



CENTRALBIDDING
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Elevated Reefer Plugs
Mississippi State Port Authority

Project documents obtained from www.CentralBidding.com

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PROJECT MANUAL

PORT OF GULFPORT
MISSISSIPPI STATE PORT
AUTHORITY

ELEVATED REEFER PLUGS



MP Design Group Project # 0297.22.003
REV 0 ISSUED FOR CONSTRUCTION 04.13.2023

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ADVERTISEMENT TO BID

Mississippi State Port Authority

The MISSISSIPPI STATE PORT AUTHORITY AT GULFPORT has authorized the advertisement to bid on the following project:

Elevated Reefer Plugs

The work consists of, but is not limited to:

Furnish all materials, equipment, labor, and supervision and performing all operations necessary for the completion of Mississippi State Port Authority "Elevated Reefer Plugs" project at Gulfport, Mississippi as described in the contract documents.

Generally, the project includes the demolition and replacement of the existing reefer outlets located north of the west pier in the Port of Gulfport. The new reefer outlets will be elevated on fabricated pedestals to an elevation of approximately 4 ft. above existing grade.

Bids shall be received sealed and marked: "Elevated Reefer Plugs" on the outside envelope not later than 2:00 p.m. on May 25th, 2023, at 2510 14th Street, Suite 1450, Gulfport, Mississippi, 39501 at which time said Bids will be opened, read out loud, and recorded. On the outside of the bid envelope, contractor's Certificate of Responsibility number must appear. Any Bids received after said date and time shall be returned to the Bidder unopened.

Each Bid must be accompanied by cash, a cashier's check, certified check or Bid Bond in the amount of ten percent (10%) of the total Bid amount. The power of attorney for the bonding company's agent should be on file with the Mississippi State Port Authority or should accompany the Bid, and the Bid Bond must be furnished by a corporate surety company qualified to do business in Mississippi.

The Bid Bond shall name the Mississippi State Port Authority as the obligee, shall be substantially in the form of the Bidder's Bond on file with the Mississippi State Port Authority, and shall be payable to the Mississippi State Port Authority in the event the Bidder fails to execute, and deliver to the Mississippi State Port Authority the Contract within fourteen (14) days after the award of the Contract to Bidder.

The Plans, Specifications, Bid Forms and form of Contract for the Project are filed in the office of the Mississippi State Port Authority, Engineering Department, phone number 228-865-4300 and are by reference made a part of this Notice. Said documents may be obtained at the location indicated above, by email cford@shipmspa.com or by calling 228-865-4300.

Official bid documents can be downloaded from Central Bidding at www.centralbidding.com. Electronic bids can be submitted at www.centralbidding.com. For any questions relating to the electronic bidding process, please call Central Bidding at 225-810-4814.

A Pre-Bid Conference is scheduled for 10:00 a.m. Wednesday May 10th, 2023 at MSPA's office located on the 14th floor of the Hancock Whitney Building, 2510 14th St., Gulfport MS 39501.

With the Bidder's Bid, each Bidder shall provide the Authority with the following information required by the General Conditions:

- (a) Bidder must provide with Bid the name, location and the place of business of each subcontractor who will perform work or labor or render services to the Contractor in or about the construction of the Work of Improvement, or who will specially fabricate and install any portion of the Work according to detailed Drawings contained in the Plans and Specifications, in an amount in excess of five percent of Contractor's total Bid.
- (b) Bidder must provide with Bid the portion of the Work which will be done by each subcontractor. Contractor shall list only one subcontractor for each such portion as is defined by Contractor in the Bid.
- (c) Bidder must provide with Bid a copy of each Subcontractor's Mississippi State certificate of responsibility, if Subcontractor is required by law to have one.
- (d) Bidder must provide with Bid a copy of Contractor's Mississippi State certificate of responsibility.
- (e) Bidder must provide with Bid a certification letter stating that all new labor hires will be residents of Mississippi.
- (f) Bidder must provide with Bid a certification letter stating that Bidder will agree to use Mississippi products over non-Mississippi products when all things are equal with respect to price, quality, availability and service.
- (g) Bidder must provide a Bid Bond with Bid.
- (h) If Bidder is a non-resident contractor, Bidder must provide with Bid a copy of contractor's current State law pertaining to own State's treatment of non-resident contractors.
- (i) Bidder must provide with Bid the Certification Regarding Debarment, suspension, other responsibility matters and lobbying.

The Authority reserves the right to reject all Bids as well as any Bid that does not comply with this Advertisement to Bid and the Authority's Information for Bidders.

Dated: Jon T. Nass 4/24/23

Jon T. Nass
Executive Director
Mississippi State Port Authority



INFORMATION FOR BIDDERS

Bids will be received by the Mississippi State Port Authority (herein called the "Port Authority" or "Authority"), at 2510 14th Street, Suite 1450, Gulfport, Mississippi 39501 until **2:00 p.m.** local time on **Thursday, May 25th, 2023**, and then at said office publicly opened and read aloud.

Each Bid must be submitted in a sealed envelope, addressed to the Executive Director, Mississippi State Port Authority, 2510 14th Street, Suite 1450, Gulfport, Mississippi 39501, Each sealed envelope containing a Bid must be plainly marked on the outside as **"Elevated Reefer Plugs"** project, envelope should also bear on the outside the name of the Bidder, the Bidder's address and the Bidder's certificate of responsibility number. If forwarded by mail, the sealed envelope containing the Bid must be enclosed in another envelope addressed to the Executive Director, Mississippi State Port Authority, at P.O. Box 40, Gulfport, Mississippi 39502 or 2510 14th Street, Suite 1450, Gulfport, Mississippi 39501.

All Bids must be made on the required Bid form. All blank spaces for Bid prices must be filled in, in ink or typewritten, and the Bid form must be fully completed and executed when submitted.

Bidder shall also submit with Bid the required certification regarding "Debarment, Suspension, Other Responsibility Matters and Lobbying".

The Port Authority may waive any informalities or minor defects or reject any and all Bids. Any Bid may be withdrawn prior to the above scheduled time for the opening of Bids or authorized postponement thereof. Any Bid received after the time and date specified shall not be considered. No Bidder may withdraw a Bid within 30 days after the actual date of the opening thereof. Should there be any reasons why the Contract cannot be awarded within 30 days after bid opening, the time may be extended by written mutual agreement between the Port Authority and the low Bidder.

After Bids have been submitted, the Bidder shall not assert that there was a misunderstanding concerning the quantities or type of the Work of Improvement or the nature of the Work to be done.

Any prospective Bidder desiring an explanation or interpretation of the Specifications, or other documents, must request it from the Authority, in writing, at least FIVE (5) days before the date of Bid opening. Oral explanations or instructions given before the award of a Contract will not be binding. Any information given a prospective Bidder concerning a request will be furnished promptly to all other prospective Bidders as an addendum to the Bid solicitation, if the information is necessary in submitting bids or if the lack of it would be prejudicial to other prospective Bidders.

The Contract Documents contain the provisions required for the construction of the Project. Information obtained from an officer, agent, or employee of the Port Authority or any other person shall not affect the risks or obligations of the Contract.

WARNING: THERE ARE UTILITY LINES (E.G. WATER, GAS, TELEPHONE, OR POWER) ON THE SITE WHERE THE WORK WILL BE PERFORMED. ACCORDINGLY, IT IS THE SOLE RESPONSIBILITY OF CONTRACTOR TO

DETERMINE THE EXACT LOCATION OF THE UTILITY LINES BEFORE COMMENCING THE WORK UNDER THIS CONTRACT.

The party to whom the Contract is awarded will be required to execute the Contract within fourteen (14) calendar days from the date when Notice of Award is delivered to the Bidder. The Notice of Award shall be accompanied by the Contract. In case of failure of the Bidder to execute the Contract, the Port Authority may, at the Port Authority's option, consider the Bidder in default, in which case the Port Authority may award the Contract to the next lowest responsible bidder.

Within fourteen (14) days of receipt of the Contract signed by the party to whom the Contract was awarded, the Port Authority shall sign the Contract and, if necessary, send the Contract to the Mississippi Development Authority ("MDA") in Jackson, Mississippi, for execution. When the Contract is fully executed, an executed duplicate of the Contract shall be returned to the Bidder. Should the Port Authority or MDA not execute the Contract within thirty (30) days from receipt of the Contract, the Bidder may, by Written Notice, withdraw Bidder's signed Contract. Such notice of withdrawal shall be effective upon receipt of the notice by the Port Authority.

Bidder must agree to commence work on a date to be specified in a written "Notice to Proceed" of Owner and to fully complete the project within **Two Hundred Forty (240)** calendar days thereafter.

Failure to complete the work within the allotted time will subject the Contractor to liquidated damages of \$500.00 for each consecutive calendar day.

The Bidder, and its subcontractors, shall be an experienced contractor in work of the type and character defined in the Specifications. The Port Authority may make such investigations as it deems necessary to determine the ability of the Bidder and its subcontractors to perform the Work, and the Bidder and its subcontractors shall furnish to the Port Authority all such information and data for this purpose as the Port Authority may request. The Port Authority reserves the right to reject any Bid if the evidence submitted by, or investigation of, such Bidder demonstrates that such Bidder and its subcontractors, in the Port Authority's opinion, is not properly qualified to carry out the obligations of the Contract and to complete the Work contemplated therein. The Bidder and the subcontractors must have current certificates of responsibility, if Subcontractor is required by law to have one, and the classification of contractor's and/or subcontractor's kind of work or projects for which contractor is qualified shall be so stated in the certificates of responsibility. These Certificates of Responsibility should be updated yearly and a current copy sent to MSPA should the construction project extend past the expiration date of Certificate of Responsibility on file with MSPA.

If Bidder does not have a Certificate of Responsibility number he can only bid on public projects seventy-five thousand dollars (\$50,000.00) or less and must provide a statement on the outside or exterior of the envelope or container containing his bid to the effect that the bid enclosed therewith does not exceed seventy-five thousand dollars (\$50,000.00).

A conditional or qualified Bid will not be accepted.

Award will be made to the lowest and best Bidder.

All applicable laws, ordinances, and the rules and regulations of all governmental authorities having jurisdiction over construction of the Project shall apply to the Contract throughout.

Each Bidder is responsible for inspection of the site and for reading and being thoroughly familiar with the Contract Documents. The failure or omission of any Bidder to do any of the foregoing shall in no way relieve any Bidder from any obligation in respect to his, her, or its Bid.

The low Bidder shall supply the names and addresses of major material suppliers when requested to do so by the Port Authority. Resident labor shall be employed by Bidder.

A pre-bid conference will be held at 10:00 a.m. local time on Wednesday, May 10th, 2023 at 2510 14th Street, Suite 1450, Gulfport, Mississippi 39501 to be followed by a site inspection trip. Each Bidder is required to visit and inspect the site of Work to fully obtain exact work scope and work requirements. For further information contact Mr. James Buras, Port Engineer, at (228) 865-4300 or Email jburas@shipmspa.com.

For purpose of these Contract Documents and for all technical and administrative matters pertaining to Contract Documents, including but not necessarily limited to Construction Contract, Change Orders, and Compliance with rules and regulations, the Port Authority will be represented by the Executive Director of Mississippi State Port Authority, or his designated representative.

ALL CHANGES, ALTERATIONS OR DEVIATIONS TO THE WORK OF IMPROVEMENT MUST BE BY WRITTEN CHANGE ORDER EXECUTED BY THE EXECUTIVE DIRECTOR OF THE PORT AUTHORITY AND THE CONTRACTOR.

INTERPRETATION OF CONTRACT DOCUMENTS

Any interpretation of the Contract Documents will be made only by a written Addendum duly issued, and a copy of such Addendum will be mailed or delivered to each person receiving a set of such documents. The Port Authority will not be responsible for any other explanation or interpretation of the Contract Documents.

SITE INSPECTION

Each Bidder shall be held to have compared the site with the Contract Documents and to have satisfied himself/herself as to the condition of the site, existing obstructions, the actual elevations and any other factors affecting the carrying out of the Work before the delivery of the completed Bid Form.

Contractor is advised that their work shall be conducted so as to cause the least interference with work being performed by other Contractors.

ADDENDA DURING BIDDING

During the bidding period, Bidders may be advised by written Addenda of additions, omissions or alterations in the Contract Documents. All such changes shall be included in the Work covered by the Bid Form and shall become a part of these Contract Documents.

MODIFICATION TO BID

A bidder may modify the bid prior to the scheduled closing time indicated in the Advertisement for Bids in the following manner:

- a. Notification on Envelope: A modification may be written on the outside of the sealed envelope containing the bid.
- b. A facsimile (fax) **will not** be acceptable.

End of Section

BID FORM

Proposal of _____ (hereinafter called "Bidder"), doing business as a _____, (insert "a corporation," "a partnership," or "an individual" applicable; if a corporation, indicate state of incorporation) to the Mississippi State Port Authority ("hereinafter called "Port Authority" or "Authority), an agency existing under the laws of the State of Mississippi.

In compliance with your Advertisement for Bids, Bidder hereby proposes to perform all Work for the Work of Improvement known as:

“Elevated Reefer Plugs”

and all appurtenant Work and materials required to complete the Work, in strict accordance with the Contract Documents, within the time set forth therein, and at the prices stated below.

By submission of this Bid, each Bidder certifies, and in the case of a joint Bid, each party thereto certifies as to his/her own organizations, that this Bid has been arrived at independently, without consultation, communication or agreement as to any matter relating to this Bid with any other Bidder or with any competitor.

Bidder hereby agrees to commence Work of Improvement under this Contract within five (5) days after the date of service of the Notice to Proceed, and to fully complete the project within Two Hundred Forty (240) consecutive calendar days thereafter as provided in Sections 7 and 34 of the General Conditions.

Bidder acknowledges receipt of the following Addenda: (if none, so state)

No. _____	Date: _____
No. _____	Date: _____
No. _____	Date: _____
No. _____	Date: _____

Attached to this Bid is a list of subcontractors as required by Section 24 of the General Conditions and Advertisement for Bid.

Bidder agrees to perform all the work described in the Contract Documents for the lump sum price as set forth in the following Bid Form.

BID FORM
“Elevated Reefer Plugs”
Schedule of Bid Items

ITEM NO.	ITEM	UNIT	ESTIMATED QUANTITY	UNIT PRICE	AMOUNT
1	REMOVE AND REPLACE REEFER PLUGS	EA	100		
TOTAL BASE BID - UNIT PRICE SUM:					\$

TOTAL BASE BID - UNIT PRICE SUM:

(In written form)

Bids shall include sales tax and all other applicable taxes and fees. All blanks shall be filled in. Award will be made to only one Bidder based upon the Total Bid.

“Elevated Reefer Plugs”

I/we agree to furnish all labor, equipment and materials and to perform all the Work required to “Elevated Reefer Plugs” project at the Mississippi State Port Authority at Gulfport, Port of Gulfport, Gulfport, Mississippi in accordance with the Contract Documents and at the prices stated in the preceding Bid Form.

Respectfully submitted,

Certificate of Responsibility # _____

Bidder

Address: _____

Signature

Name & Title

Attested by: _____

Name & Title: _____

(Affix SEAL--if Bid is by a corporation)

LIST OF SUBCONTRACTORS TO BE SUBMITTED WITH BID

“Elevated Reefer Plugs”

Pursuant to the General Conditions, the Advertisement for Bids and the Information for Bidders, the undersigned Bidder hereby submits the following list of each Subcontractor, and their current certificate of responsibility, who will perform work or labor or render services, or who will specifically fabricate and install any portion of the Work according to detailed Drawings contained in the Plans and Specifications, that is in an amount in excess of one-half of one percent of the total bid amount, to Bidder, if Bidder is awarded the Contract.

Portion of the Work to be Done by the Subcontractor	Name and Address of Subcontractor
_____	_____
_____	_____
_____	_____
_____	_____

Date: _____

Bidder

Name (printed or typed)

Signature

Title

End of Bid Form

MISSISSIPPI STATE PORT AUTHORITY AT GULFPORT

**CERTIFICATIONS REGARDING DEBARMENT, SUSPENSION, OTHER
RESPONSIBILITY MATTERS AND LOBBYING**

(Execute in duplicate)

State of Mississippi

County of _____

I, _____
(Name of person signing certification)

individually, and in my capacity as _____,
(Title)

of _____ do hereby certify
(Name of Firm, Partnership, or Corporation)

under penalty of perjury under the laws of the United States and the State of Mississippi that

_____, Bidder
(Name of Firm, Partnership, or Corporation)

on Project No. _____,

_____ County(ies), Mississippi, that said
legal entity and its corporate officers, principal owners, managers, auditors and others in a
position of administering federal funds:

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

Initial here " _____ " if exceptions are attached and made a part thereof. Any exceptions shall address to whom it applies, initiating agency and dates of such action.

Note: Exceptions will not necessarily result in denial of award but will be considered in determining bidder responsibility. Providing false information may result in criminal prosecution or administrative sanctions.

The Bidder further certifies, to the best of his or her knowledge and belief, that:

1) No Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this contract, Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions will be completed and submitted.

The certification contained in (1) and (2) above is a material representation of fact upon which reliance is placed and a prerequisite imposed by Section 1352, Title 31, U.S. Code prior to entering into this contract. Failure to comply shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000. The bidder shall include the language of the certification in all subcontracts exceeding \$100,000 and all subcontractors shall certify and disclose accordingly. All of the foregoing and attachments (when indicated) is true and correct.

Executed on _____

Signature

GENERAL CONDITIONS
(Basic Contract Terms)
APPLICABLE TO ALL WORK

1. DEFINITIONS

- (a) **AUTHORITY OR OWNER:** The term "Authority" or "Owner" means the Mississippi State Port Authority at Gulfport.
- (b) **ENGINEER:** The term "Design Engineer" or "Engineer" means MP Design Group, telephone number (228) 388-1950.
- (c) **WORK OF IMPROVEMENT:** The term "Work of Improvement" or "Work" means all work specified in the Contract Documents for the Project known as:

“ELEVATED REEFER PLUGS”

and all appurtenant Work and materials required to complete the Work.

- (d) **PLANS OR DRAWINGS:** The term "Plans" or "Drawings" means the drawings showing plans, sections, details and applicable notes describing the Work of Improvement as identified in paragraph 1 of the Contract prepared by MP Design Group.
- (e) **SPECIFICATIONS:** The term "Specifications" means the text of the technical specifications or special provisions as identified in paragraph 1 of the Contract prepared by MP Design Group.
- (f) **CONTRACT DOCUMENTS:** The term "Contract Documents" means the documents identified in paragraph 1 of the Contract.
- (g) **CONTRACT:** The term "Contract" means the Contract executed by the Authority and Contractor for the Work of Improvement in the form included in the bid document.

2. PERFORMANCE OF WORK OF IMPROVEMENT.

Contractor shall perform the Work of Improvement in accordance with the Contract Documents. Contractor shall furnish all labor, materials, equipment, appliances, services, tools and other things necessary for the complete and timely performance of the Work of Improvement.

3. CONTRACT PRICE.

Authority shall pay Contractor for the Work of Improvement the Contract Price payable as set forth below, except as otherwise provided in paragraph 29 "Withholding of Payment."

Upon receipt of this Contract, Contractor shall submit to Authority a cost breakdown ("schedule of values") showing major items of Work. Quantities, units and unit prices shall be shown. The sum of all individual items shown shall add up to the contract amount and this breakdown shall be used as the basis of monthly progress payments. Overhead and profit shall be fairly distributed among the items. The breakdown shall not be unbalanced for costs or "front loaded."

On the Friday proceeding the first Wednesday of the month the Contractor shall submit, on a form approved and accepted by the Authority, an estimate in writing showing value of Work performed to that date. Upon approval of such estimate by the Authority, payment will be made for the Work performed to the date of the estimate; provided, however, the Authority will retain five percent (5%) of such estimated value as partial security for fulfillment of the Contract. If Authority disagrees with any estimate of Contractor of the value of Work performed, Authority shall nevertheless pay Contractor for the value of the Work performed (less retentions) as to which no Contract exists. Unless they are further subject to withholding as set forth in paragraph 29, the retentions shall be paid to Contractor thirty (30) days after the Board of Port Commissioners approves and accepts the Work of Improvement as complete.

Each invoice for payment submitted by Contractor shall be accompanied by an appropriate unconditional affidavit from Contractor's subcontractors in a form acceptable to the Authority. Said affidavit shall state subcontractors have been paid in full and that no liens have been filed against owner as a result of nonpayment. Where such releases are conditional, Authority will either withhold payment or pay Contractor by joint checks payable jointly to Contractor and the claimant.

Where Bond Funds are being used to finance the Work of Improvements, the Contractor acknowledges that the Authority does not make payments directly to the Contractor. The Authority shall approve invoices for payment in the manner specified above, but payments shall be made by the State Treasurer's Office in Jackson, Mississippi. The Authority agrees to use its best effort to expedite payments by the State Treasurer's Office, but can not accept responsibility for prompt payment of invoices submitted for payment. Final payment cannot be made until Authority receives written consent from contractor's surety.

Availability of Funds -- It is expressly understood and agreed that the obligation of the MSPA to proceed under this Contract is conditioned upon the appropriation of federal and/or state funds. If the funds anticipated for the continuing fulfillment of the Contract are, at anytime, not forthcoming or insufficient, either through the failure of the federal government to provide funds or of the State of Mississippi to appropriate funds or the discontinuance or material alteration of the program under which funds were provided or if funds are not otherwise available to the MSPA, the MSPA shall have the right upon ten (10) Working days written notice to the Contractor, to terminate this Contract without damage, penalty, cost or expenses to the MSPA of any kind whatsoever. The effective date of termination shall be as specified in the notice of termination

4. RESPONSIBILITIES.

For all matters pertaining to the Work of Improvement, unless otherwise provided, Authority will be represented by its Executive Director, or a designated representative, in all administrative matters and by the designated "Design Engineer" in all technical matters.

Before commencement of the Work, Contractor shall notify Authority and Engineer of the name of the person (called Contractor's representative) who shall be on-site and who shall be the duly authorized representative of Contractor empowered to make decisions for, and on behalf of Contractor, and to execute change orders on behalf of Contractor, and to whom orders and directions by Engineer and Authority to Contractor may be given.

It shall be the sole responsibility of Contractor to complete the Work of Improvement within the time and in the manner prescribed by this Contract.

5. EXAMINATION OF SITE, PLANS AND SPECIFICATIONS.

It is the sole responsibility of Contractor to visit the site of the Work of Improvement and to thoroughly examine the Contract Documents and to fully acquaint Contractor with the conditions to be encountered as to the character, quality and quantity of Work to be performed and materials to be furnished. Contractor shall fully understand the facilities, difficulties and restrictions, including Port Operations, that may be encountered in performing the Work of Improvement.

By execution of this Contract, Contractor represents to Authority that Contractor has made the visitation and examination referred to in the preceding sentence and can perform the Work of Improvement for the contract price.

