INCLUDED IN THIS BID PACKAGE:

Provide safety barriers/fencing around work area.

GENERAL PROVISIONS:

Bidder shall assign and provide to the site, a designated, full-time, competent supervisor over all of the bidder’s activities; supervisor shall have knowledge of the trade work and be of capacity to make decisions on the behalf of the Bidder.

The successful bidder shall coordinate with the Owner’s staff as the work progresses with respect to any changes in scope of work, material selections, methods, scheduling and quality.

The “Scope of Work” description above is intended to describe the general scope of the work included in this Bid Package. Incidental work related to the general scope outlined above, not specifically described, is deemed to be included. It is the intent the bidder for this work will provide all resources necessary for complete functioning systems and installations.

It is the responsibility of the bidder to review all of the plans and specifications and include all work described in this Bid Package related to this work that is referenced in all bid documents. Bidder should be familiar with the scope of all other bid packages. The Bidder shall ask any questions and bring to the Construction Manager’s attention, any discrepancies in the bid documents prior to submitting this bid proposal.
It is the responsibility of the bidder to clean up and remove refuse related to their work on a daily basis unless specifically noted otherwise or directed otherwise in the field.

OSHA safety regulations will be strictly enforced. All workers on site will adhere to OSHA required PP&E and be easily identifiable with minimum Hi-Vis Class 2 safety vests worn at all times.

Any and all concerns and questions through to bidding phase will be addressed to the Construction Manager. Do not request clarifications from the Architect, Engineer or the Owner. All questions shall be emailed to Roy Jackson at: rjackson@pettrainc.net

Bidder warrants that bid has been prepared and that any contract resulting from acceptance of this bid is subject to Subparagraph 4.1.8.1 of the Supplementary Instructions to Bidders.

BASE PROPOSAL:

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informality in the bidding.

The bidder agrees that this bid shall be good and may not be withdrawn for a period of 45 calendar days after the scheduled closing time for receiving bids.

The bid security attached in the amount of 5% of the bid amount is to become the property of the Owner in the event the contract and bond are not executed within the time set forth, as liquidated damages for the deal and additional expense to the Owner caused thereby.

Upon receipt of written notice of the acceptance of this bid, Bidder will execute the formal contract: attached within 10 days and deliver a Surety Bond or Bonds as required by Article 7 of the Instructions to Bidders as modified by the Supplementary Instructions to Bidders.

Pursuant to Section 67-2310, Idaho Code, commonly known as the naming law, the names and addresses of the entities who will perform the plumbing, heating and air conditioning and electrical work, subject to approval of Owner and Architect, if Undersigned is awarded the Contract, are as follows:

Plumbing (PWCLB Category 15400)
(Name)_______________________
(Address)______________________
Idaho Public Works Contractors License No. ________________
Idaho Plumbing Contractors License No. ________________

Heating, Ventilating & Air Conditioning (HVAC) (PWCLB Category 15700)
(Name)_______________________
(Address)______________________
Idaho Public Works Contractors License No. ________________
Idaho HVAC Contractors License No. ________________

Electrical (PWCLB Category 16000)
(Name)_______________________
(Address)______________________
Idaho Public Works Contractors License No. ________________
Idaho Electrical Contractors License No. ________________
ITD District 3 Shop Maintenance Building,
Bid Package # 1 Hazardous Material Abatement & Selective Demolition Page
3 of 3
FAILURE TO NAME A PROPERLY LICENSED CONTRACTOR IN EACH OF THE ABOVE CATEGORIES WILL RENDER THE BID UNRESPONSIVE AND VOID. If a bidder determines plumbing, heating/air conditioning and/or electrical work is not required to be done by a licensed contractor, bidder should complete the line referencing that work with “Not applicable” and provide an explanation.

Should the listing of subcontractors change due to selection of alternates or other similar circumstances, attach explanation.

Respectfully submitted,

Acknowledgment Addenda

Bidder agrees to perform all of the base proposal work described in the specifications and shown on the plans for the sum of:

Base Bid Amount: ____________________________

($ ____________________________)

The undersigned notifies that he/she is, of this date, duly licensed as an Idaho Public Works Contractor and further that he/she possesses Idaho Public Works Contractor's License No. ____________________________, and is domiciled in the State of ____________________________.

Company Name: ____________________________

Business Address: ____________________________

By: ____________________________ Title: ____________________________

(Authorized Signature)

Dated this ________ day of __________, 2018

Phone: ____________________________ email: ____________________________ Fax: ____________________________

(Seal - if bid is by a corporation)

Have you remembered to initial and include all pages of this Bid Package, to include your bid security (bid bond or a certified or a cashier’s check), Contractor’s Affidavit Concerning Alcohol and Drug-Free Workplace and a signed copy of the Bidder’s Acknowledgment Statement in with your bid? If these are not included, your bid will be considered non-responsive.

END OF BID PROPOSAL.
CONTRACTOR'S AFFIDAVIT
CONCERNING ALCOHOL AND DRUG-FREE WORKPLACE

STATE OF ______________________

COUNTY OF ______________________

Pursuant to the Idaho Code, Section 72-1717, I, the undersigned, being duly sworn, depose and certify that _________________________________ is in compliance with the provisions of Idaho Code section 72-1717; that _________________________________ provides a drug-free workplace program that complies with the provisions of Idaho Code, title 72, chapter 17 and will maintain such program throughout the life of a state construction contract and that _________________________________ shall subcontract work only to subcontractors meeting the requirements of Idaho Code, section 72-1717(1)(a).

Name of Contractor

Address

City and State

By: _________________________________
(Signature)

Subscribed and sworn to before me this __________________ day of __________________, ______.

Commission expires:

________________________________________________________________________

NOTARY PUBLIC, residing at

________________________________________________________________________

FAILURE TO EXECUTE THIS AFFIDAVIT AND SUBMIT IT ALONG WITH YOUR BID SHALL MAKE YOUR BID NON-RESPONSIVE.

CONTRACTOR'S AFFIDAVIT ON ALCOHOL AND DRUG-FREE WORKPLACE

BOILR-2005 CM revised 02/27/17

CAdfw - 1
Section 004102

Execute and Submit with Bid.

BIDDER'S ACKNOWLEDGEMENT STATEMENT
NOTE: THE INFORMATION CONTAINED HEREIN IS A SUMMARY OF VITAL CONTRACT PROVISIONS AND DOES NOT CHANGE THE CONTRACT DOCUMENTS THAT WILL GOVERN THIS PROJECT.

Idaho Transportation Department Project No. 18-104

By submitting a bid for this project, the undersigned bidder agrees that, if awarded the contract for construction, Contractor will conform to all conditions and requirements of the contract, including but not limited to:

- Contractor agrees to comply with subparagraph 13.1.3 of the Supplementary Conditions pertaining to Sections 44-1001 and 44-1002, Idaho Code requiring the employment of 95% bona fide Idaho residents and providing for a preference in the employment of bona fide Idaho residents and regarding the employment of persons not authorized to work in the United States.

- Contractor will substantially complete the work within the time stated in the contract documents, or as modified by Change Order.

- If the Contractor fails to substantially complete the Project within the time stated in the contract documents, or as modified by Change Order, the Contractor agrees that the Owner may deduct from the contract amount liquidated damages in the amount per calendar day indicated in the Contract Documents times the number of calendar days until the project is Substantially Complete, as defined in the Contract Documents and as determined by the Architect (or Engineer).

- The Contractor agrees that the amount allowed for overhead and profit on any Change Order is limited to the amounts indicated in paragraph 7.3.10 of the General Conditions of the Contract for Construction, as supplemented, which are stated below.

  1. for total changes of $10,000 or less in direct cost, the amount allowed for overhead, profit, bonds and insurance for the Contractor and all subcontractors of any tier combined shall not exceed twenty percent (20%) of direct costs.

  2. for total changes exceeding $10,000 in direct cost, the amount allowed for overhead, profit, bonds and insurance for the Contractor and all subcontractors of any tier combined shall not exceed fifteen percent (15%) of direct costs.

  3. the Contractor will determine the amount of overhead and profit to be apportioned between the Contractor and its subcontractor of allowable amounts of overhead, profit, bonds and insurance.

- The Contractor agrees that Change Orders are governed by the General Conditions of the Contract for Construction, as supplemented, including but not limited to Section 7.2.3 and Section 7.2.4 of the Supplementary Conditions.
By the execution of a Change Order, the Contractor agrees and acknowledges that he has had sufficient time and opportunity to examine the change in work which is the subject of the Change Order and that he has undertaken all reasonable efforts to discover and disclose any concealed or unknown conditions which may to any extent affect the Contractor's ability to perform in accordance with the Change Order. Aside from those matters specifically set forth in the Change Order, the Owner shall not be obligated to make any adjustments to either the Contract Sum or Contract Time by reason of any conditions affecting the change in work addressed by the Change Order that could have reasonably been discovered or disclosed by the Contractor's examination.

Any Change Order fully executed by the Owner, Contractor and Architect (or Engineer), including but not limited to a Change Order arising by reason of the parties' mutual agreement or by mediation, shall constitute a final and full settlement of all matters relating to or affected by the change in the Work, including but not limited to, all direct and consequential costs associated with such change and any and all adjustments to the Contract Sum and Contract Time. In the event a Change Order increases the Contract Sum, the Contractor shall include the work covered by such Change Order in the Application for Payment as if such work were originally part of the Project and Contract Documents.

FAILURE TO EXECUTE THIS ACKNOWLEDGEMENT WILL MAKE THE BID NONRESPONSIVE.

I, ____________________________________________, being duly authorized to bind the bidder
(type or print name of individual)
__________________________________________________________, does hereby certify that
(type or print name of company)
__________________________________________________________ has fully read and
understands this document and that it highlights certain parts of the contract that will be entered between the parties and that will govern this Project.

Signed: ____________________________________________

Title: ____________________________________________

Date: __________________

END OF BIDDER'S ACKNOWLEDGEMENT STATEMENT

BIDDER'S ACKNOWLEDGEMENT STATEMENT

BOILR-2005 CM revised 02/27/17

(May, 2018)
REQUEST FOR TAX RELEASE

Date: ______________

RE: ITD Project Number: 18-104

Project Name: Coeur d'Alene District #1 HQ Main Generator Replacement

State Agency: Idaho Transportation Department

Contractor Requesting Release – Name: ______________________________________

Address: ________________________________________________________________

Contact Name: ___________________________________________________________

Telephone Number: _______________________________________________________

Federal Employer Identification No.: _________________________________________

Project Information:

Project is Complete: _______________________________________________________

Project is Substantially Complete: __________________________________________

Project Start Date: _______________________________________________________

Project Complete Date: ___________________________________________________

Final Contract Amount (including change orders): _____________________________

Did any public works or other governmental agency supply materials, which were installed by this contractor or his subcontractors?  Yes ________

No ________

If yes, list these materials and their dollar values: ____________________________
To request a Tax Release, please send this form to:

Attn: Contract Desk; Sales Tax Audit; Idaho State Tax Commission;
PO Box 36; Boise, ID 83722
SECTION 005000 - CONTRACTING FORMS AND SUPPLEMENTS

PART 1 GENERAL

1.01 CONTRACTOR IS RESPONSIBLE FOR OBTAINING A VALID LICENSE TO USE ALL COPYRIGHTED DOCUMENTS SPECIFIED BUT NOT INCLUDED IN THE PROJECT MANUAL.

1.02 AGREEMENT AND CONDITIONS OF THE CONTRACT

A. See Section 007200 - General Conditions for the General Conditions.
B. See Section 007300 - Supplementary Conditions for the Supplementary Conditions.
C. The Agreement is based on AIA A132/CMa.
D. The General Conditions are based on AIA A232/CMa.

1.03 FORMS

A. Use the following forms for the specified purposes unless otherwise indicated elsewhere in the Contract Documents.
B. Bond Forms:
   1. Bid Bond Form: AIA A310.
   2. Performance and Payment Bond Form: AIA A312.
C. Post-Award Certificates and Other Forms:
      a. Supplemental Attachment: AIA G715
   2. Application for Payment Forms: AIA G732, AIA G736 and AIA G737 (for Construction Manager as Adviser to compile and summarize contractor's application and certificate for payment).
D. Clarification and Modification Forms:
   2. Change Order Form (for Construction Manager as Adviser): AIA G701CMa.
E. Closeout Forms:

1.04 REFERENCE STANDARDS

A. AIA A132 - Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition; 2009.
C. AIA A310 - 3rd Bond; 2010.
D. AIA A312 - Performance Bond and Payment Bond; 2010.
J. AIA G736 - Project Application and Project Certificate for Payment, Construction Manager as Adviser Edition; 2009.
K. AIA G737 - Summary of Contractors' Applications for Payment, Construction Manager as Adviser Edition; 2009.
SECTION 005200 - AGREEMENT FORM

PART 1 GENERAL

1.01 FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

A. AIA Document A132/CMa, 2009 Edition, Standard Form of Agreement Between Owner and Contractor - Construction Manager-Adviser Edition will be used as the agreement for this project. Copies of AIA Document A132/CMa are available for review at the offices of the Owner, Architect, and Construction Manager. Copies of the document may be purchased from the American Institute of Architects or its local distributor.

1.02 RELATED REQUIREMENTS

A. Section 007200 - General Conditions.
B. Section 007300 - Supplementary Conditions.
C. Section 014216 - Definitions.

1.03 MODIFICATIONS TO THE AGREEMENT FORM

A. ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

1. 3.1 The date of commencement will be fixed by issuance of a "Notice of Intent to Award" and a "Notice to Proceed". Delete the last sentence of paragraph 3.1.
2. 3.2 Liquidated damages will be included as provided in the Supplementary Conditions.

B. ARTICLE 5 PAYMENTS

1. In paragraph 5.2, delete "as follows:" and replace with "a day agreed upon by the Owner and Contractor."
2. Delete paragraph 5.3 and substitute the following:
3. 5.3 Provided that an application for payment is received by the Construction Manager on the established date, the Owner shall make payment to the Contractor not later than 21 days from receipt by the Owner of the certification by the Construction Manager.
4. In subparagraphs 5.6.1 and 5.6.2 Retainage will be five percent (5%) for work completed and material suitably stored.
5. In subparagraph 5.6.1, delete the last sentence. Delete subparagraphs 5.7.1, 5.7.2 and paragraph 5.8.
6. No reduction in retainage will be allowed prior to final completion without written approval of the Owner. Refer to Supplementary Condition 9.6.1.1.
7. Add new paragraph 5.9:
8. 5.9 A condition will be included forbidding more retainage from a subcontractor or supplier than retained from their portion of the work.

C. ARTICLE 7 MISCELLANEOUS PROVISIONS

1. 7.2 Will be modified to agree with paragraph 13.6.1 of the Supplementary Conditions.
2. 7.4.1 Contractor warrants that it does not knowingly hire or engage any illegal aliens or persons not authorized to work in the United States; it takes steps to verify that it does not hire or engage any illegal aliens or persons not authorized to work in the United States; and that any misrepresentation in this regard or any employment of persons not authorized to work in the United States constitutes a material breach and shall be cause for the imposition of monetary penalties not to exceed five percent (5%) of the total Contract Amount per violation and/or termination of this contract.

D. ARTICLE 8 TERMINATION OR SUSPENSION

1. Add to both paragraphs 8.1 and 8.2 "as modified by the Supplementary Conditions."

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION 005200
STATE OF IDAHO

COUNTY OF ADA

Pursuant to the Idaho Code, Title 63, Chapter 15, I, the undersigned, being duly sworn, deponent and certify that all taxes, excises and license fees due to the State or its taxing units, for which I or my property is liable then due or delinquent, has been paid, or arrangements have been made, before entering into a contract for construction of any public works in the State of Idaho.

Name of Contractor

Address

City and State

By: ____________________________ (Signature)

Subscribed and sworn to before me this ________________ day of ________________, ______.

Commission expires:

NOTARY PUBLIC, residing at

______________________________

______________________________
General Conditions of the Contract for Construction, Construction Manager as Adviser Edition

for the following PROJECT:
(Name, and location or address)

Idaho Transportation Department
Coeur d'Alene District #1 HQ Main Generator Replacement
600 W. Prairie Avenue
Coeur d'Alene, Idaho

THE CONSTRUCTION MANAGER:
(Name, legal status and address)

Petra, Incorporated
1097 N. Rosario Street, Suite 200
Meridian, Idaho 83642

THE OWNER:
(Name, legal status and address)

State of Idaho Transportation Department
3311 West State Street
Boise, Idaho 83707

THE ARCHITECT:
(Name, legal status and address)

Architects West
210 E. Lakeside Aveneu
Coeur d'Alene, Idaho 83814

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

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

This document is intended to be used in conjunction with AIA Documents A132™—2008, Standard Form of Agreement Between Owner and Contractor, Constructor Manager as Adviser Edition; B132™—2009, Standard Form of Agreement Between Owner and Architect, Construction Manager as Adviser Edition; and C132™—2009, Standard Form of Agreement Between Owner and Construction Manager as Adviser.
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User Notes:
ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

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

§ 1.1.2 The Contract. The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect’s consultants, (2) between the Owner and the Construction Manager or the Construction Manager’s consultants, (3) between the Owner and the Architect or the Architect’s consultants, (4) between the Contractor and the Construction Manager or the Construction Manager’s consultants, (5) between the Owner and a Subcontractor or Sub-subcontractor (6) between the Construction Manager and the Architect, or (7) between any persons or entities other than the Owner and Contractor. The Construction Manager and Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of their duties.

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

§ 1.1.4 The Project. The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by other Multiple Prime Contractors and by the Owner’s own forces, including persons or entities under separate contracts not administered by the Construction Manager.

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

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

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

§ 1.1.8 Initial Decision Maker. The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2 and certify termination of the Agreement under Section 14.2.2.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.
§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

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

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

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

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

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

§ 1.6 Transmission of Data in Digital Form
If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

ARTICLE 2 OWNER
§ 2.1 General
§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Article 4, the Construction Manager and the Architect do not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

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

§ 2.2 Information and Services Required of the Owner
§ 2.2.1 Prior to commencement of the Work, the Contractor may request in writing that the Owner provide reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. Thereafter, the Contractor may only request such evidence if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum; or (3) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or the
portion of the Work affected by a material change. After the Owner furnishes the evidence, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

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

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

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

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

§ 2.2.6 The Owner shall endeavor to forward all communications to the Contractor through the Construction Manager and shall contemporaneously provide the same communications to the Architect about matters arising out of or relating to the Contract Documents.

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

§ 2.4 Owner’s Right to Carry Out the Work
If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner’s expenses and compensation for the Construction Manager’s and Architect’s and their respective consultants’ additional services made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect, after consultation with the Construction Manager. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

ARTICLE 3 CONTRACTOR
§ 3.1 General
§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term “Contractor” means the Contractor or the Contractor’s authorized representative.

§ 3.1.2 The plural term “Multiple Prime Contractors” refers to persons or entities who perform construction under contracts with the Owner that are administered by the Construction Manager. The term does not include the Owner’s own forces, including persons or entities under separate contracts not administered by the Construction Manager.
§ 3.1.3 The Contractor shall perform the Work in accordance with the Contract Documents.

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

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

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

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.2.3, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Construction Manager and Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information submitted to the Construction Manager in such form as the Construction Manager and Architect may require. It is recognized that the Contractor’s review is made in the Contractor’s capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

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

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

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor’s best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents otherwise instruct concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof, and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner, the Construction Manager, and the Architect and shall not proceed with that portion of the Work without further written instructions from the Architect, through the Construction Manager. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures.
§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor’s employees, Subcontractors and their agents and employees, and other persons performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

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

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

§ 3.4.2 Except in the case of minor changes in the Work authorized by the Architect in accordance with Sections 3.12, 8 or 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect, in consultation with the Construction Manager, and in accordance with a Change Order or Construction Change Directive.

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

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

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

§ 3.7 Permits, Fees, Notices, and Compliance with Laws
§ 3.7.1 Unless otherwise provided in the Contract Documents, the Owner, through the Construction Manager, shall secure and pay for the building permit. The Contractor shall secure and pay for other permits, fees, licenses and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

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

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

§ 3.7.4 Concealed or Unknown Conditions. If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner, Construction Manager, and the Architect before conditions are disturbed and in no event later than 21 days after first observance of the conditions. The Architect and Construction
Manager will promptly investigate such conditions and, if the Architect, in consultation with the Construction Manager, determines that they differ materially and cause an increase or decrease in the Contractor’s cost or, time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect, in consultation with the Construction Manager, determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner, Construction Manager, and Contractor in writing, stating the reasons. If the Owner or Contractor disputes the Architect’s determination or recommendation, either party may proceed as provided in Article 15.

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

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

§ 3.8.2 Unless otherwise provided in the Contract Documents:

.1 Allowing allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;

.2 Contractor’s costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and

.3 Whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor’s costs under Section 3.8.2.2.

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

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

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner and Architect through the Construction Manager, the name and qualifications of a proposed superintendent. The Construction Manager may reply within 14 days to the Contractor in writing stating (1) whether the Owner, the Construction Manager, or the Architect has reasonable objection to the proposed superintendent or (2) that any of them require additional time to review. Failure of the Construction Manager to reply within the 14 day period shall constitute notice of no reasonable objection.

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

§ 3.10 Contractor’s Construction Schedules
§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner’s and Architect’s information and the Construction Manager’s approval a Contractor’s construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project schedule to the extent required by the Contract Documents, and shall provide for expedient and practicable execution of the Work.
The Contractor shall cooperate with the Construction Manager in scheduling and performing the Contractor’s Work to avoid conflict with, and as to cause no delay in, the work or activities of other Multiple Prime Contractors or the construction or operations of the Owner’s own forces.

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

§ 3.10.3 The Contractor shall participate with other Contractors, the Construction Manager and Owner in reviewing and coordinating all schedules for incorporation into the Project schedule that is prepared by the Construction Manager. The Contractor shall make revisions to the construction schedule and submittal schedule as deemed necessary by the Construction Manager to conform to the Project schedule.

§ 3.10.4 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner, Construction Manager and Architect and incorporated into the approved Project schedule.

§ 3.11 Documents and Samples at the Site
The Contractor shall maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These documents shall be available to the Architect and delivered to the Construction Manager for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

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

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

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

§ 3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. Their purpose is to demonstrate the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect and Construction Manager is subject to the limitations of Sections 4.2.9 through 4.2.11. Informational submittals upon which the Construction Manager and Architect are not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Construction Manager or Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Construction Manager Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in accordance with the Project submittal schedule approved by the Construction Manager and Architect, or in the absence of an approved Project submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of other Multiple Prime Contractors or the Owner’s own forces. The Contractor shall cooperate with the Construction Manager in the coordination of the Contractor’s Shop Drawings, Product Data, Samples and similar submittals with related documents submitted by other Multiple Prime Contractors.

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

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

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

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

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor’s responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional’s written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Owner and Architect have satisfied the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

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

§ 3.13.2 The Contractor shall coordinate the Contractor’s operations with, and secure the approval of, the Construction Manager before using any portion of the site.

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

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner’s own forces or of other Multiple Prime Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner’s own forces or by other Multiple Prime Contractors except with written consent of the Construction Manager.
Owner and such other Multiple Prime Contractors; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the other Multiple Prime Contractors or the Owner the Contractor’s consent to cutting or otherwise altering the Work.

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

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner, or Construction Manager with the Owner’s approval, may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work
The Contractor shall provide the Owner, Construction Manager and Architect access to the Work in preparation and progress wherever located.

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

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

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

ARTICLE 4 ARCHITECT AND CONSTRUCTION MANAGER
§ 4.1 General
§ 4.1.1 The Owner shall retain an architect lawfully licensed to practice architecture or an entity lawfully practicing architecture in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 4.1.2 The Owner shall retain a construction manager lawfully licensed to practice construction management or an entity lawfully practicing construction management in the jurisdiction where the Project is located. That person or entity is identified as the Construction Manager in the Agreement and is referred to throughout the Contract Documents as if singular in number.
§ 4.1.3 Duties, responsibilities and limitations of authority of the Construction Manager and Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Construction Manager, Architect and Contractor. Consent shall not be unreasonably withheld.

§ 4.1.4 If the employment of the Construction Manager or Architect is terminated, the Owner shall employ a successor construction manager or architect as to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Construction Manager or Architect, respectively.

§ 4.2 Administration of the Contract

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

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner and Construction Manager (1) known deviations from the Contract Documents and from the most recent Project schedule prepared by the Construction Manager, and (2) defects and deficiencies observed in the Work.

§ 4.2.3 The Construction Manager shall provide a staffing plan to include one or more representatives who shall be in attendance at the Project site whenever the Work is being performed. The Construction Manager will determine in general if the Work observed is being performed in accordance with the Contract Documents, will keep the Owner reasonably informed of the progress of the Work, and will report to the Owner and Architect (1) known deviations from the Contract Documents and the most recent Project schedule, and (2) defects and deficiencies observed in the Work.

§ 4.2.4 The Construction Manager will schedule and coordinate the activities of the Contractor and other Multiple Prime Contractors in accordance with the latest approved Project schedule.

§ 4.2.5 The Construction Manager, except to the extent required by Section 4.2.4, and Architect will not have control over, or charge of, construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor’s rights and responsibilities under the Contract Documents, except as provided in Section 3.3.1, and neither will be responsible for the Contractor’s failure to perform the Work in accordance with the requirements of the Contract Documents. Neither the Construction Manager nor the Architect will have control over or charge of or be responsible for acts or omissions of the Contractor, Subcontractors, their agents or employees, or of any other persons or entities performing portions of the Work.

§ 4.2.6 Communications Facilitating Contract Administration. Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Construction Manager, and shall contemporaneously provide the same communications to the Architect about matters arising out of or relating to the Contract Documents. Communications by and with the Architect’s consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with other Multiple Prime Contractors shall be through the Construction Manager and shall be contemporaneously provided to the Architect if those communications are about matters arising out of or related to the Contract Documents. Communications by and with the Owner’s own forces shall be through the Owner.

§ 4.2.7 The Construction Manager and Architect will review and certify all Applications for Payment by the Contractor, in accordance with the provisions of Article 9.

§ 4.2.8 The Architect and Construction Manager have authority to reject Work that does not conform to the Contract Documents and will notify each other about the rejection. The Construction Manager shall determine in general
whether the Work of the Contractor is being performed in accordance with the requirements of the Contract Documents and notify the Owner, Contractor and Architect of defects and deficiencies in the Work. Whenever the Construction Manager considers it necessary or advisable, the Construction Manager will have authority to require additional inspection or testing of the Work in accordance with Sections 13.5.2 and 13.5.3, upon written authorization of the Owner, whether or not such Work is fabricated, installed or completed. The foregoing authority of the Construction Manager will be subject to the provisions of Sections 4.2.18 through 4.2.20 inclusive, with respect to interpretations and decisions of the Architect. However, neither the Architect nor the Construction Manager’s authority to act under this Section 4.2.8 nor a decision made by either of them in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect or the Construction Manager to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons performing any of the Work.

§ 4.2.9 The Construction Manager will receive and promptly review for conformance with the submittal requirements of the Contract Documents, all submittals from the Contractor such as Shop Drawings, Product Data and Samples. Where there are Multiple Prime Contractors, the Construction Manager will also check and coordinate the information contained within each submittal received from Contractor and other Multiple Prime Contractors, and transmit to the Architect those recommended for approval. By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner and Architect that the Construction Manager has reviewed and recommended them for approval. The Construction Manager’s actions will be taken in accordance with the Project submittal schedule approved by the Architect or, in the absence of an approved Project submittal schedule, with reasonable promptness while allowing sufficient time to permit adequate review by the Architect.

§ 4.2.10 The Architect will review and approve or take other appropriate action upon the Contractor’s submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect’s action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect’s professional judgment to permit adequate review. Upon the Architect’s completed review, the Architect shall transmit its submittal review to the Construction Manager.

§ 4.2.11 Review of the Contractor’s submittals by the Construction Manager and Architect is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Construction Manager and Architect’s review of the Contractor’s submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5 and 3.12. The Construction Manager and Architect’s review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Construction Manager and Architect, of any construction means, methods, techniques, sequences or procedures. The Architect’s approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.12 The Construction Manager will prepare Change Orders and Construction Change Directives.

§ 4.2.13 The Construction Manager and the Architect will take appropriate action on Change Orders or Construction Change Directives in accordance with Article 7. and the Architect will have authority to order minor changes in the Work as provided in Section 7.4. The Architect, in consultation with the Construction Manager, will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.14 Utilizing the documents provided by the Contractor, the Construction Manager will maintain at the site for the Owner one copy of all Contract Documents, approved Shop Drawings, Product Data, Samples and similar required submittals, in good order and marked currently to record all changes and selections made during construction. These will be available to the Architect and the Contractor, and will be delivered to the Owner upon completion of the Project.

§ 4.2.15 The Construction Manager will assist the Architect in conducting inspections to determine the dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion in conjunction with the Architect pursuant to Section 9.8; and receive and forward to the Owner written warranties and related
documents required by the Contract and assembled by the Contractor pursuant to Section 9.10. The Construction Manager will forward to the Architect a final Application and Certificate for Payment or final Project Application and Project Certificate for Payment upon the Contractor’s compliance with the requirements of the Contract Documents.

§ 4.2.16 If the Owner and Architect agree, the Architect will provide one or more project representatives to assist in carrying out the Architect’s responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

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

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

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

§ 4.2.20 The Construction Manager will receive and review requests for information from the Contractor, and forward each request for information to the Architect, with the Construction Manager’s recommendation. The Architect will review and respond in writing to the Construction Manager to requests for information about the Contract Documents. The Construction Manager’s recommendation and the Architect’s response to each request will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS
§ 5.1 Definitions
§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include other Multiple Prime Contractors or subcontractors of other Multiple Prime Contractors.