Contractor is advised that any report or other information (hereafter called "additional information") given to Contractor by Authority or Engineer or obtained by Contractor from the records of Authority (except for the Contract Documents) is not a part of the Contract unless specifically referenced to be used in conjunction with this Contract and is given solely for the convenience of Contractor for whatever use Contractor may wish to make of it. It is expressly understood and agreed that the Authority assumes no responsibility whatsoever in respect to the sufficiency or accuracy of the additional information or of any interpretations made thereof by any person. Availability or use of such additional information shall not be a waiver of Contractor's duty to examine the site of the Work, and Contractor is cautioned to make such independent investigation as Contractor deems necessary to satisfy Contractor as to the conditions to be encountered in the performance of the Work, including but not limited to (1) conditions bearing upon transportation, disposal, handling and storage of materials; (2) the availability of labor, water, electric power and roads; (3) uncertainties of weather, tides or similar physical conditions at the site; (4) the conformation and conditions of the ground and (5) other site conditions that may affect the Work performance.

6. CONTRACT BONDS.

Within fourteen (14) days after delivery of the "Notice of Award" of this Contract, or prior to commencement of the Work, whichever is earlier, Contractor shall furnish to Authority with sureties qualified to do business in the State of Mississippi the following bonds:

- (a) A payment bond in a sum not less than the Contract price; and
- (b) A performance bond in an amount not less than 100% of the contract price for the Work of Improvement guaranteeing Contractor's full and timely performance of the Work in accordance with this Contract.

All bonds shall be in a form approved as to form by counsel for the Authority prior to acceptance by Authority.

7. TIME OF PERFORMANCE.

Contractor shall commence the Work of Improvement promptly after execution of the Contract and after issuance of the "Notice to Proceed". The Contractor shall complete the Work of Improvement within the time specified in the Contract. The Completion Date may be extended only in accordance with paragraph 26, "Extension of Time of Completion."

Upon receipt of this Contract, Contractor shall submit to Authority a schedule for the completion of the Work of Improvement in a form acceptable to the design engineer and Authority ("construction schedule") showing major items of Work, Start Date, and Completion Date including, but not limited to: mobilization, demolition, any phasing or staging completion, major equipment deliveries, inspection dates, substantial completion, and close-out documentation. The completion date for all individual items shown shall be consistent with the Completion Date required by this Contract.

Along with the monthly request for payment, Contractor shall submit to the Authority an updated construction schedule for all individual items showing percentage work completed to date, percentage of work to be completed, and estimated Completion Date for Work of Improvement.

8. AUTHORITY OF ENGINEER.

The designated design Engineer shall decide any and all questions which may arise as to (1) the quality or acceptability of materials furnished and the Work performed, (2) the manner of performance of the Work of Improvement, (3) interpretation of technical matters within the Contract Documents, and (4) the acceptable fulfillment of the Contract by Contractor.

9. CONFORMITY WITH PLANS AND ALLOWABLE DEVIATIONS.

Finished surfaces in all cases shall conform with the lines, grades, cross-sections, and dimensions shown on the Plans. Deviations from the Plans, as may be required by the exigencies of construction, will be determined in all cases by Engineer and must be authorized in writing by Authority.

Contractor shall provide to Authority shop drawings, submittals, or other submission of samples (hereafter referred to collectively as "submissions") as may be necessary for the prosecution of the work of improvement. The shop drawing and submission shall be submitted to the Engineer who shall promptly review all shop drawings. All shop drawings and submissions submitted shall be in conformance with the contract documents (including plans and specifications). Once submitted for the Engineer's review, shop drawings and submissions shall bear the Contractor's certification that Contractor has reviewed, checked and approved the shop drawings and submissions and that they are in conformance with the requirements of the contract documents (including plans and specifications). Any deviations in the shop drawings or submissions from the contract documents (including plans and specifications) shall be plainly stated in bold print on the shop drawings and the submissions specifying exactly what are the deviations, and, in addition, in submitting such shop drawings and submissions to the Engineer, they shall be accompanied by a cover letter stating that the shop drawings or submissions submitted deviate from the contract documents (including the plans and specifications) and specifying in detail such deviations.

Unless any deviation in the shop drawings or submissions from the contract documents (including the plans and specifications) have been approved by Authority by a written change order pursuant to the provisions of this Contract, approval by the Engineer of any shop drawing or submission shall not relieve Contractor of Contractor's liability to the Authority for any damage or injury that results because the shop drawing or submission deviates from the contract documents (including the plans and specifications) whether or not such shop drawings or submissions are approved by the Engineer. The ultimate responsibility for preparing shop drawings or submissions in conformity with the contract documents (including the plans and specifications) remains with the Contractor.

Portions of the work requiring a shop drawing or submission shall not be commenced by Contractor until the shop drawing or submission has been approved by the Engineer. A copy of each approved shop drawing and submission shall be kept in good condition by Contractor at the site of the work and shall be available to Engineer, or Authority, for inspection.

10. INTERPRETATION OF PLANS AND SPECIFICATIONS.

Should it appear that the Work to be done, or any matter relative thereto, is not sufficiently detailed or explained in the Contract Documents, the Contractor shall apply in writing to the Engineer for such further explanations as may be necessary for Contractor to accomplish the Work of Improvement, and Contractor shall conform to such explanation or interpretation of the contract by Engineer so far as may be consistent with the intent of the original Plans and Specifications. In the event of doubt or question relative to the true meaning of the Specifications or Plans as explained or interpreted by the Engineer, reference shall be made to the Authority, whose decision thereof shall be final.

In the event of any discrepancy between any Plans or Drawing and the figures written thereon, the figures shall be taken as correct.

11. ORDERS OF ENGINEER.

Whenever it is desirable by the design Engineer and Authority to give Contractor directions concerning the Work, orders will be given in writing to Contractor by delivery to Contractor's representative, or in the representative's absence, to Contractor's on-site superintendent or foreman in charge or the particular Work in reference to which the order is given, and such written orders shall be binding on Contractor and Contractor shall comply therewith.

Any provision of the contract notwithstanding, all orders, directions or interpretations of the Engineer and Authority to Contractor shall be in writing and shall be given to Contractor within two working days after requested by Contractor.

Contractor shall not be bound to follow any orders, directions or interpretations of Engineer that are not in writing. Authority shall not be liable to Contractor for Work performed by Contractor in reliance on verbal orders of design Engineer and neither shall such reliance relieve Contractor from the responsibilities of Contractor set forth in the Contract.

If Contractor believes that the order issued by the design Engineer entitles Contractor to a change in either the contract price or the time of performance, or both, Contractor shall give Engineer and Authority written notice of a request for a change order within two (2) days after receipt of the order by the Engineer. The written request shall state the requested change in contract price, or time of extension, and shall detail the basis for the request. Upon such a request, Contractor shall not be required to carry out the order of the Engineer pending the execution of a change order unless Contractor is otherwise directed in writing. If Contractor has requested a change order and is ordered to proceed with the Work before a change order is executed, such proceeding with the Work shall be without prejudice to the Contractor's right, if any, to request extra compensation or an extension of time.

12. INSPECTION.

The Authority and design Engineer or his designee shall at all times have access to the Work during construction and shall be furnished with every reasonable facility for obtaining full knowledge respecting the progress, workmanship and character of materials used and employed in the Work.

Whenever Contractor varies the period during which Work is carried on each day, Contractor shall give due notice to Authority and Engineer so that proper inspection may be provided. Any Work done in the absence of Engineer, will be subject to rejection.

The inspection of the Work shall not relieve Contractor of any of Contractor's obligations to fulfill the Contract as prescribed. Defective Work shall be made good, and unsuitable materials may be rejected, notwithstanding the fact that such defective Work and unsuitable materials have been previously overlooked by Engineer in inspection and accepted for payment.

13. REMOVAL OF DEFECTIVE AND UNAUTHORIZED WORK.

All Work which is defective in its construction or deficient in any way of the requirements of the Contract shall be remedied or removed and replaced by Contractor in an acceptable manner, and no compensation will be allowed for such correction.

Any Work done beyond the lines and grades shown on the Plans or established by design Engineer, or any extra Work done without the written authority of Authority, will be considered as unauthorized and will not be paid for.

Upon failure on the part of Contractor to comply forthwith with any order of Engineer made under the provisions of this paragraph or paragraphs 10 or 11, Authority shall have authority to cause the defective Work to be remedied, or removed and replaced, and unauthorized Work to be removed, and to deduct the costs thereof from any moneys due or to become due the Contractor.

14. FINAL INSPECTION.

Whenever the Work provided and contemplated by the Contract has been satisfactorily completed and the final cleaning up performed, Engineer and Authority shall make the final inspection with the Contractor.

15. COMPLIANCE WITH LAWS.

Contractor shall keep informed as to and comply with all Federal, State and Municipal laws pertaining to the Work of Improvement or governing the Mississippi State Port Authority at Gulfport including applicable provisions in the Authority's Tariff No. 4, as amended from time to time, and any successor Tariff. Contractor shall immediately report in writing to the Authority any discrepancy or inconsistency in the Plans, Specifications, Drawings or Contract that appear to violate or be contrary to the then existing applicable Federal, State and Municipal laws.

16. PROVISIONS APPLICABLE TO LABOR.

- (a) **WORKER'S COMPENSATION.** Contractor (and all Contractor's subcontractors) are required to secure the payment of worker's compensation to its employees.

Before commencing performance of the Work of Improvement under the Contract, Contractor shall sign and file with Authority the following certification:

"I am aware of the provisions of the Contract which require every employer to be insured against liability for worker's compensation, and I will comply with such provisions before commencing performance of the Work of this contract."

- (b) **NON-DISCRIMINATION.** No discrimination shall be made in the employment of persons in the Work of Improvement under the Contract because of the race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, marital status or sex of such person.
- (c) Contractor shall employ only workers and laborers who have actively resided in Mississippi for two years next preceding such employment.

17. REFERENCE TO STATUTES.

Whenever reference is made to the provision of any statute or law in this Contract, such reference applies to any amendment or change in such statute or law now existing but to become operative some time after the signing of the contract.

18. PERMITS AND LICENSES.

Contractor shall, at Contractor's own cost, procure all administrative construction and building permits and licenses and any other permits that may be required for construction of the Work of Improvement, pay all charges and fees and give all notices necessary and incidental to the due and lawful prosecution of the Work of Improvement. The Authority shall, at Authority's own cost, procure all discretionary permits, pay all charges and fees, and give all notices necessary and incidental to the due and lawful prosecution of the Work of Improvement.

19. PUBLIC CONVENIENCE AND SAFETY.

Contractor shall so conduct his operations as to cause the least possible obstruction and inconvenience to public traffic and port operations.

Contractor shall furnish, erect, and maintain such fences, barriers, lights, warning and directional signs as deemed necessary by Engineer to give adequate warning to the public and other port users at all times of the construction and of any dangerous conditions to be encountered as a result thereof, and contractor shall also erect and maintain such signs as may be furnished by Authority.

20. RESPONSIBILITY FOR DAMAGE.

During the progress of the Work or any time before final acceptance, Authority and Engineer shall not be liable to Contractor for any loss or damage to the Work of Improvement or any part thereof, or to any material or equipment used or to be used in performing the Work, or for injury or damage to any person (including workers) or damage to property from any cause.

Nothing herein shall be deemed to relieve Authority or Engineer from liability they may have to Contractor for damage caused by Authority or Engineer's negligence or intentional acts.

Until Final Acceptance by Authority, protection of the Work of Improvement and materials and equipment used thereon shall be the sole responsibility of Contractor.

21. INDEMNIFICATION AND LIABILITY INSURANCE.

Contractor shall indemnify and defend Authority, and the State of Mississippi and its elected and appointed officers, employees and agents from any liability for the death or injury to any person or damage to property arising from Contractor's activities in performance of the Contract or on the property of Authority. Upon execution of the Contract, Contractor shall, at the cost and expense of Contractor, procure and maintain during the time of the Contract, liability and property damage insurance in not less than the following amounts: \$2,000,000.00 combined single commercial general liability, and automobile liability insurance on all vehicles owned or operated by Contractor on Port property, including those which are hired or non-owned and used in the course of the Contractor's business, with limits for bodily injury or death of \$500,000 per person and \$1,000,000 per occurrence and for property damage of \$500,000 per occurrence, or a combined single limit of \$1,000,000. The Mississippi State Port Authority at Gulfport, its Board of Port Commissioners, its officers, agents and employees, the State of Mississippi and its elected and appointed officers, employees and agents shall be named as additional insureds on such policies. The Contractor shall provide that the insureds thereon waive subrogation against the State of Mississippi and the said political subdivisions thereof. Upon execution of this Contract, Contractor shall promptly furnish Authority with certificates of insurance showing Contractor's compliance with the insurance provisions of this paragraph.

Cancellation area on the certificate must read as follows on all insurance certificates: "Should any of the above described policies be cancelled before the expiration date thereof, the issuing insurer will mail 30 day written notice to the certificate holder named to the left", or a cancellation modification must be attached stating the above clause.

22. CONTRACTOR'S RESPONSIBILITY FOR WORK.

Until written final acceptance of the Work of Improvement by Authority, Contractor shall have full charge and care thereof and shall bear the risk of injury, loss or damage to all or any part thereof by an Act of God (including fire, flood, or hurricane) or from any other cause, whether arising from the execution of the Work or Improvement or otherwise. Contractor shall rebuild, repair, restore and make good all damage to the Work or any portion thereof occasioned by an Act of God or any other cause before final acceptance of the whole Work of Improvement by Authority and shall bear the entire expense of such rebuilding, repair or restoration. The preceding sentence notwithstanding, Contractor is liable for the repair of damages by an Act of God.

23. ASSIGNMENT.

Neither the Contract, or any portion thereof, or any rights to proceeds there from (whether due or to become due) shall be assigned by Contractor without the prior written consent of Authority. The execution of any such assignment by Contractor without prior written consent of Authority shall constitute a breach of Contract and Authority may, within thirty (30) days from the date it first receives notice or knowledge of such assignment, terminate the Contract by notifying Contractor of such termination in writing, or exercise all rights and remedies given Authority because of a breach of Contract by Contractor or the termination of the Contract.

24. SUBCONTRACTORS.

Contractor shall provide Authority with the following information:

- (a) The name and location and the place of business of each subcontractor who will perform Work or labor or render services to Contractor in or about the construction of the Work of Improvement, or who will specially fabricate and install any portion of the Work according to detailed drawings contained in the Plans and Specifications, in an amount in excess of five percent of Contractor's total bid. This information should be included with the Contractor's Bid.
- (b) The portion of the Work which will be done by each subcontractor. Contractor shall list only one subcontractor for each such portion as is defined by Contractor in Contractor's bid.
- (c) A copy of each Certificate of Responsibility shall be provided with contractor's bid, if Subcontractor is required by law to have one.

Listing of subcontractors by Contractor and Authority's failure to object to any subcontractor so listed shall not relieve Contractor from his responsibility for completion of the Work of Improvement in strict compliance with the terms of this Contract. If, in the opinion of Engineer, any subcontractor fails to complete the portion of the Work sublet to him/her within the time and in the manner prescribed by the Contract, Contractor shall complete or cause to be completed such Work in the time and in the manner specified by Engineer.

25. TEMPORARY SUSPENSION OF WORK.

The Authority shall have the authority to suspend the Work wholly or in part, for such period as it may deem necessary due to (1) unsuitable weather, (2) such other conditions as are considered unfavorable for the suitable prosecution of the Work, or (3) failure on part of the Contractor or any subcontractor to carry out orders given by Engineer pursuant to the Contract or to perform any provisions of the Work in the manner prescribed by the Contract. Contractor shall immediately cease Work upon such order of Authority's Executive Director and shall not resume the Work until ordered in writing by the Authority.

26. EXTENSION OF TIME OF COMPLETION.

The time within which to complete the Contract may be extended by Authority if all of the following three requirements are met:

- (a) The delay is the result of causes beyond the control of Contractor or its subcontractors or materialmen;
- (b) Within ten (10) days from the beginning of any such delay period Contractor notifies Engineer and Authority in writing of the cause of the delay, requests an extension of the time within which to complete the contract by reason of the delay and specifies the length of such requested extension; and
- (c) Authority, upon investigation, notifies Contractor in writing that the extension of time is granted or rejected. In the event contractor fails to timely complete the work or improvement, Authority may impose liquidated damages against contractor in the amount of \$500.00 per day.

27. TERMINATION FOR DEFAULT.

Subject to the terms and conditions hereinafter set forth, Authority may, at its option, terminate Contractor from performance of the Work of Improvement if any of the following events occur:

- (a) A material breach of the Contract that, if curable, is not cured within ten (10) days from written notice of the breach served on Contractor by Authority.
- (b) Execution by Contractor of an assignment prohibited by paragraph 23.
- (c) Failure of Contractor to supply an adequate work force and equipment or material of proper quality reasonably required in order for Contractor to complete the Work of Improvement within the time specified in the Contract.
- (d) Failure of Contractor to diligently prosecute the Work in accordance with the established work time Schedule approved by the Authority so that in the opinion of the Authority, Contractor will be unable to complete Work of Improvement within the time specified in the Contract.
- (e) Failure of Contractor to pay promptly all subcontractors, materialmen and laborers for Work actually performed in, or materials actually furnished for, the Work of Improvement.

- (f) Neglect or refusal of Contractor to comply with (or provide satisfactory means for compliance with) the Contract as directed by Engineer and written orders of the Engineer pursuant to Paragraph 11 within the time specified by Engineer.

Termination of Contractor shall be by written notice served in the manner provided in Paragraph 29.

Upon termination, Contractor shall immediately cease Work on the Contract and Authority may complete the Work of Improvement by whatever method it deems expedient. Upon termination of the contract by Authority, Authority or its authorized representative may take possession of all or part of Contractor's materials, tools, equipment and appliances upon the job site and use the same for the purpose of completing the Contract and it may hire such forces and such labor and buy or rent such additional materials and supplies and equipment as may be necessary for the proper conduct of the Work and for the completion thereof, or it may employ other workers, substitute other machinery or materials and purchase the materials contracted for, in such manner as Authority may deem proper. Notwithstanding termination of the Contract, Contractor shall take timely, reasonable, and necessary action to protect and preserve property in the possession of the contractor in which the owner has an interest. Authority may hire another Contractor to complete the unfinished Work of Improvement. If the cost to Authority to complete the Work of Improvement after termination of Contractor exceeds the balance of the Contract price unpaid to Contractor, Contractor shall, on demand, pay such excess to Authority.

28. TERMINATION FOR CONVENIENCE CLAUSE

1. *Termination.* The Procurement Officer of the MSPA may, when the interests of the MSPA so require, terminate this Contract in whole or in part, for the convenience of the MSPA. The Procurement Officer shall give written notice of the termination to the Contractor specifying the part of the Contract terminated and when termination becomes effective.
2. *Contractor's Obligations.* The Contractor shall incur no further obligations in connection with the terminated Work, and on the date set in the notice of termination the Contractor will stop Work to the extent specified. The Contractor shall also terminate outstanding orders and subcontracts as they relate to the terminated Work. The Contractor shall settle the liabilities and claims arising out of the termination of subcontracts and orders connected with the terminated Work. The Procurement Officer may direct the Contractor to assign the Contractor's right, title, and interest under terminated orders or subcontracts to the MSPA. The Contractor must still complete the Work not terminated by the notice of termination and may incur obligations as are necessary to do so. The Contractor shall be entitled to compensation for services performed up to the date of termination, and authorized and accepted by the MSPA.

29. WITHHOLDING OF PAYMENT

Authority may withhold payment of money otherwise due to Contractor for any of the following reasons:

- (a) Defective work which has not been remedied.
- (b) Failure of Contractor to make payment properly to subcontractors, materialmen, laborers or other claimants.
- (c) The existence of reasonable doubt by Authority that the Contract can be completed for the balance of the Contract amounts then unpaid.
- (d) Failure of Contractor to accomplish the Work under this Contract.
- (e) Termination of Contractor under the provisions of Paragraph 25.
- (f) A breach of the Contract not heretofore specified above which, in the Authority's sole opinion, may cause damage to it.

Whenever the grounds giving rise to the above withholding have been removed, Authority shall pay to Contractor the amount withheld because of such grounds less any expenses incurred by Authority or damages sustained by Authority as a result of the withholding, the cause of the withholding or the removal of the cause of withholding, less retentions, if any.

30. NOTICES.

Notice shall be served either personally or by telegram, by mail or by FAX. Notices by registered or certified mail shall be addressed as follows:

- (a) Notice to Authority shall be addressed to the Mississippi State Port Authority, P.O. Box 40, Gulfport, Mississippi (228) 865-4300 Fax: (228) 248-0027.
- (b) Notice to Contractor shall be addressed or sent by telecopier to Contractor at the address and FAX number shown on the introductory paragraph of the Contract.

Notices by mail shall be deemed served forty-eight (48) hours after deposit in the United States mail, postage prepaid. Notices by FAX are served when received.

31. GUARANTEE.

By execution of the Contract, Contractor guarantees for a period of two years from acceptance that:

- (a) All Work to be in accordance with the Plans and Specifications and any written authorization by Authority to deviate from said Plans and Specifications;
- (b) All materials used are new except where otherwise expressly authorized by the Contract Documents; and
- (c) All Work shall be free from defects in workmanship or materials.

32. INSOLVENCY OF CONTRACTOR.

In addition to any other remedy it may have herein or by law, Authority may at its option terminate the Contract and take possession of the Work of Contractor and of all materials, tools, equipment and appliances and finish the Work of Contractor by whatever method Authority deems expedient and proper under any of the following circumstances:

- (a) The insolvency of Contractor;
- (b) The filing of a petition or arrangement in bankruptcy by or against Contractor pursuant to the Bankruptcy Code and the trustee or debtor-in-possession, as appropriate, does not assume the Contract within the time and manner provided by the Bankruptcy Code or established by order of the Bankruptcy Court;
- (c) A general assignment for the benefit of creditors by Contractor; or
- (d) The appointment of a receiver for Contractor's property or a portion thereof.

Upon termination as provided in this paragraph, Contractor shall not be entitled to receive any further payment until the Work of Improvement is completed. If the unpaid balance of the Contract price exceeds the cost and expense of finishing the Work including compensation for additional managerial, legal, engineering and administrative services and all claims against Authority in connection with Work of Contractor, such excess shall be paid to Contractor. If such expenses and claims as set forth above exceeds the unpaid balance of the Contract price, Contractor shall pay the difference to Authority on demand.

33. ATTORNEYS' FEES.

If either party hereto incurs attorneys' fees in order to enforce any of the terms, provisions or conditions of this Contract or because of the breach of this Contract by the other party, each party shall bear its own attorney' fees and court costs associated therewith.

34. CHANGE ORDERS.

All changes, alterations or deviations to the Work of Improvement must be by a written change order executed by Authority and Contractor. Contractor shall be entitled to no extra compensation for additional work performed that is not accomplished pursuant to a written change order.

35. DAMAGES.

If the Contractor fails to complete the work of improvement in accordance with this Contract, the Authority may be subject to damages. Damages may include construction stand by time resulting from the Contractor's failure to deliver the Building to the Project Site in accordance with the Contract. Further damages may include, but not be limited to: 1) Breach of Contract against the Authority for failure to complete the project in a timely manner, 2) Increased costs in the loading, unloading, and storage of cargo as a result of the project not being completed in a timely manner, and 3) Increased vessel costs as a result of the project not being completed in a timely manner.

36. LONGSHOREMEN'S AND HARBOR WORKERS' ACT.

Contractor shall secure (and shall require all of its subcontractors to secure) payment to employees of the compensation payable under the Longshoremen's and Harbor Workers' Act (33 United States Code section 90, et seq.) in the performance by Contractor (and any subcontractor) of the Work of this Contract.

37. MITIGATION MEASURES.

- (a) Contractor shall take all steps reasonably required to avoid the discharge of any liquids or materials into the harbor waters. Contractor shall comply and require all of Contractor's subcontractors and materialmen to comply with the Authority's tariff provisions pertaining to dangerous and hazardous materials. Contractor shall also comply and require all of Contractor's subcontractors and materialmen to comply with the Authority's General Permit to Discharge Storm Water Associated with Construction Activities.
- (b) Contractor shall coordinate all construction activities so as to minimize the disruption of the commercial activities at the Port of Gulfport to the extent reasonably feasible.

38. REQUIRED PROVISIONS DEEMED INSERTED.

Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein, and the Contract shall be read and enforced as though it were included herein; and if through mistake or otherwise any such provision is not inserted or is not correctly inserted, then upon the application of either party, the Contract shall forthwith be physically amended to make such insertion of correction.

39. CONTRACTOR'S TITLE TO MATERIAL.

No materials or supplies for the Work shall be purchased by the Contractor or by any subcontractor subject to any chattel mortgage or under a conditional sale contract or other Contract by which a security interest is retained by the seller. The Contractor warrants that Contractor has good title to all materials and supplies used by Contractor in the Work, free from all liens, claims or encumbrances.

40. USE AND POSSESSION PRIOR TO COMPLETION.

The Authority shall have the right to take possession of or use any completed or partially completed part of the Work. Before taking possession of or using any Work, the Authority shall furnish the Contractor a list of items of Work remaining to be performed or corrected on those portions of the Work that the Authority intends to take possession of or use. However, failure of the Authority to list any of item of Work shall not relieve the Contractor of responsibility for complying with the terms of the Contract. The Authority's possession or use shall not be deemed an acceptance of any Work under the Contract.

While the Authority has such possession or use, the Contractor shall be relieved of the responsibility for the loss of or damage to the Work resulting from the Authority's possession or use. If Contractor believes the prior possession or use by the Authority will delay the progress of the Work or cause additional expense to the Contractor, Contractor

shall so notify the Authority; an equitable adjustment shall be made in the Contract price or the time of completion or both, and the Contract shall be modified in writing accordingly by a written change order before Authority takes possession.

41. ACCIDENT PREVENTION.

- (a) In performing this Contract, the Contractor shall provide for protecting the lives and health of employees and other persons; for preventing damage to property, materials, supplies and equipment; and for avoiding work interruptions. For these purposes, the Contractor shall comply with all OSHA regulations and rules and shall:
 - (1) Provide appropriate safety barricades, signs and signal lights.
 - (2) Ensure that any additional measures are taken that the Engineer determines to be reasonably necessary for this purpose.
- (c) The Contractor shall maintain an accurate record of exposure data on all accidents incident to Work performed under this Contract resulting in death, traumatic injury, occupational disease or damage to property, materials, supplies or equipment. The Contractor shall report this data in the manner required by law.
- (d) The Authority shall notify the Contractor of any noncompliance with these requirements and of the corrective action required. This notice, when delivered to the Contractor or the Contractor's representative at the site of the Work, shall be deemed sufficient notice of the noncompliance and corrective action required. After receiving the notice, the Contractor shall immediately take corrective action. If the Contractor fails or refuses to take corrective action promptly, the Authority may issue an order stopping all or part of the Work until satisfactory corrective action has been taken. The Contractor shall not base any claim or request for equitable adjustment for additional time or money on any stop order issued under these circumstances.
- (e) The Contractor shall be responsible for its subcontractors' compliance with this clause.
- (f) Before commencing the Work, the Contractor shall:
 - (1) Submit a written proposal for implementing this clause and
 - (2) Meet with the Authority to discuss and develop mutual understanding relative to administration of the overall safety program.

42. COMPLETENESS OF CONTRACT.

The Contract Documents constitute the complete Contract between the parties and supersede all negotiations, representations or oral Contracts reached prior to execution of the Contract.

43. PROPRIETARY NAMES AND SUBSTITUTIONS.

- (a) Whenever any equipment, material or process is indicated or specified by patent or proprietary name, or by name of manufacturer, such reference is used to establish the type, function and quality required. Unless the name is followed by words indicating that no substitution is permitted, such references shall be deemed to be preceded by the words "equal and similar to." The Contractor may offer any equipment, material or process substantially equal to that indicated or specified. Final determination of the acceptability of such substitute items shall rest with the Engineer. Engineer may consider the strength, appearance, durability, reliability, dimensions, finish, efficiency, maintainability, service history, life cycle cost and other characteristics of the proposed substitute in making the determination.
- (b) A substitute item shall be a standard catalogued product of a company regularly engaged in the manufacture of such items. No custom or prototype substitutes will be accepted. The Contractor shall certify that a substitute item will perform adequately the functions and achieve the results called for the general design, be similar and of equal substance, and be suited to the same use as the specified item. Contractor shall identify all differences between the proposed substitute and that specified, and state whether or not acceptance of the proposed substitute will require a change in the Contract Documents to adapt the design to the proposed substitute. Any redesign or changes in the Work resulting from acceptance of a substitute will be at the sole expense of the Contractor. The Contractor shall furnish such data concerning and perform such testing of the proposed substitute as may be required by the Authority to evaluate the substitute item and determine if it is substantially equal. Additional information requested by the Engineer shall be furnished by the Contractor within ten (10) days of such request.
- (c) Unless otherwise authorized by the Authority, offers of substitute items shall be made within 14 days after Notice of Award. Adequate time shall be allowed for the District to evaluate substitute items. No extension of the Contract time will be authorized for any circumstance developing from this provision. Failure to comply with this provisions will be sufficient cause for rejection of a proposed substitute.

44. CONFLICTS.

Unless otherwise specified, in the event that a conflict exists between a provision of the Special Provisions or Specifications and the Contract, including General Conditions, the provisions of the Contract and General Conditions shall apply.

45. GOVERNING LAW.

This Contract and all documents included herein are to be governed by the laws of the State of Mississippi.

46. E-VERIFY

Contractor represents and warrants that it will ensure its compliance with the Mississippi Employment Protection Act (Senate Bill 2988 from the 2008 Regular Legislative Session)

and will register and participate in the status verification system for all newly hired employees. The term “employee” as used herein means any person that is hired to perform Work within the State of Mississippi. As used herein, “status verification system” means the Illegal Immigration Reform and Immigration Responsibility Act of 1996 that is operated by the United States Department of Homeland Security, also known as the E-Verify Program, or any other successor electronic verification system replacing the E-Verify Program. Contractor agrees to maintain records of such compliance and, upon request of the State, to provide a copy of each such verification to the state. Contractor further represents and warrants that any person assigned to perform services hereunder meets the employment eligibility requirements of all immigration laws of the State of Mississippi. Contractor understands and agrees that any breach of these warranties may subject Contractor to the following: (a) termination of this Contract and ineligibility for any state or public contract in Mississippi for up to three (3) years, with notice of such cancellation/termination being made public, or (b) the loss of any license, permit, certification or other document granted to Contractor by an agency, department or government entity for the right to do business in Mississippi for up to one (1) year, or (c) both. In the event of such termination/cancellation, Contractor would also be liable for any additional costs incurred by the state due to contract cancellation or loss of license or permit.

47. TWIC

The enforcement date for the Transportation Worker Identification Credential (TWIC) for the Mississippi State Port at Gulfport was December 30, 2008. If you require unescorted access to restricted areas at the Mississippi State Port at Gulfport you will need a TWIC card. Restricted areas are defined as areas at a facility over which the owner/operator has implemented security measures for access control. You can access TSA at www.tsa.gov/twic for further TWIC information.

48. CONFIDENTIAL INFORMATION

"Confidential Information" shall mean (a) those materials, documents, data, and other information which the Contractor has designated in writing as proprietary and confidential, and (b) all data and information which the Contractor acquires as a result of its contact with and efforts on behalf of the MSPA and any other information designated in writing as confidential by the MSPA. Each party to this Contract agrees to protect all confidential information provided by one party to the other; to treat all such confidential information as confidential to the extent that confidential treatment is allowed under State and/or federal law and, except as otherwise required by law, not to publish or disclose such information to any third party without the other party's written permission, and to do so by using those methods and procedures normally used to protect the party's own confidential information. Any liability resulting from the wrongful disclosure of confidential information on the part of the Contractor, its subcontractors or its employees shall rest with Contractor. Disclosure of any confidential information by the Contractor, its subcontractors or employees without the express written approval of the MSPA shall result in the immediate termination of this Contract.

49. THE PRIVACY ACT

In furtherance of the purposes of this Contract, the MSPA may be required to provide to the Contractor certain information that is subject to the Privacy Act of 1974, Public Law 93-579 (5 U.S.C. 552a) (Privacy Act) and applicable regulations. By entering into this Contract, the MSPA commits to sharing such information with the Contractor on the following terms and conditions and the Contractor agrees that upon acceptance of such information that it will take all steps necessary to ensure that such information is used and protected as required by federal law. The Contractor further acknowledges that a breach of this trust could result in civil and/or criminal action. The Contractor agrees that it will abide by the requirements of the Privacy Act in handling this information and further agrees that said information shall be used only in furtherance of meeting the MSPA's obligations and responsibilities under the Grant or allocated State funds and to prevent duplication of effort and duplication of benefits.

The Contractor acknowledges receipt of the following notification and agrees to abide by the terms of the Privacy Act.

- 1) Privacy Act Notification --
The Contractor will be required to design, develop or operate a system of records on individuals, to accomplish an agency function subject to the Privacy Act of 1974, Public Law 93-579, December 31, 1974 (5 U.S.C. 552a) and applicable agency regulations. Violation of the Act may involve the imposition of criminal penalties.
- 2) The Contractor agrees to:
 - A) Comply with the Privacy Act of 1974 and the agency rules and regulations issued under the Privacy Act in the design, development or operation of any system of records on individuals to accomplish an agency function when the contract specifically identifies:
 - i. The systems of records; and
 - ii. The design, development, or operation Work that the Contractor is to perform;
 - B) Include the Privacy Act notification contained in this Contract in every solicitation and resulting subcontract and in every subcontract awarded without a solicitation, when the Work statement in the proposed subcontract requires the redesign, development or operation of a system of records on individuals that is subject to the Privacy Act; and
 - C) Include this clause, including this paragraph (C), in all subcontracts awarded under this or any Contract with the MSPA, which requires the design, development or operation of such a system of records.
- 3) In the event of violations of the Privacy Act, a civil action may be brought against the Contractor when the violation concerns the design, development or operation of a system of records on individuals to accomplish an agency function, and criminal penalties may be imposed upon the officers or employees of the Contractor when the violation concerns the operation of a system of records on individuals to accomplish an agency function.

4) Definitions:

- A) "Operation of a system of records," as used in this clause, means performance of any of the activities associated with maintaining the system of records, including the collection, use and dissemination of records.
- B) "Record," as used in this clause, means any item, collection or grouping of information about an individual that is maintained by an agency including, but not limited to, education, financial transactions, medical history and criminal or employment history and that contains the person's name or the identifying number, symbol or other identifying particular assigned to the individual, such as a fingerprint or voiceprint or a photograph.
- C) "System of records on individuals," as used in this clause, means a group of any records under the control of any agency from which information is retrieved by the name of the individual or by some identifying number, symbol or other identifying particular assigned to the individual.

50. VEHICLE REGISTRATION: SECURITY REQUIREMENT

Contractor shall register company vehicles that will be used to transport personnel or equipment, supplies, etc. through the gates and to the job site.

DOCUMENTS NEEDED:

- 1) List of vehicles
- 2) License (plate) number for each vehicle
- 3) Registration and proof of insurance for each vehicle

This information must be sent to the attention of the Mississippi State Port Authority, Administrative Assistant of Engineering, P.O. Box 40, Gulfport, MS 39502.

Contractor is responsible for updating vehicle list as needed.

51. CONTACTS.

The following list of agencies and telephone numbers is intended for the convenience of the Contractor and is not guaranteed to be complete or correct.

Mobile District, U.S. Army Corps of Engineers	(251) 690-2505
Mississippi Department of Marine Resources	(228) 375-5000
Mississippi Department of Environment Quality	(228) 432-1056
Gulfport Fire Department	(228) 868-5950
Gulfport Police Department	(228) 868-5900
Mississippi State Port Authority	(228) 865-4300

52. MISSISSIPPI DEPARTMENT OF EMPLOYMENT (MDES) CERTIFIED EMPLOYMENT PLAN FORM

The Mississippi State statutes require that all public works projects funded with Disaster Recovery Funds shall require the contractors on these projects to submit an employment plan (form is attached) to the MDES within seven days of Notice of Award. Engineer will require proof that this form has been submitted.

53. CLOSE-OUT DOCUMENTS

The MSPA shall own all documents, files, reports, Work papers and working documentation, electronic or otherwise, created in connection with the Project, which is the subject of this Contract, except for the Contractor's internal administrative and quality assurance files and internal Project correspondence. The Contractor shall deliver such documents and Work papers to MSPA upon termination or completion of this Contract. MSPA requires digital copies of all work product in PDF form and CAD (if applicable). MSPA requires one full size record set of plans and specifications, along with one ½ size set of record set drawings. The Contractor will provide MSPA both digital and physical set of "AS BUILT" drawings and specifications at the part of the project closeout documents. "AS BUILT" drawings and specifications should have any project changes, modifications, clarifications, and/or notations made in the color red. The foregoing notwithstanding, the Contractor shall be entitled to retain a set of such Work papers for its files. Contractor shall be entitled to use such Work papers only after receiving written permission from MSPA and subject to any copyright protections. The contractor shall submit all product and equipment warranty or service documentation to MSPA in a separate binder labeled by project, product manufacturer with contact information, installer, and warranty type or service information.

END OF GENERAL CONDITIONS

CONTRACT

This Contract is made this ____th day of _____, 202__, by and between the MISSISSIPPI STATE PORT AUTHORITY ("Authority"), 2510 14th Street, Suite 1450, Gulfport, Mississippi, 39501, and whose telephone number is (228) 865-4300, and _____ (Contractor) whose address is _____, Certificate of Responsibility issued the __ day of ____, 202__, classification as noted in their current Certificate of Responsibility No. ____ for, _____ and whose phone number is (____)____, e-mail: _____.

The parties agree that:

1. The term "Contract Documents" means the following:
 - A. This Contract.
 - B. Advertisement for Bids
 - C. Information for Bidders.
 - D. Bid of Contractor (including list of subcontractors).
 - E. General Conditions (basic contract terms).
 - F. Specifications prepared by MP Design Group.
 - G. Drawings prepared by MP Design Group.
 - H. Addendum (if any)
 - I. Change Orders executed pursuant to the terms of the General Conditions.

2. The term "Work of Improvement" means

“Elevated Reefer Plugs”

in accordance with the Contract Documents.

3. Contractor will furnish all of the materials, supplies, tools, equipment, labor and other things or services necessary to complete the Work of Improvement in accordance with the Contract Documents.
4. Contractor will commence the Work of Improvement within five (5) calendar days after the date of service of the **Notice to Proceed** and will complete the Work within **Two Hundred Forty (240)** consecutive calendar days after date of service of Notice to Proceed, unless the period for completion is extended in accordance with the Contract Documents. Contractor shall provide MSPA, prior to issuance of Notice to Proceed, a project schedule indicating all notable completion milestones for the project including, but not limited to: mobilization, demolition, any phasing or staging completion, major equipment deliveries, inspection dates, substantial completion, and close-out documentation.
5. In performance of the Work of Improvement, Contractor shall comply with the Contract Documents and accomplish the Work in accordance therewith.

- 6. Authority will pay Contractor in accordance with the lump sum price shown in the Bid Schedule in the time and manner specified in the Contract Documents, the total Contract price of \$ _____.
- 7. The MSPA shall own all documents, files, reports, Work papers and Working documentation, electronic or otherwise, created in connection with the Project, which is the subject of this Contract, except for the Contractor's internal administrative and quality assurance files and internal Project correspondence. The Contractor shall deliver such documents and Work papers to MSPA upon termination or completion of this Contract. MSPA requires digital copies of all work product in PDF form and CAD (if applicable). MSPA requires one full size record set of plans and specifications, along with one 1/2 size set of record set drawings. The Contractor will provide MSPA both digital and physical set of "AS BUILT" drawings and specifications at the part of the project closeout documents. "AS BUILT" drawings and specifications should have any project changes, modifications, clarifications, and/or notations made in the color red. The foregoing notwithstanding, the Contractor shall be entitled to retain a set of such Work papers for its files. Contractor shall be entitled to use such Work papers only after receiving written permission from MSPA and subject to any copyright protections. The contractor shall submit all product and equipment warranty(ies) or service documentation to MSPA in a separate binder labeled by project, product manufacturer with contact information, installer, and warranty type or service information.

CONTRACTOR:

MISSISSIPPI STATE PORT AUTHORITY

Signature

John Rester, President

Name

Date: _____

Title

Mark Loughman, Secretary

Date: _____

Date: _____

MISSISSIPPI DEVELOPMENT AUTHORITY

Laura Hipp, Deputy Executive Director

Date: _____

**SECTION 012200
UNIT PRICES****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Measurement and payment criteria applicable to Work performed under a unit price payment method.

1.02 RELATED REQUIREMENTS

- A. Section 012000 - Price and Payment Procedures: Additional payment and modification procedures.

1.03 COSTS INCLUDED

- A. Unit Prices included on the Bid Form shall include full compensation for all required labor, products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.

1.04 UNIT QUANTITIES SPECIFIED

- A. Quantities indicated in the Bid Form are for bidding and contract purposes only. Quantities and measurements of actual Work will determine the payment amount.

1.05 MEASUREMENT OF QUANTITIES

- A. Contractor will take all measurements and compute quantities. Measurements and quantities will be verified by Engineer/Architect or Engineer of Record.
- B. Assist by providing necessary equipment, workers, and survey personnel as required.
- C. Measurement by Volume: Measured by cubic dimension using mean length, width and height or thickness. Soils muck out volume will be determined by Field Measure (FM).
- D. Measurement by Area: Measured by square dimension using mean length and width or radius. Area will be determined by Field Measure (FM).

1.06 PAYMENT

- A. Payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities of Work that is incorporated in or made necessary by the Work and accepted by the Engineer/Architect, multiplied by the unit price. See Section 1.08 Schedule of Values for a description of work that is paid under each pay item.
- B. Payment will not be made for any of the following:
 1. Products wasted or disposed of in a manner that is not acceptable.
 2. Products determined as unacceptable before or after placement.
 3. Products not completely unloaded from the transporting vehicle.
 4. Products placed beyond the lines and levels of the required Work.
 5. Products remaining on hand after completion of the Work.
 6. Loading, hauling, and disposing of rejected Products.

1.07 DEFECT ASSESSMENT

- A. Replace Work, or portions of the Work, not complying with specified requirements.

1.08 SCHEDULE OF UNIT PRICES

- A. Base Bid
 1. Remove and Replace/Elevate Reefer Plug: Pay Item shall be paid for at the contract unit price per each, which shall include furnishing all labor, materials and equipment necessary to satisfactory complete work as specified. Work shall include the following items:
 - a. disconnecting the existing reefer plug assembly, removing the existing plug assembly, and coordinating with the owner for the owner to take possession of the existing plug assembly.
 - b. preparation of shop drawings for the reefer plug pedestal, fabrication, painting, layout, and installation of the pedestals.

- c. coordinate with the owner to take possession of the new reefer plugs and perform the installation. Pay item should include the conduit, conductor, junction box, and all other electrical items required to connect the new reefer plug to the existing conductor.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

**SECTION 013000
ADMINISTRATIVE REQUIREMENTS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. General administrative requirements.
- B. Preconstruction meeting.
- C. Progress meetings.
- D. Construction progress schedule.
- E. Coordination drawings.
- F. Submittals for review, information, and project closeout.
- G. Number of copies of submittals.
- H. Requests for Interpretation (RFI) procedures.
- I. Submittal procedures.

1.02 RELATED REQUIREMENTS

- A. Section 016000 - Product Requirements: General product requirements.

1.03 GENERAL ADMINISTRATIVE REQUIREMENTS

- A. Comply with requirements of Section 017000 - Execution and Closeout Requirements for coordination of execution of administrative tasks with timing of construction activities.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 COLLABORATION SOFTWARE

- A. Summary
 - 1. The Contractor will be required to utilize a web based construction project management collaboration software to submit, track, distribute and collaborate on project documentation and action items.
 - 2. The intent of utilizing a web based construction management application is to reduce cost and schedule risk, improve quality and safety, and maintain a healthy team dynamic by improving information flow, reducing non-productive activities, reducing rework and decreasing turnaround times.
- B. Software
 - 1. General Contractor will be required to use Procore (www.procore.com)
 - 2. Access to said software be provided by the Architect/Engineer at no cost to the General Contractor.
 - 3. If unfamiliar, the Architect/Engineer's staff will assist the General Contractor in using the software or they will provide the resources necessary for the General Contractor to understand how to use the software.
- C. Architect/Engineer Responsibilities
 - 1. Upload signed/stamped drawings and any subsequent Architect/Engineer driven changes or revisions to the drawings.
 - 2. Upload signed/stamped specifications and any subsequent Architect/Engineer driven changes or revisions to the specifications.
 - 3. Add Design Team and Owner Contact Information
 - 4. Uploading all WCPR's as deemed necessary by the Architect/Engineer.
 - 5. Uploading all ASI's as deemed necessary by the Architect/Engineer.
 - 6. Uploading all contracts as deemed necessary by the Architect/Engineer.
 - 7. Creation of set distribution lists to the design team and Owner only.
 - 8. Creation of Deficiency Reports as deemed necessary by the Architect/Engineer.
 - 9. Site Visit Reports as deemed necessary by the Architect/Engineer.