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

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work
§ 5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Construction Manager for review by the Owner, Construction Manager and Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Construction Manager may reply within 14 days to the Contractor in writing stating (1) whether the Owner, the Construction Manager or the Architect has reasonable objection to any such proposed person or entity or, (2) that the Construction Manager, Architect or Owner requires additional time for review. Failure of the Construction Manager, Owner, or Architect to reply within the 14-day period shall constitute notice of no reasonable objection.

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

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

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

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

§ 5.4 Contingent Assignment of Subcontracts

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

1. the assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing; and

2. the assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

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

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

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

ARTICLE 6 CONSTRUCTION BY OWNER OR BY OTHER CONTRACTORS

§ 6.1 Owner's Right to Perform Construction with Own Forces and to Award Other Contracts

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, which include persons or entities under separate contracts not administered by the Construction Manager, and to award other contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Article 15.

§ 6.1.2 When the Owner performs construction or operations with the Owner's own forces including persons or entities under separate contracts not administered by the Construction Manager, the Owner shall provide for coordination of such forces with the Work of the Contractor, who shall cooperate with them.
§ 6.1.3 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner’s own forces, the Owner shall be deemed to be subject to the same obligations and to have the same rights that apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11 and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner’s own forces, Construction Manager and other Multiple Prime Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor’s construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor’s Work depends for proper execution or results upon construction or operations by the Owner’s own forces or other Multiple Prime Contractors, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Construction Manager and Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that the Owner’s own forces or other Multiple Prime Contractors’ completed or partially completed construction is fit and proper to receive the Contractor’s Work, except as to defects not then reasonably discoverable.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs, including costs that are payable to a separate contractor or to other Multiple Prime Contractors because of the Contractor’s delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of delays, improperly timed activities, damage to the Work or defective construction by the Owner’s own forces or other Multiple Prime Contractors.

§ 6.2.4 The Contractor shall promptly remedy damage the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner, separate contractors, or other Multiple Prime Contractors as provided in Section 10.2.5.

§ 6.2.5 The Owner and other Multiple Prime Contractors shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner’s Right to Clean Up

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

ARTICLE 7  CHANGES IN THE WORK

§ 7.1 General

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

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

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

§ 7.2 Change Orders

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

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

§ 7.3 Construction Change Directives
§ 7.3.1 A Construction Change Directive is a written order prepared by the Construction Manager and signed by the Owner, Construction Manager and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

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

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:
1. Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
2. Unit prices stated in the Contract Documents or subsequently agreed upon;
3. Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
4. As provided in Section 7.3.7.

§ 7.3.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

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

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

§ 7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Construction Manager shall determine the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Construction Manager may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.7 shall be limited to the following:
1. Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers compensation insurance;
2. Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;
3. Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
4. Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and
5. Additional costs of supervision and field office personnel directly attributable to the change.

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

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

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

§ 7.4 Minor Changes in the Work
The Architect has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes will be effected by written order issued through the Construction Manager and shall be binding on the Owner and Contractor.

ARTICLE 8 TIME
§ 8.1 Definitions
§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

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

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

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

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

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

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

§ 8.3 Delay and Extensions of Time
§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner, Owner's own forces, Construction Manager, Architect, any of the other Multiple Prime Contractors or an employee of any of them, or by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner pending mediation and arbitration, or by other causes that the Architect, based on the recommendation of the Construction Manager, determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.

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

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

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ARTICLE 9  PAYMENTS AND COMPLETION

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

§ 9.2 Schedule of Values
Where the Contract is based on a Stipulated Sum or Guaranteed Maximum Price, the Contractor shall submit to the Construction Manager, before the first Application for Payment, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Construction Manager and Architect may require. This schedule, unless objected to by the Construction Manager or Architect, shall be used as a basis for reviewing the Contractor’s Applications for Payment. In the event there is one Contractor, the Construction Manager shall forward to the Architect the Contractor’s schedule of values. If there are Multiple Prime Contractors responsible for performing different portions of the Project, the Construction Manager shall forward the Multiple Prime Contractors’ schedules of values only if requested by the Architect.

§ 9.3 Applications for Payment
§ 9.3.1 At least fifteen days before the date established for each progress payment, the Contractor shall submit to the Construction Manager an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. Such application shall be notarized, if required, and supported by such data substantiating the Contractor’s right to payment as the Owner, Construction Manager or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and shall reflect retainage if provided for in the Contract Documents.

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

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

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

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

§ 9.4 Certificates for Payment
§ 9.4.1 Where there is only one Contractor, the Construction Manager will, within seven days after the Contractor’s Application for Payment, review the Application, certify the amount the Construction Manager determines is due the Contractor, and forward the Contractor’s Application and Certificate for Payment to the Architect. Within seven days after the Architect receives the Contractor’s Application for Payment from the Construction Manager, the Architect will either issue to the Owner a Certificate for Payment, with a copy to the Construction Manager, for such amount as the Architect determines is properly due, or notify the Construction Manager and Owner in writing of the Architect’s reasons for withholding certification in whole or in part as provided

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in Section 9.5.1. The Construction Manager will promptly forward to the Contractor the Architect’s notice of withholding certification.

§ 9.4.2 Where there are Multiple Prime Contractors performing portions of the Project, the Construction Manager will, within seven days after the Construction Manager receives the Multiple Prime Contractors’ Applications for Payment: (1) review the Applications and certify the amount the Construction Manager determines is due each of the Multiple Prime Contractors; (2) prepare a Summary of Contractors’ Applications for Payment by combining information from each Multiple Prime Contractors’ application with information from similar applications for progress payments from other Multiple Prime Contractors; (3) prepare a Project Application and Certificate for Payment; (4) certify the amount the Construction Manager determines is due all Multiple Prime Contractors; and (5) forward the Summary of Contractors’ Applications for Payment and Project Application and Certificate for Payment to the Architect.

§ 9.4.3 Within seven days after the Architect receives the Project Application and Project Certificate for Payment and the Summary of Contractors’ Applications for Payment from the Construction Manager, the Architect will either issue to the Owner a Project Certificate for Payment, with a copy to the Construction Manager, for such amount as the Architect determines is properly due, or notify the Construction Manager and Owner in writing of the Architect’s reasons for withholding certification in whole or in part as provided in Section 9.5.1. The Construction Manager will promptly forward the Architect’s notice of withholding certification to the Contractors.

§ 9.4.4 The Construction Manager’s certification of an Application for Payment or, in the case of Multiple Prime Contractors, a Project Application and Certificate for Payment shall be based upon the Construction Manager’s evaluation of the Work and the information provided as part of the Application for Payment. The Construction Manager’s certification will constitute a representation that, to the best of the Construction Manager’s knowledge, information and belief, the Work has progressed to the point indicated and the quality of the Work is in accordance with the Contract Documents. The certification will also constitute a recommendation to the Architect and Owner that the Contractor be paid the amount certified.

§ 9.4.5 The Architect’s issuance of a Certificate for Payment or in the case of Multiple Prime Contractors, Project Application and Certificate for Payment, shall be based upon the Architect’s evaluation of the Work, the recommendation of the Construction Manager, and information provided as part of the Application for Payment or Project Application for Payment. The Architect’s certification will constitute a representation that, to the best of the Architect’s knowledge, information and belief, the Work has progressed to the point indicated, that the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified.

§ 9.4.6 The representations made pursuant to Sections 9.4.4 and 9.4.5 are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Construction Manager or Architect.

§ 9.4.7 The issuance of a separate Certificate for Payment or a Project Certificate for Payment will not be a representation that the Construction Manager or Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed the Contractor’s construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor’s right to payment or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Construction Manager or Architect may withhold a Certificate for Payment or Project Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Construction Manager’s or Architect’s opinion the representations to the Owner required by Section 9.4.4 and 9.4.5 cannot be made. If the Construction Manager or Architect is unable to certify payment in the amount of the Application, the Construction Manager will notify the Contractor and Owner as provided in Section 9.4.1 and 9.4.3. If the Contractor, Construction Manager and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment or a Project Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Construction Manager or Architect may also withhold a Certificate for Payment or, because of
subsequently discovered evidence or subsequent observations, may nullify the whole or a part of a Certificate for
Payment or Project Certificate for Payment previously issued, to such extent as may be necessary in the Construction
Manager’s or Architect’s opinion to protect the Owner from loss for which the Contractor is responsible, including
loss resulting from the acts and omissions described in Section 3.3.2 because of
.1 defective Work not remedied;
.2 third party claims filed or reasonable evidence indicating probable filing of such claims unless security
acceptable to the Owner is provided by the Contractor;
.3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or
equipment;
.4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
.5 damage to the Owner or a separate contractor;
.6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid
balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
.7 repeated failure to carry out the Work in accordance with the Contract Documents.

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

§ 9.5.3 If the Architect or Construction Manager withholds certification for payment under Section 9.5.1, the Owner
may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or material or equipment suppliers
to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably
delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Construction
Manager and both will reflect such payment on the next Certificate for Payment.

§ 9.6 Progress Payments
§ 9.6.1 After the Architect has issued a Certificate for Payment or Project Certificate for Payment, the Owner shall
make payment in the manner and within the time provided in the Contract Documents, and shall so notify the
Construction Manager and Architect.

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

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

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

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

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

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

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

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

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

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

§ 9.8.4 When the Architect, assisted by the Construction Manager, determines that the Work or designated portion thereof is substantially complete, the Construction Manager will prepare, and the Construction Manager and Architect shall execute a Certificate of Substantial Completion that shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

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

§ 9.9 Partial Occupancy or Use
§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Section 11.3.1.5 and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor and Construction Manager shall jointly prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall
be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect after consultation with the Construction Manager.

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

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

§ 9.10 Final Completion and Final Payment

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

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect through the Construction Manager (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner’s property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days’ prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys’ fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Construction Manager and Architect so confirm, the Owner shall, upon application by the Contractor and certification by the Construction Manager and Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect through the Construction Manager prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

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

1. liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;
2. failure of the Work to comply with the requirements of the Contract Documents; or
3. terms of special warranties required by the Contract Documents.
§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY
§ 10.1 Safety Precautions and Programs
The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall submit the Contractor’s safety program to the Construction Manager for review and coordination with the safety programs of other Contractors. The Construction Manager’s responsibilities for review and coordination of safety programs shall not extend to direct control over or charge of the acts or omissions of the Contractors, Subcontractors, agents or employees of the Contractors or Subcontractors, or any other persons performing portions of the Work and not directly employed by the Construction Manager.

§ 10.2 Safety of Persons and Property
§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to
1. employees on the Work and other persons who may be affected thereby;
2. the work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors;
3. other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction; and
4. construction or operations by the Owner or other Contractors.

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

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

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

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2, 10.2.1.3 and 10.2.1.4 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2, 10.2.1.3 and 10.2.1.4, except damage or loss attributable to acts or omissions of the Owner, Construction Manager or Architect or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

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

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

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

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

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

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

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

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

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

§ 10.4 Emergencies
In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor’s discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.
ARTICLE 11  INSURANCE AND BONDS
§ 11.1 Contractor’s Liability Insurance
§ 11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor’s operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

1. Claims under workers’ compensation, disability benefit and other similar employee benefit acts which are applicable to the Work to be performed;
2. Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor’s employees;
3. Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor’s employees;
4. Claims for damages insured by usual personal injury liability coverage;
5. Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
6. Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle; and
7. Claims for bodily injury or property damage arising out of completed operations; and
8. Claims involving contractual liability insurance applicable to the Contractor’s obligations under Section 3.18.

§ 11.1.2 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment and, with respect to the Contractor’s completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

§ 11.1.3 Certificates of insurance acceptable to the Owner shall be submitted to the Construction Manager for transmittal to the Owner with a copy to the Architect prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days’ prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage shall be furnished by the Contractor with reasonable promptness.

§ 11.1.4 The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Construction Manager, the Construction Manager’s consultants, the Owner, the Architect, and the Architect’s consultants as additional insureds for claims caused in whole or in part by the Contractor’s negligent acts or omissions during the Contractor’s operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor’s negligent acts or omissions during the Contractor’s completed operations.

§ 11.2 Owner’s Liability Insurance
The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

§ 11.3 Property Insurance
§ 11.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10 or until no person or
entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

§ 11.3.1.1 Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for the Architect's, Contractor's, and Construction Manager's services and expenses required as a result of such insured loss.

§ 11.3.1.2 If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance that will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order the cost thereof shall be charged to the Owner. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor in writing, then the Owner shall bear all reasonable costs properly attributable thereto.

§ 11.3.1.3 If the property insurance requires deductibles, the Owner shall pay costs not covered because of such deductibles.

§ 11.3.1.4 This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.

§ 11.3.1.5 Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

§ 11.3.2 Boiler and Machinery Insurance. The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Construction Manager, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds.

§ 11.3.3 Loss of Use Insurance. The Owner, at the Owner’s option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner’s property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner’s property, including consequential losses due to fire or other hazards however caused.

§ 11.3.4 If the Contractor requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

§ 11.3.5 If during the Project construction period the Owner insures properties, real or personal or both, adjoining or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Section 11.3.7 for damages caused by fire or other causes of loss covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

§ 11.3.6 Before an exposure to loss may occur, the Owner shall file with the Contractor a copy of each policy that includes insurance coverages required by this Section 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that
the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

§ 11.3.7 Waivers of Subrogation. The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees each of the other, and (2) the Construction Manager, Architect, Architect’s consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Section 11.3 or other property insurance applicable to the Work, except such rights as the Owner and Contractor may have to the proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Construction Manager, Construction Manager’s consultants, Architect, Architect’s consultants, Owner’s separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

§ 11.3.8 A loss insured under the Owner’s property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

§ 11.3.9 If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner’s duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach, or as determined in accordance with the method of binding dispute resolution selected in the Agreement between the Owner and Contractor. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 7.

§ 11.3.10 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner’s exercise of this power; if such objection is made, the dispute shall be resolved in the manner selected by the Owner and Contractor as the method of binding dispute resolution in the Agreement. If the Owner and Contractor have selected arbitration as the method of binding dispute resolution, the Owner as fiduciary shall make settlement with insurers on distribution of insurance proceeds in accordance with the direction of the arbitrators.

§ 11.4 Performance Bond and Payment Bond
§ 11.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

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

ARTICLE 12  UNCOVERING AND CORRECTION OF WORK
§ 12.1 Uncovering of Work
§ 12.1.1 If a portion of the Work is covered contrary to the Construction Manager’s or Architect’s request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by either, be uncovered for their observation and be replaced at the Contractor’s expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered which the Construction Manager or Architect has not specifically requested to observe prior to its being covered, the Construction Manager or Architect may request to see such Work...
and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner’s expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor’s expense unless the condition was caused by the Owner or one of the other Contractors in which event the Owner shall be responsible for payment of such costs.

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

§ 12.2.2 After Substantial Completion
§ 12.2.2.1 In addition to the Contractor’s obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof, or after the date for commencement of warranties established under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.4.

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

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

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

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

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

§ 12.3 Acceptance of Nonconforming Work
If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.
ARTICLE 13 MISCELLANEOUS PROVISIONS
§ 13.1 Governing Law
The Contract shall be governed by the law of the place where the Project is located except that, if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

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

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

§ 13.3 Written Notice
Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity or to an officer of the corporation for which it was intended; or if delivered at or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

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

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

§ 13.5 Tests and Inspections
§ 13.5.1 Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Construction Manager and Architect timely notice of when and where tests and inspections are to be made so that the Construction Manager and Architect may be present for such procedures. The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 13.5.2 If the Constructor Manager, Architect, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Section 13.5.1, the Contractor Manager and Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Construction Manager and Architect of when and where tests and inspections are to be made so that the Construction Manager and Architect may be present for such procedures. Such costs except as provided in Section 13.5.3, shall be at the Owner’s expense.

§ 13.5.3 If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure including those of repeated procedures and compensation for the Construction Manager’s and Architect’s services and expenses shall be at the Contractor’s expense.

§ 13.5.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Construction Manager for transmittal to the Architect.
§ 13.5.5 If the Constructor Manager or Architect is to observe tests, inspections or approvals required by the Contract Documents, the Construction Manager or Architect will do so promptly and, where practicable, at the normal place of testing.

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

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

§ 13.7 Time Limits on Claims
The Owner and the Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and the Contractor waive all claims and causes of action not commenced in accordance with this Section 13.7.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT
§ 14.1 Termination by the Contractor
§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:
   1. Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
   2. An act of government, such as a declaration of national emergency that requires all Work to be stopped;
   3. Because the Construction Manager has not certified or the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
   4. The Owner has failed to furnish to the Contractor promptly, upon the Contractor’s request, reasonable evidence as required by Section 2.1.2.

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

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days’ written notice to the Owner, Construction Manager and Architect, terminate the Contract and recover from the Owner payment for Work executed including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

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

§ 14.2 Termination by the Owner for Cause
§ 14.2.1 The Owner may terminate the Contract if the Contractor
   1. repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;

repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or

otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the above reasons exist, the Owner, after consultation with the Construction Manager, and upon certification by the Initial Decision Maker that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor’s surety, if any, seven days’ written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

.1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

.2 Accept assignment of subcontracts pursuant to Section 5.4; and

.3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

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

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

§ 14.3 Suspension by the Owner for Convenience

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

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

.1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or

.2 that an equitable adjustment is made or denied under another provision of this Contract.

§ 14.4 Termination by the Owner for Convenience

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

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

.1 cease operations as directed by the Owner in the notice;

.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

.3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner’s convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.
ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition. A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim.

§ 15.1.2 Notice of Claims. Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Initial Decision Maker with a copy sent to the Construction Manager and Architect, if the Construction Manager and or Architect is not serving as the Initial Decision Maker. Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3 Continuing Contract Performance. Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. The Construction Manager will prepare Change Orders and the Architect will issue a Certificate for Payment or Project Certificate for Payment in accordance with the decisions of the Initial Decision Maker.

§ 15.1.4 Claims for Additional Cost. If the Contractor wishes to make a Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.3.

§ 15.1.5 Claims for Additional Time

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

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

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

1. damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

2. damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.6 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those arising under Sections 10.3, 10.4, 11.3.9, and 11.3.10, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Initial Decision Maker with no decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (i) request additional supporting data from the claimant or a response with supporting data from the other party, (ii) reject the Claim in whole or in part, (iii) approve the Claim, (iv) suggest a compromise, or (v)
advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

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

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

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

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

§ 15.2.6.1 Either party may, within 30 days from the date of an initial decision, demand in writing that the other party file for mediation within 60 days of the initial decision. If such a demand is made and the party receiving the demand fails to file for mediation within the time required, then such parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

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

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

§ 15.3 Mediation
§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.6 shall be subject to mediation as a condition precedent to binding dispute resolution.

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

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

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

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

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

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

§ 15.4.4 Consolidation or Joinder

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

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

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

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**SYMBOL**

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<td>BATTERY</td>
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<td>T</td>
<td>TRANSFORMER</td>
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**GENERAL NOTES**

1. **ALL EQUIPMENT SHOWN IN SOLID UNDERSIZE SHALL BE PROVIDED AND ASSEMBLED IN THE MANNER SHOWN.**
   - **FREQUENCY, CURRENT, AND VOLTAGE RATINGS SHOWN ON DRAWING ARE CENTER LINE TO CENTER LINE.**
   - **ELECTRICAL COMPONENTS ARE TO BE PROVIDED IN CONFORMITY WITH THE SPECIFICATIONS.**
2. **SYMBOLS SHOWN ARE USED TO INDICATE THE LOCATION OF EQUIPMENT, NOT THE LOCATION OF THE EQUIPMENT ITSELF.**
3. **GENERAL NOTES APPLIED TO ALL SHEETS.**

**ABBREVIATIONS**

- **V** - Volts
- **A** - Amperes
- **W** - Watts
- **KVAR** - Kilo Volt-Ampere Reactive

**REFERENCE SYMBOLS**

- **GROUND**
- **EARTH**
- **POWER**
- **ELECTRIC**
- **WIRE**
- **CABLE**
- **CONDUIT**
- **FLEX**
- **FLAT**

**ITD GENERATOR REPLACEMENT**

- **MODEL**
- **SPECIFICATIONS**
- **ELECTRICAL LEGEND**

**Trindera Engineering**

- **Trindera Electrical Engineering**
- **Trindera Drawing Number**
- **Date of Drawing**
- **Sheet Number**
SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:
   1. Work covered by the Contract Documents.
   2. Type of the Contract.
   3. Use of premises.
   4. Owner's occupancy requirements.
   5. Work restrictions.

B. Related Sections include the following:
   1. See General Information of ITD requirements.
   2. Division 1 Section "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification: ITD Coeur d'Alene Generator Replacement

B. Project Location: Coeur d'Alene, Id.

C. The Work consists of the following:
   1. The Work includes removal and replacement of the existing generator as indicated on the drawings and as described in Electrical Scope of Work, Section 260001. The General Contractor is responsible for all other work indicated in those documents, whether listed here or not.

1.4 TYPE OF CONTRACT

A. General contract for construction.

1.5 WORK UNDER SEPARATE CONTRACTS

A. No work is anticipated under separate contract.

1.6 USE OF PREMISES

A. General: Contractor shall have limited use of premises for construction operations, to the extent shown on the plans and the other Drawings during the construction period. Contractor's use of premises is limited only by Owner's right occupy and maintain operations during the construction period and as indicated, and to perform work or to retain other contractors on portions of Project. The Contractor shall cooperate and coordinate with the Owner's Representative for all construction activities.
1. Driveways, Walkways and Entrances: Keep driveways loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
   a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
   b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

B. Condition of Existing Building: Maintain occupied portions of existing buildings, and the buildings that are to remain that are affected by construction operations in a weather tight condition throughout construction period. Repair damage caused by construction operations. Spaces must also be secure from entry by unauthorized persons.

C. Existing Activities: The owner will be conducting their normal activities associated with the Transportation Department. The contractor shall coordinate all activities on an ongoing basis with the owner to minimize and disruptions to the owner's activities.

1.7 COORDINATION WITH OCCUPANTS

A. Partial Owner Occupancy: Owner will occupy a portion of the premises throughout the construction operations. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits where they are not affected by the construction. Provide temporary egress and enclosures from portions of the building where existing exits are affected by the new construction, comply with authorities have jurisdiction for safe egress paths of occupants to the public way.
   1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
   2. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.
   3. Coordinate with owner all access and egress requirements for the conduction of ITD activities concurrent with construction activities.

1.8 WORK RESTRICTIONS

A. On-Site Work Hours: Work shall be generally performed during normal working hours of between 7 a.m. to 5 p.m., Monday through Friday, except otherwise arranged by agreement between the Contractor and the Owner.

B. Existing Utility Interruptions: Do not interrupt utilities serving facilities in use by others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
   1. Notify authorities having jurisdiction of not less than two days in advance of proposed utility interruptions.
   2. Do not proceed with utility interruptions without written permission.

C. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
   1. Notify Owner or Architect not less than two days in advance of proposed disruptive operations.
   2. Obtain Owner or Architect's written permission before proceeding with disruptive operations.
D. Non-smoking Building: Smoking is not permitted on Transportation Department property, including the construction site.

E. Controlled Substances: Use of tobacco products and other controlled substances on the Project site is not permitted.

F. Employee Identification: Provide identification tags for Contractor personnel working on the Project site. Require personnel to use identification tags at all times.

G. Employee Screening: Comply with Owner's requirements for drug and background screening of Contractor personnel working on the Project site.
   1. Maintain list of approved screened personnel with Owner's representative.

H. Burning is prohibited at all times.

1.9 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
   1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
   2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

C. Drawing Coordination: Requirements for materials and products identified on the Drawings are described in detail in the Specifications. One or more of the following are used on the Drawings to identify materials and products:
   1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
   2. Abbreviations: Materials and products are identified by abbreviations scheduled on Drawings.
   3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Architectural Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000
SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

B. Related Sections:
   1. Division 01 Section "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.
   2. Divisions 02 through 33 Sections for specific requirements and limitations for substitutions.

1.3 DEFINITIONS

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

1.4 SUBMITTALS

A. Substitution Requests: Submit one copy of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
   1. Substitution Request Form: Use form provided at end of this Section.
   2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
      a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
      b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
      c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable specification section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.

e. Samples, where applicable or requested.

f. Certificates and qualification data, where applicable or requested.

g. List of similar installations for completed projects with project names and addresses and names and addresses of architects, engineers and owners.

h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.

i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.

j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.

k. Cost information, including a proposal of change, if any, in the Contract Sum.

l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.

m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect/Engineer's Action: If necessary, Architect/Engineer will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect/Engineer will notify Contractor through acceptance or rejection of proposed substitution within 7 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.


b. Use product specified if Architect/Engineer does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

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

1.6 PROCEDURES

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

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately upon discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect/Engineer will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied,
Architect/Engineer will return requests without action, except to record noncompliance with these requirements:
   a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
   b. Substitution request is fully documented and properly submitted.
   c. Requested substitution will not adversely affect Contractor's construction schedule.
   d. Requested substitution has received necessary approvals of authorities having jurisdiction.
   e. Requested substitution is compatible with other portions of the Work.
   f. Requested substitution has been coordinated with other portions of the Work.
   g. Requested substitution provides specified warranty.
   h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Architect/Engineer will consider requests for substitution if received within 60 days after commencement of the Work. Requests received after that time may be considered or rejected at discretion of Architect/Engineer.
   1. Conditions: Architect/Engineer will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect/Engineer will return requests without action, except to record noncompliance with these requirements:
      a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect/Engineer for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
      b. Requested substitution does not require extensive revisions to the Contract Documents.
      c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
      d. Substitution request is fully documented and properly submitted.
      e. Requested substitution will not adversely affect Contractor's construction schedule.
      f. Requested substitution has received necessary approvals of authorities having jurisdiction.
      g. Requested substitution is compatible with other portions of the Work.
      h. Requested substitution has been coordinated with other portions of the Work.
      i. Requested substitution provides specified warranty.
      j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500
SUBSTITUTION REQUEST FORM

To: Architects West, Inc.  
210 E. Lakeside Ave.  
Coeur d'Alene, ID 83814  
Attn: Scott Fischer  
Phone: (208) 657-9402; Fax: (208) 667-6103  
E-mail: scottf@architectswest.com

Project: ITD Cd'A Generator Replacement  
Bid Date: ____________________________

Item Specified:
SECTION#       ITEM       MANUFACTURER

<table>
<thead>
<tr>
<th>Proposed Substitution:</th>
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<tr>
<td>Manufacturer &amp; Product:</td>
</tr>
<tr>
<td>(Include complete catalog info., model, size, type, etc.)</td>
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<tr>
<td>Address:</td>
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<td>Phone:</td>
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Include complete information on changes to Drawings /Specifications which substitution will require for proper installation.

Please respond to the following questions:
A. Does the substitution affect dimensions shown on the drawings?
   ____________________________
B. Will the undersigned pay for changes to the building design, including engineering and detailing costs caused by the requested substitution?
   ____________________________
C. What effect does the substitution have on other trades?
   ____________________________
D. What are the differences between the proposed substitution and the specified item?
   ____________________________
E. In what respect are the Manufacturer's guarantees different for the proposed substitute compared to the guarantees for the specified item?
   ____________________________

The undersigned states that the function, appearance and quality are equivalent or superior to the specified item.

Signature

Name

Firm

Address

Phone       Fax

Date

For Use by Architect/Engineer Only:

___ Accepted     ___ Accepted as noted
___ Not Accepted   ___ Received too late

Accepted for bidding: Subject to review and acceptance of submission.

Reviewed by: ____________________________
Date: ____________________________
Notes: ____________________________

05/10/18  
ITD Generator Replacement (1813.03)  
SUBSTITUTION PROCEDURES
SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

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

B. Related Sections:
   1. Division 01 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.

1.3 ARCHITECTS SUPPLEMENTAL INSTRUCTIONS:

A. Architect/Engineer will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on Architect's form, which is similar to AIA Document G710, "Architect's Supplemental Instructions" (ASI).

1.4 CHANGE ORDER PROPOSALS

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

B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect/Engineer.
   1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.

3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

4. Include costs of labor and supervision directly attributable to the change.

5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

6. Comply with requirements in Division 01 Section "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.

1.5 CONSTRUCTION CHANGE DIRECTIVES

   1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
   1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

1.6 CHANGE ORDER PROCEDURES

A. On Owner's approval of an ASI, a COP, or a CCD, Architect/Engineer will issue a Change Order for signatures of Owner and Contractor, usually once per month during the construction period.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600
SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

B. Related Sections:
   1. Division 01 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
   2. Division 01 Section "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.
   3. Division 01 Section "Submittal Procedures" for administrative requirements governing the preparation and submittal of the submittal schedule.

1.3 DEFINITIONS

A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
   1. Correlate line items in the schedule of values with other required administrative forms and schedules, including the following:
      a. Application for Payment forms with continuation sheets.
      b. Submittal schedule.
      c. Items required to be indicated as separate activities in Contractor's construction schedule.
   2. Submit the schedule of values to Architect/Engineer at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
   3. Subschedules for Phased Work: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values correlated with each phase of payment.
   4. Subschedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide subschedules showing values correlated with each element.

B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
   1. Identification: Include the following Project identification on the schedule of values:
a. Project name and location.
b. Name of Architect/Engineer.
c. Architect's project number.
d. Contractor's name and address.
e. Date of submittal.

2. Arrange schedule of values consistent with format of AIA Document G703.
3. Arrange the schedule of values in tabular form with separate columns to indicate the following for each item listed:
   a. Related Specification Section or Division.
   b. Description of the Work.
   c. Name of subcontractor.
   d. Name of manufacturer or fabricator.
   e. Name of supplier.
   f. Change Orders (numbers) that affect value.
   g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
      1) Labor.
      2) Materials.
      3) Equipment.