- D. Contractor's Responsibilities:
1. Do not remove people from a set distribution list that preloads on RFIs and Submittals; only add to it.
 2. Make sure attachments actually attach in all RFIs, Submittals, and transmittals. Transmittals mostly because they have to select the 'ADD' button once the attachment is uploaded.
 3. Provide us with a Subcontractor list so that they are able to easily distribute information to their subs via Procore.
 4. Submittals must be created in the software:
 - a. Submittal titles must be by specification section. Grouping multiple specification sections into one submittal will result in immediate rejection.
 - b. The Contractor will be responsible for submitting all RFIs and Submittals through the software and assigning them to the appropriate parties.
 - c. Architects / Engineers / Consultants etc. are responsible for posting all responses to these items via the software, including all relevant attachments.
 - d. The Contractor will distribute responses to all affected subcontractors and confirm agreement with the response by closing the item.
 - e. GC is the only one to create submittals. They will create them on behalf of their subs when needed. The subs should never create the submittal themselves.
 - f. Once a submittal is labeled as 'Reject and Resubmit' the GC needs to close it out and create the revision as a completely new submittal. Never create the revision WITHIN the original submittal.
 - g. Distribute and CLOSE all submittals once you have received a sufficient review/response from the Architect/Engineer.
 - h. Be sure to select a spec section for submittals.
 5. Project Schedules must be uploaded to the software in one of the following accepted formats:
 - a. Microsoft Project
 - b. Primavera P3
 - c. Primavera P6
 - d. Asta Powerpoint
 6. Emails must be generated in the software
 7. Daily Logs must be created in the software
 8. RFI's must be created in the software
 9. All project photos must be uploaded to the software

3.02 PRECONSTRUCTION MEETING

- A. Engineer/Architect will schedule a meeting within 7 days after Notice of Award.
- B. Attendance Required:
 1. Owner.
 2. Engineer/Architect.
 3. Contractor.
- C. Agenda:
 1. Execution of Owner-Contractor Agreement.
 2. Submission of executed bonds and insurance certificates.
 3. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
 4. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
 5. Owners requirements and work constraints.
- D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Engineer/Architect, Owner, participants, and those affected by decisions made.

3.03 PROGRESS MEETINGS

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- A. Schedule and administer meetings throughout progress of the Work at maximum monthly intervals.
- B. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
- C. Attendance Required:
 - 1. Contractor.
 - 2. Owner.
 - 3. Engineer/Architect.
 - 4. Contractor's superintendent.
 - 5. Major subcontractors.
- D. Agenda:
 - 1. Review minutes of previous meetings.
 - 2. Review of work progress.
 - 3. Field observations, problems, and decisions.
 - 4. Identification of problems that impede, or will impede, planned progress.
 - 5. Review of submittals schedule and status of submittals.
 - 6. Review of off-site fabrication and delivery schedules.
 - 7. Maintenance of progress schedule.
 - 8. Corrective measures to regain projected schedules.
 - 9. Planned progress during succeeding work period.
 - 10. Maintenance of quality and work standards.
 - 11. Effect of proposed changes on progress schedule and coordination.
 - 12. Other business relating to work.
- E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Engineer/Architect, Owner, participants, and those affected by decisions made.

3.04 CONSTRUCTION PROGRESS SCHEDULE

- A. If preliminary schedule requires revision after review, submit revised schedule within 10 days.
- B. Within 7 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
 - 1. Include written certification that major contractors have reviewed and accepted proposed schedule.
- C. Within 3 days after joint review, submit complete schedule.
- D. Submit updated schedule with each Application for Payment.

3.05 REQUESTS FOR INTERPRETATION (RFI)

- A. Definition: A request seeking one of the following:
 - 1. An interpretation, amplification, or clarification of some requirement of Contract Documents arising from inability to determine from them the exact material, process, or system to be installed; or when the elements of construction are required to occupy the same space (interference); or when an item of work is described differently at more than one place in Contract Documents.
- B. Preparation: Prepare an RFI immediately upon discovery of a need for interpretation of Contract Documents. Failure to submit a RFI in a timely manner is not a legitimate cause for claiming additional costs or delays in execution of the work.
 - 1. Prepare a separate RFI for each specific item.
 - 2. Combine RFI and its attachments into a single electronic file. PDF format is preferred.
- C. Reason for the RFI: Prior to initiation of an RFI, carefully study all Contract Documents to confirm that information sufficient for their interpretation is definitely not included.
 - 1. Include in each request Contractor's signature attesting to good faith effort to determine from Contract Documents information requiring interpretation.
 - 2. Unacceptable Uses for RFIs: Do not use RFIs to request the following::

- a. Approval of submittals (use procedures specified elsewhere in this section).
 - b. Approval of substitutions (see Section - 016000 - Product Requirements)
 - c. Changes that entail change in Contract Time and Contract Sum (comply with provisions of the Conditions of the Contract).
 - d. Different methods of performing work than those indicated in the Contract Drawings and Specifications (comply with provisions of the Conditions of the Contract).
3. Improper RFIs: Requests not prepared in compliance with requirements of this section, and/or missing key information required to render an actionable response. They will be returned without a response, with an explanatory notation.
 4. Frivolous RFIs: Requests regarding information that is clearly indicated on, or reasonably inferable from, Contract Documents, with no additional input required to clarify the question. They will be returned without a response, with an explanatory notation.
- D. Content: Include identifiers necessary for tracking the status of each RFI, and information necessary to provide an actionable response.
1. Official Project name and number, and any additional required identifiers established in Contract Documents.
 2. Owner's, Engineer/Architect's, and Contractor's names.
 3. Discrete and consecutive RFI number, and descriptive subject/title.
 4. Issue date, and requested reply date.
 5. Reference to particular Contract Document(s) requiring additional information/interpretation. Identify pertinent drawing and detail number and/or specification section number, title, and paragraph(s).
 6. Annotations: Field dimensions and/or description of conditions which have engendered the request.
 7. Contractor's suggested resolution: A written and/or a graphic solution, to scale, is required in cases where clarification of coordination issues is involved, for example; routing, clearances, and/or specific locations of work shown diagrammatically in Contract Documents. If applicable, state the likely impact of the suggested resolution on Contract Time or the Contract Sum.
- E. Attachments: Include sketches, coordination drawings, descriptions, photos, submittals, and other information necessary to substantiate the reason for the request.
- F. RFI Log: Prepare and maintain a tabular log of RFIs for the duration of the project.
1. Maintain on the Electronic Document Submittal Service.
- G. Review Time: Engineer/Architect will respond and return RFIs to Contractor within seven calendar days of receipt. For the purpose of establishing the start of the mandated response period, RFIs received after 12:00 noon will be considered as having been received on the following regular working day.
1. Response period may be shortened or lengthened for specific items, subject to mutual agreement, and recorded in a timely manner in progress meeting minutes.
- H. Responses: Content of answered RFIs will not constitute in any manner a directive or authorization to perform extra work or delay the project. If in Contractor's belief it is likely to lead to a change to Contract Sum or Contract Time, promptly issue a notice to this effect, and follow up with an appropriate Change Order request to Owner.
1. Response may include a request for additional information, in which case the original RFI will be deemed as having been answered, and an amended one is to be issued forthwith. Identify the amended RFI with an R suffix to the original number.
 2. Do not extend applicability of a response to specific item to encompass other similar conditions, unless specifically so noted in the response.
 3. Upon receipt of a response, promptly review and distribute it to all affected parties, and update the RFI Log.
 4. Notify Engineer/Architect within seven calendar days if an additional or corrected response is required by submitting an amended version of the original RFI, identified as specified above.

3.06 SUBMITTAL SCHEDULE

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- A. Submit to Engineer/Architect for review a schedule for submittals in tabular format.
 - 1. Submit at the same time as the preliminary schedule specified in Section - 013216 - Construction Progress Schedule.

3.07 SUBMITTALS FOR REVIEW

- A. When the following are specified in individual sections, submit them for review:
 - 1. Product data.
 - 2. Shop drawings.
 - 3. Samples for selection.
 - 4. Samples for verification.
- B. The contractor who prepared the submittals for review must represent that they are licensed and qualified to perform the work in the submittal, and said work is in full compliance with applicable codes.
- C. Stamping the Submittals: The General Contractor is not required to stamp the submittal prior to submission to the Architect/Engineer for their review. However; it is highly encouraged, and if there is no General Contractor review stamp on a submittal then by default the General Contractor has agreed with the following statement:
 - 1. Acceptance is for general compliance with the contract documents only. The contractor is responsible for confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques for construction; coordinating its work with that of all other trades; and performing its work in a safe and satisfactory manner.
- D. The contractor agrees that all submittals have been reviewed by the Architect and/or Engineer only for conformance with the design concept of the project and with the information delineated in the contract drawings and specifications. A returned review whether marked as "No Exceptions" or "Exceptions as Noted" does not waive any provisions of the contract documents. Contractor shall verify all details, dimensions and quantities, and coordinate with the work of other trades. Architect and/or Engineer's review of a submittal shall not relieve the contractor from responsibility for deviations, errors, or omissions in the shop drawings or submittals.
- E. Samples will be reviewed for aesthetic, color, or finish selection.
- F. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 017800 - Closeout Submittals.

3.08 SUBMITTALS FOR INFORMATION

- A. When the following are specified in individual sections, submit them for information:
 - 1. Design data.
 - 2. Certificates.
 - 3. Test reports.
 - 4. Inspection reports.
 - 5. Manufacturer's instructions.
 - 6. Manufacturer's field reports.
 - 7. Other types indicated.

3.09 SUBMITTALS FOR PROJECT CLOSEOUT

- A. Submit Correction Punch List for Substantial Completion.
- B. Submit Final Correction Punch List for Substantial Completion.
- C. When the following are specified in individual sections, submit them at project closeout in compliance with requirements of Section 017800 - Closeout Submittals:
 - 1. Project record documents.
 - 2. Operation and maintenance data.
 - 3. Warranties.
 - 4. Bonds.
 - 5. Other types as indicated.

- D. Submit for Owner's benefit during and after project completion.

3.10 SUBMITTAL PROCEDURES

A. General Requirements:

1. Use a separate transmittal for each item.
2. Transmit using approved form.
 - a. Use Contractor's form, subject to prior approval by Engineer/Architect.
3. Sequentially identify each item. For revised submittals use original number and a sequential numerical suffix.
4. Identify: Project; Contractor; subcontractor or supplier; pertinent drawing and detail number; and specification section number and article/paragraph, as appropriate on each copy.
5. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the work and Contract Documents.
 - a. Submittals from sources other than the Contractor, or without Contractor's stamp will not be acknowledged, reviewed, or returned.
6. Deliver each submittal on date noted in submittal schedule, unless an earlier date has been agreed to by all affected parties, and is of the benefit to the project.
 - a. Upload submittals in electronic form to Electronic Document Submittal Service website.
7. Schedule submittals to expedite the Project, and coordinate submission of related items.
 - a. For each submittal for review, allow 10 working days excluding delivery time to and from the Contractor.
 - b. For sequential reviews involving Engineer/Architect's consultants, Owner, or another affected party, allow an additional 7 working days.
8. Identify variations from Contract Documents and product or system limitations that may be detrimental to successful performance of the completed work.
9. When revised for resubmission, identify all changes made since previous submission.
10. Incomplete submittals will not be reviewed, unless they are partial submittals for distinct portion(s) of the work, and have received prior approval for their use.

B. Product Data Procedures:

1. Submit only information required by individual specification sections.
2. Collect required information into a single submittal.
3. Do not submit (Material) Safety Data Sheets for materials or products.
4. Submit manufacturer's standard published data. **Where multiple choices occur on a submittal, it will be the Contractor's responsibility to clearly mark in contrasting color by means of underlining, highlighting, circling, ect... each copy to identify applicable products, models, options, and other data.** Unmarked copies will be immediately rejected and sent back to the General Contractor. Supplement manufacturers' standard data to provide information specific to this Project.

C. Shop Drawing Procedures:

1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting Contract Documents and coordinating related work.
2. Do not reproduce Contract Documents to create shop drawings.
3. Generic, non-project-specific information submitted as shop drawings do not meet the requirements for shop drawings.
4. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances. **Canned or Typical drawings, unless they specifically apply to the project, will be immediatly rejected.**

D. Samples Procedures:

1. Transmit related items together as single package.

2. Identify each item to allow review for applicability in relation to shop drawings showing installation locations.
3. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
 - a. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.
 - b. **All submissions for the choosing of a products color must be physical samples indicating the products true and final color.** Digital and or printed samples will not be accepted.
- E. Transmit each submittal with a copy of approved submittal identification form.
- F. Contractor bears responsibility for all additional costs or work associated with work performed or materials installed prior to a returned approved submittal.

3.11 SUBMITTAL REVIEW

- A. Submittals for Review: Engineer/Architect will review each submittal, and provide no exceptions, or take other appropriate action.
- B. Submittals for Information: Engineer/Architect will acknowledge receipt and review. See below for actions to be taken.
- C. Engineer/Architect's actions will be reflected by marking each returned submittal using virtual stamp on electronic submittals.
- D. Engineer/Architect's actions on items submitted for review:
 1. No Exceptions
 - a. Purchase, Fabrication, delivery, and/or installation may take place.
 2. Exceptions as Noted
 - a. Contractor's option to resubmit. However; all mark ups must be incorporated in the construction whether acknowledged in a resubmittal or not.
 3. Revise and Resubmit
 - a. Must be resubmitted
 4. Incomplete Submittal
 - a. Must be resubmitted
 5. Submit Specified Item
 - a. Must be resubmitted
 6. Submittal Rejected
 - a. Must be resubmitted
- E. Engineer/Architect's and consultants' actions on items submitted for information:

END OF SECTION

**SECTION 014000
QUALITY REQUIREMENTS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Submittals.
- B. Quality assurance.
- C. References and standards.
- D. Testing and inspection agencies and services.
- E. Control of installation.
- F. Tolerances.
- G. Manufacturers' field services.
- H. Defect Assessment.

1.02 REFERENCE STANDARDS

- A. ASTM C1077 - Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation 2017.
- B. ASTM D3740 - Standard Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction 2019.
- C. **CIRCLE ONE: ADDITIVE ALTERNATE DEDUCTIVE ALTERNATE**

1.03 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Test Reports: After each test/inspection, promptly submit two copies of report to Engineer/Architect and to Contractor.
 - 1. Include:
 - a. Date issued.
 - b. Project title and number.
 - c. Name of inspector.
 - d. Date and time of sampling or inspection.
 - e. Identification of product and specifications section.
 - f. Location in the Project.
 - g. Type of test/inspection.
 - h. Date of test/inspection.
 - i. Results of test/inspection.
 - j. Compliance with Contract Documents.
 - k. When requested by Engineer/Architect, provide interpretation of results.
- C. Certificates: When specified in individual specification sections or by code, submit certification by the manufacturer and Contractor or installation/application subcontractor to Engineer/Architect, in quantities specified for Product Data.
 - 1. Indicate material or product complies with or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

1.04 QUALITY ASSURANCE

- A. Testing Agency Qualifications:
 - 1. Prior to start of work, submit agency name, address, and telephone number, and names of full time registered Engineer and responsible officer.
 - 2. Submit copy of report of laboratory facilities inspection made by NIST Construction Materials Reference Laboratory during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.

1.05 REFERENCES AND STANDARDS

- A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Comply with reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.
- C. Obtain copies of standards where required by product specification sections.
- D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.
- E. Should specified reference standards conflict with Contract Documents, request clarification from Engineer/Architect before proceeding.
- F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Engineer/Architect shall be altered from Contract Documents by mention or inference otherwise in any reference document.

1.06 TESTING AND INSPECTION AGENCIES AND SERVICES

- A. As indicated in individual specification sections, Contractor shall employ and pay for services of an independent testing agency to perform other specified testing.

PART 3 EXECUTION

2.01 CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer/Architect before proceeding.
- D. Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Have work performed by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

2.02 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Engineer/Architect before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

2.03 TESTING AND INSPECTION

- A. Testing Agency Duties:
 1. Test samples of mixes submitted by Contractor.
 2. Provide qualified personnel at site. Cooperate with Engineer/Architect and Contractor in performance of services.
 3. Perform specified sampling and testing of products in accordance with specified standards.
 4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 5. Promptly notify Engineer/Architect and Contractor of observed irregularities or non-compliance of Work or products.

6. Perform additional tests and inspections required by Engineer/Architect.
 7. Submit reports of all tests/inspections specified.
- B. Limits on Testing/Inspection Agency Authority:
1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
 2. Agency may not approve or accept any portion of the Work.
 3. Agency may not assume any duties of Contractor.
 4. Agency has no authority to stop the Work.
- C. Contractor Responsibilities:
1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
 2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
 3. Provide incidental labor and facilities:
 - a. To provide access to Work to be tested/inspected.
 - b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
 - c. To facilitate tests/inspections.
 - d. To provide storage and curing of test samples.
 4. Notify Engineer/Architect and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
 5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
 6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
- D. Re-testing required because of non-compliance with specified requirements shall be performed by the same agency on instructions by Engineer/Architect.
- E. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.

2.04 MANUFACTURERS' FIELD SERVICES

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, as applicable, and to initiate instructions when necessary.
- B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

2.05 DEFECT ASSESSMENT

- A. Replace Work or portions of the Work not complying with specified requirements.
- B. If, in the opinion of Engineer/Architect, it is not practical to remove and replace the work, Engineer/Architect will direct an appropriate remedy or adjust payment.

END OF SECTION

**SECTION 016000
PRODUCT REQUIREMENTS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. General product requirements.
- B. Transportation, handling, storage and protection.
- C. Product option requirements.
- D. Substitution limitations.
- E. Maintenance materials, including extra materials, spare parts, tools, and software.
- F. Non Asbestos containing materials certification.

1.02 RELATED REQUIREMENTS

- A. Section 012500 - Substitution Procedures: Substitutions made during procurement and/or construction phases.
- B. Section 014000 - Quality Requirements: Product quality monitoring.
- C. Section 017419 - Construction Waste Management and Disposal: Waste disposal requirements potentially affecting product selection, packaging and substitutions.

1.03 SUBMITTALS

- A. Refer to Section 013000 Administrative Requirements for additional submittal requirements not indicated herein.
- B. Proposed Products List: Submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
 - 1. Submit within 7 days after date of Agreement of Notice of intent to award, whichever is sooner..
 - 2. For products specified only by reference standards, list applicable reference standards.
- C. Product Data Submittals: Submit manufacturer's standard published data. **Where multiple choices occur on a submittal, it will be the Contractor's responsibility to clearly mark in contrasting color by means of underlining, highlighting, circling, ect... each copy to identify applicable products, models, options, and other data.** Unmarked copies will be rejected and sent back to the General Contractor. Supplement manufacturers' standard data to provide information specific to this Project.
- D. Shop Drawing Submittals: All shop drawings and details MUST be prepared specifically for this project; indicate all materials, all products, all connections, all dimensions, all utility and electrical characteristics, all utility connection requirements, and location of utility outlets for service for functional equipment and appliances. **Canned or Product/Company Typical drawings, unless they specifically apply to the project, will be rejected - No Exceptions.**

PART 2 PRODUCTS

2.01 NEW PRODUCTS

- A. Provide new products unless specifically required or permitted by Contract Documents.
- B. Use of products having any of the following characteristics is not permitted:
 - 1. Made using or containing CFC's or HCFC's.
 - 2. Containing lead, cadmium, or asbestos.

2.02 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.

1. Where more than one manufacturer is specified for one use, the Drawings have been prepared for the one listed first; and building adjustments may be necessary to accommodate the others. The Contractor will be responsible for any changes in the building construction required due to product selection and shall make any such changes to the satisfaction of the Architect.
- C. If products are specified by naming one or more manufacturers with a provision for substitutions by "or approved equal" or "equal as approved," then the Bidder shall submit a request for substitution for any manufacturer not named **PRIOR TO BIDDING**. It must be approved by the Architect/Engineer through formal addendum in order for it to be accepted as a substitution.
- D. If products are specified by naming one or more manufacturers with a provision for substitutions by "or equal," then the General Contractor after bid award shall submit a request for substitution for any manufacturer not named. After review by the Architect/Engineer, if the substitution manufacturer or product is found not to be equal to those items specified, then the General Contractor will be required to provide those products specified or find an or equal product.

2.03 MAINTENANCE MATERIALS

- A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.
- B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 SUBSTITUTION LIMITATIONS

- A. See Section 012500 - Substitution Procedures.
- B. Substitution Submittal Procedure:
 1. Submit substitution request at least 10 days prior to bid.
 2. The Architect/Engineer will notify all bidders via addendum of decision to accept a request.

3.02 TRANSPORTATION AND HANDLING

- A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.
- B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.
- C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
- D. Transport and handle products in accordance with manufacturer's instructions.
- E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
- F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.
- H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.03 STORAGE AND PROTECTION

- A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication. See Section 017419.
- B. Store and protect products in accordance with manufacturers' instructions.
- C. Store with seals and labels intact and legible.
- D. Store sensitive products in weathertight, climate-controlled enclosures in an environment favorable to product.

- E. For exterior storage of fabricated products, place on sloped supports above ground.
- F. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.
- G. Comply with manufacturer's warranty conditions, if any.
- H. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- I. Prevent contact with material that may cause corrosion, discoloration, or staining.
- J. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- K. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

3.04 PRODUCT CERTIFICATION

- A. Submit letter on company letterhead and signed by company executive stating and certifying that "This project (insert project name, description, and location) has been completed and that no asbestos containing materials were found at the project site that were not properly remedied and that no new materials were used or installed that contain asbestos." Final pay application will not be processed until certification is received.

END OF SECTION

**SECTION 017000
EXECUTION AND CLOSEOUT REQUIREMENTS**

PART 1 GENERAL**1.01 SECTION INCLUDES**

- A. Examination, preparation, and general installation procedures.
- B. Pre-installation meetings.
- C. Cleaning and protection.
- D. Closeout procedures, including Contractor's Correction Punch List, except payment procedures.
- E. General requirements for maintenance service.

1.02 RELATED REQUIREMENTS

- A. Section 013000 - Administrative Requirements: Submittals procedures, Electronic document submittal service.
- B. Section 014000 - Quality Requirements: Testing and inspection procedures.
- C. Section 017800 - Closeout Submittals: Project record documents, operation and maintenance data, warranties, and bonds.
- D. Section 024100 - Demolition: Demolition of whole structures and parts thereof; site utility demolition.

1.03 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.

1.04 QUALIFICATIONS

- A. For asbestos demolition work, employ a firm specializing in the type of work required.
 - 1. Minimum of 5 years of documented experience.

1.05 PROJECT CONDITIONS

- A. Use of explosives is not permitted.
- B. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

1.06 COORDINATION

- A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Notify affected utility companies and comply with their requirements.
- C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing indicated for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- F. Coordinate completion and clean-up of work of separate sections.
- G. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 PRODUCTS**PART 3 EXECUTION****3.01 EXAMINATION**

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.
- E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 PREINSTALLATION MEETINGS

- A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section. A preinstall meeting with the contractor, roofing vendor, and Architect/Engineer will be required.
- B. Require attendance of parties directly affecting, or affected by, work of the specific section.
- C. Notify Engineer/Architect four days in advance of meeting date.
- D. Prepare agenda and preside at meeting:
 - 1. Review conditions of examination, preparation and installation procedures.
 - 2. Review coordination with related work.
- E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Engineer/Architect, Owner, participants, and those affected by decisions made.

3.04 GENERAL INSTALLATION REQUIREMENTS

- A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.05 ALTERATIONS

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
 - 1. Verify that construction and utility arrangements are as indicated.
 - 2. Report discrepancies to Engineer/Architect before disturbing existing installation.
 - 3. Beginning of alterations work constitutes acceptance of existing conditions.

- B. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
 - 1. Where openings in exterior enclosure exist, provide construction to make exterior enclosure weatherproof.
 - 2. Insulate existing ducts or pipes that are exposed to outdoor ambient temperatures by alterations work.
- C. Remove existing work as indicated and as required to accomplish new work.
 - 1. Remove rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction specified.
 - 2. Remove items indicated on drawings.
 - 3. Relocate items indicated on drawings.
- D. Protect existing work to remain.
 - 1. Prevent movement of structure; provide shoring and bracing if necessary.
 - 2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
 - 3. Repair adjacent construction and finishes damaged during removal work.
- E. Adapt existing work to fit new work: Make as neat and smooth transition as possible.
 - 1. When existing finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Engineer/Architect.
- F. Comply with all other applicable requirements of this section.

3.06 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.07 PROTECTION OF INSTALLED WORK

- A. Protect installed work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- D. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

3.08 FINAL CLEANING

- A. Execute final cleaning after Substantial Completion but before making final application for payment.
 - 1. Clean areas to be occupied by Owner prior to final completion before Owner occupancy.
- B. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.09 CLOSEOUT PROCEDURES

- A. Make submittals that are required by governing or other authorities.
 - 1. Provide copies to Engineer/Architect and Owner.
- B. Accompany Project Coordinator on preliminary inspection to determine items to be listed for completion or correction in the Contractor's Correction Punch List for Contractor's Notice of Substantial Completion.
- C. Notify Engineer/Architect when work is considered ready for Engineer/Architect's Substantial Completion inspection.
- D. Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Engineer/Architect's Substantial

Completion inspection.

- E. Conduct Substantial Completion inspection and create Final Correction Punch List containing Engineer/Architect's and Contractor's comprehensive list of items identified to be completed or corrected and submit to Engineer/Architect.
- F. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.
- G. Notify Engineer/Architect when work is considered finally complete and ready for Engineer/Architect's Substantial Completion final inspection.
- H. Complete items of work determined by Engineer/Architect listed in executed Certificate of Substantial Completion.

3.10 MAINTENANCE

- A. Provide service and maintenance of components indicated in specification sections.
- B. Maintenance Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty, whichever is longer.
- C. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the Owner.

END OF SECTION

**SECTION 017800
CLOSEOUT SUBMITTALS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Project record documents.
- B. Operation and maintenance data.
- C. Warranties and bonds.

1.02 RELATED REQUIREMENTS

- A. Section 013000 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.
- B. Section 017000 - Execution and Closeout Requirements: Contract closeout procedures.
- C. Individual Product Sections: Specific requirements for operation and maintenance data.
- D. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

- A. Project Record Documents: Submit documents to Engineer/Architect with claim for final Application for Payment.
- B. Operation and Maintenance Data:
 - 1. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
 - 2. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Engineer/Architect comments. Revise content of all document sets as required prior to final submission.
 - 3. Submit two sets of revised final documents in final form within 10 days after final inspection.
- C. Warranties and Bonds:
 - 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
 - 2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
 - 3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 3 EXECUTION

2.01 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Addenda.
 - 3. Change Orders and other modifications to the Contract.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.
- E. Record Drawings: Legibly mark each item to record actual construction including:
 - 1. Field changes of dimension and detail.
 - 2. Details not on original Contract drawings.

2.02 WARRANTIES AND BONDS

- A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for

items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial completion is determined.

- B. Verify that documents are in proper form, contain full information, and are notarized.
- C. Co-execute submittals when required.
- D. Retain warranties and bonds until time specified for submittal.

END OF SECTION

**SECTION 024100
DEMOLITION****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Selective demolition of built site elements.

1.02 REFERENCE STANDARDS

- A. 29 CFR 1926 - Safety and Health Regulations for Construction Current Edition.
- B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations 2022.

1.03 DEFINITIONS

- A. Removal of Obstructions: This work shall consist of the removal and satisfactory disposal of all items and obstructions which are not designated to remain. This work also consists of necessary excavation incidental to the removal of structures and obstructions.

PART 3 EXECUTION**2.01 DEMOLITION**

- A. Remove items as indicated on the drawings.
 1. Milestone #1 - Area shown on C201
 - a. Existing reefer plugs to be disconnected and removed. Plugs and plug covers should be provided to the owner. Contractor to coordinate delivery with the owner.
 - b. Core existing asphalt and install new reefer plug supports.
 - c. Install reefer plugs and reconnect to existing electrical conductor.
 - d. Test each reefer plug to ensure they're operational.
 - e. Once all work has been approved by the engineer-of-record and the owner, then the contractor can proceed to the area of Milestone #2.
 2. Milestone #2 - Area shown on C201
 - a. Existing reefer plugs to be disconnected and removed. Plugs and plug covers should be provided to the owner. Contractor to coordinate delivery with the owner.
 - b. Core existing asphalt and install new reefer plug supports.
 - c. Install reefer plugs and reconnect to existing electrical conductor.
 - d. Test each reefer plug to ensure they're operational.
 - e. Once all work has been approved by the engineer-of-record and the owner, then the contractor can proceed to the area of Milestone #3.
 3. Milestone #3 - Area shown on C201
 - a. Existing reefer plugs to be disconnected and removed. Plugs and plug covers should be provided to the owner. Contractor to coordinate delivery with the owner.
 - b. Core existing asphalt and install new reefer plug supports.
 - c. Install reefer plugs and reconnect to existing electrical conductor.
 - d. Test each reefer plug to ensure they're operational.
 - e. Once all work has been approved by the engineer-of-record and the owner, then the contractor can proceed to the area of Milestone #4.
 4. Milestone #4 - Area shown on C201
 - a. Existing reefer plugs to be disconnected and removed. Plugs and plug covers should be provided to the owner. Contractor to coordinate delivery with the owner.
 - b. Core existing asphalt and install new reefer plug supports.
 - c. Install reefer plugs and reconnect to existing electrical conductor.
 - d. Test each reefer plug to ensure they're operational.
 - e. Once all work has been approved by the engineer-of-record and the owner, then the contractor can proceed to the area of Milestone #5.
 5. Milestone #5 - Area shown on C201
 - a. Existing reefer plugs to be disconnected and removed. Plugs and plug covers should be provided to the owner. Contractor to coordinate delivery with the owner.

- b. Core existing asphalt and install new reefer plug supports.
 - c. Install reefer plugs and reconnect to existing electrical conductor.
 - d. Test each reefer plug to ensure they're operational.
 - e. Once all work has been approved by the engineer-of-record and the owner, then the contractor can proceed to the area of Milestone #6.
6. Milestone #6 - Area shown on C201
- a. Existing reefer plugs to be disconnected and removed. Plugs and plug covers should be provided to the owner. Contractor to coordinate delivery with the owner.
 - b. Core existing asphalt and install new reefer plug supports.
 - c. Install reefer plugs and reconnect to existing electrical conductor.
 - d. Test each reefer plug to ensure they're operational.
 - e. Once all work has been approved by the engineer-of-record and the owner, then the contractor can proceed to the project closeout process.
7. Milestone #7 - Area shown on C202
- a. Existing reefer plugs to be disconnected and removed. Plugs and plug covers should be provided to the owner. Contractor to coordinate delivery with the owner.
 - b. Core existing asphalt and install new reefer plug supports.
 - c. Install reefer plugs and reconnect to existing electrical conductor.
 - d. Test each reefer plug to ensure they're operational.
 - e. Once all work has been approved by the engineer-of-record and the owner, then the contractor can proceed to the project closeout process.

2.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

- A. The Contractor will be required to conduct a site visit to field inspect and verify all existing conditions as it relates to the scope of work described in the drawings and specifications, and if necessary, submit an RFI to the Architect/Engineer and the Owner to bring up any potential conflicts.
- B. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
 - 1. Obtain required permits.
 - 2. Use of explosives is not permitted.
 - 3. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
 - 4. Provide, erect, and maintain temporary barriers and security devices.
 - 5. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
 - 6. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
 - 7. Do not close or obstruct roadways or sidewalks without permits from authority having jurisdiction.
 - 8. Conduct operations to minimize obstruction of public and private entrances and exits. Do not obstruct required exits at any time. Protect persons using entrances and exits from removal operations.
 - 9. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon, or limit access to their property.
- C. Do not begin removal until receipt of notification to proceed from Owner.
- D. Do not begin removal until built elements to be salvaged or relocated have been removed.
- E. Protect existing structures and other elements to remain in place and not removed.
 - 1. Provide bracing and shoring.
 - 2. Prevent movement or settlement of adjacent structures.
 - 3. Stop work immediately if adjacent structures appear to be in danger.
- F. Minimize production of dust due to demolition operations. Do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

2.03 EXISTING UTILITIES

- A. Coordinate work with utility companies. Notify utilities before starting work, comply with their requirements, and obtain required permits.
- B. Protect existing utilities to remain from damage.
- C. Do not disrupt public utilities without permit from authority having jurisdiction.
- D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.
- E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.
- F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.
- G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

2.04 REPAIR

- A. Unless otherwise indicated or directed on the drawings or elsewhere in the specifications, it will be the Contractor's responsibility to patch and repair all surfaces to match adjacent existing conditions where items are removed or altered.
- B. Exterior wall repair must not compromise the existing drainage plain.
- C. Roof repairs must not void or compromise the existing roof warranty.
- D. The Contractor will be required to conduct a site visit to field inspect and verify all existing conditions as it relates to the scope of work described in the drawings and specifications, and if necessary, submit an RFI to the Architect/Engineer and the Owner to bring up any potential conflicts.

2.05 DEBRIS AND WASTE REMOVAL

- A. Remove debris, junk, and trash from site.
- B. Remove materials not to be reused on site.
- C. Leave site in clean condition, ready for subsequent work.
- D. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

**SECTION 033000
CAST-IN-PLACE CONCRETE**

PART 1 GENERAL**1.01 SECTION INCLUDES**

- A. Reefer plug pedestal supports.

1.02 RELATED REQUIREMENTS

- A. Section 079200 - Joint Sealants: Products and installation for sealants and joint fillers for saw cut joints and isolation joints in slabs.

1.03 REFERENCE STANDARDS

- A. ACI 117 - Specification for Tolerances for Concrete Construction and Materials 2010 (Reapproved 2015).
- B. ACI 211.1 - Selecting Proportions for Normal-Density and High Density-Concrete - Guide 2022.
- C. ACI 301 - Specifications for Concrete Construction 2020.
- D. ACI 302.1R - Guide to Concrete Floor and Slab Construction 2015.
- E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete 2000 (Reapproved 2009).
- F. ACI 305R - Guide to Hot Weather Concreting 2020.
- G. ACI 306R - Guide to Cold Weather Concreting 2016.
- H. ACI 308R - Guide to External Curing of Concrete 2016.
- I. ACI 318 - Building Code Requirements for Structural Concrete 2019 (Reapproved 2022).
- J. ASTM C33/C33M - Standard Specification for Concrete Aggregates 2018.
- K. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens 2021.
- L. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete 2022a.
- M. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete 2020.
- N. ASTM C150/C150M - Standard Specification for Portland Cement 2022.
- O. ASTM C171 - Standard Specification for Sheet Materials for Curing Concrete 2020.
- P. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method 2016.
- Q. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete 2010a (Reapproved 2016).
- R. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete 2019.
- S. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete 2019, with Editorial Revision (2022).
- T. ASTM C618 - Standard Specification for Coal Ash and Raw or Calcined Natural Pozzolan for Use in Concrete 2023.
- U. ASTM C1240 - Standard Specification for Silica Fume Used in Cementitious Mixtures 2020.
- V. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete 2018.
- W. ASTM D2103 - Standard Specification for Polyethylene Film and Sheeting 2015.

1.04 SUBMITTALS

- A. Mix Design: Submit proposed concrete mix design.
 - 1. Indicate proposed mix design complies with requirements of ACI 301, Section 4 - Concrete Mixtures.

2. Indicate proposed mix design complies with requirements of ACI 318, Chapter 5 - Concrete Quality, Mixing and Placing.

- B. Test Reports: Submit report for each test or series of tests specified.

1.05 QUALITY ASSURANCE

- A. Perform work of this section in accordance with ACI 301 and ACI 318.

PART 2 PRODUCTS

2.01 CONCRETE MATERIALS

- A. Cement: ASTM C150/C150M, Type I - Normal Portland type.
 1. Acquire cement for entire project from same source.
- B. Fine and Coarse Aggregates: ASTM C33/C33M.
 1. Acquire aggregates for entire project from same source.
- C. Fly Ash: ASTM C618, Class C or F.
- D. Calcined Pozzolan: ASTM C618, Class N.
- E. Silica Fume: ASTM C1240, proportioned in accordance with ACI 211.1.
- F. Water: ASTM C1602/C1602M; clean, potable, and not detrimental to concrete.

2.02 ADMIXTURES

- A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.
- B. Air Entrainment Admixture: ASTM C260/C260M.

2.03 CURING MATERIALS

- A. Polyethylene Film: ASTM D2103, 15 mil thick, clear.

2.04 CONCRETE MIX DESIGN

- A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
 1. Replace as much Portland cement as possible with fly ash, ground granulated blast furnace slag, silica fume, or rice hull ash as is consistent with ACI recommendations.
- B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
 1. For trial mixtures method, employ independent testing agency acceptable to Engineer/Architect for preparing and reporting proposed mix designs.
- C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.
- D. Normal Weight Concrete:
 1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 3,500.
 2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.
 3. Calcined Pozzolan Content: Maximum 10 percent of cementitious materials by weight.
 4. Silica Fume Content: Maximum 5 percent of cementitious materials by weight.
 5. Water-Cement Ratio: Maximum 40 percent by weight.
 6. Total Air Content: 4 percent, determined in accordance with ASTM C173/C173M.
 7. Maximum Slump: 3 inches.
 8. Maximum Aggregate Size: 5/8 inch.

2.05 MIXING

- A. Transit Mixers: Comply with ASTM C94/C94M.
- B. Adding Water: If concrete arrives on-site with slump less than suitable for placement, do not add water that exceeds the maximum water-cement ratio or exceeds the maximum permissible slump.

PART 3 EXECUTION

0297.22.003 / Reefer Plug Replacement and Mitigation	033000 - 2	Cast-in-Place Concrete
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3.01 EXAMINATION

- A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.02 PLACING CONCRETE

- A. Place concrete in accordance with ACI 304R.
- B. Place concrete for floor slabs in accordance with ACI 302.1R.
- C. Notify Engineer/Architect not less than 24 hours prior to commencement of placement operations.
- D. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
- E. Ensure reinforcement, inserts, waterstops, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.
- F. Place concrete continuously without construction (cold) joints wherever possible; where construction joints are necessary, before next placement prepare joint surface by removing laitance and exposing the sand and sound surface mortar, by sandblasting or high-pressure water jetting.
- G. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

3.03 CONCRETE FINISHING

- A. Repair surface defects, including tie holes, immediately after removing formwork.
- B. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Provide finish as follows:
 1. Smooth Rubbed Finish: Wet concrete and rub with carborundum brick or other abrasive, not more than 24 hours after form removal.

3.04 CURING AND PROTECTION

- A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
 1. Normal concrete: Not less than seven days.

3.05 FIELD QUALITY CONTROL

- A. An independent testing agency will perform field quality control tests, as specified in Section 014000 - Quality Requirements.
- B. Provide free access to concrete operations at project site and cooperate with appointed firm.
- C. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.
- D. Tests of concrete and concrete materials may be performed at any time to ensure compliance with specified requirements.
- E. Compressive Strength Tests: ASTM C39/C39M, for each test, mold and cure three concrete test cylinders. Obtain test samples for every 100 cubic yards or less of each class of concrete placed.
- F. Perform one slump test for each set of test cylinders taken, following procedures of ASTM C143/C143M.

3.06 DEFECTIVE CONCRETE

- A. Test Results: The testing agency shall report test results in writing to Engineer/Architect and Contractor within 24 hours of test.
- B. Defective Concrete: Concrete not complying with required lines, details, dimensions, tolerances or specified requirements.

- C. Repair or replacement of defective concrete will be determined by the Engineer/Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.
- D. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Engineer/Architect for each individual area.

3.07 PROTECTION

- A. Do not permit traffic over unprotected concrete floor surface until fully cured.

END OF SECTION

**SECTION 051200
STRUCTURAL STEEL FRAMING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Structural steel framing members.

1.02 RELATED REQUIREMENTS

- A. Section 055000 - Metal Fabrications: Steel fabrications affecting structural steel work.

1.03 REFERENCE STANDARDS

- A. AISC (MAN) - Steel Construction Manual 2017.
- B. AISC 303 - Code of Standard Practice for Steel Buildings and Bridges 2022.
- C. ASTM A36/A36M - Standard Specification for Carbon Structural Steel 2019.
- D. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products 2017.
- E. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2016a.
- F. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength 2021.
- G. ASTM A449 - Standard Specification for Hex Cap Screws, Bolts and Studs, Steel, Heat Treated, 120/105/90 ksi Minimum Tensile Strength, General Use 2014 (Reapproved 2020).
- H. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes 2021a.
- I. ASTM E164 - Standard Practice for Contact Ultrasonic Testing of Weldments 2019.
- J. ASTM E165/E165M - Standard Practice for Liquid Penetrant Testing for General Industry 2018.
- K. ASTM E709 - Standard Guide for Magnetic Particle Testing 2021.
- L. ASTM F1554 - Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength 2020.
- M. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination 2020.
- N. AWS D1.1/D1.1M - Structural Welding Code - Steel 2020, with Errata (2022).
- O. IAS AC172 - Accreditation Criteria for Fabricator Inspection Programs for Structural Steel AC172 2019.
- P. SSPC-SP 3 - Power Tool Cleaning 2018.

1.04 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings:
1. Indicate profiles, sizes, spacing, locations of structural members, openings, attachments, and fasteners.
 2. Connections not detailed.
 3. Indicate cambers and loads.
 4. Indicate welded connections with AWS A2.4 welding symbols. Indicate net weld lengths.
- C. Manufacturer's Mill Certificate: Certify that products meet or exceed specified requirements.
- D. Mill Test Reports: Indicate structural strength, destructive test analysis and non-destructive test analysis.
- E. Fabricator Test Reports: Comply with ASTM A1011/A1011M.
- F. Fabricator's Qualification Statement: Provide documentation showing steel fabricator is accredited under IAS AC172.

1.05 QUALITY ASSURANCE

- A. Fabricate structural steel members in accordance with AISC (MAN) "Steel Construction Manual."
- B. Fabricator: Company specializing in performing the work of this section with minimum 5 years of documented experience.
- C. Fabricator Qualifications: A qualified steel fabricator that is accredited by the International Accreditation Service (IAS) Fabricator Inspection Program for Structural Steel in accordance with IAS AC172.

PART 2 PRODUCTS**2.01 MATERIALS**

- A. Steel Angles and Plates: ASTM A36/A36M.
- B. Cold-Formed Structural Tubing: ASTM A500/A500M, Grade B.
- C. Structural Bolts and Nuts: Carbon steel, ASTM A307, Grade A and galvanized in compliance with ASTM A153/A153M Class C.
- D. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.
- E. Shop and Touch-Up Primer: Fabricator's standard, complying with VOC limitations of authorities having jurisdiction.

2.02 FABRICATION

- A. Shop fabricate to greatest extent possible.

2.03 FINISH

- A. Prepare structural component surfaces in accordance with SSPC-SP 3.
- B. Shop prime structural steel members. Do not prime surfaces that will be fireproofed, field welded, in contact with concrete, or high strength bolted.

2.04 SOURCE QUALITY CONTROL**PART 3 EXECUTION****3.01 EXAMINATION**

- A. Verify that conditions are appropriate for erection of structural steel and that the work may properly proceed.

3.02 ERECTION

- A. Erect structural steel in compliance with AISC 303.
- B. Do not field cut or alter structural members without approval of Engineer/Architect.
- C. After erection, prime welds, abrasions, and surfaces not shop primed, except surfaces to be in contact with concrete.
- D. Grout solidly between column plates and bearing surfaces, complying with manufacturer's instructions for nonshrink grout. Trowel grouted surfaces smooth, splaying neatly to 45 degrees.

3.03 FIELD QUALITY CONTROL

- A. An independent testing agency will perform field quality control tests, as specified in Section 014000 - Quality Requirements.

END OF SECTION

**SECTION 055000
METAL FABRICATIONS**

PART 1 GENERAL**1.01 SECTION INCLUDES**

- A. Shop fabricated steel and aluminum items.

1.02 RELATED REQUIREMENTS

- A. Section 033000 - Cast-in-Place Concrete: Placement of metal fabrications in concrete.
- B. Section 051200 - Structural Steel Framing: Structural steel column anchor bolts.

1.03 REFERENCE STANDARDS

- A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products 2017.
- B. ASTM A283/A283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates 2018.
- C. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength 2021.
- D. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes 2021a.
- E. ASTM A501/A501M - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing 2021.
- F. AWS D1.1/D1.1M - Structural Welding Code - Steel 2020, with Errata (2022).
- G. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer 2004.
- H. SSPC-Paint 20 - Zinc-Rich Coating (Type I - Inorganic, and Type II - Organic) 2019.
- I. SSPC-SP 2 - Hand Tool Cleaning 2018.

1.04 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable. Provide templates for anchors and bolts specified for installation under other Sections. Provide reaction loads for each hanger and bracket.

PART 2 PRODUCTS**2.01 MATERIALS - STEEL**

- A. Steel Tubing: ASTM A501/A501M hot-formed structural tubing.
- B. Plates: ASTM A283/A283M.
- C. Bolts, Nuts, and Washers: ASTM A307, Grade A, plain.
- D. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.
- E. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.
- F. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

2.02 FABRICATION

- A. Fit and shop assemble items in largest practical sections, for delivery to site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

- D. Furnish components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.03 FINISHES - STEEL

- A. Prime paint steel items.
- B. Prepare surfaces to be primed in accordance with SSPC-SP2.
- C. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- D. Prime Painting: One coat.
- E. Galvanizing of Structural Steel Members: Galvanize after fabrication to ASTM A123/A123M requirements. Provide minimum 1.7 oz/sq ft galvanized coating.