4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of five percent of Contract Sum.
   a. Include separate line items under Contractor and principal subcontractors for project closeout requirements in an amount totaling one percent of the Contract Sum and subcontract amount.

5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
6. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
   a. Differentiate between items stored on-site and items stored off-site. If required, include evidence of insurance.

7. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
8. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
   a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.

9. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

C. Provide records along with the application for payment each month.

1.5 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect/Engineer and paid for by Owner.
   1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
   1. Submit draft copy of Application for Payment seven days prior to due date for review by Architect/Engineer.

C. Application for Payment Forms: AIA Document G702 and AIA Document G703 as form for Applications for Payment.

D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect/Engineer will return incomplete applications without action.
   1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
   2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
   3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
   4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.

E. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
   1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
   2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
   3. Provide summary documentation for stored materials indicating the following:
      a. Materials previously stored and included in previous Applications for Payment.
      b. Work completed for this Application utilizing previously stored materials.
      c. Additional materials stored with this Application.
      d. Total materials remaining stored, including materials with this Application.

F. Transmittal: Submit three signed and notarized original copies of each Application for Payment to Architect/Engineer by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
   1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
   1. When an application shows completion of an item, submit conditional final or full waivers.
   2. Owner reserves the right to designate which entities involved in the Work must submit waivers.
   3. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.
H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
   1. List of subcontractors.
   2. Schedule of values.
   3. Contractor’s construction schedule (preliminary if not final).
   4. Combined Contractor’s construction schedule (preliminary if not final) incorporating work of multiple contracts, with indication of acceptance of schedule by each Contractor.
   5. Products list (preliminary if not final).
   6. Schedule of unit prices.
   7. Submittal schedule (preliminary if not final).
   8. List of Contractor’s staff assignments.
   9. List of Contractor’s principal consultants.
  12. Initial progress report.
  14. Certificates of insurance and insurance policies.
  15. Performance and payment bonds.
  16. Data needed to acquire Owner’s insurance.

I. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
   1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
   2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

J. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
   1. Evidence of completion of Project closeout requirements.
   2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
   3. Updated final statement, accounting for final changes to the Contract Sum.
   4. AIA Document G706, "Contractor’s Affidavit of Payment of Debts and Claims."
   5. AIA Document G706A, "Contractor’s Affidavit of Release of Liens."
   6. AIA Document G707, "Consent of Surety to Final Payment."
   7. Evidence that claims have been settled.
   8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.

PART 2 - PRODUCTS (Not Used)
PART 3 - EXECUTION (Not Used)

END OF SECTION 012900
SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
   1. General project coordination procedures.
   2. Administrative and supervisory personnel.
   3. Coordination drawings.
   4. Requests for Information (RFIs).
   5. Project meetings.

B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.

C. Related Sections:
   1. Division 01 Section "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
   2. Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
   3. Division 01 Section "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

A. RFI: Request from Owner, Architect/Engineer, or Contractor seeking information from each other during construction.

1.4 COORDINATION

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

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

C. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
   1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
   1. Preparation of Contractor's construction schedule.
   2. Preparation of the schedule of values.
   3. Installation and removal of temporary facilities and controls.
   4. Delivery and processing of submittals.
   5. Progress meetings.
   6. Preinstallation conferences.
   7. Project closeout activities.
   8. Startup and adjustment of systems.
   9. Project closeout activities.

E. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

1.5 KEY PERSONNEL

A. Key Personnel. Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site to the Architect/Engineer. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and email addresses. Provide names, addresses, and telephone numbers of individuals assigned to Project.
   1. Post copies of list in project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

1.6 REQUESTS FOR INFORMATION (RFI)

A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
   1. Architect/Engineer will return RFIs submitted to Architect/Engineer by other entities controlled by Contractor with no response.
   2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
1. Project name.
2. Project number.
3. Date.
4. Name of Contractor.
5. Name of Architect/Engineer.
6. RFI number, numbered sequentially.
7. RFI subject.
8. Specification Section number and title and related paragraphs, as appropriate.
9. Drawing number and detail references, as appropriate.
10. Field dimensions and conditions, as appropriate.
11. Contractor's suggested resolution. If Contractor's solution(s) impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
12. Contractor's signature.
13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
   a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

C. RFI Forms: General contractor's standard form as approved by the Architect/Engineer.

D. Architect/Engineer's Action: Architect/Engineer will review each RFI, determine action required, and respond. Allow five working days for Architect's response for each RFI. RFIs received by Architect/Engineer after 1:00 p.m. will be considered as received the following working day.
   1. The following RFIs will be returned without action:
      a. Requests for approval of submittals.
      b. Requests for approval of substitutions.
      c. Requests for coordination information already indicated in the Contract Documents.
      d. Requests for adjustments in the Contract Time or the Contract Sum.
      e. Requests for interpretation of Architect/Engineer's actions on submittals.
      f. Incomplete RFIs or inaccurately prepared RFIs.
   2. Architect/Engineer's action may include a request for additional information, in which case Architect/Engineer's time for response will date from time of receipt of additional information.
   3. Architect/Engineer's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."
      a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect/Engineer in writing within 10 days of receipt of the RFI response.

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

F. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly.
   1. Project name.
   2. Name and address of Contractor.
   3. Name and address of Architect/Engineer.
   4. RFI number including RFIs that were dropped and not submitted.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect/Engineer's response was received.

1.7 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect/Engineer of scheduled meeting dates and times.

2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.

3. Minutes: Architect/Engineer will conduct meeting and will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner, within three business days of the meeting.

B. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect/Engineer, but no later than 15 days after execution of the Agreement.

1. Conduct the conference to review responsibilities and personnel assignments.

2. Attendees: Architect, Engineer, Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

3. Agenda: Discuss items of significance that could affect progress, including the following:
   a. Tentative construction schedule.
   b. Phasing.
   c. Critical work sequencing and long-lead items.
   d. Designation of key personnel and their duties.
   e. Lines of communications.
   f. Procedures for processing field decisions and Change Orders.
   g. Procedures for RFI.
   h. Procedures for testing and inspecting,
   i. Procedures for processing Applications for Payment.
   j. Distribution of the Contract Documents.
   k. Submittal procedures.
   l. Sustainable design requirements.
   m. Preparation of record documents.
   n. Use of the premises and existing building.
   o. Work restrictions.
   p. Working hours.
   q. Owner's occupancy requirements.
   r. Responsibility for temporary facilities and controls.
   s. Procedures for moisture and mold control.
   t. Procedures for disruptions and shutdowns.
   u. Procedures for steam shutdown and refill.
   v. Procedures for Existing gym electrical shutdown and re-feed
   w. Procedures for remaining electrical services to remain and protection
   x. Construction waste management and recycling.
   y. Parking availability.
z. Office, work, and storage areas.
aa. Equipment deliveries and priorities.
b. First aid.
cc. Security.
dd. Smoking.
ec. Weapons.
ff. Interaction with students and parents.
gg. Child molester/sex convictions
hh. Progress cleaning.

4. Minutes: Architect/Engineer will conduct meeting and will record and distribute meeting minutes.

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect/Engineer of scheduled meeting dates.

2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
b. Options.
c. Related RFIs.
d. Related Change Orders.
e. Purchases.
f. Deliveries.
g. Submittals.
h. Review of mockups.
i. Possible conflicts.
j. Compatibility problems.
k. Time schedules.
l. Weather limitations.
m. Manufacturer's written recommendations.
n. Warranty requirements.
o. Compatibility of materials.
p. Acceptability of substrates.
q. Temporary facilities and controls.
r. Space and access limitations.
s. Regulations of authorities having jurisdiction.
t. Testing and inspecting requirements.
u. Installation procedures.
v. Coordination with other work.
w. Required performance results.
x. Protection of adjacent work.
y. Protection of construction and personnel.
z. Protection of District property, students, and staff.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.

4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.

5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
D. Project Closeout Conference: Schedule and conduct a Project closeout conference, at a time convenient to Owner and Architect/Engineer, but no later than 30 days prior to the scheduled date of Substantial Completion.

1. Conduct the conference to review requirements and responsibilities related to Project closeout.

2. Attendees: Authorized representatives of Owner, Architect, Engineer, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.

3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following.
   a. Preparation of record documents.
   b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
   c. Submittal of written warranties.
   d. Requirements for preparing sustainable design documentation.
   e. Requirements for preparing operations and maintenance data.
   f. Requirements for demonstration and training.
   g. Preparation of Contractor's punch list.
   h. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
   i. Submittal procedures.
   j. Coordination of separate contracts.
   k. Owner's partial occupancy requirements.
   l. Installation of Owner's furniture, fixtures, and equipment.
   m. Responsibility for removing temporary facilities and controls.

4. Minutes: Entity conducting meeting will record and distribute meeting minutes.

E. Progress Meetings: Conduct progress meetings at biweekly intervals unless otherwise agreed to.

1. Coordinate dates of meetings with preparation of payment requests.

2. Attendees: In addition to representatives of Owner and Architect, members of the Design Team, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.

3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
   a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
      1) Review schedule for next period.
   b. Review present and future needs of each entity present, including the following:
      1) Interface requirements.
      2) Sequence of operations.
      3) Status of submittals.
      4) Deliveries.
      5) Off-site fabrication.
      6) Access.
7) Site utilization.
8) Temporary facilities and controls.
9) Progress cleaning.
10) Quality and work standards.
11) Status of correction of deficient items.
12) Field observations.
13) Status of RFI's.
14) Status of proposal requests.
15) Pending changes.
16) Status of Change Orders.
17) Pending claims and disputes.
18) Documentation of information for payment requests.

4. Minutes: Architect/Engineer will conduct the meeting and will record and distribute the meeting minutes to each party present and to parties requiring information.
   a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

F. Coordination Meetings: Conduct Project coordination meetings at regular appropriate intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.

1. Attendees: In addition to each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meetings shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
   a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to combined Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
   b. Schedule Updating: Revise combined Contractor's construction schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
   c. Review present and future needs of each contractor present, including the following:
      1) Interface requirements.
      2) Sequence of operations.
      3) Status of submittals.
      4) Deliveries.
      5) Off-site fabrication.
      6) Access.
      7) Site utilization.
      8) Temporary facilities and controls.
      9) Work hours.
     10) Hazards and risks.
     11) Progress cleaning.
     12) Quality and work standards.
     13) Change Orders.
3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100
SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
   1. Start-up construction schedule.
   2. Contractor’s construction schedule.
   3. Daily construction reports.
   4. Special reports.

B. Related Sections:
   1. Division 01 Section "Submittal Procedures" for submitting schedules and reports.
   2. Division 01 Section "Quality Requirements" for submitting a schedule of tests and inspections.

1.3 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
   1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
   2. Predecessor Activity: An activity that precedes another activity in the network.
   3. Successor Activity: An activity that follows another activity in the network.

B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of the Project.

C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

D. Event: The starting or ending point of an activity.

E. Float: The measure of leeway in starting and completing an activity.
   1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
   2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
   3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
F. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

1.4 INFORMATIONAL SUBMITTALS

A. Format for Submittals: Submit required submittals in the following format:
   1. PDF electronic file or--
   2. Two paper copies.

B. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
   1. Submit a working electronic copy of schedule. Include type of schedule (initial or updated) and date on label.

C. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports shall contain activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.

D. Daily Construction Reports: Submit at monthly intervals.

E. Field Condition Reports: Submit at time of discovery of differing conditions.

F. Special Reports: Submit at time of unusual event.

1.5 COORDINATION

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

B. Coordinate Contractor's construction schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of final completion.

B. Activities: Treat separate area as a separate numbered activity for each principal element of the Work. Comply with the following, unless otherwise provided by the General Contractor:
   1. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.
   2. Startup and Testing Time: Include not less than 15 days for startup and testing.
   3. Substantial Completion: Indicate completion in advance of date established for Substantial Completion and allow time for Architect/Engineer's administrative procedures necessary for certification of Substantial Completion.
   4. Punch List and Final Completion: Include not more than 30 days for punch list and final completion.
C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule and show how the sequence of the Work is affected.

1. Phasing: Arrange list of activities on schedule by phase.
2. Work by Owner: Include a separate activity for each portion of the Work performed by other Owner contracts.
3. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Division 01 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
4. Work Restrictions: Show the effect of the following items on the schedule:
   a. Coordination with existing construction.
   b. Limitations of constant occupancies.
   c. Uninterruptible services.
   d. Partial occupancy before Substantial Completion.
   e. Use of premises restrictions.
   g. Seasonal variations.
   h. Environmental control.
5. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
   a. Subcontract awards.
   b. Submittals.
   c. Purchases.
   d. Mockups.
   e. Fabrication.
   f. Sample testing.
   g. Deliveries.
   h. Installation.
   i. Tests and inspections.
   j. Adjusting.
   k. Curing.
   l. Startup and placement into final use and operation.
6. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
   a. Structural completion.
   b. Permanent space enclosure.
   c. Completion of mechanical installation.
   d. Completion of electrical installation.
   e. Substantial Completion.

D. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

1. Utilize Primavera, for Windows XP operating system or other alternative program as approved by Architect/Engineer.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)

A. General: Prepare network diagrams using AON (activity-on-node) format.

B. CPM Schedule: Prepare Contractor's construction schedule using a time-scaled CPM network analysis diagram for the Work.
1. Develop network diagram in sufficient time to submit CPM schedule to the Architect/Engineer so it can be accepted for use prior to date established for the Notice to Proceed.
   a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates, regardless of Architect/Engineer's approval of the schedule.
2. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
3. Use "one workday" as the unit of time for individual activities. Indicate nonworking days and holidays incorporated into the schedule in order to correlate with Contract Time.

C. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the start-up network diagram, prepare a skeleton network to identify probable critical paths.

1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:
   a. Preparation and processing of submittals.
   b. Mobilization and demobilization.
   c. Purchase of materials.
   d. Delivery.
   e. Fabrication.
   f. Utility interruptions.
   g. Installation.
   h. Work by Owner that may affect or be affected by Contractor's activities.
   i. Testing and commissioning.
   j. Punch list and final completion.
   k. Activities occurring following final completion.
2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.
   a. Subnetworks on separate sheets are permissible for activities clearly off the critical path.

D. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using a network fragment to demonstrate the effect of the proposed change on the overall project schedule.

E. Initial Issue of Schedule: Prepare initial network diagram from a sorted activity list indicating straight "early start-total float." Identify critical activities. Prepare tabulated reports showing the following:
   1. Contractor or subcontractor and the Work or activity.
   2. Description of activity.
   3. Principal events of activity.
   4. Immediate preceding and succeeding activities.
   5. Early and late start dates.
   6. Early and late finish dates.
   7. Activity duration in workdays.
8. Total float or slack time.
10. Dollar value of activity (coordinated with the schedule of values).

F. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:
1. Identification of activities that have changed.
2. Changes in early and late start dates.
3. Changes in early and late finish dates.
5. Changes in the critical path.
6. Changes in total float or slack time.

2.3 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. Equipment at Project site.
5. Material deliveries.
6. High and low temperatures and general weather conditions, including presence of rain or snow.
7. Accidents.
8. Meetings and significant decisions.
9. Unusual events (refer to special reports).
10. Stoppages, delays, shortages, and losses.
11. Meter readings and similar recordings.
13. Orders and requests of authorities having jurisdiction.
14. Change Orders received and implemented.
15. Construction Change Directives received and implemented.
16. Services connected and disconnected.
17. Equipment or system tests and startups.
18. Partial completions and occupancies.
19. Substantial Completions authorized.

B. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.4 SPECIAL REPORTS

A. General: Submit special reports directly to Owner's Representative within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.

B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of
results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Scheduling Consultant: Engage a consultant to provide planning, evaluation, and reporting using CPM scheduling.
   1. In-House Option: Owner may waive the requirement to retain a consultant if Contractor employs skilled personnel with experience in CPM scheduling and reporting techniques. Submit qualifications.
   2. Meetings: Scheduling consultant shall attend all meetings related to Project progress, alleged delays, and time impact.

B. Contractor's Construction Schedule Updating: Update schedule to reflect changes to the work and actual construction progress and activities when they occur. Issue revised schedule before each regularly scheduled progress meeting.
   1. Revise schedule immediately where revisions have been recognized or made in the work.
   2. Update schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.

C. Distribution: Distribute copies of approved schedule to Architect, Engineer, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
   1. Post copies in Project meeting rooms and temporary field offices.
   2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 013200
SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

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

B. Related Sections:
   1. Division 01 Section "Payment Procedures" for submitting Applications for Payment and the schedule of values.
   2. Division 01 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
   3. Division 01 Section "Operation and Maintenance Data" for submitting operation and maintenance manuals.
   4. Division 01 Section "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect/Engineer's responsive action. Action submittals are those submittals indicated in individual Specification Sections as action submittals.

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect/Engineer's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as informational submittals.

1.4 ACTION SUBMITTALS

A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or modifications to submittals noted by the Architect/Engineer and additional time for handling and reviewing submittals required by those corrections.
   1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
   2. Initial Submittal: Submit concurrently with start-up construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
   3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
      a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
4. Format: Arrange the following information in a tabular format:
   a. Scheduled date for first submittal.
   b. Specification Section number and title.
   c. Submittal category: Action, informational.
   d. Name of subcontractor.
   e. Description of the Work covered.
   f. Scheduled date for Architect/Engineer's final release or approval.
   g. Scheduled dates for installation.
   h. Activity or event number.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Architect/Engineer's Digital Data Files: Certain electronic copies of CAD Drawings of the Contract Drawings may be provided by Architect/Engineer for Contractor's use in preparing certain submittals when requested by the Contractor.
   1. Architect/Engineer will furnish Contractor digital data drawing files of the Contract Drawings for use in preparing Shop Drawings as needed and requested by the Contractor under the following conditions:
      a. Architect/Engineer makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
      b. Digital Drawing Software Program: In AutoCAD or PDF. The Architects title block information and registration stamp will be removed.
      c. Contractor shall execute a data licensing agreement issued by Architects West.
      d. The following plot files will be furnished for each appropriate discipline:
         1) Floor plans.
         2) Reflected ceiling plans.
         3) Irrigation plans.
         4) Other plans from Fire Protection, Structural, Mechanical and Electrical Engineering Consultants would be provided if those individual firms allow by their own policy.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
   1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
   2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
   3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
   4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
      a. Architect/Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect/Engineer's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
   1. Initial Review: Allow 10 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect/Engineer will advise Contractor when a submittal being processed must be delayed for coordination.
   2. Resubmittal Review: Allow 7 days for review of each resubmittal.
3. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 15 days for initial review of each submittal.

4. Consultant Submittal Review: Submittals may be transmitted directly to Architect's consultants with copy of transmittal letter to the Architect. Submittal will be returned to Architect before being returned to Contractor.

D. Identification and Information: Place a permanent label or title block on each copy submittal item for identification.
   1. Indicate name of firm or entity that prepared each submittal on label or title block.
   2. Provide a space approximately 5” by 6” on label or beside title block to record Contractor’s review and approval markings and action taken by Architect/Engineer.
   3. Include the following information for processing and recording action taken:
      a. Project name.
      b. Date.
      c. Name of Architect/Engineer.
      d. Name of Contractor.
      e. Name of subcontractor.
      f. Name of supplier.
      g. Name of manufacturer.
      h. Submittal number or other unique identifier, including revision identifier.
         1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).
            i. Number and title of appropriate Specification Section.
            j. Drawing number and detail references, as appropriate.
            k. Location(s) where product is to be installed, as appropriate.
            l. Other necessary identification.

E. Options: Identify options requiring selection by the Architect/Engineer.

F. Deviations: Identify deviations from the Contract Documents on submittals.

G. Format: All submittals shall be submitted electronically. No paper submittals will be allowed unless there is a compelling reason electronic submittals cannot be submitted. Inexperience by any tier in submitting electronically will not be considered a compelling reason. Paper submittals, except samples for color or texture selection, will be rejected and returned to the contractor.

H. Transmittal: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect/Engineer will discard submittals received from sources other than Contractor.
   1. Transmittal Form: Use AIA Document G810 or similar type with General Contractor name and address.
   2. Provide locations on form for the following information:
      a. Project name.
      b. Date.
      c. Destination (To:).
      d. Source (From:).
      e. Names of subcontractor, manufacturer, and supplier.
      f. Category and type of submittal.
      g. Submittal purpose and description.
      h. Specification Section number and title.
i. Indication of full or partial submittal.
j. Drawing number and detail references, as appropriate.
k. Transmittal number, numbered consecutively.
l. Submittal and transmittal distribution record.
m. Remarks.
n. Signature of transmitter.

3. On a separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect/Engineer on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.

I. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Architect/Engineer's action stamp.

J. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

K. Use for Construction: Use only final submittals that are marked with approval notation from Architect/Engineer's action stamp.

L. All submittals must be submitted for review within 90 calendar days after receipt of Notice to Proceed.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
1. Submit electronic submittals via email as PDF electronic files. Large submittals, such as full size shop drawings shall be submitted electronically unless otherwise approved by the Architect/Engineer in advance to the submission.
2. Action Submittals: A/E will make comments and marked-up submittal electronically.
3. Informational Submittals: Submit electronically each submittal, unless otherwise indicated. Architect/Engineer will not return.
4. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Division 01 Section "Closeout Procedures."
5. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
   a. Provide a notarized statement on certificates and certifications where indicated or required.
6. Test and Inspection Reports Submittals: Comply with requirements specified in Division 01 Section "Quality Requirements."
B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
   1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
   2. Mark each copy of each submittal to show which products and options are applicable.
   3. Include the following information, as applicable:
      a. Manufacturer's catalog cuts.
      b. Manufacturer's product specifications.
      c. Standard color charts.
      d. Statement of compliance with specified referenced standards.
      e. Testing by recognized testing agency.
      f. Application of testing agency labels and seals.
      g. Notation of coordination requirements.
      h. Availability and delivery time information.
   4. For equipment, include the following in addition to the above, as applicable:
      a. Wiring diagrams showing factory-installed wiring.
      b. Printed performance curves.
      c. Operational range diagrams.
      d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
   5. Submit Product Data before or concurrent with Samples.
   6. Submit Product Data in the following format:
      a. PDF electronic file unless otherwise agreed to between the Contractor, and Architect/Engineer.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal based upon Architect/Engineer's digital data drawing files is otherwise permitted.
   1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
      a. Identification of products.
      b. Schedules.
      c. Compliance with specified standards.
      d. Notation of coordination requirements.
      e. Notation of dimensions established by field measurement.
      f. Relationship and attachment to adjoining construction clearly indicated.
      g. Seal and signature of professional engineer if specified.
   2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8½ by 11 inches but no larger than 24" x 36".
   3. Submit Shop Drawings in the following format:
      a. PDF electronic file for small size submittals as approved by the Architect/Engineer. If printed shop drawings are requested by the Architect/Engineer, submit the following:
         1) Two opaque (bond) copies of each submittal. Architect/Engineer will copy marked-up copy and return two copies to the General Contractor and one copy to the Owner.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
   1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
   2. Identification: Attach label on unexposed side of Samples that includes the following:
a. Generic description of Sample.
b. Product name and name of manufacturer.
c. Sample source.
d. Number and title of applicable Specification Section.

3. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
a. Number of Samples: Submit three full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect/Engineer will return submittal with options selected.

4. Samples for Verification: Submit full size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
a. Number of Samples: Submit one set of Samples unless additional copies are requested. Architect/Engineer will retain Verification Sample.
   i) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least two sets of paired units that show approximate limits of variations.

E. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

F. Application for Payment: Comply with requirements specified in Division 01 Section "Payment Procedures."

G. Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."

H. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Use CSI Form 1.5A or similar document. Include the following information in tabular form:
   1. Name, address, and telephone number of entity performing subcontract or supplying products.
   2. Number and title of related Specification Section(s) covered by subcontract.
   3. Drawing number and detail references, as appropriate, covered by subcontract.
   4. Submit subcontract list in the following format:
      a. IDF electronic file.

I. Coordination Drawings, when required: Comply with requirements specified in Division 01 Section "Project Management and Coordination."

J. Qualification Data, when required: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects, engineers, and owners, and other information specified.
K. Welding Certificates, when required: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on American Welding Society (AWS) forms. Include names of firms and personnel certified.

L. Installer Certificates, when required: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

M. Manufacturer Certificates, when required: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

N. Product Certificates, when required: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

O. Material Certificates, when required: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

P. Material Test Reports, when required: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

Q. Product Test Reports, when required: Submit written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

R. Research Reports, when required: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
   1. Name of evaluation organization.
   2. Date of evaluation.
   3. Time period when report is in effect.
   4. Product and manufacturers' names.
   5. Description of product.
   6. Test procedures and results.
   7. Limitations of use.

S. Schedule of Tests and Inspections: Comply with requirements specified in Division 01 Section "Quality Requirements."

T. Field Test Reports: Submit reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

U. Maintenance Data: Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."

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

2.2 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally-signed PDF electronic file, unless paper copies are requested by the Architect/Engineer of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
   1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, calculations and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR’S REVIEW

A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect/Engineer.

B. Project Closeout and Maintenance/Material Submittals: Refer to requirements in Division 01 Section "Closeout Procedures."

C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor’s approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT/ENGINEER’S ACTION

A. General: Architect/Engineer will not review submittals that do not bear Contractor’s approval stamp and will return them without action.

B. Action Submittals: Architect/Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect/Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.

C. Informational Submittals: Architect/Engineer will review each submittal and will not return it or will return it if it does not comply with requirements. Architect/Engineer will forward each submittal to appropriate party.

D. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect/Engineer.

E. Incomplete submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
F. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 013300
LICENSING AGREEMENT FOR ARCHITECTS DIGITAL FILES

Project Name: ____________________________
Street Address: ____________________________
City/State/Zip: ____________________________

NAME/ADDRESS OF PARTY REQUESTING DOCUMENTS

Company Name: ____________________________
Street Address: ____________________________
City/State/Zip: ____________________________
Phone: ____________________________
Contact Name: ____________________________
Email address for sending files to: ______________

Architects and its consultants (Hereafter referred to as the ‘transmitting party’) digital files are provided as a matter of convenience for use by the general contractor, its sub-contractors, and/or material suppliers (Hereafter referred to as the ‘receiving party’) in preparation of shop drawings and submittals for the project.

The Transmitting Party retains its rights in the Digital Data. By transmitting the Digital Data, the Transmitting Party does not grant to the Receiving Party an assignment of those rights. The receiving party is granted to use the digital files provided solely for use in preparation of shop drawings and submittals specifically required and applicable to the project. The license to use the digital files shall expire at the date of substantial completion of the project. The transmitting party makes no guarantee as to the accuracy or quality of the digital files. The use of the digital files by the receiving party is solely at the risk of the receiving party.

To the fullest extent permitted by law, the Receiving Party shall indemnify and hold harmless the Transmitting Party from and against all claims arising from or related to the Receiving Party’s use of the digital data.

Receiving party agrees to pay handling fee for documents as noted below. A photocopy of a check or purchase order may be submitted with this document and will be considered as evidence that payment is forthcoming.

Documents Requested (Provide Sheet Number List):

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Receiving Party Authorized Signature ____________________________ Date __________

Printed Name ____________________________

05/10/18
ITD Generator Replacement (1813.03)
SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART I - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

B. Related Requirements:
   1. Division C1 Section "Summary" for work restrictions and limitations on utility interruptions.

1.3 USE CHARGES

A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect/Engineer, testing agencies, and authorities having jurisdiction.

B. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

C. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

1.4 INFORMATIONAL SUBMITTALS

A. Erosion- and Sedimentation-Control Plan: Show compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.

B. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.

1.5 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NBMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.6 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Portable Chain-Link Fencing: Project site is secured within Owner's existing fenced yard; if contractor desires to further enclose his materials, tools, and equipment he can provide Portable chain-link fencing as follows: Minimum 2-inch, 0.148-inch-thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch-OD line posts and 2-7/8-inch-OD corner and pull posts, with 1-5/8-inch-OD top and bottom rails. Provide concrete or galvanized-steel bases for supporting posts.

2.2 TEMPORARY FACILITIES

A. Temporary Field Offices are at the option of the Contractor and can be either prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.

B. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

C. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
   1. Store combustible materials apart from building.

D. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
   1. Store combustible materials apart from building.

2.3 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
   1. Locate facilities to limit site disturbance as specified in Division 01 Section "Summary."

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.
   1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
B. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

C. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
1. Install electric power service overhead unless otherwise indicated.
2. Connect temporary service to Owner's existing power source, as directed by Owner.

D. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install one telephone line(s) for each field office.
1. At each telephone, post a list of important telephone numbers.
   a. Police and fire departments.
   b. Ambulance service.
   c. Contractor's home office.
   d. Contractor's emergency after-hours telephone number.
   e. Architect's office.
   f. Engineers' offices.
   g. Owner's office.
   h. Principal subcontractors' field and home offices.
2. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.

3.3 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:
1. Provide construction for temporary offices, shops, and sheds located within construction area.
2. Maintain support facilities until Architect/Engineer schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Traffic Controls: Comply with requirements of authorities having jurisdiction.
1. Protect existing site improvements to remain including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.

C. Parking: Provide temporary parking areas for construction personnel.

D. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.

E. Waste Disposal Facilities: Comply with requirements specified in Division 01 Section "Construction Waste Management and Disposal."

F. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Division 01 Section "Execution."

G. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
   1. Comply with work restrictions specified in Division 01 Section "Summary."

C. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to SWPPP.

D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.

E. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.

F. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

G. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.

H. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
   1. The entire site is a non-smoking area.
   2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
   3. Develop and supervise an overall fire-prevention and protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
   4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.5 MOISTURE AND MOLD CONTROL


B. Exposed Construction Phase: Before installation of weather barriers, when materials are subject to wetting and exposure to airborne mold spores, protect as follows:
   1. Protect porous materials from water damage.
   2. Protect stored and installed material from flowing or standing water.
   3. Keep porous and organic materials from coming into prolonged contact with concrete.
   4. Remove standing water from decks.
   5. Keep deck openings covered or dammed.
C. Partially Enclosed Construction Phase: After installation of weather barriers but before full enclosure of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:
   1. Periodically collect and remove waste containing cellulose or other organic matter.
   2. Discard or replace water-damaged material.
   3. Do not install material that is wet.
   4. Discard, replace, or clean stored or installed material that begins to grow mold.
   5. Perform work in a sequence that allows any wet materials adequate time to dry before enclosing the material in drywall or other interior finishes.

3.6 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.
   1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
   1. Materials and facilities that constitute temporary facilities are property of Contractor.
   2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

END OF SECTION 015000
SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

B. Related Sections:
1. Division 01 Section "Alternates" for products selected under an alternate.
2. Division 01 Section "Substitution Procedures" for requests for substitutions.

1.3 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer’s product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.

2. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.4 ACTION SUBMITTALS

A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.

2. Architect/Engineer's Action: If necessary, Architect/Engineer will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect/Engineer will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."
b. Use product specified if Architect/Engineer does not issue a decision on use of a comparable product request within time allocated.

B. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect/Engineer will determine which products shall be used.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:
1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:
1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.
7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.

2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
   1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
   2. Refer to Divisions 02 through 49. Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
   1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
   2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
   3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
   4. Where products are accompanied by the term "as selected," Architect/Engineer will make selection.
   6. For products specified by name and accompanied by the term "or equivalent" "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures:
   1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
   2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
   3. Products:
      a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered, unless otherwise indicated.
      b. Nonrestricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.
   4. Manufacturers:
a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered, unless otherwise indicated.

b. Nonrestricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.

5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

C. Visual Matching Specification: Where Specifications require "match Architect/Engineer's sample", provide a product that complies with requirements and matches Architect/Engineer's sample. Architect/Engineer's decision will be final on whether a proposed product matches.
1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Division 01 Section "Substitution Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect/Engineer from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect/Engineer will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration: Architect/Engineer will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect/Engineer may return requests without action, except to record noncompliance with these requirements:
1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects, engineers, and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000
SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
   2. Installation of the Work.
   3. Selective demolition.
   4. Coordination of Owner-installed or Owner-furnished-Contractor-installed products.
   5. Progress cleaning.
   6. Starting and adjusting.
   7. Protection of installed construction.
   8. Correction of the Work.

B. Related Sections:
   1. Division 01 “Cutting and Patching”.

1.3 QUALITY ASSURANCE

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

1.4 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
   1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to the Architect/Engineer for the visual and functional performance of in-place materials.
PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
   1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
   2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
   1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
      a. Description of the Work.
      b. List of detrimental conditions, including substrates.
      c. List of unacceptable installation tolerances.
      d. Recommended corrections.
   2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
   3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
   4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
   5. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of the Contractor, submit a request for information to Architect/Engineer according to requirements in Division 01 Section "Project Management and Coordination."

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3.3 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
   1. Make vertical work plumb and make horizontal work level.
   2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
   3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

G. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
   1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect/Engineer.
   2. Allow for building movement, including thermal expansion and contraction.
   3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

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

3.4 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
   2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
   a. Utilize containers intended for holding waste materials of type to be stored.
4. Coordinate progress cleaning for joint-use areas where more than one installer has worked.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
   1. Remove liquid spills promptly.
   2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Division 01 Section "Temporary Facilities and Controls."

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.5 STARTING AND ADJUSTING

A. Coordinate startup and adjusting of equipment and operating components with requirements in Division 01 Section "General Commissioning Requirements."

B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.

D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
E. Manufacturer's Field Service: Comply with qualification requirements in Division 01 Section "Quality Requirements."

3.6 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.7 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.
   1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Restore permanent facilities used during construction to their specified condition.

C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 017300
SECTION 017329 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes procedural requirements for cutting and patching.

1.3 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of other Work.

B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.4 QUALITY ASSURANCE

A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.

B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operating elements include but are not necessarily limited to the following:
   1. Primary operational systems and equipment.
   2. Air or smoke barriers.
   3. Fire-suppression systems.
   4. Mechanical systems piping and ducts.
   5. Control systems.
   6. Communication systems.
   7. Conveying systems.
   8. Electrical wiring systems.
   9. Operating systems of special construction in Division 13 Sections.

C. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Miscellaneous elements include but are not necessarily limited to the following:
   1. Water, moisture, or vapor barriers.
   2. Membranes and flashings.
   3. Exterior curtain-wall construction.
   4. Equipment supports.
   5. Piping, ductwork, vessels, and equipment.
D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect/Engineer's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

1.5 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

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

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
   1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.
   2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Temporary Support: Provide temporary support of Work to be cut.

B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

D. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.

3.3 PERFORMANCE

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.

2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.

3. Concrete or Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.

4. Excavating and Backfilling: Comply with requirements in applicable Division 31 Sections where required by cutting and patching operations.

5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.

6. Proceed with patching after construction operations requiring cutting are complete.

C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.

2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
   a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
   b. Restore damaged pipe covering to its original condition.

3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
   a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.

4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.

5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

END OF SECTION 017329

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SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
   1. Substantial Completion procedures.
   2. Final completion procedures.
   3. Warranties.
   4. Final cleaning.

B. Related Sections:
   1. Division 01 Section "Execution" for progress cleaning of Project site.
   2. Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
   3. Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
   4. Divisions 02 through 07 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.3 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete with request.
   1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
   2. Advise Owner of pending insurance changeover requirements.
   3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
   4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
   5. Prepare and submit Project Record Documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
   6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
   7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
   8. Complete startup testing of systems.
   10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
   11. Advise Owner of changeover in heat and other utilities.
12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
13. Complete final cleaning requirements, including touchup painting.
14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect/Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect/Engineer will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect/Engineer, that must be completed or corrected before certificate will be issued.
   1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
   2. Results of completed inspection will form the basis of requirements for final completion.

1.4 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining final completion, complete the following:
   1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."
   2. Submit copy of Architect/Engineer's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect/Engineer. The copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
   3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
   4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect/Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect/Engineer will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
   1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
   1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
   2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
   3. Include the following information at the top of each page:
      a. Project name.
      b. Date.
      c. Name of Architect and Engineer.
      d. Name of Contractor.

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c. Page number.
4. Submit list of incomplete items in the following format:
a. PDF electronic file.

1.6 WARRANTIES
A. Submittal Time: Submit written warranties on request of Architect/Engineer for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.

C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
4. Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide table of contents at beginning of document.

D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

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

PART 3 - EXECUTION

3.1 FINAL CLEANING
A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
   a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
   b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
   c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
   d. Remove tools, construction equipment, machinery, and surplus material from Project site.
   e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
   f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
   g. Remove labels that are not permanent.
   h. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
      1) Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates.
   i. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
   j. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
   k. Leave Project clean and ready for occupancy.

C. Construction Waste Disposal: Comply with waste disposal requirements in Division 01 Section "Temporary Facilities and Controls."

END OF SECTION 017700
SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
   1. Operation and maintenance documentation directory.
   2. Operation manuals for systems, subsystems.
   3. Maintenance manuals for the care and maintenance of products, materials, finishes, systems and equipment.

B. Related Sections include the following:
   1. Division 01 Section "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
   2. Division 01 Section "Closeout Procedures" for submitting operation and maintenance manuals.
   3. Division 01 Section "Project Record Documents" for preparing Record Drawings for operation and maintenance manuals.
   4. Divisions 02 through 07 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.3 DEFINITIONS

A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.

B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 SUBMITTALS

A. Initial Submittal: Submit 1 draft copy of each manual at least 15 days before requesting inspection for Substantial Completion. Include a complete operation and maintenance directory. Architect/Engineer will return copy of draft and mark whether general scope and content of manual are acceptable.

B. Final Submittal: Submit three copies of each manual in final form at least 15 days before final inspection. If Architect/Engineer finds acceptable they will be delivered to the Owner. If found to not be acceptable they will be returned to contractor with comments within 15 days after final inspection.
   1. Correct or modify each manual to comply with Architect/Engineer's comments. Submit 3 copies of each corrected manual within 15 days of receipt of Architect/Engineer's comments.
1.5 COORDINATION

A. Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by representatives and prepare manuals.

PART 2 - PRODUCTS

2.1 MANUALS, GENERAL

A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
   1. Title page.
   2. Table of contents.

B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:
   1. Subject: matter included in manual.
   2. Name and address of Project.
   3. Name and address of Owner.
   4. Date of submittal.
   5. Name, address, and telephone number of Contractor.
   6. Name and address of Architect/Engineer.
   7. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the contents of the volume, and cross-referenced to Specification Section number in Project Manual.
   1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
   1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper, with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
      a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
      b. Identify each binder on front and spine, with permanent printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
   2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
   3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
   a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
   b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.2 OPERATION AND MAINTENANCE MANUALS

A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
   1. System, subsystem, and equipment descriptions.
   2. Performance and design criteria if Contractor is delegated design responsibility.
   3. Operating standards.
   4. Operating procedures.
   5. Precautions against improper use.
   6. License requirements including inspection and renewal dates.

B. Descriptions: Include the following:
   1. Product name and model number.
   2. Manufacturer's name.
   3. Limiting conditions.
   4. Performance curves.
   5. Engineering data and tests.
   6. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include the following, as applicable:
   1. Startup procedures.
   2. Routine and normal operating instructions.
   3. Seasonal and weekend operating instructions.
   4. Special operating instructions and procedures.

2.3 PRODUCT MAINTENANCE INFORMATION

A. Content: Organize information into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: List each product included in the manual, identified by product name and arranged to match the manual’s table of contents. For each product, list name, address, and telephone number of installer or supplier, and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Product Information: Include the following, as applicable:
   1. Product name and model number.
   2. Manufacturer's name.
   3. Color, pattern, and texture.
   5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer’s written recommendations and the following:
1. Inspection procedures.
2. Types of cleaning agents to be used and methods of cleaning.
3. List of cleaning agents and methods of cleaning detrimental to product.
4. Schedule for routine cleaning and maintenance.
5. Repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
   1. Include procedures to follow and required notifications for warranty claims.

2.4 SYSTEMS AND EQUIPMENT MAINTENANCE INFORMATION

A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
   1. Standard printed maintenance instructions and bulletins.
   2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
   3. Identification and nomenclature of parts and components.
   4. List of items recommended to be stocked as spare parts.

C. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
   1. Test and inspection instructions.
   2. Troubleshooting guide.
   3. Precautions against improper maintenance.
   4. Disassembly, component removal, repair, and replacement; and reassembly instructions.
   5. Aligning, adjusting, and checking instructions.

D. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
   1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
   2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

E. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

F. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

G. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
1. Include procedures to follow and required notifications for warranty claims.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

A. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
   1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
   2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

B. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
   1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.

C. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.
   1. Do not use original Project Record Documents as part of operation and maintenance manuals.
   2. Comply with requirements of newly prepared Record Drawings in Division 1 Section "Project Record Documents."

D. Comply with Division 1 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 017823
SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
   1. Record Drawings.
   2. Record Specifications.

B. Related Sections include the following:
   1. Division 01 Section "Closeout Procedures" for general closeout procedures.
   2. Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.3 SUBMITTALS

A. Record Drawings: Comply with the following:
   1. Number of Copies: Submit copies of Record Drawings as follows:
      a. Initial Submittal: Submit one set of marked-up Record Prints. Architect/Engineer will review and provide comments whether general scope of changes, additional information recorded, and quality of drafting are acceptable. Architect/Engineer will return and prints for organizing into sets, printing, binding, and final submittal.
      b. Final Submittal: Submit one set of marked-up Record Prints. Provide complete set of Drawings, whether or not changes and additional information were recorded.

B. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain new clean set of prints of the Contract Drawings and Shop Drawings
   1. Preparation: Mark Record Prints with legible neat markings using red pen or pencil to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
      a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
      b. Accurately record information in an understandable drawing technique.
      c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
   2. Content: Types of items requiring marking include, but are not limited to, the following:
      a. Dimensional changes to Drawings.
b. Revisions to details shown on Drawings.
c. Depths of foundations below first floor.
d. Locations and depths of underground utilities.
e. Revisions to routing of piping and conduits.
f. Revisions to electrical circuitry.
g. Actual equipment locations.
h. Duct size and routing.
i. Addendums.
j. Locations of concealed internal utilities.
k. Changes made by Change Order or Construction Change Directive.
l. Changes made following Architect/Engineer's written orders.
m. Details not on the original Contract Drawings.
n. Field records for variable and concealed conditions.
o. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.

4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.

5. Mark important additional information that was either shown schematically or omitted from original Drawings.

6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.

2. Identification: As follows:
   a. Project name.
   b. Date.
   c. Designation "PROJECT RECORD DRAWINGS."
   d. Name of Architect and Engineers.
   e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications. Use clean set of specifications for mark up.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.

3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.

4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.

5. Note related Change Orders and Record Drawings where applicable.
2.3 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.

B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect/Engineer's reference during normal working hours.

C. At substantial completion deliver to the architect/engineer a complete set of field record drawings for the architect/engineer to make changes to the electronic files to deliver to the owner a complete set of electronic record drawings.

END OF SECTION 017839
SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Demolition and removal of the existing generator, automatic transfer switch, and day tank system; turn these over to ITD.

B. Related Requirements:

1. Section 011000 "Summary" for restrictions on the use of the premises, Owner-occupancy requirements, and phasing requirements.
2. Section 017300 "Execution" for cutting and patching procedures.
3. Section 311000 "Site Clearing" for site clearing and removal of above- and below-grade improvements and for protection of trees and plants to remain.

1.3 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.

B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner.

C. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.

D. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.4 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.
1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For refrigerant recovery technician.

B. Schedule of Selective Demolition Activities (this can be a part of the job's overall project schedule described in Section 013200): Indicate the following:
   1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity.
   2. Interruption of utility services. Indicate how long utility services will be interrupted.
   3. Coordination for shutoff, capping, and continuation of utility services.
   4. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.

C. Predemolition Photographs or Video: At contractor's option, submit before Work begins.

1.6 FIELD CONDITIONS

A. Owner will occupy building below roof demolition area. Conduct selective demolition so Owner's operations will not be disrupted, and Owner's property will be protected from the weather.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Notify Architect/Engineer of discrepancies between existing conditions and any Drawings before proceeding with selective demolition.

D. Storage or sale of removed items or materials on-site is not permitted.

E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
   1. Maintain fire-protection facilities in service during selective demolition operations.

1.7 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties. Notify warrantor before proceeding. Existing warranties include the following:
   1. Adjacent roofs.

B. Notify warrantor on completion of selective demolition, and obtain documentation verifying that existing system has been inspected and warranty remains in effect. Submit documentation at Project closeout.
PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify location of utility connections before starting selective demolition operations.

B. Review record documents of existing construction provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in record documents.

C. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect/Engineer.

E. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs.

1. If necessary, inventory and record the condition of items to be removed and salvaged. Provide photographs of conditions that might be misconstrued as damage caused by salvage operations.

2. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

3. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

4. Contractor is welcome to utilize Architect/Engineer's photographic record, but this use shall in no way imply any responsibility onto the Architect/Engineer for any discrepancies in existing conditions.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

1. Comply with requirements for existing services/systems interruptions specified in Section 011000 "Summary."
3.3 PREPARATION

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Comply with requirements for access and protection specified in Section 015000 "Temporary Facilities and Controls."

B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
4. Cover and protect furniture, furnishings, and equipment that have not been removed.
5. Comply with requirements for temporary enclosures, dust control, specified in Section 015000 "Temporary Facilities and Controls."

C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of selective demolition.

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
5. Maintain adequate ventilation when using cutting torches.
6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
9. Dispose of demolished items and materials promptly.

B. Removed and Reinstalled Items:
1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing, identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect/Engineer, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Roofing: Remove no more existing roofing than what can be covered in one day by new roofing and so that building interior remains watertight and weathertight. See 074113 Sections for new roofing requirements.
1. Remove existing roof metal, flashings, copings, and roof accessories, as indicated.
2. Remove existing roofing system down to decking.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

B. Burning: Do not burn demolished materials.
3.7 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119
SPECIFICATION STAMP PAGE

DATE: May 10, 2018

CLIENT: Architects West
210 E. Lakeside Ave.
Coeur d'Alene, ID 83814

PROJECT: ITD
Generator Replacement

PROJECT#: 18180

ENGINEERS: Spencer A. Goodall, E.I.T.
Wally John Beck, P.E.

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The technical specification sections listed above have been prepared under the direction of the Professional Engineer, registered in the State of Idaho, whose seal and signature appear below:
SECTION 26 00 00
ELECTRICAL GENERAL PROVISIONS

PART 1  GENERAL

1.1  SECTION INCLUDES
A. Contract requirements
B. Codes, permits and fees
C. Quality assurance and standards
D. Site visit and familiarization
E. Submittals
F. Coordination of electrical work
G. Material and workmanship
H. Space requirements
I. Safety regulations
J. Delivery, storage and handling of materials

1.2  RELATED SECTIONS
A. Related Sections include but are not necessarily limited to:
   1. Division 0 - Bidding Requirements, Contract Forms, and Conditions of the Contract.
   2. Division 1 - General Requirements.

1.3  STANDARDS AND REFERENCES
A. Refer to Division 1 for general administrative/procedural requirements related to compliance with applicable standards.
B. This Work and all materials shall meet the standards set forth in the applicable portions of the following recognized standards:
   1. ANSI – American National Standards Institute.
   2. ASHRAE – American Society of Heating Refrigerating & Air-Conditioning Engineers.
   3. ASME – American Society of Mechanical Engineers.
   4. ASPE – American Society of Plumbing Engineers.
   6. ETL – Electrical Testing Laboratory.
   8. IEEE – Institute of Electrical and Electronics Engineers.
  12. UL – Underwriters’ Laboratories Inc.

1.4  SUBMITTALS
A. General: Submittals required for this project shall include, but are not be limited to:
1. Shop Drawings and Product Brochure Submittals.
2. Record (as-installed) Drawings.
3. Certifications and Test Reports.
4. Operating and Maintenance Manuals.
5. Warranties (Guarantees).
6. Refer to Division 1 for additional submittal requirements.

B. Shop Drawings and Product Brochure Submittals:
1. The terms "Submittal" and "Shop Drawing" in this Specification are defined as either product literature, samples of equipment, or actual Shop Drawings.
2. The Contractor shall submit a minimum of six (6) complete bound sets of Shop Drawings and complete data covering each item or equipment or material. The Owner and Engineer will each retain one (1) copy of all Shop Drawing submittals for their files. Where full size Drawings are involved, submit two (2) prints and one (1) reproducible in lieu of six (6) sets.
3. Submittals shall be provided with a cover sheet with the names and addresses of the Project, Engineer, General Contractor, and the Subcontractor making the submittal. The cover sheet shall also contain the Specification section number applicable to the item or items submitted, the item nomenclature and description and a submittal number. Electrical submittals shall be numbered sequentially by Specification section with a sequence suffix (e.g. 26 05 19-1, 26 06 33-2, etc.). Re-submittals shall be numbered with the original submittal number plus an "R" in the sequence suffix (e.g. the re-submittals of submittal 26 05 19-1 would be 26 05 19-1R, 26 05 19-1R2).
4. Submittals shall be provided with an index page with a listing of all data included in the submittal.
5. Submittals shall be provided with a list of variations, including unfurnished or additional items or features between the submitted equipment and the specified equipment. If there are no variations, then this page shall state "No Variations". Where variations affect the work of other contractors, then the contractor shall certify on this page that these variations have been fully coordinated with the affected contractors and that the submitting contractor shall pay all additional costs to the affected contractors associated with the variations.
6. Submittals shall provide equipment information including manufacturer's name and designation, size, performance and capacity data. All applicable listings, labels, approvals and standards shall be clearly indicated.
7. Submittals shall provide dimensional data and actual sketches as applicable to show that the submitted equipment will fit the space available with all required Code and maintenance clearances.
8. Submittals shall include an identification of each item of material or equipment matching that indicated on the Drawings.
9. Submittals shall provide sufficient pictorial, descriptive and diagrammatic data on each item to show its conformance with the Drawings and Specifications. Any options or special requirements shall be so indicated. All applicable information shall be clearly indicated with arrows or another approved method. Any non-applicable information shall be crossed out.
10. Submittals shall include additional information as required in other sections of this Division.
11. Submittals shall include certification by the General Contractor and Subcontractor that the material submitted is in accordance with the Contract Documents signed and dated.
12. Reports or information requiring certification shall be certified by an authorized officer of the manufacturer or testing agency.
13. Submittals shall include Certified Shop Drawings showing dimensions, loading details, anchor bolt locations, and inserts required for each piece of equipment set on concrete in sufficient time to cause no delay in the Work.

14. Equipment and material submittals shall show sufficient data including all performance data, recommended installation details, and sufficient data to indicate complete compliance with the Contract Documents, including proper sizes, clearances, capacities, materials, and finishes.

C. Required Shop Drawing Submittals:
   1. Submittal Shop Drawings, including, but not limited to the following Items:
      a) All section 26 divisions.
      b) Coordination Drawings as required by this Section.
      c) As-Built Drawings.

D. Shop Drawing Submittal Review:
   1. Shop Drawings will be reviewed for general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. Any action shown in review comments is subject to the requirements of the Contract Documents. The submitting Contractor is responsible for: dimensions that shall be confirmed at the job site; fabrication processes and techniques of construction; coordination of his work with that of all other trades; and the satisfactory performance of his work.

E. Certifications and Test Reports:
   1. The Engineer may, at their discretion, witness any or all on and off site acceptance and operational testing. Submit a detailed listing of certification and testing for each system indicating estimated dates for completion of system installation.
   2. Test procedures and test result reporting forms shall be submitted for review no later than the date of the certification and testing listing submittal.
   3. Submit four copies (coordinate with commissioning requirements) of all certifications and test reports to the Engineer for review adequately in advance of completion of the Work to allow for remedial action as required to correct deficiencies discovered in equipment and systems.
   4. Certifications and test reports to be submitted shall include, but not be limited to those items outlined in Section 26 01 26 - Electrical Testing.
   5. Notify the Engineer in writing one week prior to all scheduled testing to allow time for Engineer to schedule witnessing of testing, where elected by the Engineer.

1.5 OPERATING AND MAINTENANCE MANUALS

A. Submit two copies of Operating and Maintenance Manuals to the Engineer for approval prior to the beginning of operator training. Provide four approved Operating and Maintenance Manuals for use in operator training. Manuals shall be bound in rigid cover, 3-ring binders with spine and cover labels and shall provide operating and maintenance information for every piece of equipment furnished under this Specification. All sections shall be typed and indexed into sections and labeled for easy reference. Bulletins containing information about equipment that is not installed on the project shall be properly marked up or stripped and reassembled. All pertinent information required by the Owner for proper operation and maintenance of equipment supplied shall be clearly and legibly set forth in memoranda which shall, likewise, be bound with bulletins. As a minimum, the following information shall be provided as applicable:

1. Complete description of each system, item of equipment, and apparatus provided under this Division, including ratings, capacities, performances, data and curves, characteristics identifying name and number, locations, and wiring diagrams, including sources for all parts.
2. Fully detailed parts lists, including all numbered parts and recommended spare parts, of each item of equipment and apparatus provided under this Division.

3. Manufacturer's printed instructions describing operation, service, maintenance, and repair of each item of equipment and apparatus.

4. Typewritten record of tests made of materials, equipment, and systems included under this Division. Such records shall state the dates the tests were conducted, name(s) of person(s) making and witnessing the tests, and citing any unusual conditions relevant to the tests.

5. Identifying names, name tags designations and locations for all equipment.

6. Fuse and motor heater information including location and use.

7. Equipment and motor nameplate data.

8. Copies of all approved Shop Drawing submittals.


10. Equipment and device bulletins and cut sheets clearly highlighted to show equipment installed on the project and including performance curves and data as applicable.

11. Maintenance instructions clearly highlighted to show all required periodic maintenance and lubrication.

12. Wiring diagrams.

13. Operating instructions clearly highlighted to show proper operating procedures for all equipment.

14. Exploded parts views and parts list for all equipment and devices.

15. Color-coding charts for all painted equipment and conduit.

16. Location and listing of all spare parts and special keys and tools furnished to the Owner.

B. Tools: Provide and deliver to the Owner’s authorized representative any special tools required for maintenance of systems, equipment, and apparatus installed under this Division prior to requesting final acceptance of the installation.

C. Commissioning requirements are part of this contract.

1.6 CODES, PERMITS AND FEES

A. General:

1. Comply with the most recently revised versions of applicable laws, rules, regulations, and ordinances of federal, state, and local utilities and authorities. Where alterations to and deviations from the Contract Documents are required by said authority, report the requirements and secure approval before starting work. Obtain all applicable permits, licenses and inspections and pay all fees charged by above authorities.

B. Code Design Basis:

1. The following codes and ordinances were used in the design of the project and shall be complied with during construction of the project.

C. Precedence:

1. Where Contract Document requirements are in excess of Code requirements and are permitted under the Code, the Contract Documents shall govern. None of the terms or provisions of the drawings or specification shall be construed as waiving any of the rules, regulations or requirements of these authorities. In the event of conflict between the Contract Documents and the local enforcing authority, the latter shall rule. Any modifications resulting there from shall be made without additional cost to the Owner or Engineer. This Contractor shall report any such modifications to the Engineer and secure his approval before proceeding.
1.7 QUALITY ASSURANCE

A. Materials/Methods:
   1. Manufacturers, materials and methods described in the various sections of the Specifications and indicated on the Drawings are intended to establish a standard of quality only. It is not the intention of the Engineer to discriminate against any product, material or method that is equal to the standards as indicated and/or specified, nor is it intended to preclude open, competitive bidding. The fact that a specific manufacturer is listed as an acceptable manufacturer should not be interpreted to mean that the manufacturer’s standard product would meet the requirements of the project design, Specifications and space constraints.

B. Alternative Products/Materials/Methods:
   1. Products by other reliable manufacturers, other materials, and other methods may be accepted provided they have equivalent capacity, construction, and performance. Under no circumstances shall any substitution be made without the prior written approval of the Engineer.
   2. Wherever a definite product, material or method is specified and there is not a statement that another product, material or method will be acceptable, it is the intention of the Engineer that the specified product, material or method is the only one that shall be used without prior approval.

C. Alternative Equipment:
   1. Where substituted or alternative equipment is used on the project, it shall be the responsibility of the Contractor or Subcontractor involved to verify that the equipment will fit in the space available, including all required Code and maintenance clearances, and coordinate all equipment requirements and provisions with the Electrical Design and all other Contractors.

D. Compatibility:
   1. Provide products that are compatible with other products of the electrical work, and with other work requiring interface with the electrical work, including electrical connections and control devices. For exposed electrical work, coordinate colors and finishes with other work. Determine in advance of purchase that equipment and materials proposed for installation will fit into the confines indicated, leaving adequate clearance as required by applicable codes and for adjustment, repair, and replacement.

1.8 SITE VISIT AND FAMILIARIZATION

A. General:
   1. Become familiar with the Drawings and Specifications, examine the premises, and understand the conditions under which the Contract shall be performed, prior to submitting a bid.

B. Site:
   1. Be informed of the site conditions, verify locations of new and existing equipment and determine exact requirements for connections.

C. Coordination:
   1. Submission of a bid for this project infers that the Electrical Contractor has visited the site and has become familiar with the Drawings and site conditions and has included in his proposal, all work necessary to properly install the systems on the project.

D. Pre-Bid Conference:
   1. Pre-Bid Conference shall be coordinated by the Owner.
1.9 DRAWINGS AND SPECIFICATIONS

A. General:
1. The Drawings are schematic in nature and indicate approximate locations of the electrical systems, equipment, fixtures and devices, except where specific locations are noted and dimensioned on the Drawings. All items are shown approximately to scale. The intent is to show how these items shall be integrated into the project site. Locate all items by on the job measurements and in accordance with the Contract Documents. Cooperate with other trades to ensure project completion as indicated.

B. Location:
1. Prior to locating electrical devices, light fixtures, and other items, obtain the Engineer’s approval as to exact location. Locations shall not be determined by scaling Drawings. Mount lighting fixtures and electrical devices at the heights directed by the Engineer. Contractor shall be responsible for costs of redoing work of trades necessitated by failure to comply with this requirement.

2. All electrical devices, lighting fixtures, and other devices shall be referenced to coordinated, established data points and shall be located to present symmetrical arrangements with these points and to facilitate the proper arrangements of acoustical tile panels and other similar panels with respect to the mechanical and electrical outlets and devices. Electrical devices, fixtures, and outlets shall be referenced to such features as wall and ceiling furring, balance, border widths, masonry joints, etc. Outlets in acoustical tile shall occur symmetrically in tile joints or in the centers of whole tiles and the exact location of each outlet and the arrangements to be followed shall be acceptable to the Engineer. Outlets in wall tile or masonry construction shall occur symmetrically in the centers of whole tiles, bricks, or blocks and the exact location of each outlet and the arrangement to be followed shall be acceptable to the Engineer.

3. The Drawings show diagrammatically the location of the various outlets and apparatus. Exact locations of these outlets and apparatus shall be determined by reference to the general Drawings and to all detail Drawings, equipment Drawings, rough-in Drawings, etc., by measurements at the building, and in cooperation with the other trades. The Owner and Engineer reserve the right to make any reasonable change in location of any outlet or apparatus before installation, without additional cost to the Owner.