2.04 FABRICATION TOLERANCES

- A. Squareness: 1/8 inch maximum difference in diagonal measurements.
- B. Maximum Offset Between Faces: 1/16 inch.
- C. Maximum Misalignment of Adjacent Members: 1/16 inch.
- D. Maximum Bow: 1/8 inch in 48 inches.
- E. Maximum Deviation From Plane: 1/16 inch in 48 inches.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.

3.02 PREPARATION

- A. Supply setting templates to the appropriate entities for steel items required to be embedded in masonry.

3.03 INSTALLATION

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- C. Obtain approval prior to site cutting or making adjustments not scheduled.

3.04 TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch.
- C. Maximum Out-of-Position: 1/4 inch.

END OF SECTION

**SECTION 099113
EXTERIOR PAINTING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Field application of paints.
- C. Scope: Finish exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
- D. Do Not Paint or Finish the Following Items:
 - 1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
 - 2. Items indicated to receive other finishes.
 - 3. Items indicated to remain unfinished.
 - 4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
 - 5. Non-metallic roofing and flashing.
 - 6. Stainless steel, anodized aluminum, bronze, terne-coated stainless steel, zinc, and lead.
 - 7. Marble, granite, slate, and other natural stones.
 - 8. Floors, unless specifically indicated.
 - 9. Ceramic and other types of tiles.
 - 10. Glass.
 - 11. Concealed pipes, ducts, and conduits.

1.02 REFERENCE STANDARDS

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency current edition.
- B. ASTM D4258 - Standard Practice for Surface Cleaning Concrete for Coating 2005 (Reapproved 2017).
- C. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Based Materials 2020.
- D. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual Current Edition.
- E. SSPC V1 (PM1) - Good Painting Practice: Painting Manual Volume 1 2016.
- F. SSPC-SP 1 - Solvent Cleaning 2015, with Editorial Revision (2016).
- G. SSPC-SP 2 - Hand Tool Cleaning 2018.
- H. SSPC-SP 3 - Power Tool Cleaning 2018.
- I. SSPC-SP 13 - Surface Preparation of Concrete 2018.

1.03 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide complete list of products to be used, with the following information for each:
 - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
 - 2. MPI product number (e.g. MPI #47).
 - 3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
- C. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.
 - 1. Where sheen is specified, submit samples in only that sheen.

2. Where sheen is not specified, discuss sheen options with Engineer/Architect before preparing samples, to eliminate sheens not required.
 3. Paint color submittals will not be considered until color submittals for major materials not to be painted, such as factory finished metals, have been approved.
- D. Maintenance Data: Submit data including finish schedule showing where each product/color/finish was used, product technical data sheets, care and cleaning instructions, repair of painted and finished surfaces, and color samples of each color and finish used. Finish Schedule is not required if it matches the Construction Documents.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.
- B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum 5 years experience and approved by manufacturer.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.06 FIELD CONDITIONS

- A. Do not apply materials when surface and ambient temperatures are outside the paint product manufacturer's temperature ranges.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Do not apply exterior paint and finishes during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.
- D. Minimum Application Temperatures for Latex Paints: 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.
- E. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Provide paints and finishes from the same manufacturer to the greatest extent possible.
 1. If a single manufacturer cannot provide specified products, minor exceptions will be permitted provided approval by Engineer/Architect is obtained using the specified procedures for substitutions.
 2. Substitution of MPI-approved products by a different manufacturer is preferred over substitution of unapproved products by the same manufacturer.
 3. Substitution of a different paint system using MPI-approved products by the same manufacturer will be considered.
- B. Paints:
 1. Behr Process Corporation; <>: www.behr.com/#sle.
 2. PPG Paints; <>: www.ppgpaints.com/#sle.
 3. Sherwin-Williams Company; <>: www.sherwin-williams.com/#sle.
- C. Primer Sealers: Same manufacturer as top coats.

2.02 PAINTS AND FINISHES - GENERAL

- A. Paints and Finishes: Ready-mixed, unless required to be a field-catalyzed paint.

1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
 2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
 3. Supply each paint material in quantity required to complete entire project's work from a single production run.
 4. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is described explicitly in manufacturer's product instructions.
- B. Volatile Organic Compound (VOC) Content:
1. Provide paints and finishes that comply with the most stringent requirements specified in the following:
 - a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
 2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.
- C. Flammability: Comply with applicable code for surface burning characteristics.
- D. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Engineer/Architect from the manufacturer's full line.
- E. Colors: Safety Yellow

2.03 PAINT SYSTEMS - EXTERIOR

- A. Exterior Surfaces to be Painted, Unless Otherwise Indicated: Including concrete masonry units and primed metal.
1. Two top coats and one coat primer.
 2. Top Coat(s): Exterior Latex; MPI #10, 11, 15, 119, or 214.
 - a. Metals
 - b. Products:
 - 1) Behr Premium Interior/Exterior Direct-To-Metal Paint Gloss [No. 8200]. (MPI #119)
 - 2) Sherwin-Williams Pro Industrial Acrylic, Semi-Gloss.

2.04 PRIMERS

- A. Primers: Provide the following unless other primer is required or recommended by manufacturer of top coats.
1. Water Based Primer for Galvanized Metal; MPI #134.
 - a. Products:
 - 1) Behr Premium Plus Interior/Exterior Multi-Surface Primer and Sealer [No. 436]. (MPI #134)
 - 2) Sherwin-Williams Pro Industrial Pro-Cryl Universal Primer. (MPI #134)

2.05 ACCESSORY MATERIALS

- A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.
- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially effect proper application.

- C. If substrate preparation is the responsibility of another installer, notify Engineer/Architect of unsatisfactory preparation before proceeding.
- D. Test shop-applied primer for compatibility with subsequent cover materials.

3.02 PREPARATION

- A. Clean surfaces thoroughly and correct defects prior to application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or repair existing paints or finishes that exhibit surface defects.
- D. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces for finishing.
- E. Seal surfaces that might cause bleed through or staining of topcoat.
- F. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- G. Galvanized Surfaces:
 - 1. Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.

3.03 APPLICATION

- A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- B. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".
- C. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.
- D. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- E. Apply each coat to uniform appearance.
- F. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply additional coats until complete hide is achieved.
- G. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- H. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 CLEANING

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.05 PROTECTION

- A. Protect finishes until completion of project.
- B. Touch-up damaged finishes after Substantial Completion.

END OF SECTION

**SECTION 260010
BASIC ELECTRICAL REQUIREMENTS**

PART 1 GENERAL

1.01 DESCRIPTION

- A. This section is an extension of the General Requirements and certain items of a common or administrative nature that pertain to all electrical work.
- B. The work of this section consists of furnishing materials, equipment, constant competent supervision, special tools, test equipment, technicians, and labor necessary for installation of a complete working electrical system as indicated herein and on the Drawings.
- C. The work shall include but not necessarily be limited to the following:
 - 1. Temporary electrical service for construction.
 - 2. Power System.
 - 3. Grounding and Bonding system.

1.02 QUALITY ASSURANCE

- A. The electrical installation shall conform to the requirements of the latest edition of the National Electrical Code (NEC). Notify Architect/Engineer of conflicts before performance.
- B. Electrical material shall be built and tested in accordance with the applicable standards of the (NEMA), (ANSI), (ASTM), and (IEEE).
- C. Electrical materials shall be new and unused and shall be listed and labeled for the service intended by Underwriters' Laboratories, Inc., where such labeling service is available.
- D. Applicable sections of all codes and standards shall also be followed:
 - 1. NFPA – National Fire Protection Association including NFPA-101, Life Safety Code NFPA 70, National Electrical Code
 - 2. OSHA Code of Federal Regulations (for construction practices)
 - 3. International Building Code
 - 4. Applicable state and local codes/ordinances
 - 5. CBM – Certified Ballast Manufacturer
 - 6. IPCEA – Insulated Power Cable Engineers' Association
 - 7. FM – Factory Mutual
 - 8. ETL – Electrical Testing Laboratories
 - 9. IES – Illuminating Engineering Society
 - 10. NFPA – National Fire Protection Association, including NFPA 72

1.03 REGULATORY REQUIREMENTS

- A. Permits: Obtain and pay for all necessary permits, inspections, connection charges, fees, insurance, bond, licenses, and comply with all governing laws, ordinances, rules and regulations.

1.04 COORDINATION

- A. Contractor shall be responsible for coordination of all work with other disciplines.
- B. Arrange work in a neat, well organized manner with exposed conduit and similar services running parallel with primary lines of the building construction, high as possible with a minimum of 8'-0" overhead clearance or as directed by the Engineer.
- C. Where the method of installation is not certain, ask for details. Lack of details, not requested, will not be an excuse for improper installation, and any such work must be corrected at contractor's cost.

1.05 DRAWINGS AND SPECIFICATIONS

- A. Contract Documents (Drawings and Specifications) are intended to convey the scope of work and indicate general arrangements of equipment, fixtures and piping, and approximate sizes and locations of equipment and outlets. Follow these documents in laying out the work, check all Drawings to become familiar with all conditions affecting the work, and verify spaces in

which the work will be installed.

- B. The contractor shall fully coordinate installation of electrical system with other disciplines. The Drawings show approximate locations only of selected feeders, branch circuits, outlets, etc., except where specific routing or dimensions are indicated. The Engineer reserves the right to make reasonable changes in locations indicated before roughing-in without additional cost to the Owner.
1. Contractor shall investigate the structural and finish conditions affecting Division 26 work and shall arrange such work accordingly, furnishing fittings, bends, junction boxes, pull boxes, access panels, and accessories required to meet such conditions.
 2. These Specifications, together with the accompanying Drawings, contemplate apparatus fully erected, and in satisfactory operating condition with the Contractor furnishing and installing everything that may be necessary to complete the job.
 3. Contractor shall install circuits, breakers, equipment, etc. as indicated and label the above as noted. Contractor shall not deviate from equipment/circuit identification unless approved by Owner/Engineer.

1.06 SUBMITTALS

- A. Shop Drawings:
1. Listed below are shop drawings required for transmittal. Refer to Phasing Plan for scheduling of submittal. No time delays will be allowed for failure to be so informed.
 - a. Raceways and Supports
 - b. Connectors
 - c. Conductors and Termination Hardware
 - d. Grounding products
 - e. Further descriptions or information required with shop drawings shall be included with the description of materials specified herein as follows:
 - 1) Grounding Products: Include a complete grounding system diagram with materials and ground conductor sizes.
 - f. Contractor shall provide products as specified if submittals for review of materials are not received within thirty (30) days after award of the Contract.

1.07 PROJECT/SITE CONDITIONS

- A. Visit the site before bidding to become familiar with conditions under which the work will be performed.
- B. No additional compensation will be allowed for failure to be so informed.

1.08 CUTTING AND PATCHING

- A. Do all cutting, patching, fitting, and all other work that may be required to make the several parts come together and fit.
- B. Provide, everything required for the work or to conceal any of the work, in any part of the structure.

1.09 RECORD DRAWINGS

- A. Upon completion of the project, provide a complete set of detailed electronic as-built drawings in AutoCAD 2005 format with all information required. Contractor shall also produce (2) sets of as-built drawings with modifications to construction documents in red ink. Contractor shall maintain a current set of as-built drawings on site at all times. As-built drawings shall include, but not be limited to detailed dimensions of all conduits, ductbank, etc. install in slab or below grade.
1. Equipment Manuals:
 - a. Before the date of substantial completion, Contractor shall furnish to the Architect/Engineer three (3) bound sets of descriptive, dimensional and parts data on all major items of electrical equipment and material including those items listed above under "Shop Drawings:".

1.10 WARRANTY/GUARANTEE

- A. Except where longer periods of warranty are specified, guarantee all labor and materials for a period of twelve (12) months from the date of substantial completion of the particular phase of the work. Repair all defective materials and work; replace with new materials and/or equipment, any material and/or equipment failing to give satisfactory service.
- B. During the period of guarantee, promptly correct any defects in equipment, materials or workmanship without cost to the Owner.
- C. Guarantee includes equipment capacity and performance ratings specified without excessive noise levels. Any deficiencies in equipment specified shall be promptly corrected.
- D. Contractor's warranty shall include an inspection of the system one (1) week before the end of the one (1) year warranty period. Replace or repair any items found to be defective at this time.

1.11 TESTS AND BALANCING

- A. At such times as the Engineer directs, conduct operating tests to demonstrate that the electrical systems are installed and will operate properly and in accordance with the requirements of this Specification. Tests shall be performed in the presence of the Engineer's representative. Furnish instruments and personnel required for such tests.
- B. Any work and materials tested and found varying from the requirements of the Drawings and Specifications shall be replaced without additional cost to the Owner.
- C. This section does not relieve the Contractor from testing equipment installed under this Division but not listed in this section. Contractor is required to test all equipment, feeders, etc., installed under this Division.

PART 2 PRODUCTS

2.01 GENERAL

- A. Refer to DIVISION 1 sections for general requirements on products, materials and equipment. Refer to other DIVISION 26 sections for additional requirements.
- B. Provide products which 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. 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, or replacement.

2.02 MANUFACTURERS' NAMEPLATES

- A. Each major component of the equipment shall have the manufacturer's name, address, model number, and rating on a plate securely affixed in a conspicuous place.

PART 3 EXECUTION

3.01 GENERAL

- A. Visit the building site before bidding to determine existing conditions and assume all responsibility and bear all expenses in allowing for these conditions in the bid.
- B. Cooperate with other trades in installing work in order that there will be no conflict of space required by conduit, piping, ducts, outlets, etc.
- C. Verify dimensions with certified shop Drawings of the materials actually approved and purchased.

3.02 WORKMANSHIP

- A. Install all materials and electrical components of the work in accordance with instructions of manufacturer following the best modern construction practices and conforming with the Contract Documents. Workmanship shall be first class, in both function and appearance, whether finally concealed or exposed and shall be performed by experienced workmen skilled in the type of work. As practicable, the lines of all components of the system shall be perpendicular or parallel. In general, workmanship shall conform to guidelines set forth in N.E.C.A. manuals.

3.03 MOUNTING HEIGHTS

- A. Upon approval of the Architect/Engineer mounting heights may be adjusted.

END OF SECTION

SECTION 260505
SELECTIVE DEMOLITION FOR ELECTRICAL

PART 1 GENERAL**1.01 SECTION INCLUDES**

- A. Electrical demolition.

PART 3 EXECUTION**2.01 EXAMINATION**

- A. Verify field measurements and circuiting arrangements are as indicated.
- B. Verify that abandoned wiring and equipment serve only abandoned facilities.
- C. Demolition drawings are based on casual field observation .
- D. Report discrepancies to Engineer/Architect before disturbing existing installation.
- E. Beginning of demolition means installer accepts existing conditions.

2.02 PREPARATION

- A. Coordinate utility service outages with The Port of Gulfport.

2.03 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK

- A. Perform work for removal and disposal of equipment and materials containing toxic substances regulated under the Federal Toxic Substances Control Act (TSCA) in accordance with applicable federal, state, and local regulations. Applicable equipment and materials include, but are not limited to:
 - 1. PCB-containing electrical equipment, including transformers, capacitors, and switches.
 - 2. PCB- and DEHP-containing lighting ballasts.
 - 3. Mercury-containing lamps and tubes, including fluorescent lamps, high intensity discharge (HID), arc lamps, ultra-violet, high pressure sodium, mercury vapor, ignitron tubes, neon, and incandescent.
- B. Remove, relocate, and extend existing installations to accommodate new construction.
- C. Repair adjacent construction and finishes damaged during demolition and extension work.
- D. Extend existing installations using materials and methods compatible with existing electrical installations, or as specified.
- E. Plug abandoned enclosure penetrations.

2.04 CLEANING AND REPAIR

- A. Clean and repair existing materials and equipment that remain or that are to be reused.

SECTION 260519
LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 GENERAL**1.01 SECTION INCLUDES**

- A. Single conductor building wire.
- B. Underground feeder and branch-circuit cable.
- C. Wiring connectors.
- D. Electrical tape.
- E. Heat shrink tubing.
- F. Oxide inhibiting compound.
- G. Wire pulling lubricant.
- H. Cable ties.

1.02 RELATED REQUIREMENTS

- A. Section 260526 - Grounding and Bonding for Electrical Systems: Additional requirements for grounding conductors and grounding connectors.

1.03 REFERENCE STANDARDS

- A. ASTM B3 - Standard Specification for Soft or Annealed Copper Wire 2013 (Reapproved 2018).
- B. ASTM B8 - Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft 2011 (Reapproved 2017).
- C. ASTM B33 - Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes 2010, with Editorial Revision (2020).
- D. ASTM B787/B787M - Standard Specification for 19 Wire Combination Unilay-Stranded Copper Conductors for Subsequent Insulation 2004 (Reapproved 2020).
- E. ASTM D3005 - Standard Specification for Low-Temperature Resistant Vinyl Chloride Plastic Pressure-Sensitive Electrical Insulating Tape 2017.
- F. ASTM D4388 - Standard Specification for Nonmetallic Semi-Conducting and Electrically Insulating Rubber Tapes 2020.
- G. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- H. NEMA WC 70 - Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy 2021.
- I. NETA ATS - Standard For Acceptance Testing Specifications For Electrical Power Equipment And Systems 2021.
- J. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- K. UL 44 - Thermoset-Insulated Wires and Cables Current Edition, Including All Revisions.
- L. UL 83 - Thermoplastic-Insulated Wires and Cables Current Edition, Including All Revisions.
- M. UL 486A-486B - Wire Connectors Current Edition, Including All Revisions.
- N. UL 486C - Splicing Wire Connectors Current Edition, Including All Revisions.
- O. UL 486D - Sealed Wire Connector Systems Current Edition, Including All Revisions.
- P. UL 510 - Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape Current Edition, Including All Revisions.
- Q. UL 854 - Service-Entrance Cables Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:

1. Coordinate sizes of raceways, boxes, and equipment enclosures installed under other sections with the actual conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
2. Coordinate with electrical equipment installed under other sections to provide terminations suitable for use with the conductors to be installed.
3. Notify Engineer/Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets for conductors and cables, including detailed information on materials, construction, ratings, listings, and available sizes, configurations, and stranding.
- C. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.
- D. Project Record Documents: Record actual installed circuiting arrangements. Record actual routing for underground circuits.

1.06 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.
- B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.
- C. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- D. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store conductors and cables in accordance with manufacturer's instructions.

1.08 FIELD CONDITIONS

- A. Do not install or otherwise handle thermoplastic-insulated conductors at temperatures lower than 14 degrees F, unless otherwise permitted by manufacturer's instructions. When installation below this temperature is unavoidable, notify Engineer/Architect and obtain direction before proceeding with work.

PART 2 PRODUCTS

2.01 CONDUCTOR AND CABLE APPLICATIONS

- A. Do not use conductors and cables for applications other than as permitted by NFPA 70 and product listing.
- B. Provide single conductor building wire installed in suitable raceway unless otherwise indicated, permitted, or required.

2.02 CONDUCTOR AND CABLE GENERAL REQUIREMENTS

- A. Provide products that comply with requirements of NFPA 70.
- B. Provide products listed, classified, and labeled as suitable for the purpose intended.
- C. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, etc. as required for a complete operating system.
- D. Comply with NEMA WC 70.
- E. Thermoplastic-Insulated Conductors and Cables: Listed and labeled as complying with UL 83.

- F. Thermoset-Insulated Conductors and Cables: Listed and labeled as complying with UL 44.
- G. Conductors for Grounding and Bonding: Also comply with Section 260526.
- H. Conductor Material:
 - 1. Provide copper conductors only. Aluminum conductors are not acceptable for this project. Conductor sizes indicated are based on copper.
 - 2. Copper Conductors: Soft drawn annealed, 98 percent conductivity, uncoated copper conductors complying with ASTM B3, ASTM B8, or ASTM B787/B787M unless otherwise indicated.
- I. Minimum Conductor Size:
 - 1. Branch Circuits: 12 AWG.
 - a. Exceptions:
 - 1) 20 A, 120 V circuits longer than 75 feet: 10 AWG, for voltage drop.
 - 2) 20 A, 120 V circuits longer than 150 feet: 8 AWG, for voltage drop.
 - 3) 20 A, 277 V circuits longer than 150 feet: 10 AWG, for voltage drop.
- J. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
- K. Conductor Color Coding:
 - 1. Color code conductors as indicated unless otherwise required by the authority having jurisdiction. Maintain consistent color coding throughout project.
 - 2. Color Coding Method: Integrally colored insulation.
 - a. Conductors size 4 AWG and larger may have black insulation color coded using vinyl color coding electrical tape.
 - 3. Color Code:
 - a. 480Y/277 V, 3 Phase, 4 Wire System:
 - 1) Phase A: Brown.
 - 2) Phase B: Orange.
 - 3) Phase C: Yellow.
 - 4) Neutral/Grounded: Gray.
 - b. Equipment Ground, All Systems: Green.

2.03 SINGLE CONDUCTOR BUILDING WIRE

- A. Manufacturers:
 - 1. Copper Building Wire:
 - a. Cerro Wire LLC: www.cerrowire.com/#sle.
 - b. Encore Wire Corporation: www.encorewire.com/#sle.
 - c. General Cable Technologies Corporation: www.generalcable.com/#sle.
 - d. Southwire Company: www.southwire.com/#sle.
 - e. Or Approve Equal.
- B. Description: Single conductor insulated wire.
- C. Conductor Stranding:
 - 1. Feeders and Branch Circuits:
 - a. Size 10 AWG and Smaller: Stranded.
 - b. Size 8 AWG and Larger: Stranded.
- D. Insulation Voltage Rating: 600 V.
- E. Insulation:
 - 1. Copper Building Wire: Type THHN/THWN or THHN/THWN-2, except as indicated below.
 - a. Size 4 AWG and Larger: Type XHHW-2.
 - b. Installed Underground: Type XHHW-2.
 - c. Fixture Wiring Within Luminaires: Type TFFN/TFN for luminaires with labeled maximum temperature of 90 degrees C; Approved suitable type for luminaires with labeled maximum temperature greater than 90 degrees C.

2.04 WIRING CONNECTORS

- A. Description: Wiring connectors appropriate for the application, suitable for use with the conductors to be connected, and listed as complying with UL 486A-486B or UL 486C as applicable.
- B. Connectors for Grounding and Bonding: Comply with Section 260526.
- C. Wiring Connectors for Splices and Taps:
 - 1. Copper Conductors Size 8 AWG and Smaller: Use mechanical connectors.
 - 2. Copper Conductors Size 6 AWG and Larger: Use mechanical connectors.
- D. Wiring Connectors for Terminations:
 - 1. Provide terminal lugs for connecting conductors to equipment furnished with terminations designed for terminal lugs.
 - 2. Provide compression adapters for connecting conductors to equipment furnished with mechanical lugs when only compression connectors are specified.
 - 3. Where over-sized conductors are larger than the equipment terminations can accommodate, provide connectors suitable for reducing to appropriate size, but not less than required for the rating of the overcurrent protective device.
 - 4. Copper Conductors Size 8 AWG and Larger: Use mechanical connectors where connectors are required.
- E. Do not use insulation-piercing or insulation-displacement connectors designed for use with conductors without stripping insulation.
- F. Do not use push-in wire connectors as a substitute for Barrel Crimp connectors.
- G. Mechanical or twist on Connectors: Provide bolted type or set-screw type.
 - 1. Manufacturers:
 - a. IIsco: www.ilsco.com/#sle.
 - b. Thomas & Betts Corporation: www.tnb.com/#sle.
- H. Compression Connectors: Provide circumferential type or hex type crimp configuration.
 - 1. Manufacturers:
 - a. Thomas & Betts Corporation: www.tnb.com/#sle.
 - b. Or Approved Equal.