C. Specifications:
1. The Specifications are intended to supplement the Drawings and it is not in the scope of the specifications to mention any part of the work that the Drawings are competent to fully explain. Conversely, any part of the work that the specification is competent to fully explain may not be mentioned on the Drawings.

1.10 DISCREPANCIES

A. Clarification:
1. Clarification shall be obtained before submitting a proposal for the Work under this Division as to discrepancies or omissions from the Contract Documents or questions as to the intent thereof.

B. Detailed Instructions:
1. Should it appear that the work hereby intended to be done or any of the materials relative thereto is not sufficiently detailed or explained in the Drawings or Specifications, then the Contractor shall apply to the Engineer for such further Drawings or explanations as may be necessary, allowing a 10 working day time period for the Engineer to respond.

C. Interpretations:
1. Should any doubt or question arise respecting the true meaning of Drawings or Specifications, reference shall be made to the Engineer, whose written decision shall be final and conclusive.

D. Contractor Agreement:
1. Consideration will not be granted for misunderstanding of the amount of work to be performed. Submission of a bid conveys full Contractor agreement of the items and conditions specified, shown, scheduled, or required by the nature of the project.

1.11 UTILITIES
A. General:
1. Utility information shown on the Drawings has been shown based upon data obtained from the existing single line diagrams and documentation provided by the Owner.
2. The scope of this work does not require modifications or work to the utility, and as such, shall not be modified. If deactivation is required, coordination shall take place with the Owner and Engineer, two (2) weeks prior to outage or downtime.

1.12 SITE OBSERVATION
A. General:
1. Observations at the site to verify general compliance with Contract Documents shall be made periodically by the Engineer or his representative. Written observation comments shall be submitted to the General Contractor for review and a written response.

1.13 COORDINATION OF ELECTRICAL WORK
A. General:
1. Refer to Division 1 for general coordination requirements applicable to the entire work.
2. It is recognized that the Contract Documents are diagrammatic in showing certain physical relationships that must be established within the electrical work and in its interface with other work, including utilities and mechanical work, and that such establishment is the exclusive responsibility of the Contractor. The Drawings show diagrammatically the sizes and locations of the various conduit and raceway systems and equipment items along with the sizes of the major interconnecting distribution, without showing exact details as to elevations, offsets, control lines, and installation details.
3. Arrange electrical work in a neat, well organized manner with services running parallel with primary lines of the building construction and with a minimum of 7' overhead clearance where possible.
4. The Contractor shall carefully lay out his work at the site to conform to the structural conditions, to avoid obstructions and to provide proper grading of lines. Exact locations of outlets, apparatus and connections thereto shall be determined by reference to detail Drawings, equipment Drawings, roughing-in Drawings, etc., by measurements at the building and in cooperation with other Contractors and, in all cases, shall be subject to the approval of the Engineer. Relocations necessitated by the conditions at the site or directed by the Engineer shall be made without any additional cost to the Owner or Engineer.
5. All conduit and boxes except those in the various equipment rooms, in unfurnished spaces or where specifically designated herein or on the Drawings shall be run concealed in furring, plenums, and chases. Wherever conditions exist which would cause any of these items to be exposed in finished spaces, the Contractor whose work is involved shall immediately call the situation to the attention of the Engineer and shall stop work in those areas until the Owner’s Representative or General Contractor directs the resumption of the work. Submit for approval a Shop Drawing for any change in equipment placement, etc.
6. Equipment has been chosen to fit within the available space with all required Code and maintenance clearances and shall be installed as shown. Every effort has been made to also accommodate equipment of other approved manufacturers; however, since equipment and access space requirements vary, the final responsibility for installation access and proper fit of substituted equipment rests with the Contractor.

7. System interferences shall be handled by giving precedence to pipe lines that require a stated grade for proper operation. Where space requirements conflict, the following order of precedence shall, in general, be observed:
   a. Building Lines,
   b. Structural members,
   c. Soil and drain piping,
   d. Utility water piping,
   e. Electrical conduit.

8. Locate electrical equipment properly to provide easy access. Arrange entire electrical work with adequate code access for operation and maintenance.

9. Advise other trades of openings required in their work for the subsequent move in of large units of electrical work (equipment).

10. Coordinate all items that will affect the installation of the work of this Division. This coordination shall include, but not be limited to: Voltage, ampacity, capacity, electrical connections, space requirements, sequence of construction, building requirements and special conditions.

11. When submitting Shop Drawings on the project, this Contractor is indicating that all necessary coordination has been completed and that the systems, products and equipment submitted can be installed in the building and will operate as specified and intended, in full coordination with all other Contractors and Subcontractors.

1.14 MATERIAL AND WORKMANSHIP

A. General:
   1. Materials and equipment shall be new, of best grade and quality, and standard products of reputable manufacturers regularly engaged in the production of such materials and equipment.

B. Workmanship:
   1. Work shall be executed and materials installed in accordance with the best practice of the trades in a thorough, substantial, workmanlike manner by competent workmen, presenting a neat appearance when completed.

C. Manufacturer's Recommendations:
   1. With exceptions as specified or indicated on the Drawings or in the Specifications, apply, install, connect, erect, use, clean, and condition manufactured articles, materials, and equipment per manufacturer's current printed recommendations. Copies of such printed recommendations shall be kept at the job site and made available as required.

1.15 SPACE REQUIREMENTS

A. General:
   1. Determine in advance of purchase that the equipment and materials proposed for installation will fit into the confines indicated, leaving adequate code clearances for adjustments, repair, or replacement.

B. Clearance:
   1. Allow adequate space for clearance in accordance with requirements of the Code and local inspection department.
C. Scheduled Equipment:
   1. The design shown on the Drawings is based on the equipment scheduled.

D. Responsibility:
   1. Since space requirements and equipment arrangement vary for each manufacturer, the responsibility for initial access and proper fit rests with the Contractor.

E. Review:
   1. Final arrangement of equipment to be installed shall be subject to the Engineer's review.

1.16 SAFETY REGULATIONS
A. All electrical work shall be performed in compliance with all applicable and governing safety regulations. All safety lights, guards, signs, and other safety materials and provisions required for the performance of the electrical work shall be provided by and operated by the Electrical contractor.

1.17 DELIVERY, STORAGE AND HANDLING OF MATERIALS
A. General:
   1. Protect all materials and equipment to be installed under this Division from physical and weather damage.

B. Scope:
   1. Work under this Division shall include, but not limited to:
      a) Shipping from point of manufacture to job site,
      b) Unbaging, moving, and storage on site with appropriate protection as required to properly protect equipment from rust, drip, humidity, dust, or physical damage,
      c) Hoisting and scaffolding of materials and equipment included in this Division,
      d) Ensuring safety of employees, materials, and equipment using such hoisting equipment and scaffolding as is required for safety.

C. Coordination:
   1. All large pieces of apparatus which are to be installed in the building and which are too large to permit access through doorways, stairways or shafts shall be brought to the job by the Contractor and shall be placed in the spaces before enclosing partitions and structure are completed. All apparatus shall be cribbed up from the floor by Contractor and shall be covered with tarpaulins or other protective covering where required for protection.

1.18 NOISE AND VIBRATION
A. General:
   1. One year warrants the electrical systems, and their component parts to operate without objectionable noise or vibration. Noise from systems or equipment that results in noise within occupied spaces above the recommended NC curves (refer to ASHRAE Standard) shall be considered objectionable. Vibration shall not be apparent to the senses in occupied areas of the building. Objectionable noise, vibration, or transmission thereof to the building shall be corrected.

1.19 CLEANING, ADJUSTING, AND START-UP
A. Clean up:
   1. The Contractor shall clean away from the job site all debris, surplus material, and similar items, resulting from his work or operations, leaving the job and equipment in a clean
condition. The Contractor shall thoroughly clean all pieces of equipment, conduit, boxes, fixtures, and similar items, leaving the installation in a first class condition.

B. Start-up Services:
   1. Where specified for any individual item of electrical equipment, provide a factory-authorized representative for testing, start-up of equipment, and instruction of Owner's operating personnel. Certify that these services have been performed by including a properly executed invoice for these services, or a letter from the manufacturer.

C. Lubrication:
   1. Provide means for lubricating all bearings and other machine parts. Extend a lubrication tube with suitable fitting to an accessible location and identify it where lubrication fittings are concealed or inaccessible. Lubricate all parts requiring lubrication and keep them adequately lubricated until final acceptance by the Owner.

D. Testing:
   1. See Section 26 01 26 – Electrical Testing.

E. Operation Prior to Completion:
   1. When any piece of electrical equipment is operable and it is to the advantage of the Contractor to operate the equipment, he may do so, providing that he properly supervises the operation, and has the Engineer's written permission to do so. The warranty period shall, however, not commence until such time as the equipment is operated for the beneficial use of the Owner, or date of substantial completion, whichever occurs first. Regardless of whether or not the equipment has or has not been operated, the Contractor shall properly clean the equipment, properly adjust, and complete all deficiency list items before final acceptance by the Owner. The date of final acceptance and the start of the warranty may not be the same date.

1.20 FINAL REVIEW

A. General:
   1. Upon completion of the Work, perform a final test of the entire system.
   2. The system shall be operating properly and meet commissioning requirements.
   3. After the final test, any changes or corrections noted as necessary for the Work to comply with these Specifications or the Drawings shall be accomplished without delay in order to secure final acceptance of the Work.
   4. The date for the final test shall be sufficiently in advance of the Contract completion date to permit execution, before expiration of the Contract, of any adjustments or alterations that the final acceptance tests indicate as necessary for the proper functioning of all equipment. Any such modifications shall be completed within the time allotted for completion of the Contract. Retests shall be conducted as directed and shall be of such time duration as necessary to ensure proper functioning of adjusted and altered items. Retests shall not relieve the Contractor of completion date responsibility.
   5. Certificates, including certificates of occupancy from local authorities and documents required herein, shall be completely in order and presented to the Engineer at least one week prior to the review.
   6. Individuals knowledgeable of the systems and persons approved by the Engineer shall be present at this final inspection to demonstrate the system and prove the performance of the equipment.

1.21 OPERATION AND MAINTENANCE TRAINING (OWNER INSTRUCTION)

A. General:
1. The Contractor and appropriate factory-trained representatives shall instruct the Owner's representative in the proper operation and maintenance of all electrical and control systems and equipment, and shall explain all warranties.

B. Training Agenda Outline:
   1. Prior to instruction of Owner Personnel, the Contractor shall prepare a typed outline, listing the subjects that will be included in this instruction, and shall submit the outline for review by the Engineer at least 2 weeks prior to the time of the training.

C. Training Requirements:
   1. Training shall be provided per the specific requirements in other sections of these specifications. In addition to training required in other sections of the specifications, the Contractor shall conduct specifically organized training sessions in the overall operation and maintenance of the electrical and control system for personnel employed by the Owner. The training sessions shall be conducted to educate and train the personnel in operations and maintenance of all components of the electrical system outside the training requirements in the other Sections.
   2. Training shall include, but not be limited to, the following:
      a) Preventative maintenance procedures,
      b) Trouble-shooting,
      c) Calibration,
      d) Testing,
      e) Replacement of components,
      f) Equipment operation.
   3. At a minimum, one training session, at least 2 hours in duration, shall be conducted at the facility after start-up of the electrical and control systems. The Contractor shall prepare and assemble specific instruction materials for each training session and shall supply such materials to the Owner at least 2 weeks prior to the time of the training.

D. Certification:
   1. At the conclusion of the instruction period, the Contractor shall obtain the signature of each person being instructed on each copy of the approved training outline to signify that the personnel has a proper understanding of the operation and maintenance of the systems, and resubmit the signed outlines.

E. Other Requirements:
   1. Refer to other Division 26 Sections for additional Operator Training requirements for specific pieces of equipment or specific systems.
   2. The Contractor shall coordinate the Operator Training requirements listed above with the Owner instruction requirements of Division 1.

1.22 CONTRACTOR WARRANTIES AND GUARANTEES

A. General:
   1. Contractor shall guarantee all material and equipment installed by him against defects in workmanship and material for a period of 12 months after final acceptance of the work by the Owner. He shall repair or replace any materials or equipment developing such defects within that time promptly on due notice given him by the Owner and at Contractor's sole cost and expense.

B. Equipment:
   1. All equipment bearing a manufacturer's guarantee, such as electrical equipment, devices, components, and similar items, shall be construed to have an extended guarantee to the Owner by the manufacturer. Any such equipment that proves defective in materials or
workmanship within the guarantee period is to be replaced by the Contractor in accordance with the manufacturer's guarantee.

PART 2  PRODUCTS

2.1  NOT USED.

PART 3  EXECUTION

3.1  NOT USED.

END OF SECTION
SECTION 26 00 01
ELECTRICAL SCOPE OF WORK

PART 1  GENERAL

1.1  SECTION INCLUDES
   A.  Project Description
   B.  Electrical Scope of Work

1.2  PROJECT DESCRIPTION
   A.  The Idaho Transportation Department, District #1 office, located in Hayden, Idaho, as part of
       electrical upgrades, is replacing the existing diesel generator, automatic transfer switch
       (ATS), and existing day tank system with one (1) new diesel generator, one (1) new ATS, and
       one (1) new day tank system.

1.3  DESCRIPTION OF WORK
   A.  Remove and furnish to Owner, one (1) existing 800A automatic transfer switch (ATS), one (1)
       existing diesel generator, and one (1) existing day tank system.
   B.  Installation of one (1) 200kW standby generator and one (1) 800 Amp ATS in existing
       equipment locations at the Idaho Transportation Department, Hayden, Idaho, facility.
   C.  Intercept, preserve, and protect, all conductors, conduit, and appurtenances required for
       power, control, and signal instrumentation for re-use as applicable for installation of one (1)
       new diesel generator, one (1) 50-gallon day tank with controls, and one (1) ATS, with
       integration of the existing outdoor, below-grade, diesel storage tank.
   D.  Install generator, ATS, day tank with controls, conduit, and conductors as shown on the
       design drawings for a complete and operational standby (emergency) power system.
   E.  Intercept existing conduit run to existing panelboard PNL-EM1 in electrical room and extend,
       as needed, to stub up or drop down new conduit with conductors to new generator, ATS, and
       day tank in the appropriate locations for connections of battery charger, block heater and day
       tank.
   F.  Install new and extend existing conduit and new conductors stubbed up under new ATS in
       the existing locations for connection to the new generator.
   G.  Install and extend concrete housekeeping pad minimum 6” outside new generator footprint.
   H.  Intercept existing conduit run from existing panelboard PNL-EM1 in adjacent electrical room
       to Fire Alarm Control Panel. Install new junction box with DIN rail and terminal blocks near
       Panel-EM1 as necessary to extend and reroute feeder to Fire Alarm Control Panel from
       Panel-UPS.
   I.  Coordinate, furnish, modify, and install HVAC and ductwork for proper working operation of
       new generator.
   J.  Provide labor, materials, tools, machinery, equipment, fixtures, devices, and services
       necessary to complete the specified work of this and all other Divisions. Coordinate work
       with other trades to prevent conflicts without impeding job progress.
   K.  Project work includes, but is not limited to:
       1.  A complete standby power system including, but not limited to:
           a)  Standby generator.
ELECTRICAL SCOPE OF WORK

b) Automatic transfer switch.
c) Controls.
d) Day Tank and Controls.
e) Power Distribution.
f) Reroute fire alarm control panel power circuit.
g) All other components shown on the Drawings, specified or required for a fully operational system.

2. A complete system of miscellaneous electric controls and control wiring as shown on the Drawings and specified.
3. Electrical testing and certification as specified.
4. Concrete housekeeping pads, and other supports as required for electrical equipment and components.
5. Connections to equipment furnished by the General Contractor or other Divisions.
6. Additional items as shown on the Drawings or specified.

1.4 RELATED SECTIONS
   A. All division 26 sections.

PART 2 PRODUCTS

2.1 GENERAL
   A. Refer to specific Sections of the Specification for equipment.

PART 3 EXECUTION

3.1 GENERAL
   A. Installation shall be in accordance with the Specification section pertaining to the individual Equipment.

END OF SECTION
SECTION 26 01 26
ELECTRICAL TESTING

PART 1  GENERAL

1.1  SECTION INCLUDES
A. Material and installation requirements for:
   1. Testing of Electrical Systems

1.2  DESCRIPTION OF WORK
A. Provide testing of electrical work installed under Division 26, as specified herein and in other
   Division 26 sections. Feeders and equipment shall not be placed in service until they have
   been checked and tested, as applicable.

1.3  RELATED SECTIONS
A. Related Sections include but are not necessarily limited to:
   1. Section 26 00 00 – Electrical General Provisions
   2. Section 26 00 01 – Electrical Scope of Work
   3. Section 26 60 02 – Basic Materials and Methods
   4. Section 26 05 19 – Wire and Cable

1.4  STANDARDS AND REFERENCES
A. All materials and equipment specified herein shall, within the scope of UL Examination
   Services, be approved by the Underwriter's Laboratories for the purpose for which they are
   used and shall bear the UL label.
B. All materials and equipment specified herein shall conform with all applicable NEMA, ANSI
   and IEEE Standards
C. All materials and equipment specified herein and their installation methods shall conform to
   the latest published version of the National Electrical Code, NEC.

1.5  SUBMITTALS
A. Shop Drawings
   1. See Section 26 00 00.
B. Testing Procedures: Submit four copies of all proposed testing procedures to the Engineer
   for review at least 10 working days prior to conducting any testing on the project.
C. Reporting Forms: Submit four copies of the proposed forms to be used in recording testing
   data and results to the Engineer for review at least 10 working days prior to conducting any
   testing on the project.
D. Test Data and Results: Submit four copies of complete data and certified test results for
   each test performed, including, but not limited to:
   1. Test performed,
   2. Test procedure,
   3. System and area tested,
   4. Date(s) and time(s) of test,
   5. Weather conditions,
ELECTRICAL TESTING

6. Test criteria,
7. Test results,
8. Additional pertinent information.

E. Operational Certification: Submit four certified copies of an operational certification which documents that all equipment and systems have been fully tested to verify proper operation in accordance with the design shown in the Contract documents and manufacturer's recommendations.

F. Certification: Certifications stating that submitted test data and results are true and correct shall be provided for all submittals under this section. Certification shall be executed by an authorized officer if the Contractor is a corporation, by a partner if the Contractor is a partnership, by the owner if the Contractor is a sole proprietorship or by the authorized representative if the Contractor is a joint venture.

G. Calibration List: Submit four copies of a listing of testing devices to be used for the project to the Engineer for approval. Listing shall include documentation that the devices are properly calibrated.

H. Test Log: The Contractor shall maintain a test log at the site to document the results of all successful and unsuccessful testing as it is performed. This log shall be available for review by the Engineer and a copy of the log shall be submitted to the Engineer prior to the Substantial Completion inspection. A space shall be provided on the test log signoff by the Engineer or Owners representative.

1.6 NOTICE
A. Notify the Engineer in writing 10 working days prior to all scheduled testing to allow time for Engineer to schedule witnessing of testing, where elected by Engineer.

PART 2 PRODUCTS

2.1 TESTING MATERIALS
A. General: Provide all materials and test equipment required for testing of specified electrical systems, including re-testing until acceptable results are obtained.

B. Products: Tested products which fail to provide acceptable test results shall be repaired or replaced with suitable materials as required to obtain acceptable results.

PART 3 EXECUTION

3.1 TESTING
A. General: Test shall be made, in the presence of the Engineer or his/her representative if requested, during the course of the construction as specified and as required by authorities having jurisdiction. Such test shall be conducted by this Division as part of the Work and shall include all personnel, material, and equipment required to perform test until satisfactory results are obtained. Any defects detected during testing shall be satisfactorily repaired or the equipment involved shall be replaced and the test re-executed.

B. Testing shall include but not be limited to all items in other Sections of this Division and the following:
   1. Feeder: Refer to Section 26 05 19.

C. Test Reports (Attached)
   1. ELECTRICAL SYSTEM TEST REPORT - 600V CABLE
END OF SECTION

26 01 26 ELECTRICAL SYSTEM TEST REPORT - 600V CABLE

ELECTRICAL SYSTEM DESCRIPTION DATA

SERVICE DESCRIPTION:
nominal voltage, phase to phase
phase to neutral - single or three phase-number of conductors

SERVICE CONDUCTORS:
phase size and insulation type
neutral size and insulation type
ground size and insulation type

SERVICE DISCONNECT DESCRIPTION:
circuit breaker or disconnect switch
size (amps)
fuse (amps)

MEASURED CONDITIONS DATA

Operating Load Voltage Volts Vab_______Vbc_______Vca_______
                          Van_______Vbn_______Vcn_______
Operating Load Feeder Current Amps la_______lb_______lc_______
Conductor Insulation Resistance (record the indicated
Megohms a-b_______b-c_______c-a_______
measurement for each of the
following circuits):
                     Megohms a-g_______b-g_______c-g_______
1. ATS to Generator
2. PNL-EM1 to Block Heater & Battery Charger
3. PNL-EM1 to Day Tank
4. PNL-UPS to Fire Alarm Control Panel Junction Box
Part 1 General

1.1 Section Includes
A. Material and installation requirements for:
   1. Building wire
   2. Power and control cable
   3. Wire connectors
   4. Insulating tape

1.2 Description of Work
A. This section covers furnishing and installation of all wiring and connections used in the
   construction of this facility.
B. All wiring shall be in raceways.

1.3 Related Sections
A. Related Sections include but are not necessarily limited to:
   1. Section 26 01 26 – Electrical Testing
   2. Section 26 05 33 – Raceways
   3. Section 26 00 00 – Electrical General Provisions
   4. Section 26 60 02 – Basic Materials and Methods

1.4 Standards and References
A. All materials and equipment specified herein shall, within the scope of UL Examination
   Services, be approved by the Underwriter's Laboratories for the purpose for which they are
   used and shall bear the UL label.
B. Products shall be designed, manufactured, tested, and installed in compliance with the
   following standards:
   1. Insulated Cable Engineers Association:
      a) S-53-679, Control Cable Conductor Identification
   2. National Electrical Manufacturers Association (NEMA):
      a) ICS 4, Terminal Blocks for Industrial Use
   3. National Electrical Manufacturers Association/Insulated Cable Engineers Association
      (NEMA/ICEA):
      a) WC 70/ICEA S-95-658, Standard for Nonshielded Power Cables Rated 2000 Volts or
         Less for the Distribution of Electrical Energy
      a) 70, National Electrical Code (NEC)
   5. Underwriters Laboratories, Inc. (UL):
      a) 44, Thermoset-Insulated Wires and Cables
      b) 83, Thermoplastic-Insulated Wires and Cables
      c) 467, Grounding and Bonding Equipment
      d) 486A, Wire Connectors and Soldering Lugs for use with Copper Conductors
e) 486C, Splicing Wire Connectors
f) 51C, Insulating Tape
g) 1581, Reference Standard for Electrical Wires, Cables, and Flexible Cords

C. All materials and equipment specified herein and their installation methods shall conform to
the latest published version of the National Electrical Code, NEC.

1.5 DEFINITIONS

A. Cable: Multi-conductor, insulated, with outer sheath containing either building wire or
instrumentation wire.

B. Power Cable: Multi-conductor, insulated, with outer sheath containing building wire, AWG No.
8 and larger.

C. Control Cable: Multi-conductor, insulated, with outer sheath containing building wires, AWG
No. 16, AWG No. 14, AWG No. 12 or AWG No. 10.

D. Building Wire: Single conductor, insulated, with or without outer jacket depending upon type.

1.6 SUBMITTALS

A. Shop Drawings
   1. See Section 26 00 00.

PART 2 PRODUCTS

2.1 CONDUCTORS

A. Conductors shall be stranded copper. Sizes AWG No. 14, 12 and 10 for general purpose
   lighting and receptacle wiring and all wiring within circuit breaker panels may be solid. All
   other conductors shall be stranded. Insulation shall be THW-2, THWN-2, or THHN, (90°F)
   chosen to satisfy environmental conditions. Conductors used for power circuits shall not be
   smaller than AWG No. 12. Control conductors may be AWG No. 14.

2.2 CONNECTORS

A. Ideal Industries "Wing Nut" or 3M Company "SCOTCHLOCK" pre-insulated connectors may
   be used for lighting and receptacle circuits for splices and taps in conductors AWG No. 10
   and smaller. For AWG No. 8 and larger conductors, utilize Thomas & Betts compression
   connectors. Compress using recommended die and tools.

B. For connections of wire to cord to removable equipment provided with integral cords (such as
   floats, transmitters, limit switches, aerators, submersible pump motors, etc.) provide junction
   box with terminals and spade/lug type terminations and coat with liquid insulation.

C. For connections of wire to cord for submersible motors of all size wire use a water proof
   motor stub insulator: Thomas & Betts multi splice insulator MSLT112-4 or equal.

PART 3 EXECUTION

3.1 GENERAL

A. Splicing of power and control wires or cables is not allowed. All wire transitions shall be done
   on terminals.
B. Keep all conductors within the allowable tension limits during installation. Lubricants for wire pulling, if used, shall be approved for the insulation and raceway material. Observe cable manufacturer's and industry standard cable bending radius recommendations.

C. Incoming cables in panels, AWG No. 6 and smaller, shall be bundled and laced at intervals not greater than 6 inches and neatly spread into trees and connected to their respective terminals.

D. Sufficient slack shall be allowed in cables for alterations in terminal connections. Lacing shall be done with plastic cable ties using a tensioning tool designed for that purpose.

E. Cables crossing hinges shall be made up into groups not exceeding 12 and shall be so arranged that they will be protected from chafing when the hinged member is moved.

3.2 WIRE AND CABLE TERMINATION

A. Power conductors, AWG No. 8 and larger may be terminated directly in box-type lugs.

B. For any power or control wire terminating on screw type terminals; provide spade tongue type terminations.

C. Stranded control conductors may be directly terminated in box type terminals at control panels. Insulated terminals shall be used also on all stranded instrumentation wiring.

D. No splices shall be used in power and/or control wiring. The wiring shall be continuous from point-to-point.

E. Terminals and connectors shall be installed with the compression tool recommended by the terminal manufacturer. Solid wire shall not be lugged, but shall be terminated with a full ring eye of the wire under the binding-head screw or saddle of the terminal block.

3.3 COLOR CODING

A. Wiring shall conform to the following color code.

B. Insulation on phase conductor sizes AWG No. 10 and smaller shall be colored, No.8 AWG and larger may have black insulation with plastic tape of the appropriate color from the table below.

C. Insulation on the grounded conductor (neutral) sizes AWG No. 8 and smaller shall be colored, AWG No. 6 and larger may have black insulation with plastic tape of white or gray in accordance with the table below.
D. All control wiring in control panels or other enclosures that is powered from an external source and is not disconnected by the control panel disconnect shall be terminated at a disconnecting terminal block upon entering the enclosure. The color of the wire shall then be changed to yellow to identify it as being powered from an external source. Provide identification nameplate on exterior of enclosure to indicate sources of external power.

E. All wiring in industrial machines and equipment shall be in accordance with NFPA 79. Notify Owner of any deficiencies noted during installation.

3.4 TERMINAL MARKING
A. All terminals in instrument and relay compartments, motor control centers, control panels, instrument panels, field panels and control stations, as well as connections to mechanical equipment, shall have reference number and letter in accordance to the following:
1. h = Control power hot (usually 120V or 24V)
2. n = neutral
3. g = ground
4. x = PLC input (number shall correspond to the program input number)
5. y = PLC output (number shall correspond to the program output number)
6. ax = PLC signal/analog input (number shall correspond to the program input number)
7. ay = PLC signal/analog output (number shall correspond to the program output number)
8. c = control (use if none of the above letters apply)
9. p = power (usually 480V)
10. s = signal (usually 4-20ma or 1-5V) (use if none of the above letters apply)
11. B = DC + and -

3.5 CONDUCTOR SPACING
A. Unless specifically shown otherwise on the drawings, in all areas maintain a minimum 2-inch separation between all conductors of different voltages. For parallel runs over 6 feet maintain the following minimum separation between conductors:
1. Signal (12/24) VDC and 120 VAC 6 inches
2. Signal (12/24) VDC and 480 VAC 12 inches
3. 120 VAC control wire and 480 VAC 2 inches

3.6 WIRE BENDING RADIUS
A. The radius of bends in all wire (conductors and cables) shall not be less than five (5) times the outside diameter of the wire. Any wire installed with bends less than five times the diameter which the Engineer deems has caused that insulation to be damaged shall be removed and new wire shall be installed.

3.7 VISUAL AND MECHANICAL INSPECTIONS
A. Inspect exposed section for physical damage.
B. Verify that cable is supplied and connected in accordance with specifications and one line diagram, and that phases are labeled correctly.

3.8 TESTING
A. See Section 26 01 26 – Electrical Testing.

END OF SECTION
SECTION 26 05 26
GROUNDING

PART 1  GENERAL

1.1  SECTION INCLUDES
A. Material and installation requirements for:
   1. Grounding

1.2  DESCRIPTION OF WORK
A. This section covers furnishing and installing all grounding and/or bonding conductors, connectors, ground rods and terminations as required to meet these specifications and to comply with Article 250 of the National Electric Code.

1.3  RELATED SECTIONS
A. Related Sections include but are not necessarily limited to:
   1. Section 26 05 19 – Wire and Cable
   2. Section 26 05 33 – Raceways
   3. Section 26 32 13 – Power Generation
   4. Section 26 00 00 – Electrical General Provisions
   5. Section 26 60 02 – Basic Materials and Methods

1.4  STANDARDS AND REFERENCES
A. All materials and equipment specified herein shall, within the scope of UL Examination Services, be approved by the Underwriter’s Laboratories for the purpose for which they are used and shall bear the UL label.
B. Products shall be designed, manufactured, tested, and installed in compliance with the following standards:
C. American National Standards Institute:
   a) B8, Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft.
   a) 70, National Electrical Code (NEC).
4. Underwriters Laboratories, Inc. (UL):
   a) 467, Electrical Grounding and Bonding Equipment.
D. All materials and equipment specified herein and their installation methods shall conform to the latest published version of the National Electrical Code, NEC.

1.5  SUBMITTALS
A. Shop Drawings
   1. See Section 26 00 00.
   2. See Section 26 01 26.
1.6 DELIVERY, STORAGE, AND HANDLING
   A. See Section 26 00 00.

PART 2 PRODUCTS

2.1 GENERAL
   A. For each electrical grounding connection, provide a complete assembly of materials to construct a completely grounded electrical system.
   B. Raceways for grounding conductors shall be as specified in Section 26 05 19.
   C. Grounding cable, wire and connectors shall be as specified in Section 26 05 33.
   D. Grounding conductors and jumpers shall be connected to each other and to items to be grounded by means of approved type pressure connectors, clamps, and other suitable methods approved by the Engineer. No solder connections shall be made.

2.2 GROUNDING ELECTRODE CONDUCTORS
   A. All concrete encased or direct buried underground grounding electrode conductors shall be soft drawn stranded bare copper cable, conforming to ASTM B8.
      1. Sized as required by Table 250-66 of the NEC, except where a larger size conductor is shown on the Contract Drawings.
      2. Minimum conductor allowed: 2/0.

2.3 EQUIPMENT GROUNDING CONDUCTOR:
   A. Green copper conductor: Identical insulation to phase conductors.
   B. Sized as required by Table 250-122 of the NEC, except where a larger size conductor is shown on the Contract Drawings.

2.4 GROUND CLAMPS
   A. Ground clamps for connecting grounding conductors to copper, brass, or lead pipes shall be made of copper. If pipes are of steel or iron, the ground clamps should be made of galvanized iron. These clamps shall be designed to provide permanent and positive pressure and to avoid mechanical injury to the pipe. Use exothermic welds for connecting ground wires to ground rods for all below grade counterpoise grounds, grids, and elsewhere where noted on the Drawings.
   B. High copper alloy content, compression type, noncorrosive.
   C. UL 467 listed.
      1. BUNNULY
      2. ILSCO
      3. Thomas & Betts

PART 3 EXECUTION

3.1 INSTALLATION
   A. Install products in accordance with manufacturer's instructions.
   B. Remove paint, rust, or other nonconducting material from contact surfaces before making ground connections.
3.2 RACEWAY GROUNDING-CONDUIT
A. All metallic conduit shall be electrically continuous.
B. Provide grounding-type insulating bushings:
   1. For all equipment not supplied with a conduit hub.
   2. On ends of metallic conduit.
C. Bond all conduit, at entrance and exit of equipment, to equipment ground bus or ground lug.
D. Use manufactured conduit hubs at all panels.
E. Provide bording jumpers if conduit are installed in concentric knockouts.
F. Make all metallic raceway fittings and grounding clamps tight to ensure equipment grounding system will operate continuously at ground potential to provide low impedance current path for proper operation of overcurrent devices during possible ground fault conditions.
G. Provide bonding jumper from equipment ground lug to RGS conduit if flexible conduit is utilized for equipment connections.
H. Provide bonding jumpers identical in conductor size to the largest ground conductor run within the conduit.

3.3 EQUIPMENT GROUNDING
A. Ground all voltage levels at the supply transformer from the secondary neutral to the ground grid. Provide two separate grounding conductors.
B. Consider control devices (switches, indicating lights, meters, starters, relays, etc.) mounted in MCC's, switchgear, control panels, or other metal enclosures to be adequately grounded, if the enclosure ground lug or ground bus is properly grounded.
C. Do not splice grounding conductors.
D. Run all equipment grounding conductors in conduit.
E. Ground unused and spare power and control cable at both ends.
F. Size all grounding conductors in accordance with Article 250 of the NEC unless larger size is shown on the Drawings.

3.4 STRUCTURAL GROUNDING
A. Bond concrete foundation reinforcing steel to the ground at all corners of the structure. Utilize a bare 2/0 conductor, unless otherwise shown on Contract Drawings. Do not use exothermic welding if it will damage the structural integrity of the foundation.
B. Make all reinforcing steel electrically continuous.

END OF SECTION
SECTION 26 05 33
RACEWAYS

PART 1    GENERAL

1.1 SECTION INCLUDES
   A. Material and installation requirements for:
      1. Conduits
      2. Conduit fittings
      3. Conduit supports
      4. Wireways
      5. Outlet boxes
      6. Pull and junction boxes

1.2 DESCRIPTION OF WORK
   A. Provide electrical raceway and fitting work as shown, scheduled, indicated, and specified.
   B. All electrical conductors shall be installed in conduit or surface metallic raceways. Conduit
      shall be as specified herein. In addition, empty conduit shall be installed for the voice/data
      system and for other systems as indicated on the Drawings and in the Specifications.
   C. The types of electrical raceways and fittings required for the project include, but are not
      limited to, the following:
      1. Rigid metallic conduit (RMC),
      2. Liquidtight flexible metal conduit,
      3. Rigid nonmetallic conduit.

1.3 RELATED SECTIONS
   A. Section 26 05 26 – Grounding
   B. Section 26 00 00 – Electrical General Provisions
   C. Section 26 60 02 – Basic Materials and Methods

1.4 STANDARDS AND REFERENCES
   A. All materials and equipment specified herein shall, within the scope of UL Examination
      Services, be approved by the Underwriter’s Laboratories for the purpose for which they are
      used and shall bear the UL label.
   B. Products and installation shall comply with applicable sections of the following standards:
      1. American Iron and Steel Institute (AISI)
         a) C80.1, Rigid Steel Conduit - Zinc-Coated
      3. ASTM International (ASTM):
            and Steel Products
         b) A153, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
         c) D1784, Standard Specification for Rigid Polyvinyl Chloride (PVC) Compounds and
            Chlorinated Polyvinyl Chloride (CPVC) Compounds
d) D2564, Solvent Cements for PVC Plastic Pipe, Tubing, and Fittings


4. National Electrical Manufacturers Association (NEMA):

a) FB 1, Fittings and Supports for Conduit and Cable Assemblies

b) OS 1, Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports

c) RN 1, PVC Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit

d) TC 3, PVC Fittings for Use with Rigid PVC Conduit and Tubing

e) TC 6, PVC Plastic Utilities Duct for Underground Installations

f) 25C, Enclosures for Electrical Equipment (1000 Volts Maximum)

5. Underwriters Laboratories, Inc. (UL):

a) 1, Flexible Metal Conduit

b) 6, Rigid Metal Conduit

c) 50, Standard for Safety Enclosures for Electrical Equipment

d) 36C, Liquid-Tight Flexible Steel Conduit

e) 467, Grounding and Bonding Equipment

f) 514A, Standard for Safety Metallic Outlet Boxes

g) 514B, Fittings for Cable and Conduit

h) 651, Schedule 40 and 80 Rigid PVC Conduit

i) 87C, Wireways, Auxiliary Gutters, and Associated Fittings

C. All materials and equipment specified herein and their installation methods shall conform to the latest published version of the National Electrical Code, NEC.

1.5 SUBMITTALS

A. Shop Drawings

1. See Section 26 00 00.

1.6 DELIVERY, STORAGE, AND HANDLING

A. See Section 26 00 00.

PART 2 PRODUCTS

2.1 GENERAL

A. Provide metal conduit, tubing, and fittings of the type, grade, size, and weight (wall thickness) as shown and required for each service. Where type and grade are not indicated, provide proper selection determined by this Section to fulfill the wiring requirements and complying with the NEC for electrical raceways.

B. For each electrical raceway system indicated, provide a complete assembly of conduit, tubing, or duct with fittings, including, but not necessarily limited to, connectors, nipples, couplings, expansion fittings, bushings, locknuts, other components and accessories as needed to form a complete system of the type indicated.

C. Conduit fittings shall be designed and approved for the specific use intended. Conduit fittings, including flexible, shall have insulated throats or bushings. Rigid conduits shall have insulated bushings, except insulated throat grounding bushings shall be used on all conduits without ground conductors and where required by N.E.C. Article 250.
2.2 ACCEPTABLE MANUFACTURERS

A. Provide products complying with these specifications and produced by one of the following:

1. Rigid metallic conduits:
   a) Allied Tube and Conduit Corporation
   b) Triangle PWC Inc.
   c) Western Tube and Conduit Corporation
   d) Wheatland Tube Company
   e) LTV Steel Company

2. Liquidtight Flexible Metal:
   a) AFC
   b) Anaconda Metal Hose
   c) Electri-Flex Company
   d) Flexi-Guard, Inc.
   e) Triangle PWC, Inc.
   f) Wheatland

3. Rigid Nonmetallic Conduit
   a) Carlon
   b) Cartex
   c) Triangle PWC, Inc.

4. Raceway Fittings:
   a) Appleton Electric Company
   b) Cartex (PVC)
   c) Carlon (PVC)
   d) Crouse-Hinds
   e) Efor Division
   f) ETP-Uni-Couple
   g) O.Z. Gedney Company
   h) Raco, Inc.
   i) Republic Steel Corporation
   j) Steel City
   k) Thomas and Betts

5. Support systems:
   a) Unistrut Building Systems
   b) B-Line Systems Inc.
   c) Kindorf
   d) Mineralac Fastening Systems
   e) Caddy

6. Outlet, pull and junction boxes:
   a) Appleton Electric Co.
   b) Crouse-Hinds
   c) Killerk
   d) O-Z/Gedney
   e) Steel City
   f) Raco
   g) Bell
   h) Hoffman Engineering Co.
   i) Wiegmann
2.3 RIGID METALLIC CONDUITS
A. Rigid Galvanized Steel Conduit (RGS):
   1. Mild steel with continuous welded seam,
   2. Metallic zinc applied by hot-dip galvanizing or electro-galvanizing; threads galvanized after cutting,
   3. Internal Coating: Baked lacquer, varnish or enamel for a smooth surface.

2.4 RIGID NON-METALLIC CONDUIT
A. Schedules 40 (PVC-40) and 80 (PVC-80):
   1. Polyvinyl-chloride (PVC) plastic compound which meets, as a minimum, ASTM D1784 cell classification PVC 12233-A, B, or C,
   2. Rated for direct sunlight exposure,
   3. Fire retardant and low smoke emission,
   4. Shall be suitable for use with 90 Deg C wire and shall be marked "maximum 90 Deg C".
   5. Standards: ASTM D1784, NEMA TC 2, UL 651.

2.5 FLEXIBLE CONDUIT
A. PVC-Coated Flexible Galvanized Steel (liquid-tight) Conduit (FLEX-LT):
   1. Core formed of continuous, spiral wound, hot-dip galvanized steel strip with successive convolutions securely interlocked,
   2. Extruded PVC outer jacket positively locked to the steel core,
   3. Liquid- and vapor-tight.

2.6 CONDUIT FITTINGS AND ACCESSORIES
A. Fittings for Use with RGS:
   1. Locknuts:
      a) Threaded steel or malleable iron,
      b) Gasketed or non-gasketed,
      c) Grounding or non-grounding type.
   2. Bushings:
      a) Threaded, insulated metallic,
      b) Grounding or non-grounding type.
   3. Hubs: Threaded, insulated and gasketed, metallic, for rain-tight connection.
   4. Couplings:
      a) Threaded, straight-type: Same material and finish as the conduit with which they are used on.
      b) Threadless type: Gland compression or self-threading type, concrete tight.
   5. Unions:
      a) Threaded galvanized steel or zinc plated malleable iron.
   6. Conduit bodies:
      a) Body: Zinc plated cast iron or cast copper free aluminum with threaded hubs,
b) Standard and mogul size.
c) Cover: Clip-on type with stainless steel screws. Gasketed or non-gasketed galvanized steel, zinc plated cast iron or cast copper free aluminum.

7. Sealing fittings:
a) Body: Zinc plated cast iron or cast copper free aluminum with threaded hubs,
b) Standard and mogul size, with or without drain and breather,
c) Fiber and sealing compound: UL listed for use with the sealing fitting.

8. Service entrance head:
a) Malleable iron, galvanized steel or copper free aluminum,
b) Insulated knockout cover for use with a variety of sizes and number of conductors.

9. Expansion couplings:
a) 2 IN nominal straight-line conduit movement in either direction.
b) Galvanized steel with insulated bushing.
c) Gasketed for wet locations.
d) Internally or externally grounded.

B. Fittings for Use with FLEX-LT:
1. Connector:
a) Straight or angle type
b) Metal construction, insulated and gasketed
c) Composed of locknut, grounding ferrule and gland compression nut
d) Liquid-tight.
2. Standard: UL 467, 514B.

C. Fittings for Use with Rigid Non-Metallic Conduit:
1. Coupling and adapters shall be of the same material, thickness, and construction as the conduits with which they are used.
3. Solvent cement for welding fittings shall be supplied by the same manufacturer as the conduit and fittings.

D. Weather and Corrosion Protection Tape:
1. PVC based tape, 10 mls thick,
2. Protection against moisture, acids, alkalis, salts and sewage and suitable for direct burial,
3. Used with appropriate pipe primer.

2.7 OUTLET BOXES

A. Metallic Outlet Boxes:
1. Hot-dip galvanized steel,
2. Conduit knockouts and grounding pigtail,
3. Accessories:
a) Flat blank cover plates,
b) Barriers,
c) Extension, plaster, or tile rings,
d) Box supporting brackets in stud walls,
e) Adjustable bar hangers.
4. Standards: NEMA OS 1, UL 514A.

B. Cast Outlet Boxes:
1. Zinc plated cast iron or die-cast copper free aluminum with manufacturer's standard finish,
2. Threaded hubs and grounding screw.
3. Styles:
   a) "FS" or "FD",
   b) "Bel",
4. Accessories: 40 mil PVC exterior coating and 2 mil urethane interior coating.

2.8 PULL AND JUNCTION BOXES

A. NEMA 1 Rated:
   1. Body and cover: 14 GA, galvanized steel or steel finished with rust inhibiting primer and manufacturer's standard paint inside and out,
   2. With or without concentric knockouts on four sides,
   3. Flat cover fastened with screws.

B. NEMA 4 Rated:
   1. Body and cover: 14 GA steel finished with rust inhibiting primer and manufacturer's standard paint inside and out,
   2. Seams continuously welded and ground smooth,
   3. No knockouts,
   4. External mounting flanges,
   5. Hinged or non-hinged cover held closed with stainless steel screws and clamps,
   6. Cover with oil resistant gasket.

C. NEMA 4X Rated (metallic):
   1. Body and cover: 14 GA Type 304 or 316 stainless steel,
   2. Seams continuously welded and ground smooth,
   3. No knockouts,
   4. External mounting flanges,
   5. Hinged door and stainless steel screws and clamps,
   6. Door with oil-resistant gasket.

D. NEMA 4X Rated (non-metallic):
   1. Body and cover: Ultraviolet light protected fiberglass-reinforced polyester boxes,
   2. No knockouts,
   3. External mounting flanges,
   4. Hinged door with quick release latches and padlocking hasp,
   5. Door with oil resistant gasket.

E. NEMA 12 Rated:
   1. Body and cover: 14 GA steel finished with rust inhibiting primer and manufacturer's standard paint inside and out,
   2. Seams continuously welded and ground smooth,
   3. No knockouts,
   4. External mounting flanges,
   5. Non-hinged cover held closed with captivated cover screws threaded into sealed wells or hinged cover held closed with stainless steel screws and clamps,
   6. Flat door with oil resistant gasket.
2.9 SUPPORT SYSTEMS

A. Multi-conduit surface or trapeze type support and pull or junction box supports:
   1. Material requirements.
      a) Galvanized steel: ASTM A123 or ASTM A153.
      b) Stainless steel: AISI Type 316.
      c) PVC coat galvanized steel: ASTM A123 or ASTM A153 and 20 mil PVC coating.

B. Single conduit and outlet box support fasteners:
   1. Material requirements:
      a) Zinc plated steel
      b) Stainless steel
      c) Malleable iron
      d) PVC coat malleable iron or steel: 20 mil PVC coating
      e) Steel protected with zinc phosphate and oil finish.

PART 3 EXECUTION

3.1 INSTALLATION

A. General:
   1. Install electrical raceways and fittings as shown in accordance with the manufacturer's
      written instructions, the applicable requirements of the NEC, and in accordance with
      recognized industry practices to ensure that products serve the intended function.
      Complete electrical raceway installation before starting the installation of wire and cable.

B. Conduit Size:
   1. Minimum conduit size for power wiring shall be ¾". Minimum conduit size for control
      wiring shall be ¾". Minimum conduit size for voice/data wiring shall be 1".

C. Rigid Steel Conduit:
   1. Use rigid steel to run all electrical raceway systems where exposed to weather; in damp
      or wet locations; where subject to physical damage; and where cast in concrete walls or
      floors sabs which have waterproof membranes and where cast in masonry walls. Use
      rigid steel for all exposed feeders. Use threaded type couplings and fittings. Split type
      couplings and fittings are not acceptable. The interior of all buildings shall be considered
      a damp or wet area.

D. Liquidtight Flexible Metal:
   1. Use liquidtight flexible metal conduit and fittings for all motor connections, and for other
      electrical equipment connections where subject to movement and vibration and when
      subject to one or more of the following conditions: (1) exterior locations, moist or humid
      atmosphere where condensation can be expected to accumulate; (2) corrosive
      atmosphere, subject to water spray; subject to dripping oil, grease or water. Install
      internal ground wire in flexible conduit with grounding bushings. Maximum length shall
      be 600' and minimum length shall be 300'.

E. Rigid Nonmetallic:
   1. Use PVC conduit directly buried in earth, concrete encased, cast in concrete slabs, and
      where subject to corrosive environment. PVC may be used for all raceways on the
      interior of the building, which do not contain 480 volt conductors or motor feeders. Use
      Schedule 40 where direct buried and Schedule 80 where exposed, with size adjusted to
      have some fill area as if Schedule 40 were used.
3.2 INTERIOR CONDUIT SYSTEM:

A. Ground all metallic conduit in accordance with the requirements of the latest edition of the NEC.

B. Install all conduit as a complete system without conductors, continuous from outlet to outlet and from fitting to fitting. Make up threaded joints of conduit carefully in such a manner as to ensure a tight joint. Field-cut threads shall be cold-galvanized after cutting. The entire conduit system shall be secured at all joints and boxes in such a manner that each system shall be electrically continuous throughout. Fasten the entire conduit system securely into position. A run of conduit between outlet and outlet, between fitting and fitting, or between outlet and fitting shall not contain more than the equivalent of four quarter bends, including those bends located immediately at the outlet or fitting. Install approved expansion fittings in all conduit runs as specified in paragraph 3.2.P.

C. Ream all ends of conduit properly to remove rough edges. Whenever a rigid steel conduit enters a switchboard, panelboard, enclosure, or box it shall be securely fastened by the use of a locknut inside and outside and an approved insulating bushing shall be installed. Insulated grounding bushings shall be installed on all conduits without ground conductors and where required by NEC Article 250. Lay out and install all conduit systems as to avoid all other services or systems, the proximity of which may prove injurious to the conduit or the wires or conductors which the conduit confines.

D. Conceal conduit systems in finished areas. Concealed metallic conduits shall be run in a direct manner, basically parallel to, and at right angles with the lines of the building, and with as long a bend as possible. Conduit may be exposed in mechanical rooms and where otherwise shown or indicated. On exposed systems, run the conduit parallel or perpendicular to the structural features of the building and rigidly support with malleable iron conduit clamps at intervals as required by NEC, or on conduit racks, neatly racked and bent in a smooth radius at corners insofar as practicable. All bends shall be field-made using an approved bending machine designed for the purpose, or using standard ells having a radius not less than that required by the National Electrical Code, and with approved fittings or connectors. All bends shall be free from dents or flattening.

E. All conduit shall be run without traps. Where traps are unavoidable, a junction or pull box shall be placed at the low point. Metallic conduit systems, which are exposed to the weather or water, shall be made watertight. As soon as conduit has been permanently installed in place, conduit shall be capped or plugged with standard accessories. All metallic conduit shall be swabbed after plaster and drywall is finished and dry.

F. Support exposed raceway or grouped concealed raceways on galvanized channel using compatible galvanized fittings (bolt, beam clamps, and similar items) and galvanized threaded rod pendants to secure raceway to channel and channel to structure. Support single conduit runs using a properly sized galvanized conduit hanger with galvanized closure bolt/nut and threaded rod. Support-spacing shall not exceed 10' apart for all rigid conduit 2" and smaller, and 15' apart for rigid conduit 2-1/2" and larger and within 3' from boxes and changes in direction. Support flexible conduit on maximum 4-1/2' centers and within one foot (1') of boxes. All raceway support system materials shall be galvanized and manufactured by Kindorf, Uniistrut, Superstrut, Caddy, or Spring Steel Fasteners, Inc. Provide chrome or nickel-plated escutcheon plates on all conduit passing through walls and ceilings in finished areas.

G. Support conduit sized one inch (1") and larger as described in Paragraph F.

H. Make all joints and connections to ensure mechanical strength and electrical continuity. PVC conduit shall be joined, or have fittings attached, by using a fusing (solvent) compound recommended by and applied as instructed by, the conduit manufacturer.

I. Run conduit to avoid proximity to heat producing equipment, piping and flues, keeping a minimum of 8" clear. Whenever possible, install horizontal raceway runs above water piping.
Unless shown otherwise, do not install conduit horizontally in concrete slabs without written approval. All roof penetrations shall be made in adequate time to allow the roofer to make proper flashings.

J. Carefully review electrical Drawings and place boxes and conduit to avoid conflicts with structural members or other general construction.

K. Conduit larger than ¾” shall not be embedded in structural slabs without prior written permission from the Engineer. Conduits embedded in structural slabs shall be installed in the middle of the slab below the top and above the bottom reinforcing steel. Maintain a minimum concrete coverage of one (1”) except where penetration is made.

L. Furnish sleeves for timely placing in construction for all conduit passing through concrete walls, partitions, beams, floors, and roofs while same are under construction.

M. All conduit passing through the housing on connected equipment, shall pass through a cleanly cut hole protected with an approved grommet.

N. Metallic conduit installed below grade shall have its entire length painted with two coats of protective finish unless encased in concrete. Each coat shall consist of 5mils of PPG "Coat Cat Epoxy Coating" applied in accordance with the manufacturer’s recommendations. The entire length of metallic conduit, including fittings, shall be protected to a point 6” above finished grade (or concrete slab).

O. Install expansion fittings in all conduit as follows:
   1. All conduits crossing building expansion joints; unless some other form of thermal expansion compensation is approved in writing by the Engineer,
   2. All conduit straight runs in excess of 200’, and 400’ centers in all longer conduit runs.
   3. Conduit entering environmental rooms,
   4. Locations subject to thermal expansion and as required by NEC.
   5. Unless expansion fitting has an integral bonding braid, an external braid approved for the purpose shall be installed around the fitting.

3.3 IDENTIFICATION

A. See Section 26 60 02 for applicable labeling requirements.

B. Conduit Markers
   1. All conduits scheduled shall be identified at each end with a permanent metallic tag. Conduits shall be labeled as identified on the Conduit and Wire Schedule. Attach tags to cables or conduit by using a nylon cable tie. Identify concealed conduits entering equipment, panelboards, or enclosures by attaching marker tag to cables as they exit the conduit. Embedded conduits and conduits routed underground shall be labeled also at all points of entry and exit including handholes and buildings, by attaching a marker tag to the exterior of the conduit.

3.4 FIELD INSPECTION

A. Prior to backfilling and encasing conduits installed underground or covering conduits concealed in walls and ceilings, all raceways shall be inspected by the Engineer. Engineer shall be contacted a minimum of one week in advance for field inspection of concealed raceway. No raceway shall be concealed or backfilled until inspected by the Engineer.
Trindera Engineering, Inc.

SECTION 26 28 00
OVERCURRENT PROTECTIVE DEVICES

PART 1 GENERAL

1.1 SECTION INCLUDES
A. Material and installation requirements for:
   1. Fuses
   2. Circuit Breakers

1.2 DESCRIPTION OF WORK
A. This section covers furnishing and installing the furnishing and installation of all fuses and circuit breakers used in this project.

1.3 RELATED SECTIONS
A. Related Sections include but are not necessarily limited to:
   1. Section 26 32 13 – Power Generation
   2. Section 26 00 00 – Electrical General Provisions
   3. Section 26 60 02 – Basic Materials and Methods

1.4 STANDARDS AND REFERENCES
A. All materials and equipment specified herein shall, within the scope of UL Examination Services, be approved by the Underwriter’s Laboratories for the purpose for which they are used and shall bear the UL label.

B. Products shall be designed, manufactured, tested, and installed in compliance with the following standards:
   1. American National Standards Institute:
      a) ANSI/UL 198E Class R Fuses.
      b) ANSI/UL 198C High-Interrupting-Capacity Fuses, Current-Limiting types, Class L.

C. All materials and equipment specified herein and their installation methods shall conform to the latest published version of the National Electrical Code, NEC.

1.5 SUBMITTALS
A. Shop Drawings
   1. See Section 26 00 00.

1.6 DELIVERY, STORAGE, AND HANDLING
A. See Section 26 00 00.

PART 2 PRODUCTS

2.1 FUSES
A. Fuses shall be of the type and amperage indicated on the drawings. The voltage rating shall be appropriate for the application indicated. The fuse types indicated on the drawings imply a
certain set of fuse characteristics. No substitutions of fuse types will be allowed without written approval from the Engineer.

B. All fuses used on the project shall be provided with "blown fuse" indicators.

C. Where fuses in motor circuits are indicated but not sized, provide Manufacturer's recommended fuse size based on actual motor installed.

D. Provide in-line or integrally-mounted fuse clips on control power or low-voltage transformer.

E. Provide fuse puller or pullers for fuse sizes used.

F. Provide a minimum of two (2) spare fuses for each fuse used.

G. Acceptable Manufacturers:
   1. BUSSMAN
   2. GOULD SHAWMUT
   3. LITTLEFUSE
   4. RELIANCE

2.2 MOLDED CASE CIRCUIT BREAKERS

A. Molded case circuit breakers shall be quick-make and quick-break type. They shall have wiping type contacts. Each shall be provided with arc chutes and individual trip mechanisms on each pole consisting of both thermal and magnetic trip elements. Two and three pole breakers shall be common trip. Circuit breakers utilizing handle ties shall not be allowed. All breakers shall be calibrated for operation in an ambient temperature of 40°C. Molded case circuit breakers shall be trip-free. Each breaker shall have trip indication independent of the ON or OFF positions.

B. Breakers shall have lugs UL listed for both copper and aluminum.

C. Circuit breakers shall be capable of accepting the cable shown on the drawings. Circuit breakers not capable of accepting the cable shown shall not be acceptable.

D. Breakers shall have the interrupting rating and trip rating indicated on the drawings.

E. Circuit breakers 250-ampere frame and below shall be Cutler-Hammer type Westinghouse Series C with thermal-magnetic trip units and inverse time-current characteristics. A push-to-trip button on the front of the circuit breaker shall provide a local manual means to exercise the trip mechanism.

F. Circuit breakers 400-ampere through 1200-ampere frame shall be Cutler-Hammer type Westinghouse Series C with microprocessor based RMS sensing trip units. A push-to-trip button on the front of the circuit breaker shall provide a local manual means to exercise the trip mechanism.

G. Replacement circuit breakers shall be Siemens BL series or approved equal.

2.3 USES

A. Breakers covered under this specification may be installed in switchboards, panelboards, motor control centers, combination motor starters, and individual enclosures.

2.4 ENCLOSURES

A. Unless otherwise shown on the drawings, enclosures for protective devices shall be NEMA rated for the environment in which they are installed. In general, devices installed indoors shall be in NEMA 12 enclosures, devices installed outdoors shall be in NEMA 4x enclosures.
PART 3 EXECUTION

3.1 INSTALLATION

A. Fuses and circuit breakers shall be installed in their respective enclosures and locations in such a manner as to insure tight connections so as to preclude arcing and overheating.

B. Install fuses in fuse holders immediately prior to energization of the circuit in which the fuses are installed. Fuses shall not be installed and shipped with equipment.

C. Labels
   1. Place fuse identification labels, showing fuse size and type installed, inside the cover of each switch or other location where fuses are installed.

END OF SECTION
SECTION 26 32 13
POWER GENERATION

PART 1   GENERAL

1.1   SECTION INCLUDES

A. Material and installation requirements for:
   1. Standby power generator
   2. Automatic transfer switch
   3. Day tank system

1.2   DESCRIPTION OF WORK

A. This section covers installing a standby power generator set including diesel engine-driven generator with controls, output circuit breaker, automatic transfer switch, day tank system and controls, connections and appurtenances for integration with existing primary diesel tank, and all required auxiliary systems.

1.3   RELATED SECTIONS

A. Related Sections include but are not necessarily limited to:
   1. Section 26 05 19 – Wire and Cable
   2. Section 26 05 26 – Grounding
   3. Section 26 05 33 – Raceways
   4. Section 26 28 00 – Overcurrent Protective Devices
   5. Section 26 00 00 – Electrical General Provisions
   6. Section 26 60 02 – Basic Materials and Methods

1.4   STANDARDS AND REFERENCES

A. All materials and equipment specified herein shall, within the scope of UL Examination Services, be approved by the Underwriter's Laboratories for the purpose for which they are used and shall bear the UL label.