2.05 ACCESSORIES

- A. Electrical Tape:
 - 1. Manufacturers:
 - a. 3M: www.3m.com/#sle.
 - 2. Vinyl Color Coding Electrical Tape: Integrally colored to match color code indicated; listed as complying with UL 510; minimum thickness of 7 mil; resistant to abrasion, corrosion, and sunlight; suitable for continuous temperature environment up to 221 degrees F.
 - 3. Vinyl Insulating Electrical Tape: Complying with ASTM D3005 and listed as complying with UL 510; minimum thickness of 7 mil; resistant to abrasion, corrosion, and sunlight; conformable for application down to 0 degrees F and suitable for continuous temperature environment up to 221 degrees F.
 - 4. Rubber Splicing Electrical Tape: Ethylene Propylene Rubber (EPR) tape, complying with ASTM D4388; minimum thickness of 30 mil; suitable for continuous temperature environment up to 194 degrees F and short-term 266 degrees F overload service.
 - 5. Electrical Filler Tape: Rubber-based insulating moldable putty, minimum thickness of 125 mil; suitable for continuous temperature environment up to 176 degrees F.
 - 6. Varnished Cambric Electrical Tape: Cotton cambric fabric tape, with or without adhesive, oil-primed and coated with high-grade insulating varnish; minimum thickness of 7 mil; suitable for continuous temperature environment up to 221 degrees F.
 - 7. Moisture Sealing Electrical Tape: Insulating mastic compound laminated to flexible, all-weather vinyl backing; minimum thickness of 90 mil.

- B. Heat Shrink Tubing: Heavy-wall, split-resistant, with factory-applied adhesive; rated 600 V; suitable for direct burial applications; listed as complying with UL 486D.
- C. Oxide Inhibiting Compound: Listed; suitable for use with the conductors or cables to be installed.
- D. Wire Pulling Lubricant: Listed; suitable for use with the conductors or cables to be installed and suitable for use at the installation temperature.
- E. Cable Ties: Material and tensile strength rating suitable for application.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that work likely to damage wire and cable has been completed.
- B. Verify that raceways, boxes, and equipment enclosures are installed and are properly sized to accommodate conductors and cables in accordance with NFPA 70 and these specifications.
- C. Verify that field measurements are as indicated.
- D. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

- A. Clean raceways thoroughly to remove foreign materials before installing conductors and cables.

3.03 INSTALLATION

- A. Circuiting Requirements:
 - 1. Unless dimensioned, circuit routing indicated is diagrammatic.
 - 2. When circuit destination is indicated without specific routing, determine exact routing required.
 - 3. Arrange circuiting to minimize splices.
 - 4. Maintain separation of Class 1, Class 2, and Class 3 remote-control, signaling, and power-limited circuits in accordance with NFPA 70.
- B. Install products in accordance with manufacturer's instructions.
- C. No conductor shall bear more than eight percent (80%) of its rated ampacity.
- D. The system shall be properly grounded and continuously polarized throughout following the color coding specified.
- E. Do not use mechanical means to pull wire No. 8 AWG. or smaller.
- F. Perform work in accordance with NECA 1 (general workmanship).
- G. Installation in Raceway:
 - 1. Tape ends of conductors and cables to prevent infiltration of moisture and other contaminants.
 - 2. Pull all conductors and cables together into raceway at same time.
 - 3. Do not damage conductors and cables or exceed manufacturer's recommended maximum pulling tension and sidewall pressure.
 - 4. Use suitable wire pulling lubricant where necessary, except when lubricant is not recommended by the manufacturer.
- H. Paralleled Conductors: Install conductors of the same length and terminate in the same manner.
- I. Secure and support conductors and cables in accordance with NFPA 70 using suitable supports and methods approved by the authority having jurisdiction. Provide independent support from building structure. Do not provide support from raceways, piping, ductwork, or other systems.
- J. Terminate cables using suitable fittings.

- K. Group or otherwise identify neutral/grounded conductors with associated ungrounded conductors inside enclosures in accordance with NFPA 70.
- L. Make wiring connections using specified wiring connectors.
 - 1. Make splices and taps only in accessible boxes. Do not pull splices into raceways or make splices in conduit bodies or wiring gutters.
 - 2. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors.
 - 3. Do not remove conductor strands to facilitate insertion into connector.
 - 4. Clean contact surfaces on conductors and connectors to suitably remove corrosion, oxides, and other contaminants. Do not use wire brush on plated connector surfaces.
 - 5. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.
 - 6. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.
- M. Insulate splices and taps that are made with uninsulated connectors using methods suitable for the application, with insulation and mechanical strength at least equivalent to unspliced conductors.
 - 1. Dry Locations: Use insulating covers specifically designed for the connectors, electrical tape, or heat shrink tubing.
 - a. For taped connections, first apply adequate amount of rubber splicing electrical tape or electrical filler tape, followed by outer covering of vinyl insulating electrical tape.
 - b. For taped connections likely to require re-entering, including motor leads, first apply varnished cambric electrical tape, followed by adequate amount of rubber splicing electrical tape, followed by outer covering of vinyl insulating electrical tape.
 - 2. Damp Locations: Use insulating covers specifically designed for the connectors, electrical tape, or heat shrink tubing.
 - a. For connections with insulating covers, apply outer covering of moisture sealing electrical tape.
 - b. For taped connections, follow same procedure as for dry locations but apply outer covering of moisture sealing electrical tape.
 - 3. Wet Locations: Use heat shrink tubing.
- N. Insulate ends of spare conductors using vinyl insulating electrical tape.
- O. Field-Applied Color Coding: Where vinyl color coding electrical tape is used in lieu of integrally colored insulation as permitted in Part 2 under "Color Coding", apply half overlapping turns of tape at each termination and at each location conductors are accessible.
- P. Identify conductors and cables in accordance with Section 260553.
- Q. Unless specifically indicated to be excluded, provide final connections to all equipment and devices, including those furnished by others, as required for a complete operating system.

3.04 FIELD QUALITY CONTROL

- A. See Section 014000 - Quality Requirements, for additional requirements.
- B. prior to energization, test cable and wire for continuity of circuitry, and also for short circuits.
- C. Perform inspections and tests listed in NETA ATS, Section 7.3.2. The insulation resistance test is required for all conductors. The resistance test for parallel conductors listed as optional is not required.
 - 1. Disconnect surge protective devices (SPDs) prior to performing any high potential testing. Replace SPDs damaged by performing high potential testing with SPDs connected.
- D. Correct deficiencies and replace damaged or defective conductors and cables.

END OF SECTION

SECTION 260526
GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 GENERAL**1.01 SECTION INCLUDES**

- A. Grounding and bonding requirements.
- B. Conductors for grounding and bonding.
- C. Connectors for grounding and bonding.

1.02 RELATED REQUIREMENTS

- A. Section 260519 - Low-Voltage Electrical Power Conductors and Cables: Additional requirements for conductors for grounding and bonding, including conductor color coding.
 - 1. Includes oxide inhibiting compound.

1.03 REFERENCE STANDARDS

- A. IEEE 81 - IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Grounding System 2012.
- B. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- C. NEMA GR 1 - Grounding Rod Electrodes and Grounding Rod Electrode Couplings 2022.
- D. NETA ATS - Standard For Acceptance Testing Specifications For Electrical Power Equipment And Systems 2021.
- E. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- F. UL 467 - Grounding and Bonding Equipment Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Verify exact locations of underground metal water service pipe entrances to building.
 - 2. Coordinate the work with other trades to provide steel reinforcement complying with specified requirements for concrete-encased electrode.
 - 3. Notify Engineer/Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 SUBMITTALS

- A. Product Data: Provide manufacturer's standard catalog pages and data sheets for grounding and bonding system components.
- B. Shop Drawings:
- C. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.
- D. Field quality control test reports.
- E. Project Record Documents: Record actual locations of grounding electrode system components and connections.

1.06 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.
- B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.
- C. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- D. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having

jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

1.08 DESCRIPTION OF WORK

- A. The work of this section consist of providing labor, materials, tools, appliances and miscellaneous accessories associated with grounding of the electrical system as required by and as indicated herein and/or on the drawings.
- B. A separate grounding conductor, sized in accordance with NEC Table 250-122 shall be provided in the conduit with the circuit conductors for all feeder and branch circuits. The grounding conductor may be bare or insulated copper; however, if this conductor is insulated, the insulating covering shall be green in color. Where bare copper grounding conductors are used, mark the conductor ends with green tape. Conduit runs shall be increased in size where necessary to accommodate the grounding conductor in addition to circuit conductors. The electrical continuity of all conduit runs shall be verified and corrected where necessary.
- C. All electrical equipment enclosures and conductor enclosures shall be grounded. This includes but is not limited to metal raceways, outlet boxes, cabinets, switch boxes, work stations, motor frames, transformer cases and metallic enclosure for all electrical equipment.
- D. Types of grounding in this section includes the following:
1. Grounding electrodes
 2. Service Equipment
 3. Enclosures
 4. Systems
 5. Equipment
- E. Requirements of this section apply to electrical grounding work specified elsewhere in these specifications.

PART 2 PRODUCTS

2.01 GROUNDING AND BONDING REQUIREMENTS

- A. Existing Work: Where existing grounding and bonding system components are indicated to be reused, they may be reused only where they are free from corrosion, integrity and continuity are verified, and where acceptable to the authority having jurisdiction.
- B. Do not use products for applications other than as permitted by NFPA 70 and product listing.
- C. Unless specifically indicated to be excluded, provide all required components, conductors, connectors, conduit, boxes, fittings, supports, accessories, etc. as necessary for a complete grounding and bonding system.
- D. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
- E. Bonding and Equipment Grounding:
1. Provide bonding for equipment grounding conductors, equipment ground busses, metallic equipment enclosures, metallic raceways and boxes, device grounding terminals, and other normally non-current-carrying conductive materials enclosing electrical conductors/equipment or likely to become energized as indicated and in accordance with NFPA 70.
 2. Provide insulated equipment grounding conductor in each feeder and branch circuit raceway. Do not use raceways as sole equipment grounding conductor.
 3. Where circuit conductor sizes are increased for voltage drop, increase size of equipment grounding conductor proportionally in accordance with NFPA 70.
 4. Unless otherwise indicated, connect wiring device grounding terminal to branch circuit equipment grounding conductor and to outlet box with bonding jumper.
 5. Terminate branch circuit equipment grounding conductors on solidly bonded equipment ground bus only. Do not terminate on neutral (grounded) or isolated/insulated ground bus.

F. Cable Tray Systems: Also comply with Section 260536.

2.02 GROUNDING AND BONDING COMPONENTS

A. General Requirements:

1. Provide products listed, classified, and labeled as suitable for the purpose intended.
2. Provide products listed and labeled as complying with UL 467 where applicable.

B. Conductors for Grounding and Bonding, in Addition to Requirements of Section 260526:

1. Use insulated copper conductors unless otherwise indicated.

C. Connectors for Grounding and Bonding:

1. Description: Connectors appropriate for the application and suitable for the conductors and items to be connected; listed and labeled as complying with UL 467.
2. Unless otherwise indicated, use exothermic welded connections for underground, concealed and other inaccessible connections.
3. Unless otherwise indicated, use mechanical connectors, compression connectors, or exothermic welded connections for accessible connections.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that work likely to damage grounding and bonding system components has been completed.
- B. Verify that field measurements are as indicated.
- C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Perform work in accordance with NECA 1 (general workmanship).
- C. All main grounding conductors shall be stranded copper conductors, sized as shown and/or required, and run in a suitable raceway. All main grounding conductors shall be continuous without joints or splices over their entire length.
- D. Flexible conduit longer than 6' shall not be considered a ground path.
- E. All grounding conductors shall be amply protected from mechanical injury and shall be supported in an approved manner. Where conductors are located in concrete, they shall be installed in conduit. Where ground conductors enter or emerge from slabs bearing directly on fill or soil, the voids between the conductor and the surrounding conduit shall be filled with compound to provide an effective water seal.
- F. Grounding conductors shall be not smaller than #12 AWG. Conductors shall be high conductivity copper, and sizes larger than #12 shall be stranded.
- G. Install clamp-on connectors only on thoroughly cleaned metal contact surfaces, to ensure electrical conductivity and circuit integrity.
- H. Make grounding and bonding connections using specified connectors.
 1. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors. Do not remove conductor strands to facilitate insertion into connector.
 2. Remove nonconductive paint, enamel, or similar coating at threads, contact points, and contact surfaces.
 3. Exothermic Welds: Make connections using molds and weld material suitable for the items to be connected in accordance with manufacturer's recommendations.
 4. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.
 5. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.
- I. Identify grounding and bonding system components in accordance with Section 260553.

3.03 FIELD QUALITY CONTROL

- A. See Section 014000 - Quality Requirements, for additional requirements.
- B. Inspect and test in accordance with NETA ATS except Section 4.
- C. Perform inspections and tests listed in NETA ATS, Section 7.13.
- D. Perform ground electrode resistance tests under normally dry conditions. Precipitation within the previous 48 hours does not constitute normally dry conditions.
- E. Investigate and correct deficiencies where measured ground resistances do not comply with specified requirements.
- F. Submit detailed reports indicating inspection and testing results and corrective actions taken.

END OF SECTION

**SECTION 260529
HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS**

PART 1 GENERAL**1.01 SECTION INCLUDES**

- A. Support and attachment requirements and components for equipment, conduit, cable, boxes, and other electrical work.

1.02 RELATED REQUIREMENTS

- A. Section 033000 - Cast-in-Place Concrete: Concrete equipment pads.

1.03 REFERENCE STANDARDS

- A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products 2017.
- B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2016a.
- C. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel 2023.
- D. MFMA-4 - Metal Framing Standards Publication 2004.
- E. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- F. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate sizes and arrangement of supports and bases with actual equipment and components to be installed.
 - 2. Coordinate work to provide additional framing and materials required for installation.
 - 3. Coordinate compatibility of support and attachment components with mounting surfaces at installed locations.
 - 4. Notify Engineer/Architect of conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.
- B. Sequencing:
 - 1. Do not install products on or provide attachment to concrete surfaces until concrete has cured; see Section 033000.

PART 2 PRODUCTS**2.01 SUPPORT AND ATTACHMENT COMPONENTS**

- A. General Requirements:
 - 1. Comply with the following. Where requirements differ, comply with most stringent.
 - a. NFPA 70.
 - b. Requirements of authorities having jurisdiction.
 - 2. Provide required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for complete installation of electrical work.
 - 3. Provide products listed, classified, and labeled as suitable for purpose intended, where applicable.
 - 4. Do not use products for applications other than as permitted by NFPA 70 and product listing.
 - 5. Steel Components: Use corrosion-resistant materials suitable for environment where installed.
 - a. Outdoor and Damp or Wet Indoor Locations: Use galvanized steel, stainless steel, or approved equivalent unless otherwise indicated.
 - b. Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.

- B. Conduit and Cable Supports: Straps and clamps suitable for conduit or cable to be supported.
 - 1. Conduit Straps: One-hole or two-hole type; steel or malleable iron.
 - 2. Conduit Clamps: Bolted type unless otherwise indicated.
- C. Anchors and Fasteners:
 - 1. Unless otherwise indicated and where not otherwise restricted, use anchor and fastener types indicated for specified applications.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that mounting surfaces are ready to receive support and attachment components.
- C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install hangers and supports in accordance with NECA 1.
- C. Secure fasteners in accordance with manufacturer's recommended torque settings.
- D. Remove temporary supports.

3.03 FIELD QUALITY CONTROL

- A. Inspect support and attachment components for damage and defects.
- B. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.
- C. Correct deficiencies and replace damaged or defective support and attachment components.

END OF SECTION

SECTION 260533.13
CONDUIT FOR ELECTRICAL SYSTEMS

PART 1 GENERAL**1.01 SECTION INCLUDES**

- A. Galvanized steel rigid metal conduit (RMC).
- B. Liquidtight flexible metal conduit (LFMC).
- C. Conduit, fittings and conduit bodies.

1.02 RELATED REQUIREMENTS

- A. Section 260526 - Grounding and Bonding for Electrical Systems.
- B. Section 260529 - Hangers and Supports for Electrical Systems.

1.03 REFERENCE STANDARDS

- A. ANSI C80.1 - American National Standard for Electrical Rigid Steel Conduit (ERSC) 2020.
- B. ANSI C80.3 - American National Standard for Electrical Metallic Tubing -- Steel (EMT-S) 2020.
- C. ANSI C80.5 - American National Standard for Electrical Rigid Metal Conduit -- Aluminum (ERMC-A) 2020.
- D. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- E. NECA 101 - Standard for Installing Steel Conduits (Rigid, IMC, EMT) 2020.
- F. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable 2014.
- G. NEMA RN 1 - Polyvinyl-Chloride (PVC) Externally Coated Galvanized Rigid Steel Metal Conduit and Intermediate Metal Conduit 2018.
- H. NEMA TC 2 - Electrical Polyvinyl Chloride (PVC) Conduit 2020.
- I. NEMA TC 3 - Polyvinyl Chloride (PVC) Fittings for Use with Rigid PVC Conduit and Tubing 2021.
- J. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- K. UL 6 - Electrical Rigid Metal Conduit-Steel Current Edition, Including All Revisions.
- L. UL 360 - Liquid-Tight Flexible Metal Conduit Current Edition, Including All Revisions.
- M. UL 514B - Conduit, Tubing, and Cable Fittings Current Edition, Including All Revisions.
- N. UL 651 - Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings Current Edition, Including All Revisions.
- O. UL 797 - Electrical Metallic Tubing-Steel Current Edition, Including All Revisions.
- P. UL 1242 - Electrical Intermediate Metal Conduit-Steel Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate minimum sizes of conduits with actual type and quantity of conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
 - 2. Coordinate arrangement of conduits with structural members, ductwork, piping, equipment, and other potential conflicts.
 - 3. Verify exact conduit termination locations required for boxes, enclosures, and equipment.
 - 4. Coordinate work to provide roof penetrations that preserve integrity of roofing system and do not void roof warranty.
 - 5. Notify Engineer/Architect of conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.
- B. Sequencing:

1. Do not begin installation of conductors and cables until installation of conduit between termination points is complete.

1.05 SUBMITTALS

- A. Product Data: Provide manufacturer's standard catalog pages and data sheets for conduits and fittings.
- B. Product Data: Provide for metallic conduit, liquidtight flexible metal conduit, fittings, and conduit bodies.
- C. Project Record Documents: Accurately record actual routing of conduits larger than 2 inches.

1.06 QUALITY ASSURANCE

- A. Products: Listed and classified by Underwriters Laboratories Inc. as suitable for purpose specified and shown.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store conduit and fittings in accordance with manufacturer's instructions.
- B. Accept conduit on site. Inspect for damage.
- C. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.

PART 2 PRODUCTS

2.01 CONDUIT APPLICATIONS

- A. Do not use conduit and associated fittings for applications other than as permitted by NFPA 70, manufacturer's instructions, and product listing.
- B. Unless otherwise indicated and where not otherwise restricted, use conduit types indicated for specified applications. Where more than one listed application applies, comply with most restrictive requirements. Where conduit type for particular application is not specified, use galvanized steel rigid metal conduit.
- C. Exposed, Exterior: Use galvanized steel rigid metal conduit or Liquidtight flexible metal conduit.

2.02 CONDUIT - GENERAL REQUIREMENTS

- A. Existing Work: Where existing conduits are indicated to be reused, they may be reused only where they comply with specified requirements, are free from corrosion, and integrity is verified by pulling mandrel through them.
- B. Provide conduit, fittings, supports, and accessories required for complete raceway system.
- C. Provide products listed, classified, and labeled as suitable for purpose intended.
- D. Minimum Conduit Size, Unless Otherwise Indicated:
 1. Branch Circuits: 3/4-inch trade size.
 2. Branch Circuit Homeruns: 3/4-inch trade size.
- E. Where conduit size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

2.03 GALVANIZED STEEL RIGID METAL CONDUIT (RMC)

- A. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit complying with ANSI C80.1 and listed and labeled as complying with UL 6.
- B. Fittings:
 1. Nonhazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B or UL 6.
 2. Material: Use steel or malleable iron.
 3. Connectors and Couplings: Use threaded type fittings only. Threadless fittings, including set screw and compression/gland types, are not permitted.

2.04 METAL CONDUIT

- A. Rigid Steel Conduit: ANSI C80.1.
- B. Fittings and Conduit Bodies: NEMA FB 1; material to match conduit.

2.05 LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)

- A. Description: NFPA 70, Type LFMC polyvinyl chloride (PVC) jacketed steel flexible metal conduit listed and labeled as complying with UL 360.
- B. Fittings:
 - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 2. Material: Use steel or malleable iron.
- C. Description: Interlocked steel construction with PVC jacket.
- D. Fittings: NEMA FB 1.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that mounting surfaces are ready to receive conduits.
- C. Verify that conditions are satisfactory for installation prior to starting work.
- D. Verify routing and termination locations of conduit prior to rough-in.
- E. Conduit routing is shown on drawings in approximate locations unless dimensioned. Route as required to complete wiring system.

3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install conduit in accordance with NECA 1.
- C. Install galvanized steel rigid metal conduit (RMC) in accordance with NECA 101.
- D. Conduit Routing:
 - 1. Unless dimensioned, conduit routing indicated is diagrammatic.
 - 2. When conduit destination is indicated without specific routing, determine exact routing required.
 - 3. Arrange conduit to provide no more than equivalent of four 90-degree bends between pull points.
 - 4. Arrange conduit to prevent moisture traps. Provide drain fittings at low points and at sealing fittings where moisture may collect.
 - 5. Group parallel conduits in same area on common rack.
- E. Conduit Support:
 - 1. Secure and support conduits in accordance with NFPA 70 using suitable supports and methods approved by authorities having jurisdiction; see Section 260529.
 - 2. Use conduit strap to support single surface-mounted conduit.
 - a. Use clamp back spacer with conduit strap for damp and wet locations to provide space between conduit and mounting surface.
 - 3. Where conduit support intervals specified in NFPA 70 and NECA standards differ, comply with most stringent requirements.
- F. Connections and Terminations:
 - 1. Use approved zinc-rich paint or conduit joint compound on field-cut threads of galvanized steel conduits prior to making connections.
 - 2. Where two threaded conduits must be joined and neither can be rotated, use three-piece couplings or split couplings. Do not use running threads.
 - 3. Use suitable adapters where required to transition from one type of conduit to another.
 - 4. Provide drip loops for liquidtight flexible conduit connections to prevent drainage of liquid into connectors.