B. Products and installation shall comply with applicable sections of the following standards:
   1. American National Standards Institute (ANSI):
      a) C37.13, Low Voltage AC Power Circuit Breakers Used In Enclosures
      b) C37.50, Test Procedures For Low Voltage AC Power Circuit Breakers Used in Enclosures
      c) C37.90a, IEEE Guide for Surge Withstand Capability (SWC) Test
   2. National Electrical Manufacturers Association (NEMA):
      a) AB 1, Molded Case Circuit Breakers
      b) ICS 2, Standards for Industrial Control Devices, Controllers and Assemblies
      c) ICS 4, Terminal Blocks for Industrial Use
      d) ICS 6, Enclosures for Industrial Controls and Systems
      e) MG 1, Motor and Generators
      f) MG 2, Safety Standard for Construction and Guide for Selection, Installation and Use of Electric Motors and Generators
POWER GENERATION

a) 70, National Electric Code (NEC)
b) 37, Installation and Use of Stationary Combustion Engines and Gas Turbines
c) 110, Emergency and Standby Power Systems

4. Underwriters Laboratories, Inc. (UL):
   a) 489, Molded Case Circuit Breakers and Circuit Breakers Enclosures
   b) 1004B, Standard for Electric Motors (and Generators)
c) 1008, Standard for Transfer Switch Equipment
d) 7200, Standard for Stationary Engine Generator Assemblies

C. All materials and equipment specified herein and their installation methods shall conform to the latest published version of the National Electrical Code, NEC.

D. All electrical equipment and materials, and the design, construction, installation, and application thereof, shall comply with all applicable provisions of the National Electrical Code (NEC), the Occupational Safety and Health Act (OSHA), and any applicable Federal, State, and local ordinances, rules, and regulations.

E. All materials and equipment specified herein shall, within the scope of UL Examination Services, be approved by the Underwriter's Laboratories for the purpose for which that are used and shall bear their label.

1.5 SUBMITTALS

A. Shop Drawings
   1. See Section 26 00 00.

B. In accordance with the "submittals" requirements in Section 26 00 00, the following project data shall be submitted by the Owner prior to placement of a purchase order for the equipment:
   1. Submitted materials shall be bound in a 3-hole binder with section tabs and an index.
   2. Wiring diagrams with details specific to this project showing all interface points and terminal numbers clearly identified.
   3. Specific information on the components provided for this project and all optional equipment provided.
   4. Provide specific and detailed wiring and connection diagram showing all details of field wiring connections and component connections for transfer switch, fuel monitor, louver controls, battery charger alarm contacts and customer contacts as specified in control panel, etc. Drawings shall show all terminal numbering and physical locations of terminals.
   6. Provide specific detailed information on the control features, their ranges, recommended set points etc.
   7. Detailed plan and elevation drawings of the generator set indicating overall dimensions and the specific location of all components, including the engine exhaust system, fuel tank, and enclosure.
   8. Detailed drawings indicating installation requirements and the specific location of vibration isolators and seismic snubbers.
   9. Detailed plan of the face of the control panel indicating overall dimensions and the specific location of all components.
   10. Detailed specifications and standard operating characteristics of the engine, the generator, and all components.
   11. Certification by the manufacturer and documentation that appropriate linear and torsional vibration analyses have been performed and that engine and generator are compatible units.
12. Certification by the manufacturer and documentation that the generator set will meet or exceed the general requirements as specified in Article 1.02 of this section and the required performance as specified in Article 1.04 of this section.


15. Certification by the engine manufacturer of review and approval of the proposed engine application.

16. Certification by the generator manufacturer of review and approval of the proposed generator application.

17. Detailed specifications and drawings of the engine exhaust system.

18. Detailed specifications and drawings of the enclosure.

19. Detailed drawing showing generator plan and elevation views as proposed to be installed in the building, including all required electrical and mechanical clearance.

C. After break-in and testing of the generator set, the following project data shall be submitted by the Contractor:

1. Certified results of testing of the engine by the engine manufacturer.

2. Certified results of testing of the generator by the generator manufacturer.

3. Certified results of break-in and testing of the generator set by the manufacturer of the assembly.

1.6 DELIVERY, STORAGE, AND HANDLING

A. See Section 26 00 00.

B. The standby generator set(s) shall be stored at the factory until they must be shipped to the job site to prevent building construction delay.

C. The standby generator set(s) shall be crated and covered to protect it from damage during shipment and subsequent storage at the job site.

1.7 WARRANTY

A. The Contractor shall guarantee all connections, equipment, labor, and material for a complete working system to be free of defects in design, materials, and workmanship for a period of one (1) year following the date of acceptance, by formal action of the Owner, of all work under the contract. The guarantee shall include all parts and labor and shall be secured by a written guarantee from the Contractor to the Owner. The written guarantee shall be delivered to the Owner prior to date of acceptance of all work under the Contract.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. The generator set shall be manufactured by the following acceptable manufacturer:

1. Cummins

2. Caterpillar Tractor Company (CAT)

3. Kohler

B. The dimensional data for the sizing of the generator is from Cummins. The equipment of the manufacturer selected must fit within the space restrictions as shown on the plans.

C. Description of the service capabilities normally provided by the company, including resumes of employees assigned to field service and listing of service equipment.
D. Detailed plan and elevation drawings of the proposed generator set indicating overall dimensions and the specific location of all components, including the engine exhaust system.

E. Detailed specifications and standard operating characteristics of the engine, the generator and all components.

F. Additional information that may assist the Engineer in evaluation of the manufacturer and/or proposed generator set.

G. Acceptability of the manufacturers will be determined by the Owner and the acceptable manufacturers will be designated by Addendum mailed to holders of plans and specifications at least ten (10) working days prior to the date of opening of bids.

2.2 REQUIRED PERFORMANCE

A. Performance of the generator set shall be based on operation of the assembly with fan, battery charging alternator and all specified and required appurtenances.

B. The generator set shall be rated for continuous standby service, however the temperature rise of the generator shall not exceed 105 degrees C above a 40 degree C ambient, when producing full rated load for a continuous period of time.

C. Voltage Drop: The engine generator unit supplied must start the indicated load with a sustained RMS voltage drop no greater than 15% of rated phase to phase voltage during the starting period. The starting period shall be from zero up to 3 seconds. The instantaneous voltage dip may be greater than 15% but shall not cause motor starter chatter or relay drop out or exceed a level which causes undesirable motor starting. If motor starting problems are encountered the size of the generator set shall be increased as required to reduce voltage dip until the motors can be started without problems. No additional cost shall be incurred by the Owner for the increased size of the generator set. The method of measurement shall be by light beam oscilloscope.

D. Frequency Regulation: Plus or minus 3 hertz maximum, no load to rated load.

E. Voltage Regulation: Plus or minus 2% maximum.

F. The generator set shall be capable of starting and operating the intended load as shown in the design drawings and as intended by the Engineer without exceeding the temperature ratings of the engine or the generator.

G. The generator set shall be sized by the manufacturer to start and operate the load while meeting the performance requirements set forth herein. The minimum acceptable engine generator set shall be capable of producing at least at .8 power factor, continuously.

H. Power monitoring of no less than thirty (30) days is in place, and as such, by acknowledgement of the Engineer, may modify the size of the generator via addendum during the time of bid if they shall deem it necessary. The basis of design is 200kW diesel generator.

2.3 ENGINE

A. The engine shall be a water-cooled, in-line or V-type, four-stroke cycle, compression ignition, diesel-fueled unit. The engine shall be fully and completely capable of and equipped for driving electrical generators. The specific model of engine selected by the manufacturer of the generator set shall have an acceptable history of successful similar applications.

B. The engine shall be equipped with an electronic governor which shall control the speed of the engine and generator. The speed shall be controlled to maintain the generator output frequency within 0.25 percent of rated frequency from no load to full load.
C. The engine shall be equipped for operation with diesel fuel.

D. The engine shall be equipped with a pressurized oil lubricating system which shall include threaded, spin-on type, full flow lubricating oil filters which are located for easy removal. The lubricating system shall be equipped with spring-loaded bypass valves which will allow oil circulation if the filters are plugged.

E. The engine shall be equipped with an electric starting system which includes a lead add battery set, an engine-driven battery charging alternator and appropriate electrical controls. The system shall be minimum 12 V. The batteries shall be mounted adjacent to the generator set on a fabricated steel housing. Batteries shall be rated minimum 225 ampere-hours.

F. The engine shall be equipped with a unit-mounted, radiator type cooling system which shall maintain the jacket water temperature at the level required for proper operation of the engine from no load to full load. The engine shall be equipped with one or two, as required, water jacket heater(s), which shall be thermostatically controlled to maintain the coolant temperature at 120 degrees F. Operation of the heater(s) shall be stopped while the engine is turning.

2.4 GENERATOR

A. The generator shall be brushless, revolving field-type, and shall be fully and completely capable of and equipped to be driven by a natural gas engine, and able to produce the starting and running KVA demanded by the connected load. The specific model of generator, selected by the manufacturer of the generator set, shall have an acceptable history of successful similar applications.

B. The generator shall comply with NEMA standard MG1 Parts 16 and 22. The generator shall be insulated to Class F requirements, however, the unit shall be sized and rated so that the temperature rise of the unit will not exceed 105 degrees C over ambient temperature of 40 degrees C under continuous, full load conditions in accordance with NEMA MG1-22.40. The generator shall be fully guarded in accordance with NEMA MC1-1.25.

C. The rotating brushless exciter shall incorporate a full wave, three phase rotating rectifier with hermetically sealed, metallic type, silicon diodes to supply main field excitation. A multiplate selenium surge protector shall be connected across the diode network to protect it against transient conditions.

D. The generator shall be coupled directly to the engine flywheel through a flexible driving disc for positive alignment. The generator housing shall bolt directly to the engine flywheel housing and shall have a single ball bearing support for the rotor. The rotor shall be dynamically balanced up to 25 percent overspeed. The rotor shaft bearing shall be shielded type with provisions for easy servicing through grease pipes which extend to the exterior of the generator frame. The bearing shall be designed for a minimum B-10 bearing life of 40,000 hours.

E. The generator shall be designed and manufactured to be capable of sustaining at least 300 percent of rated current for at least 10 seconds under three-phase symmetrical short circuit conditions by inherent design of the unit or by a current boost system. The generator shall be designed and manufactured to be capable of sustaining at least 50 percent increase in rated speed for an unlimited time without mechanical damage.

F. The generator shall be equipped with a solid-state, volts-per-hertz type regulator which is compatible with both the engine and the generator. The regulator shall be capable of regulating the generator under sudden zero to full load changes.

G. The regulator shall be housed and mounted for protection of all components against moisture and vibration. The regulator assembly shall be mounted on the generator.
2.5 CONTROL PANEL

A. The generator shall be equipped with a control panel. The control panel shall be readily accessible, visible and shall be mounted such that the top of the control panel is no higher than 6'-0" above the finished floor when installed.

B. The generator control panel shall include the following:
1. Engine coolant temperature gauge,
2. Engine lubricating oil temperature gauge,
3. Engine lubricating oil pressure gauge,
4. Engine running time meter,
5. Battery charge ammeter,
6. Engine/generator tachometer,
7. Voltmeter,
8. Ammeter,
9. Ammeter-voltmeter phase selector switch,
10. Frequency meter (45 to 65 hertz),
11. Voltage adjustment rheostat (minimum plus/minus 5%),
12. Emergency stop push button,
13. Individual indicating lights for:
   a) Selector switch in OFF position,
   b) Selector switch in AUTOMATIC position,
   c) High water temperature,
   d) Low water temperature,
   e) Low water level,
   f) Low lubricating oil pressure,
   g) Engine starting prohibited after three (3) cranking cycles,
   h) High engine/generator speed,
   i) Generator run failure,
   j) High battery voltage,
   k) Low battery voltage,
   l) Battery charger failure,
   m) Low fuel alarm,
   n) Low fuel shutdown.

C. Lamp test push-button for all indication lights listed above.

D. Dry contacts wired to a terminal strip for:
1. Each alarm light as listed above,
2. Common remote "trouble" alarm,
3. Common remote "fail" alarm,
4. Low fuel alarm,
5. Low battery voltage.

E. Three position (automatic/off/test) selector switch which shall:
1. In the automatic position - allow the engine to automatically start when contacts in the transfer switch control circuit close and stop after the control circuit contacts open.
2. In the off position - prohibit starting of the engine
3. In the test position - cause the engine to start and remain in operation until the selector switch is moved to either of the other positions.
4. Provide separate dry contact for each switch position.

F. An automatic starting system that shall cause and control operation of the engine starter motor until the engine has started. The starting system shall include manually adjustable timing circuits for control of the time of operation of the engine starter motor and the time from stopping of operation of the starter motor (after the engine has failed to start) to re-initiation of operation of the starter motor. The starting system shall enable the number of starting cycles to be manually selected and shall prohibit operation of the starter motor if the engine fails to start after three (3) starting cycles. The starting system circuitry shall include dry contacts for remote indication of generator set running and not running conditions.

G. Engine emergency shutdown controls that shall include sensors and control circuits which shall stop operation of the engine when the engine coolant temperature rises to a preselected value, when the engine coolant drops below a preselected level, the engine lubricating oil pressure drops to a preselected value, when the fuel level reaches the critical low level, and the engine speed rises to a preselected value. The controls shall prohibit subsequent restarting of the engine until a reset switch is manually engaged.

2.6 MAIN CIRCUIT BREAKER

A. A main line, molded case, 3-pole circuit breaker, 208 volts, shall be installed as a load circuit interrupting and protection device. It shall operate both manually as an isolation switch and automatically during overload and short circuit conditions.

B. The trip unit for each pole shall have elements providing inverse time delay during overload and instantaneous magnetic tripping for short circuit protection. The circuit breaker shall meet standards established by Underwriters' Laboratories, National Electric Manufacturer's Association, and National Electric Code.

C. The circuit breaker shall be mounted in a NEMA 1 enclosure adjacent to the generator control panel.

D. The main circuit breaker pickup setting shall be adjusted to protect the feeder conductors as shown in the design drawings.

2.7 SUPPORT FRAME

A. The engine and generator shall be mounted on and supported by a welded support frame fabricated of structural steel members. The support frame shall specifically be designed by the manufacturer of the generator set to:

1. Resist bending forces and loads imposed by the engine and generator during transportation and during operation.
2. Limit torsional and bending movement caused by torque reactions
3. Prevent resonant vibration
4. Resist the bending and seismic loads per the UBC 2336 C.

B. The support frame shall be mounted on and supported by spring-type vibration isolators and shall be restrained by all-directional seismic snubbers as required by earthquake zone 3 conditions. The isolators and snubbers shall be selected by the manufacturer of the generator set. The manufacturer shall design the support frame for incorporation of and attachment to the isolators and snubbers and shall define all requirements for mounting of the isolators and snubbers on to the supporting surface.

2.8 FUEL TANK SYSTEM

A. The Contractor shall be responsible to coordinate the fuel system requirements with the local building and fire codes for installation. The Contractor shall verify all necessary space, containment, alarming and monitoring requirements are met. The Contractor shall provide all
necessary equipment, raceway, wiring etc. to meet the requirements of the local codes, Fire Marshall, NEC, and as recommended by the generator manufacture. Specific requirements are as follows:

B. The fuel tank system shall be double walled, have. The system shall include the following:
   1. Dry contacts wired to terminals in the control panel for a low level fuel alarm,
   2. Critical low fuel alarm which shall also cause the generator engine to shutdown,
   3. Manual fuel fill cap,
   4. Level gage mounted in generator room,
   5. Fuel strainer,
   6. Plastic sight glass,
   7. Interstitial monitoring, leak detection, and alarming per local requirements.

C. The low level fuel alarm shall be set to trip when the fuel tank quantity reaches 25% of capacity.

2.9 DAY TANK SYSTEM

A. The day tank system shall have 50 gallon capacity with integral gear pump and controls. The system shall include the following:
   1. Dry contacts for low level fuel alarm,
   2. Dry contacts for critical low fuel alarm and generator engine shutdown,
   3. High level fuel alarm,
   4. Manual fuel fill cap,
   5. Fuel strainer,
   6. Plastic sight glass,
   7. Cover,
   8. Fuel intake normally closed solenoid valves,

B. The day tank system shall be factory packaged Tramont TRS-50 or equal.

2.10 DAY TANK LEVEL MONITOR

A. Provide a fuel tank monitoring, indicating and alarming system for tank gauging and non-discriminating leak detection. The monitor shall operate on a 120VAC power and shall be microprocessor based, have 4 programmable relay outputs, selectable level indication in inches or gallons, programmable overfill and low level alarms.

B. The console display shall display level and have status indicators for alarms and leak detection.

C. Provide level sensor and leak detection sensors and all cabling between sensors and electronic monitor. System shall be PNEUMERCATOR E700-1 as Manufactured by the PNEUMERCATOR Company, Farmingdale, NY or Engineer approved equal.

2.11 ENGINE COOLING

A. Engine cooling shall be accomplished with a skid mounted radiator; provide sheet metal cowling between the generator and exhaust louver. Engine shall be filled with manufacturers recommended antifreeze.

B. Coordinate existing building penetrations and ductwork with inlet air requirements of the generator.
2.12 EXHAUST SYSTEM

A. The exhaust system shall include a flexible stainless steel bellows exhaust pipe connection to the engine exhaust manifold, exhaust piping, silencer, exhaust pipe flashing, collar, and rain cap and support system.

B. The Contractor shall be responsible to coordinate the exhaust system requirements with the local building and fire codes for installation. The Contractor shall verify that all necessary space requirements are met. The Contractor shall provide all necessary insulation, heat shields, etc. Exhaust system components shall be of size(s) as recommended by the generator manufacturer. Current building codes, standards, and general practices shall be followed during exhaust ventilation installation. Specific requirements for both locations are as follows:

1. Silencer shall be a critically rated unit in accordance with engine manufacturer's recommendations.

2. Flexible bellows exhaust pipe shall be seamless stainless steel with a minimum length of 12 inches of bellows piping.

3. Exhaust pipe shall be Schedule 40 steel and shall have welded or flanged end connections except connections at engine exhaust manifold, and silencer shall be flanged or NPT. All elbows shall be long radius. Size shall be same as silencer end connections. The silencer and exhaust pipe shall be supported from the ceiling joist system with 3/8 - inch threaded rod, adjustable steel clevis (GRINNEL Figure 299) and 1 - 1/2 inch by 1/8 inch steel strap.

C. Coordinate existing building penetrations and ductwork with exhaust air requirements of the generator.

D. Final installation shall be painted, grouted, and modified to match existing surrounding architecture and building characteristics as approved by the Owner.

2.13 AUTOMATIC TRANSFER SWITCH

A. General

1. One (1) automatic system load transfer switch shall be supplied as an integral component of the generator set. The transfer switch for this project was designed around the features and space requirements of Cummins. The transfer switch shall be manufactured by the following manufacturer:
   a) Cummins
   b) Caterpillar Tractor Company (CAT)
   c) Kohler

2. Transfer switch shall be well documented with clear wiring diagrams, and submittals shall include wiring diagram showing clearly all connections for field wiring with terminal numbering.

3. The transfer switch shall be equipped with three (3) poles for normal and emergency service of 208 volts, 60 hertz, 3 phase. The transfer switches shall be rated 800 amperes.

4. The transfer switch shall be mechanically and electrically held and rated to 600 volts for all classes of load and continuous inductive duty.

5. The transfer switch shall conform to UL 1008 Revision 4 provisions for Withstand Current Ratings and Closing Ratings.

6. The switch shall be capable of enduring 6000 cycles of complete opening and closing at rated current and voltage at a rate of 6 cycles per minute without failure.

7. The switch shall be double throw, inherently interlocked mechanically and electrically to prevent supplying the load from both sources simultaneously. The operating current shall be obtained from the source to which the load is to be transferred. The
transfer mechanism shall be of the double break design with solid silver cadmium surface contacts and individual heat resistant arc chambers.

8. Single break contacts will also be acceptable if arc barriers and magnetic blow out coils are used. The contacts shall be capable of carrying 20 times the continuous rating for interrupting current.

9. All contacts, coils, etc. shall be readily accessible for replacement from front of panel without major disassembly of associated parts.

10. The transfer switch shall have UL 1008 label and listing.

11. The transfer switch shall be rated NEMA 1, or approved equal, for the environment installed.

12. The transfer switch shall be mounted as indicated on the drawings. The manufacturer of the transfer switch shall ship the automatic transfer switch, with generators, to the Owner's respective facilities for storage.

B. Controls hardware
1. All relays shall be provided with indicating LED lights for energized position indication.
2. Time delay relays shall be provided with timing and timed out LED indicators.
3. Panel front Indication lights shall be push-to-test or the switch shall have a push to test feature for indication lights, unless lights are LED.
4. All fuses shall be provided with "blown fuse" indicators.
5. All wiring shall be numbered at each end with basic wiring numbering scheme.
6. All terminals shall be clearly labeled.
7. All internal equipment shall be labeled.
8. All external devices shall be clearly labeled.
9. Provide nameplate on transfer switch as shown on the drawings.
10. If available as an option, provide a transfer switch with solid state logic equal to CONTROL CUTLER HAMMER IQ TRANSFER or ONAN -POWER SENTRY CONTROL.

C. Controls Features
1. The transfer switch shall include the following accessories:
   a) Undervoltage Sensor: Adjustable solid state low voltage sensing relays (pick up at 85 to 98 percent of normal voltage - set at 98%; drop out at 75 to 100 percent - set at 90% of pickup setting). Provide for each phase.
   b) Time Delay Start and Stop on Drop Out: Solid state adjustable time delay on start (0 to 15 seconds). Set start delay for 15 seconds. Timer will send start signal to generator set CP (genset), where louver timer will allow 15 second delay for louvers to open prior to starting genset.
   c) Time Delay Stop: Solid state adjustable time delay (0 to 10 minutes) to allow generator to cool down after normal power is restored and retransfer occurs. Set at 5 minutes.
   d) Time Delay Transfer & Retransfer: Solid state, time delay, relay adjustable; 2 to 120 seconds for transfer to emergency and 0 to 30 minutes for retransfer to normal. Set at 5 minutes for retransfer to normal. Set at 3 seconds for transfer to emergency.
   e) With or Without Load Selector Switch: Switch to select exercise with or without load.
   f) Normal-Test Switch: Switch such that in the "Normal" mode the transfer switch will operate automatically and in the "Test" mode the generator will start for test purposes. This switch shall work in conjunction with the "With" or "Without" load.
POWER GENERATION

switch. An extra contact block shall be provided on the normal-test switch for wiring to the Programmable Controller, if one is required.

g) Exercise Clock: An exerciser clock shall be provided which shall be programmable to exercise the generator set. The exerciser shall be adjustable from 15 to 60 minutes once each week. The exercise shall be either with or without load. If power fails during the exercise cycle, the load shall automatically pick up.

h) Programmed Transition: The load transfer control shall be capable of remaining in the neutral position for an adjustable time of .5 to 60 seconds, when transferring from one line power source to the other, to allow residual voltages to decay before application of the source. Set to 3 seconds for less than 50 hp loads.

2. Provide the following dry contacts each with terminals for field connection, 2 Amp rated at 120VAC.
   a) Two, separate, normally open dry auxiliary contacts; one indicating transfer switch is in NORMAL position and one indicating switch is in EMERGENCY position,
   b) Four, separate, normally open, dry contacts; two indicating "commercial power / normal power" available, and two indicating generator / emergency power available.
   c) Normally open, dry contact indicating generator called to run.

3. Position lights for normal and emergency position indication.

4. Two indication lights, one for emergency power available and one for normal power available.

5. Note: provide push to test type lights or push to test feature for all indication lights.

2.14 GENERATOR BATTERY CHARGER

A. Provide fully automatic constant voltage, current limiting battery charger sized for the generator starting batteries.

B. Charger shall have the following features: Protection fuses, DC ammeter, Temperature compensating voltage regulator, and LED alarm lamps indicating AC power fail, Low battery voltage, High battery voltage. Form C contacts for alarm indication, high and low battery alarm adjust pots, float voltage adjustment pot.

C. Charger shall monitor the battery voltage and control the SCR to deliver the optimum current level to the battery. The battery shall be permanently connected and when the battery approaches full charge preset voltage, the charging current shall automatically taper to zero amperes or to the steady state load on the battery. The battery charger shall be mounted in the generator enclosure.

2.15 GENERATOR ENCLOSURE

A. No enclosure is necessary for this installation of one (1) below-grade standby generator.

2.16 RADIATOR & DUCTING

A. The radiator assembly, including all fans, cowling, and ductwork shall be field verified and installed per the requirements of the existing building exhaust and intake air.
PART 3 EXECUTION

3.1 INSTALLATION

A. The generator set shall be installed by the Contractor or, at the option of the Contractor, by the manufacturer of the generator set in accordance with the installation drawings and instructions prepared by the manufacturer. Installation shall be performed by workers who are skilled and experienced in the installation of generator sets and electrical systems.

B. It is the Contractor's responsibility to coordinate installation via existing openings for the genset to fit into the building. It is also the Contractor's responsibility to provide necessary optional equipment to provide clearance requirements for the entire genset installation and to verify all mechanical and electrical clearance requirements are met.

C. Install fuel system, ventilation system, and exhaust system in accordance to the requirements of the drawings, specifications, manufacturer, local codes, and the NEC. Any additional requirements or equipment necessary for a complete installation shall be provided by the Contractor at no additional expense to the Owner.

D. Control Panel & Circuit breaker Mounting

1. The control panel shall be installed so that there is a minimum of 3 feet clear space in front of the panel, and the top of the panel is no more than 6 feet above the finished floor.

2. Install the control panel for the generator on the generator at a height no more than 6 feet above the finished floor to the top of the control panel. If the control panel mounted on the generator is higher than 6 feet, then the Contractor shall mount the control panel on a separate stand or on the wall. The Contractor shall provide all necessary raceway, wiring, and mounting equipment at no additional cost to the Owner.

3. The main circuit breaker shall be installed so that there is a minimum of 3½ feet clear space in front of the breaker. The Contractor shall coordinate the breaker installation with the generator manufacturer to meet this requirement.

4. The installation and space requirements stated above shall be verified prior to construction. Any discrepancies shall be stated in the submittals.

5. If the physical size of the structure in which the generator is being installed will not allow for these space requirements, the Contractor shall bring this to the immediate attention of the Engineer.

3.2 IDENTIFICATION

A. Refer to Section 26 60 02 for applicable painting, nameplates, and labeling requirements.

3.3 INSPECTION AND VERIFICATION OF INSTALLATION

A. After completion of the installation of the generator set, the manufacturer shall inspect the installation and verify that all components and wiring are correctly installed. The manufacturer shall determine the exact scope and nature of work required to correct any deficiencies and errors in the work and shall supervise the performance of such work.

1. All components of the generator set shall be calibrated by the manufacturer after completion of installation. Each component shall be adjusted to be within the manufacturer's required range and for the specific application. Components that cannot be properly calibrated or that are found to exceed the manufacturer's specified range or accuracy shall be removed and replaced.

2. After installation of the generator set is completed, the generator set shall be placed into operation by the manufacturer. The manufacturer shall revise, modify, adjust and
reprogram the various components as required during and following start-up to provide proper operation.

3.4 ON-SITE OPERATION AND LOAD TEST

A. After the Manufacturer has inspected and verified the generator installation, the generator set shall be tested by the manufacturer. All components of the generator set shall be fully and completely operated and tested under simulated power failure conditions and under a full load for a period of at least two continuous hours. Load banks shall be provided by the manufacturer of the generator set as required to supplement the connected facility load and to provide full load conditions. Operating temperature, load amperes and voltage shall be recorded every 1/2 hour.

B. Fuel shall be supplied by the Contractor for the day tank and as needed for the existing tank storage to supply the loads shown below plus 10% as to not use any existing fuel from the Owner's fuel tank system.

C. The on-site operation testing shall take place in the presence of the Engineer. The Contractor shall inform the Engineer a minimum of 7 days prior to the testing taking place. All controls and functions of the generator shall be operable and all auxiliary equipment shall be connected and all field wiring complete before the testing is to take place.

D. Test Load: Testing shall be performed at 0.8 PF with loads as specified below. Where the specific set has been tested at 0.8 PF as specified herein below, field-testing can be performed at 1.0 PF. The supplier of the engine-generator set shall provide a load bank of sufficient capacity to complement the available building load for testing. The field test shall include running the emergency power system under loads as specified below:
   1. 30 minutes at 25% of rated load (field load bank),
   2. 15 minutes at 50% of rated load (field load bank),
   3. 15 minutes at 75% of rated load (field load bank),
   4. 30 minutes at 100% of rated load (field load bank).
   5. Miscellaneous building loads may be used to supplement load bank.

E. Test Readings: The voltage, current and frequency readings shall be recorded at 15-minute intervals throughout the test. Each automatic transfer switch shall automatically operate a minimum of four times during the test. There shall be a 15 minute unloaded run at the conclusion of the test to allow engine to cool before shutdown. The Contractor shall make all necessary hook-ups to facilitate field-test and shall furnish all fuel necessary for field-testing. Refer to Section 26 01 26, "Electrical Testing", for additional testing requirements.

F. At the conclusion of the load testing, the generator fuel day tank shall be filled by Contractor.

3.5 OPERATION AND MAINTENANCE TRAINING

A. The manufacturer of the generator set shall conduct specifically organized training sessions covering operation and maintenance of the unit for personnel employed by the Owner. The training sessions shall be conducted to educate and train the personnel in maintenance and operation of all components of the unit. Training shall include, but not be limited to, the following:
   1. Preventative maintenance procedures,
   2. Trouble-shooting,
   3. Calibration,
   4. Testing,
5. Replacement of components,
6. Automatic mode operation,
7. Manual mode operation,
8. Fuel and monitoring system.

B. At least one (1) training session, at least two (2) hours in duration, shall be conducted at the site after start-up of the system. The manufacturer shall prepare and assemble specific instruction materials for each training session and shall supply such materials to the Owner at least two (2) weeks prior to the time of the training.

3.6 OPERATION AND MAINTENANCE DATA

A. See Section 26 00 00.

B. The supplier of the engine-generator set shall provide Operation and Maintenance Manuals which shall include, but not be limited to, the following:
1. OEM overhaul manual for the engine,
2. Preventive maintenance procedures,
3. Trouble-shooting Calibration Testing,
4. Replacement of components,
5. Automatic mode operation,
6. Programming,
7. Manual mode operation,
8. System schematics,
9. As-built wiring diagrams of overall system,
10. Catalog data and complete parts list for all equipment and control devices,
11. Listing of recommended spare parts,
12. Listing of recommended maintenance tools and equipment.

C. The supplier of the engine-generator set shall review and revise the generic O&M manual provided by the manufacturer so that only pertinent information relevant to this particular project is included. Non-relevant information, such as part lists, option lists, wiring diagrams, etc., should be crossed out if it can not be removed from the manuals.

3.7 MAINTENANCE SUPPORT PROGRAM

A. The manufacturer of the generator set shall provide a maintenance support program covering all routine service maintenance and repair of the engine generator set for a period of one year from the date of acceptance. The cost of the maintenance support program shall be shown individually, but must be included in the engine generator total bid price.

B. Under the maintenance support program contract, the generator set manufacturer shall be solely and completely responsible for correction of all deficiencies and defects and shall make any and all repairs, replacements, modifications and adjustments as malfunctions or failure occur.

C. The contract will cover the furnishing of all material, labor, testing equipment, load banks, tools, and transportation necessary to perform the preventative maintenance work herein described.

D. The vendor shall stock common replacement parts (i.e. filter, etc.) for service or repair work for engines, generators, control panels, switchgear, and automatic transfer switches.
E. The vendor shall be equipped with service technicians, tools, and transportation "on-call"; 24 hours a day, 365 days a year, to provide emergency service.

F. It is the responsibility of the vendor to notify the Owner of the scheduled maintenance interval at least two (2) weeks prior to the actual performance of their contractual obligations. The Owner reserves the right to witness the evaluation, testing, and maintenance of the equipment at its discretion. It is the responsibility of the vendor to coordinate testing and preventative maintenance on the existing operational system.

G. Three (3) copies of the evaluation, testing, and preventative maintenance work shall be submitted no later than (14) days following the completion of the service interval. All site documentation shall be typed.

H. The reports shall contain but shall not be limited to:
   1. Summary of findings and corrective work.
   2. Recommendations of repairs, overhauls, and other maintenance work that should be scheduled prior to the next scheduled service interval.
   3. Complete documentation of all test and inspection results on each significant item (i.e. engine, generator, transfer switch, and alarm functions).

I. As a minimum, the maintenance program shall include work as shown on the attached maintenance schedule. Any deletions from the schedule must be noted in writing as a part of the bid package.

END OF SECTION

ATTACHMENT: ENGINE-GENERATOR SET MAINTENANCE SCHEDULE.
## POWER GENERATION

### ENGINE-GENERATOR SET MAINTENANCE SCHEDULE

<table>
<thead>
<tr>
<th>Category</th>
<th>Check/ Clean/ Change</th>
<th>6 mos.</th>
<th>1 yr.</th>
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<td><strong>Air Intake</strong></td>
<td>Check</td>
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</tr>
<tr>
<td></td>
<td>- for leaks</td>
<td>x</td>
<td>x</td>
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<tr>
<td></td>
<td>- air cleaner restriction</td>
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<tr>
<td></td>
<td>- piping and connections</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Clean</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- crankcase breather</td>
<td>x</td>
<td>x</td>
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<tr>
<td></td>
<td>or change</td>
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</tr>
<tr>
<td></td>
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<td>- sediment from tanks &amp; filter</td>
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<td>- float tank breather</td>
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<tr>
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<td>- for leaks</td>
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<td>- turbocharger bearing clearances</td>
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<td>Drain</td>
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<td>- exhaust manifold &amp; turbocharger cap-screws</td>
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<tr>
<td></td>
<td>Clean</td>
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<tr>
<td></td>
<td>- turbocharger comp. wheel and diffuser</td>
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<td>- battery electrolyte level and specific gravity/check battery voltage</td>
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<td>- safety controls and alarms</td>
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<td><strong>Engine Related</strong></td>
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<tr>
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<tr>
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<td>Clean</td>
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<td></td>
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<tr>
<td></td>
<td>- engine</td>
<td>x</td>
<td>x</td>
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<tr>
<td></td>
<td>Grease</td>
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<tr>
<td></td>
<td>- fan pillow block bearings</td>
<td>x</td>
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<td>Test</td>
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<td>Change</td>
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<td>- oil and filter and fuel filter</td>
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<td>x</td>
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<tr>
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<td>Check/Clean</td>
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<tr>
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<td>x</td>
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<td></td>
<td>- windings &amp; elect. connections</td>
<td>x</td>
<td>x</td>
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<tr>
<td></td>
<td>- operation of generator heater strips</td>
<td>x</td>
<td>x</td>
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<tr>
<td></td>
<td>Grease</td>
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<td></td>
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<tr>
<td></td>
<td>- bearing</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>- measure and record generator winding resistance</td>
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<td>x</td>
</tr>
<tr>
<td></td>
<td>Check/Clean</td>
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<td></td>
</tr>
<tr>
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SECTION 26 60 02
BASIC MATERIALS AND METHODS

PART 1 GENERAL

1.1 SECTION INCLUDES
A. Basic requirements for electrical systems, including but not limited to:
   1. Manner of running conduits,
   2. Hangers and supports,
   3. Attachment,
   4. Openings, cutting, and patching,
   5. Excavation, trenching, and backfilling,
   6. Penetration flashing and seals,
   7. Cleaning and painting of electrical work,
   8. Electrical system identification,
   9. Warning signs and operational tags,
   10. Prohibited markings,
   11. Equipment housekeeping pads and anchor bolts,
   12. Wiring device and equipment mounting heights.

1.2 DESCRIPTION OF WORK
A. This section covers the basic materials and methods of electrical construction as shown, scheduled, indicated, and specified.

1.3 DEFINITIONS
A. For the purposes of providing materials and installing electrical work, the following definitions shall be used:
   1. Outdoor Area: Exterior locations where the equipment is normally exposed to the weather and including below grade structures, such as vaults, manholes, handholes and in-ground pump stations.
   2. Architecturally Finished Area: Offices, laboratories, conference rooms, restrooms, corridors and other similar occupied spaces.
   3. Non-architecturally Finished Area: Pump, chemical, mechanical, electrical rooms and other similar process-type rooms.
   4. Highly Corrosive and Corrosive Areas: Rooms or areas identified on the Drawings where there is a varying degree of spillage or splashing of corrosive materials such as water, wastewater or chemical solutions; or chronic exposure to corrosive, caustic or acidic agents, chemicals, chemical fumes or chemical mixtures.
   5. Shop Fabricated: Manufactured or assembled equipment for which a UL test procedure has not been established.

1.4 RELATED SECTIONS
A. Related Sections include but are not necessarily limited to:
   1. Section 26 05 33 – Raceways
   2. Section 26 00 00 – Electrical General Provisions
1.5 STANDARDS AND REFERENCES
A. American National Standards Institute (ANSI):
   2. Z535.1, Safety Color Code
   3. Z535.2, Environmental and Facility Safety Signs
B. National Fire Protection Association (NFPA):
   1. 70, National Electrical Code (NEC)
   2. 79, Electrical Standard for Industrial Machinery
C. Occupational, Health and Safety Administration (OSHA):
   1. 1910.145, Specification for Accident Prevention Signs and Tags
D. All materials and equipment specified herein shall within the scope of UL Examination Services, be approved by the Underwriter's Laboratories for the purpose for which they are used and shall bear the UL label.

1.6 SUBMITTALS
A. Shop Drawings
   1. See Section 26 00 00.
   2. The Contractor shall submit to the Engineer, for review, a list of proposed manufacturers and product data on hangers, supports, and methods of attachment to the structure.
   3. Excavation and trenching plan, designed and sealed by a registered professional engineer.
   4. Cut sheets and samples of Electrical System Identification products.
   5. Refer to Division 1 for additional submittal requirements.

1.7 DELIVERY, STORAGE, AND HANDLING
A. See Section 26 00 00.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS
A. Refer to specific Division 26 sections and specific material paragraphs below.
B. Provide all components of a similar type by one manufacturer.

2.2 ELECTRICAL EQUIPMENT SUPPORTS
A. Approved manufacturers:
   1. Unistrut Building Systems
   2. B-Line
   3. Globe Strut
B. Material requirements:
   1. Galvanized steel: ASTM A123 or ASTM A153
   2. Stainless steel: AISI Type 316
   3. PVC coated galvanized steel: ASTM A123 or ASTM A153 and 20 mil PVC coating
4. Fiberglass: Fire-retardant polyester or vinylester resin, ASTM E84, UL 94

2.3 NAMEPLATES
A. For labeling equipment enclosures and equipment that is visible with the enclosure door closed:
   1. Approved manufacturers catalog numbers:
      a) W. H. Brady Co., #B-1.
      b) Seton, "Setonply".
   3. Size:
      a) Surface: As required for the text.
      b) Thickness: 1/16 IN.
   4. Fabrication:
      a) Two layer laminated.
      b) Legend engraved through top lamination into bottom lamination.
      c) Drilled holes in each corner, for screw mounting.
   5. Colors: Black top surface, white core, unless otherwise indicated.
B. For labeling components inside equipment enclosures:
   1. Approved manufacturers catalog numbers:
      a) W. H. Brady Co., "Industrial Strength Tape" #42018
      b) Seton, "Component and General Identification Labels" #45553
      c) Parduit, "Standard Labeling Tape" LS4-33
   2. Materials: vinyl tape or vinyl cloth with printable topcoat.
   3. Colors: White background, black printing.

2.4 WIRE MARKERS
A. For control panels, electrical gear, pull and junction boxes:
   1. Material: vinyl or polyester tape.
   2. Approved manufacturer's catalog numbers:
      a) W. H. Brady Co., Indoor/Outdoor Vinyl Tape, B-580
      b) Seton, "Self-Laminating Wire Marker Labels" M7340
      c) Parduit, LS4M "Industrial Labeling Tape"
   4. Approved manufacturer's catalog numbers:
      a) Seton, Welded Wire Marking Sleeves
   5. Colors: White background, black printing.
B. For manholes, handholes and exterior pad mounted electrical gear:
   1. Material: Aluminum or stainless steel.
   2. Approved manufacturer's catalog numbers:
      a) Parduit META-X or META54-X
   3. Legend: Embossed.
   4. Fasteners: Nylon, urethane or polypropylene strap.

2.5 SAFETY SIGNS
A. Approved manufacturers catalog numbers:
BASIC MATERIALS AND METHODS

1. W. H. Eready Co., #B-302 or #B-120
2. Seton, Pressure Sensitive Vinyl or Tedlar Coated Plastic
3. Panduit, GMM Polyester Film (Type PPS) or GMPE1 Rigid Polyethylene (Type PRS)

B. Materials, size and fabrication:

1. For indoor use: Polyester or vinyl, surface area as required by the text, 4 mil minimum thickness, self-adhesive.
2. For outdoor use and on entrances to electrical rooms or stations: Fiberglass or coated plastic, surface area as required by the text, minimum area 7 x 10 IN, 60 mil thickness, drilled holes for screw mounting.

C. Color in accordance with ASME (ANSI Z535.1, .2, .3 and .4) and OSHA 1910.145.

D. Minimum letter size on indoor signs, 3/16 in.

E. Maximize the letter size on outdoor signs to sufficiently fill the printable area on the sign.


PART 3 EXECUTION

3.1 MANNER OF RUNNING CONDUITS

A. All conduits shall be concealed in pipe chases, walls, furred spaces, topping, or above the ceilings of the building unless otherwise indicated.

B. Conduit may be run exposed in mechanical rooms, duct and piping chases, but only where necessary. All exposed conduit shall be run in the neatest, most inconspicuous manner, and parallel or perpendicular to the building lines.

C. All conduit and surface raceways shall be adequately and properly supported from the building structure by means recommended by the manufacturer, or by the use of hanger rods or clamps as herein specified.

D. Where limited space is available above the ceilings and below concrete beams or other deep projections, conduit shall be sleeved through the projection where it crosses rather than hung below them in a manner to provide maximum above-floor clearance.

E. No sleeves shall be installed through any concrete beam or other deep projection without written approval of the Engineer.

F. Run conduit to avoid proximity to heat producing equipment, piping and flues, keeping a minimum of 8" clear.

G. Whenever possible, install horizontal conduit runs above water piping.

H. Install all conduit to allow for adequate maintenance and access clearances to all equipment and so as to not inhibit removal of ceiling tiles.

I. The Contractor shall study all construction documents and carefully lay out all work in advance of fabrication and erection in order to meet the requirements of limited spaces. Where conflicts occur, the Contractor shall meet with all involved trades and the Construction Inspector and resolve the conflict prior to erection of any work in the area involved.

J. Conduit and raceway connections, rough-in, and stub-up locations for equipment shall be coordinated by the Contractor to provide raceways in locations indicated on approved manufacturers equipment shop drawings. Connection, rough-in and stub-up locations shown on the Drawings are diagrammatic for general reference only.
3.2 HANGERS AND SUPPORTS

A. All supports required for the proper installation of equipment, cable tray, wire-way, and
cable shall be provided as hereinafter specified unless otherwise indicated on the
Drawings.

B. All conduits throughout the building shall be supported as specified in Section 26 05 33,
unless specifically noted differently on the Drawings or in the Specifications, but in every case
shall be adequate to support the raceway being suspended. The supports shall be from the
structure to line of grade, with proper provision for expansion, contraction, vibration
elimination, and anchorage.

C. Vertical conduits shall be supported from floor lines with riser clamps sized to fit the conduit
and to adequately support their weight, with allowance for expansion and contraction. At the
bases of conduit, where required for proper support, provide anchor base fittings or other
approved supports.

D. Conduit shall not be supported from ductwork, piping, or equipment.

E. All electrical conduits and surface raceways exposed to view shall be run parallel to the
adjacent building construction. All hangers shall be fastened to the building structure in a
manner as hereinafter specified under "Attachment".

F. Single conduits running horizontally shall be supported by Caddy, Minerallac, or approved
equal; adjustable conduit hangers from adequately sized rods (minimum 1/8") from the
building structure. Refer to Section 26 05 33 for additional requirements.

G. Multiple conduits running horizontally shall be supported by trapeze channels suspended on
rods or bolted to vertical building members. Channels shall be manufactured by Unistrut,
Superstrut, Kindorf, or approved equal. Conduits shall be secured to the channel with
galvanized or stainless steel clamps. Refer to Section 26 05 33 for additional requirements.

H. Vertical conduits, both concealed and exposed, shall be supported by clamping to vertical
surfaces or by means of clamps resting on adjacent beams, or floor slabs, or both as required
by the installation. Refer to Section 26 05 33 for additional requirements.

I. Conduits and raceways run against building surfaces shall be supported by means
recommended by the manufacturer, or by means of single or two hole rigid conduit clamps.
Two-hole clamps shall be provided where size of conduit and installation conditions warrant.
Refer to Section 26 05 33 for additional requirements.

J. All auxiliary steel required for conduit, cable tray, and wire-way supports, etc. shall be
provided by the Electrical Trades unless specifically indicated to be provided by others. All
support steel and fasteners shall be galvanized.

K. Contractor shall review all Drawings, including Structural Drawings, for details regarding
supports.

L. All supports shall be of type and arrangement to prevent excessive deflection, to avoid
excessive bending stresses between supports, and to eliminate transmission of vibration.

M. Perforated strap shall not be used as a hanger material.

3.3 ATTACHMENT

A. The load and spacing on each hanger and/or insert shall not exceed the safe allowable load
for any component of the support system, including the concrete that holds the inserts.
Reinforcement at inserts shall be provided as required to develop the strength required.

B. All conduits not embedded in concrete or masonry shall be securely and independently
supported so that no strain will be transmitted to outlet box and pull box supports, etc.
Supports shall be rigid enough to prevent distortion of conduits during wire pulling.
C. Inserts shall be of a type which will not interfere with reinforcing, as indicated on the Structural Drawings, and which will not displace excessive amounts of structural concrete. All methods of attachment to the structure and the use of after-set inserts shall be approved in writing by the Engineer.

D. All conduit supports shall be designed and installed to avoid interference with other piping, hangers, ducts, conduit, supports, building structures, equipment, etc. All conduit, cable tray, and wire-way shall be installed with due regard to expansion and contraction and the type of hanger method of support, location of support, etc. shall be governed in part by this Specification.

E. Hangers shall be attached to structure as follows:
   1. Poured-in-place Concrete:
      a) Where conduits, equipment, etc., are supported under poured-in-place concrete construction, each hanger rod shall be fitted with a nut at its upper end, which shall be set into a UL-listed universal concrete insert placed in the form work before concrete is poured.
      b) Where inserts are placed in the bottom faces of concrete joists which are too narrow to provide adequate strength of concrete to hold the insert properly, or where a larger insert would require displacement of a bottom joist steel, the hanger rod shall be suspended from the center of a horizontal angle iron, channel iron, I-beam, etc., spanning across to adjacent joist. The angle iron shall be bolted to nonadjustable concrete inserts of the "spot" type, of physical size small enough to avoid the bottom joist steel.
   2. Steel Bar Joist:
      a) Where light loads are supported under bar joists, hanger rods may be run with a washer and two nuts.
      b) Where larger loads are supported beneath bar joists, hanger rods shall be secured to angle irons of adequate size; each angle shall span across two or more joists as required to distribute the weight properly and shall be welded to the joists or otherwise permanently fixed thereto.
   3. Steel Beams: Where loads are supported under steel beams, approved type beam clamps shall be used.
   4. Wood Framing: Where loads are supported from wood framing, hanger rods shall be attached to framing with side beam brackets or angle clips.
   5. Miscellaneous Steel: All miscellaneous steel members, angles, rods, supports, and similar items specified or required for this project shall be galvanized for indoor use or hot dipped galvanized for exterior use and where exposed to ambient conditions. All required miscellaneous steel shall be provided by this Division.

F. Fastening of conduits, etc., in the building shall be as follows: To wood members - by wood screws; to masonry - by threaded metal inserts, metal expansion screws, or toggle bolts, whichever is appropriate for the particular type of masonry; to steel - machine - screws or welding (when specifically permitted or directed), or bolts, and to concrete by suitable inserts anchored to reinforcing steel, and poured in place unless other means are indicated on the plans. Power-actuated fasteners (shooting) will not be acceptable under any circumstances unless approved by the Engineer in writing.

3.4 OPENINGS, CUTTING AND PATCHING

A. General:
   1. The Contractor shall be responsible for coordinating openings in the building construction for installation of electrical systems. Comply with the requirements of Division 1 for the cutting and patching of other work to accommodate the installation or electrical work.
BASIC MATERIALS AND METHODS

Except as individually authorized by the Engineer, cutting and patching of electrical work to accommodate the installation of other work is not permitted.

B. Cut and Patch:
   1. Cut and patch walls, floors, etc., resulting from work in existing construction or by failure to provide proper openings or recesses in new construction.

C. Methods or Cutting:
   1. Openings cut through concrete and masonry shall be made with masonry saws and/or core drills and at such locations acceptable to the Engineer. Impact type equipment may be used upon written approval of the Engineer. Openings in pre-cast concrete slabs for conduits, outlet boxes, etc., shall be core drilled to exact size.

D. Approval:
   1. If holes or sleeves are properly installed and cutting and patching becomes necessary, it shall be done at no change in Contract amount. Undertake no cutting or patching without first securing written approval from the Engineer. Patching shall create a surface which is structurally and aesthetically equal to the surface surrounding the area patched and shall be performed by the trade whose work is involved at no change in the Contract amount.

E. Protection:
   1. Openings through exterior walls or roofs shall be provided with suitable covers while they are left open to protect the property or materials involved. Any openings through walls below grade shall be properly protected to prevent entrance of water or other damaging elements.

F. Restoration:
   1. All openings shall be restored to "as-new" condition under the appropriate Specification Section for the materials involved, and shall match remaining surrounding materials and/or finishes. Restoration work shall be performed by the trades who originally installed the work being restored and shall be performed at no cost to the Owner or Engineer.

G. Masonry:
   1. Where openings are cut through masonry walls, provide and install lintels or other structural supports to protect the remaining masonry. Adequate supports shall be provided during the cutting operation to prevent any damage to the masonry occasioned by the operation. All structural members, supports, etc., shall be of the proper size and shape, and shall be installed in a manner acceptable to the Engineer.

H. Plaster:
   1. All electrical work in areas containing plaster shall be completed prior to the application of the finish plaster coat. Cutting of finish plaster coat will not be permitted.

I. Special Note:
   1. No coring, boring, or excavating which will weaken the structure shall be undertaken.

3.5 EXCAVATING, TRENCHING AND BACKFILLING

A. General:
   1. The work hereunder includes whatever excavating and backfilling is necessary to install the electrical work. Coordinate the electrical work in the same area, including excavating and backfilling, dewatering, floor protection provisions, other temporary facilities needed for protection and proper performance of excavating and backfilling.

B. Standards:
   1. Except as otherwise indicated, comply with the applicable provisions of Division 2 for electrical work excavating and backfilling. Refer instances of uncertain applicability to the Engineer for resolution before proceeding with the Work.
C. The bottoms of trenches shall be excavated to required depths, slope and grade. The bottom of the trench shall be accurately excavated to provide firm, uniform bearing for the bottom of the raceways and duct-banks. Where mud or unstable soil is encountered in bottom of trench, it shall be removed to firm-bearing and the trench shall be back filled with bedding sand to proper grade and tamped to provide uniform firm support.

D. The bottom of trenches shall be accurately graded to provide proper fall and uniform bearing and support for each section on undisturbed soil or 2" of sand fill at every point along its entire length. In general, grading for electrical duct-banks and conduits shall be from building to manhole, and from a high point between manholes to each manhole.

E. Exercise care not to excavate below required depth, leaving a flat bed of undisturbed earth; firm and secure before laying cable and duct-banks. In the event rock is encountered, excavate 6' below required depth and backfill to required depth with bedding sand, and compact to minimum 95% compaction.

F. All grading in the vicinity of excavation shall be controlled to prevent surface ground water from flowing into the excavations. Any water accumulated in the excavations shall be removed by pumping or other acceptable method. During excavation, material suitable for backfilling shall be stacked in an orderly manner a sufficient distance back from edges of trenches to avoid overloading and prevent slides or cave-ins. Material unsuitable for backfilling shall be wasted and removed from the site and properly disposed of.

G. The Contractor shall be fully responsible for the safety of persons, materials and equipment in or near trenches or other excavations and provide all required sloping, shoring, railings and other protective provisions. The Contractor shall provide a trench shoring plan and design which is sealed by a registered professional engineer. Refer to Divisions 1 and 2 for additional requirements.

H. If any unknown and/or uncharted utilities are encountered during excavation, promptly notify Engineer and wait for his/her instruction before proceeding.

I. If such unknown utilities are encountered and work is continued without contacting the Engineer for instructions, and damage is caused to said utilities, the Contractor shall repair at his own expense, such damage to the satisfaction of the owner or utility company concerned.

J. Trenches shall not be backfilled until all required tests have been made by the Contractor and approved by the Engineer and any local authorities having jurisdiction.

K. Backfill shall be compacted or cement stabilized sand up to 6" above the top of conduit or duct-bank. Backfill up to grade shall be in maximum 6" lifts with minimum 95% compaction of lifts. Refer to Division 2 or elsewhere in Contract Documents for additional trenching and backfill requirements.

L. Opening and Reclosing Pavement, Landscape Areas and Lawns: Where excavation requires the opening of existing walks, streets, drives, other existing pavement or lawns; such surfaces shall be cut as required to install new conduit and to make new connections to existing conduits. The size of the cut shall be held to a minimum consistent with the work to be accomplished. After the installation of the new work is completed and the excavation has been backfilled and flooded, the area shall be patched or replaced, using materials to match those cut out or removed. Patches shall thoroughly bond with the original surfaces; these shall be level with them and shall meet all the requirements established by the authorities having jurisdiction over such areas. All removed work shall be replaced by craftsmen who regularly install the types of work being replaced.

M. Excavation in Vicinity of Trees:

1. All trees, including low hanging limbs within the immediate area of construction, shall be adequately protected to a height of at least 5' to prevent damage from the construction operations and/or equipment. All excavation within the outermost limb radius of all trees shall be accomplished with extreme care. All roots located within this outermost limb
radius shall be brought to the attention of the Engineer before they are cut or damaged in any way. The Engineer will give immediate instructions for the disposition of same. All stumps and roots encountered in the excavation that are not within the outermost limb radius of existing trees shall be cut back to a distance of not less than 18" from the outside of any concrete structure or pipeline. No chips, parts of stumps, or loose rock shall be left in the excavation. Where stumps and roots have been cut out of the excavation, clean, compacted, dry bank sand shall be backfilled and tamped.

3.6 PENETRATION FLASHING AND SEALS
A. Conduit sleeves, pitch pockets, and flashings compatible with the roofing and waterproofing installation shall be provided for all roof and wall penetrations and roof-mounted equipment and supports. Coordinate flashing details with the Architectural details and the roofing/waterproofing contractors.
B. Conduits passing through walls where exposed to weather or below grade shall pass through water-stop sleeves (new construction) or core-drilled openings (existing construction). The space between the conduit and sleeve/opening shall be sealed using segmented annular seals to prevent the entry of water or foreign materials. Segmented annular seals shall be Thunderline Incorporated; Type LS Series, Style C insulating type link seals for temperatures up to 250 degrees Fahrenheit, or approved equal. Water-stop sleeves shall be Thunderline Corporation, Century-Line or equal non-corroding thermoplastic sleeves with a molded in water stop.

3.7 CLEANING AND PAINTING OF ELECTRICAL WORK
A. Prime, protective touch-up painting is included in the Work of this Division. Finish painting in equipment spaces, concealed locations, and other locations not exposed to the view of building occupants is included in the work of this Division. Finished painting in areas exposed to the view of building occupants is specified under Division 9.
B. All equipment and materials furnished by the electrical subcontractor shall be delivered to the job with suitable factory finish.
C. Electrical switchgear, disconnect switches, contactors, etc., with suitable factory-applied finishes shall not be repainted; except for aesthetic reasons where located in finished areas as directed by the Engineer and in a color selected by the Engineer. Where factory-applied finishes are damaged in transit, storage or installation; or before final acceptance, they shall be restored to factory-fresh condition by competent refinishers using the spray process.
D. All equipment not finished at the factory shall be given a prime coat and then finish painted with two coats of enamel in color as directed by the Engineer. No nameplates on equipment shall be painted, and suitable protection shall be afforded such plates to prevent their being rendered illegible during the painting operations.
E. The surfaces finish-painted shall first be prepared as follows:
   1. Galvanized and black steel surfaces shall first be painted with one coat of galvanized metal primer.
   2. Aluminum surfaces shall first be painted with one coat of zinc chromate primer.
F. All ferrous metal surfaces without protective finish and not galvanized, in exposed and concealed areas including chases, under floor and above ceilings, shall be painted with two coats of zinc chromate primer as the construction progresses to protect against deterioration.
G. All conduit exposed to view shall be finish painted as directed by the Engineer.
H. Before painting, all surfaces to be painted shall be suitably prepared. This shall include removing all oil, rust, scale, dirt, and other foreign material. Surfaces shall be made smooth by grinding, filing, brushing, or other approved method. In the painting operations, the primer for metal surfaces shall be of the zinc dust type unless specified otherwise, and where finish
painting is specified, it shall be painted using materials and colors selected and approved by the Engineer. Refer to front end specifications for additional requirements.

3.8 WARNING SIGNS AND OPERATIONAL TAGS

A. Warning Signs: Provide warning signs where there is hazardous exposure associated with access to or operation of electrical facilities. Provide text of sufficient clarity and lettering of sufficient size to convey adequate information at each location; mount permanently in an appropriate and effective location. Comply with recognized industry standards for color and design.

B. Operational Tags: Where needed for proper and adequate information on operation and maintenance of electrical systems, provide tags of plasticized card stock, either preprinted or hand printed. Tags shall convey the message, example: "DO NOT OPEN THIS SWITCH WHEN BURNER IS OPERATING".

3.9 EQUIPMENT HOUSEKEEPING PADS AND ANCHOR BOLTS

A. Concrete pads for electrical equipment (Housekeeping Pads) will be furnished under this Division.

1. All concrete used all be 6 sack mix with 3/8" maximum aggregate and 4000 psi compressive strength when tested after 28 days in accordance with ASTM 039-44, "Standard Method of Test for Compressive Strength of Concrete" and Idaho Transportation Department Class 40B. Refer to front end specifications for additional requirements.

2. Use forms except where the earth is firm enough to support the concrete.

3. Keep concrete wet at least 48 hours after forms are removed to ensure proper curing.

4. Concrete shall be reinforced where noted on the Drawings.

5. Concrete shall be carefully spaded during the pouring to eliminate all voids under and between the ducts and to prevent honeycombing of the exterior surfaces. Power driven tampers or agitators shall not be used unless specifically designed for the application.

6. Concrete shall be poured in one continuous operation.

B. Pads shall be nominal 3-1/2" high and shall extend a minimum of 3" beyond all equipment and supports while generally conforming to the shape of the equipment.

C. Furnish galvanized anchor bolts with layout templates for installation in equipment pads. Bolts shall be of the size and quantity recommended by the manufacturer and where vibration isolators are used, they will be anchor bolted to the equipment pad.

END OF SECTION