5. Terminate threaded conduits in boxes and enclosures using threaded hubs or double lock nuts for dry locations and raintight hubs for wet locations.
 6. Provide insulating bushings, insulated throats, or listed metal fittings with smooth, rounded edges at conduit terminations to protect conductors.
 7. Secure joints and connections to provide mechanical strength and electrical continuity.
- G. Penetrations:
1. Make penetrations perpendicular to surfaces unless otherwise indicated.
 2. Provide sleeves for penetrations as indicated or as required to facilitate installation. Set sleeves flush with exposed surfaces unless otherwise indicated or required.
 3. Provide suitable sealing system where conduits penetrate exterior wall below grade.
 4. Where conduits penetrate waterproof membrane, seal as required to maintain integrity of membrane.
- H. Provide pull string in each empty conduit and in conduits where conductors and cables are to be installed by others. Leave minimum slack of 12 inches at each end.
- I. Provide grounding and bonding; see Section 260526.

3.03 FIELD QUALITY CONTROL

- A. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.
- B. Correct deficiencies and replace damaged or defective conduits.

3.04 CLEANING

- A. Clean interior of conduits to remove moisture and foreign matter.

3.05 PROTECTION

- A. Immediately after installation of conduit, use suitable manufactured plugs to provide protection from entry of moisture and foreign material and do not remove until ready for installation of conductors.
- B. The concrete envelope shall be continuous throughout. Hang concrete envelope from slab with reinforcing rod. Where PVC is used below slab all final "turn up" elbows shall be made with Rigid Galvanized Steel, properly adapted to the PVC Sch. 40 PVC conduit.
- C. Install all miscellaneous fittings as required. Install standard expansion fittings in raceways every 200' linear run or wherever structural expansion joints are crossed, whatever is less.
- D. Mechanically fasten together all components of raceway to provide electrical continuity and firm mechanical assembly.
- E. Use similar metals throughout system to eliminate possibility of electrolysis.
- F. Size conduits for a conductor fill of 40% or less per Chapter 9 tables of NEC.
- G. Fasten conduit terminations in sheet metal enclosures by 2 locknuts, and terminate with bushing. Install locknuts inside and outside enclosure.
- H. Test every conduit run installed with a ball mandrel. Clear and restore/repair any conduit which rejects the ball mandrel.
- I. Provide permanent plastic tags at each end of each embedded conduit run stating what the conduit is servicing and where it is served from including location.
- J. Label all junction boxes, pull boxes, and wireways with engraved plastic nameplates.
- K. Conduit Fittings:
 1. Construct locknuts for securing conduit to metal enclosure with sharp edge for digging into metal, and ridged outside circumference for proper fastening.
 2. Bushings for terminating conduits smaller than 1-1/4" are to have flared bottom and ribbed sides, with smooth upper edges to prevent injury to cable insulations.
 3. Install insulated type bushings for terminating conduits 1 1/4" and larger.
 4. Provide bushings or end bells as required at the ends of all conduits.

END OF SECTION

SECTION 260533.16
BOXES FOR ELECTRICAL SYSTEMS

PART 1 GENERAL**1.01 SECTION INCLUDES**

- A. Outlet and device boxes up to 100 cubic inches, including those used as junction and pull boxes.
- B. Cabinets and enclosures, including junction and pull boxes larger than 100 cubic inches.

1.02 RELATED REQUIREMENTS

- A. Section 260526 - Grounding and Bonding for Electrical Systems.
- B. Section 260529 - Hangers and Supports for Electrical Systems.
- C. Section 260533.13 - Conduit for Electrical Systems:
 - 1. Conduit bodies and other fittings.
 - 2. Additional requirements for locating boxes to limit conduit length and/or number of bends between pulling points.

1.03 REFERENCE STANDARDS

- A. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- B. NECA 130 - Standard for Installing and Maintaining Wiring Devices 2016.
- C. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable 2014.
- D. NEMA OS 2 - Nonmetallic Outlet Boxes, Device Boxes, Covers and Box Supports 2013 (Reaffirmed 2020).
- E. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum) 2020.
- F. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- G. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations Current Edition, Including All Revisions.
- H. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations Current Edition, Including All Revisions.
- I. UL 508A - Industrial Control Panels Current Edition, Including All Revisions.
- J. UL 514A - Metallic Outlet Boxes Current Edition, Including All Revisions.
- K. UL 514C - Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers Current Edition, Including All Revisions.
- L. UL 1203 - Explosion-Proof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and working clearances for electrical equipment required by NFPA 70.
 - 2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.
 - 3. Coordinate minimum sizes of boxes with the actual installed arrangement of conductors, clamps, support fittings, and devices, calculated according to NFPA 70.
 - 4. Coordinate minimum sizes of pull boxes with the actual installed arrangement of connected conduits, calculated according to NFPA 70.
 - 5. Coordinate the placement of boxes with millwork, furniture, devices, equipment, etc. installed under other sections or by others.

6. Coordinate the work with other trades to preserve insulation integrity.
7. Notify Engineer/Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets for cabinets and enclosures, boxes for hazardous (classified) locations, floor boxes, and underground boxes/enclosures.
- C. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.
- D. Project Record Documents: Record actual locations for outlet and device boxes, pull boxes, cabinets and enclosures, floor boxes, and underground boxes/enclosures.
- E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 1. See Section 016000 - Product Requirements, for additional provisions.
 2. Keys for Lockable Enclosures: Two of each different key.

1.06 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.
- B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.
- C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 BOXES

- A. General Requirements:
 1. Do not use boxes and associated accessories for applications other than as permitted by NFPA 70 and product listing.
 2. Provide all boxes, fittings, supports, and accessories required for a complete raceway system and to accommodate devices and equipment to be installed.
 3. Provide products listed, classified, and labeled as suitable for the purpose intended.
 4. Where box size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
 5. Provide grounding terminals within boxes where equipment grounding conductors terminate.
- B. Outlet and Device Boxes Up to 100 cubic inches, Including Those Used as Junction and Pull Boxes:
 1. Use cast iron boxes or cast aluminum boxes for damp or wet locations unless otherwise indicated or required; furnish with compatible weatherproof gasketed covers.
 2. Cast Metal Boxes: Comply with NEMA FB 1, and list and label as complying with UL 514A; furnish with threaded hubs.
 3. Nonmetallic Boxes: Comply with NEMA OS 2, and list and label as complying with UL 514C.
 4. Manufacturers:
 - a. Cooper Crouse-Hinds, a division of Eaton Corporation:
www.cooperindustries.com/#sle.
 - b. Hubbell Incorporated; Bell Products: www.hubbell-rtb.com/#sle.
 - c. Hubbell Incorporated; RACO Products: www.hubbell-rtb.com/#sle.

- d. O-Z/Gedney, a brand of Emerson Electric Co: www.emerson.com/#sle.
 - e. Thomas & Betts Corporation: www.tnb.com/#sle.
 - f. Or Approved Equal.
- C. Cabinets and Enclosures, Including Junction and Pull Boxes Larger Than 100 cubic inches:
- 1. Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E, or UL 508A.
 - 2. NEMA 250 Environment Type, Unless Otherwise Indicated:
 - a. Outdoor Locations: Type 3R, painted steel.
 - 3. Junction and Pull Boxes Larger Than 100 cubic inches:
 - a. Provide screw-cover or hinged-cover enclosures unless otherwise indicated.
 - 4. Cabinets and Hinged-Cover Enclosures, Other Than Junction and Pull Boxes:
 - a. Provide lockable hinged covers, all locks keyed alike unless otherwise indicated.
 - b. Back Panels: Painted steel, removable.
 - c. Terminal Blocks: Provide voltage/current ratings and terminal quantity suitable for purpose indicated, with 25 percent spare terminal capacity.
 - 5. Finish for Painted Steel Enclosures: Manufacturer's standard grey unless otherwise indicated.
 - 6. Manufacturers:
 - a. Cooper B-Line, a division of Eaton Corporation: www.cooperindustries.com/#sle.
 - b. Hoffman, a brand of Pentair Technical Products: www.hoffmanonline.com/#sle.
 - c. Hubbell Incorporated; Wiegmann Products: www.hubbell-wiegmann.com/#sle.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that mounting surfaces are ready to receive boxes.
- C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install boxes in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130, including mounting heights specified in those standards where mounting heights are not indicated.
- C. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.
- D. Unless otherwise indicated, boxes may be surface-mounted where exposed conduits are indicated or permitted.
- E. Provide knockout closures to cap unused knockout holes where blanks have been removed.
- F. Box Locations:
 - 1. Locate boxes to be accessible. Provide access panels in accordance with Section 083100 as required where approved by the Architect.
 - 2. Unless dimensioned, box locations indicated are approximate.
 - 3. Locate junction and pull boxes as indicated, as required to facilitate installation of conductors, and to limit conduit length and/or number of bends between pulling points in accordance with Section 260533.13.
- G. Box Supports:
 - 1. Secure and support boxes in accordance with NFPA 70 and Section 260529 using suitable supports and methods approved by the authority having jurisdiction.
- H. Install boxes plumb and level.
- I. Install boxes as required to preserve insulation integrity.
- J. Close unused box openings.

- K. Provide grounding and bonding in accordance with Section 260526.
- L. Identify boxes in accordance with Section 260553.

3.03 CLEANING

- A. Clean interior of boxes to remove dirt, debris, plaster and other foreign material.

3.04 PROTECTION

- A. Immediately after installation, protect boxes from entry of moisture and foreign material until ready for installation of conductors.

END OF SECTION

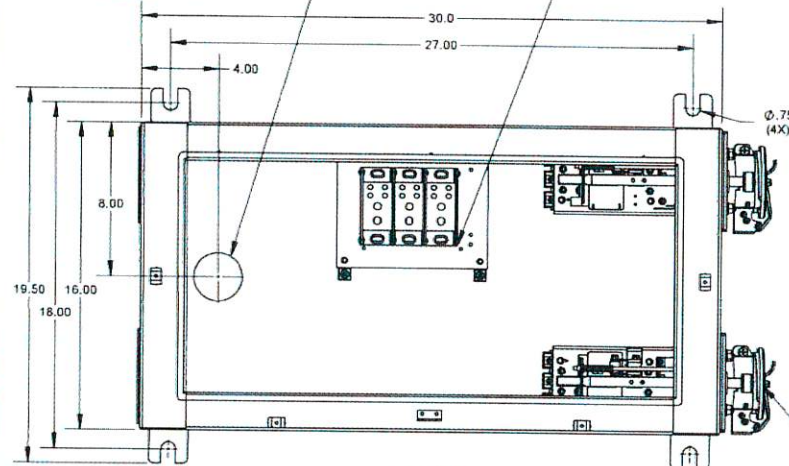
APPENDIX A

APPROVED

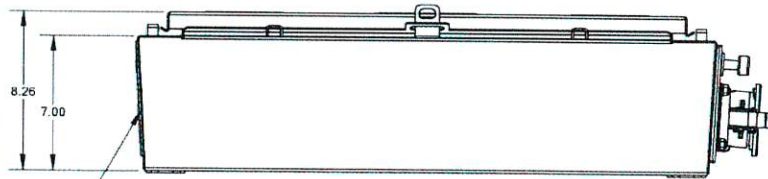
BY Randy Zook
DATE 9/29/22
FOR FABRICATION BY ESL

2.5" HOLE BY ESL FOR 2" NPT (CONDUIT HUB SUPPLIED BY OTHERS)

POWER DISTRIBUTION BLOCK

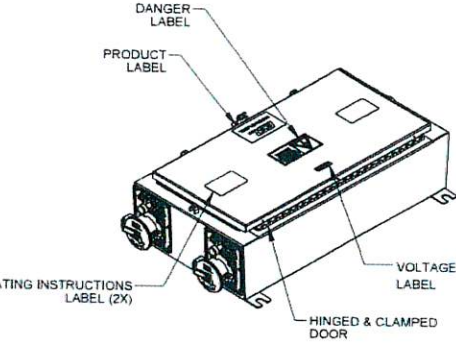


TOP VIEW
(ENCLOSURE DOOR NOT SHOWN)

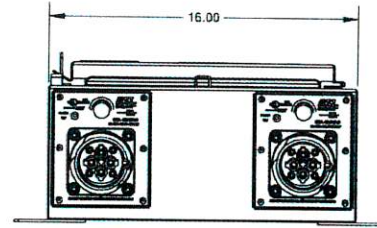


BLANK PLATE WITH DANGER AND VOLTAGE LABELS (2X)

LEFT VIEW



ESL 32A, 480VAC, 3-PHASE, 3-WIRE MODULAR SAFETY-INTERLOCKED REEFER OUTLET R32-480-30-355NQP-SP WITH INTEGRAL 30A, 480VAC CIRCUIT BREAKER RATED 35KAIC @ 480VAC, AND "POWER ON" INDICATING LIGHT. (2X)

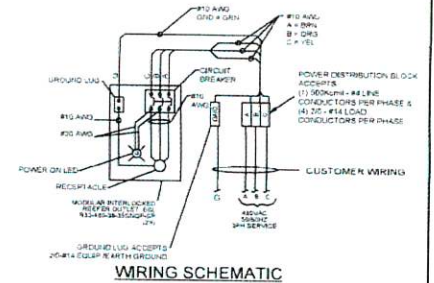


END VIEW
(STAINLESS STEEL SNAP COVER NOT SHOWN)

THIS DOCUMENT AND THE DATA DISCLOSED HEREIN OR WHEREWITH IS NOT TO BE REPRODUCED, USED OR DISCLOSED IN WHOLE OR IN PART TO ANYONE WITHOUT THE PERMISSION OF ESL.

NOTES

1. FINISH POWDER COATED SERIES W49. SEE TITLE BLOCK FOR COLOR.
2. USE ONLY 4X RATED UL LISTED HUBS / CONDUIT FITTINGS. AFTER INSTALLATION, ALL CONDUIT OPENINGS MUST BE COMPLETELY SEALED WITH UL LISTED EXPANDING FOAM. FAILURE TO SEAL MAY ALLOW CONDENSATION AND WILL VOID MANUFACTURER'S WARRANTY. COMMON DUCT SEAL IS NOT SUITABLE FOR THIS APPLICATION.
3. UNITS MUST BE STORED IN A COOL DRY AREA PRIOR TO INSTALLATION. FAILURE TO COMPLY WILL VOID MANUFACTURER'S WARRANTY.
4. DESICCANT PACKAGE IS TO BE INSTALLED JUST PRIOR TO CLOSING ENCLOSURE FOR LAST TIME.
5. TYPE 4X CONSTRUCTION



WIRING SCHEMATIC



60A 480VAC 50/60Hz 3φ 3W
2-GANG REEFER OUTLET ASSEMBLY

ESL CAT.# E42-R12-480-30-355NQP-SP-228353E MFG. DATE

SERIAL # _____

SHORT CIRCUIT CURRENT RATING: 35,000 RMS SYMMETRICAL AMPS
Use Listed ESL Plugs & Modules Cat.# M or M4 ONLY. TYPE: 4X
Corona, CA ☎ (800)922-4185 ☎ (951)736-7000 ☎ info@eslpsvr.com

WEIGHT: 58 Lbs.

2-GANG REEFER OUTLET ASSEMBLY

ESL POWER SYSTEMS, INC.
CORONA, CALIFORNIA
(951) 739-7000 (800) 922-4188
eslpsvr.com - info@eslpsvr.com

UNLESS OTHERWISE SPECIFIED	MATERIAL	ENGINEER
DIMENSIONS ARE IN INCHES	304SS	
TOLERANCES		CHECKED
DECIMALS ±.01	THICKNESS ±.001	
ANGULAR ±.1°	COLOR FINISH TEXTURE GRAY (RAL 7034)	APPROVAL
XXX ±.01	REFERENCE: 1005-94EWG8	DATE
XXX ±.01		
BREAK ALL SHARP EDGES .005 ±.010		
CRITICAL SURFACES TO BE WELD AFTER PLATING AND HEAT TREATING		

PATH: C:\ESL\Vault\22831

PART NUMBER: 2283-53E

SHEET 1 OF 1

2283-53E

MODEL

0	CSA	3/28/2022	FOR APPROVAL
REV.	BY	DATE	DESCRIPTION
REVISIONS			

APPROVED

BY: *[Signature]*
 DATE: 4.8.22
 FOR FABRICATION BY ESL

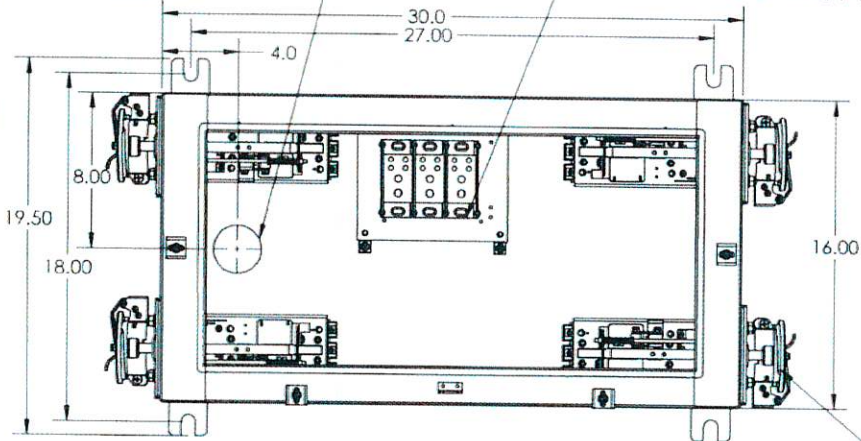
2.5" HOLE BY ESL FOR 2" NPT (CONDUIT HUB SUPPLIED BY OTHERS)

POWER DISTRIBUTION BLOCK

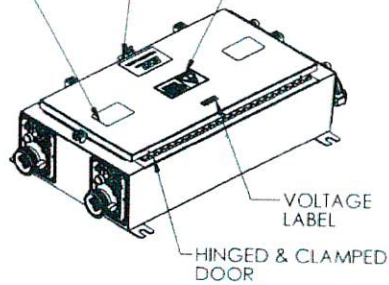
OPERATING INSTRUCTIONS LABEL (2X)

PRODUCT LABEL DANGER LABEL

THIS DOCUMENT AND THE DATA DISCLOSED HEREIN OR WHEREWITH IS NOT TO BE REPRODUCED, USED OR DISCLOSED IN WHOLE OR IN PART TO ANYONE WITHOUT THE PERMISSION OF ESL.



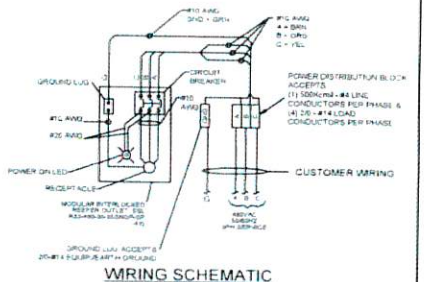
**TOP VIEW
 (ENCLOSURE DOOR NOT SHOWN)**



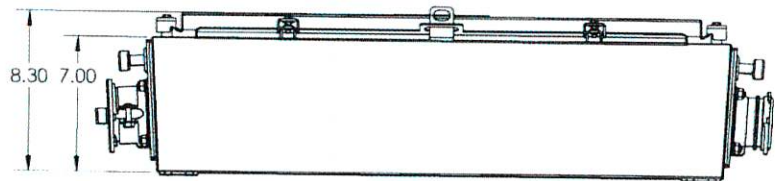
NOTES

1. FINISH POWDER COATED SERIES W49. SEE TITLE BLOCK FOR COLOR.
2. USE ONLY 4X RATED UL LISTED HUBS / CONDUIT FITTINGS. AFTER INSTALLATION, ALL CONDUIT OPENINGS MUST BE COMPLETELY SEALED WITH UL LISTED EXPANDING FOAM. FAILURE TO SEAL MAY ALLOW CONDENSATION AND WILL VOID MANUFACTURER'S WARRANTY. COMMON DUCT SEAL IS NOT SUITABLE FOR THIS APPLICATION.
3. UNITS MUST BE STORED IN A COOL DRY AREA PRIOR TO INSTALLATION. FAILURE TO COMPLY WILL VOID MANUFACTURER'S WARRANTY.
4. DESICCANT PACKAGE IS TO BE INSTALLED JUST PRIOR TO CLOSING ENCLOSURE FOR LAST TIME.
5. TYPE 4X CONSTRUCTION

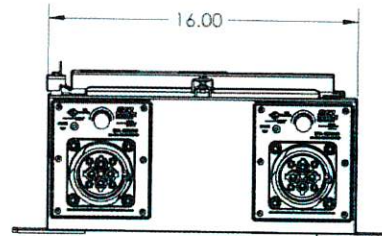
ESL 32A, 480VAC, 3-PHASE, 3-WIRE MODULAR SAFETY-INTERLOCKED REEFER OUTLET R32-480-30-35-SNQP-SP WITH INTEGRAL 30A, 480VAC CIRCUIT BREAKER RATED 35KAIC @ 480VAC, AND "POWER ON" INDICATING LIGHT (4X)



WIRING SCHEMATIC



LEFT VIEW



**END VIEW
 (STAINLESS STEEL SNAP COVER NOT SHOWN)**

ESL LISTED

**120A 480VAC 50/60Hz 3φ 3W
 4-GANG REEFER OUTLET ASSEMBLY**

ESL CAT.# E4-R32-480-30-35SNQP-SP-228353EA MFG. DATE: _____
 SERIAL # _____

SHORT CIRCUIT CURRENT RATINGS: 35,000 RMS SYMMETRICAL AMPS
 Use Listed ESL Panels & Modules Cat.# M-104 ONLY TYPE 4X
 Corona, CA ↔ (800)922-4188 ↔ (951)739-7000 ↔ info@eslpwr.com

WEIGHT: 71 Lbs.

**4-GANG REEFER
 OUTLET ASSEMBLY**

MODEL: 2283-53EA

REV	BY	DATE	DESCRIPTION
0	EH	05/13/22	FOR APPROVAL
			REVISIONS

MATERIAL	ENGINEER
304SS	CHECKED
THICKNESS 1.4 GA	APPROVAL
COLOR/FINISH TEXTURE GRAY (RAL 7001)	DATE
REFERENCE 1005-99EWJR	DATE

ESL POWER SYSTEMS, INC.
 CORONA, CALIFORNIA
 (951) 739-7000 (800) 922-4188
 eslpwr.com - info@eslpwr.com

PATH: C:\ESL Vault\2283

PART NUMBER
2283-53EA

SHEET
 1 OF 1