PROJECT MANUAL

Replace Escalators & Elevators,
West and East Parking Garage,
Capitol Building, Jefferson City, Missouri

Designed By: Midwest Engineering & Design
3100 Brown Station Rd.
Columbia, MO 65202

Date Issued: November 30, 2020

Project No.: O1910-01

STATE of MISSOURI

OFFICE of ADMINISTRATION
Facilities Management, Design & Construction
SECTION 000107 - PROFESSIONAL SEALS AND CERTIFICATIONS

PROJECT NUMBER: O1910-01

THE FOLLOWING DESIGN PROFESSIONALS HAVE SIGNED AND SEALED THE ORIGINAL PLANS AND SPECIFICATIONS FOR THIS PROJECT, WHICH ARE ON FILE WITH THE DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION:

James L. Dove, P.E.
Midwest Engineering & Design LLC
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(573) 875-0045

Discipline: MEP Engineer
License No.: PE-2002016644
Expires: December 31, 2022

Professional Engineering Corporation
License No.: PE-2010032467
Expires: December 31, 2022
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**The following documents may be found on MissouriBUYS at [https://missouribuys.mo.gov](https://missouribuys.mo.gov)/**

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END OF SECTION 000110
SECTION 000115 – LIST OF DRAWINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section provides a comprehensive list of the drawings that comprise the Bid Documents for this project.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.1 LIST OF DRAWINGS

A. The following list of drawings is a part of the Bid Documents:

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END OF SECTION  000115
SECTION 001116 - INVITATION FOR BID

1.0 OWNER:
   A. The State of Missouri
      Office of Administration,
      Division of Facilities Management, Design and Construction
      Jefferson City, Missouri

2.0 PROJECT TITLE AND NUMBER:
   A. Replace Escalators & Elevators,
      West and East Parking Garage,
      Capitol Building, Jefferson City, Missouri
      Project No.: O1910-01

3.0 BIDS WILL BE RECEIVED:
   A. Until: 1:30 PM, Thursday, January 07, 2021
   B. Only electronic bids on MissouriBUYS shall be accepted: https://missouribuys.mo.gov. Bidder must be registered to bid.

4.0 DESCRIPTION:
   A. Scope: The project includes renovating the traction elevator in the Senate parking garage, the hydraulic elevator in the House parking garage, and the escalators between the House parking garage and State Capitol building.
   B. Estimate: $937,000 to $1,228,000
   C. MBE/WBE/SDVE Goals: MBE 10%, WBE 10%, and SDVE 3%. NOTE: Only MBE/WBE firms certified by the State of Missouri Office of Equal Opportunity as of the date of bid opening, or SDVE(s) meeting the requirements of Section 34.074, RSMo and 1 CSR 30-5.010, can be used to satisfy the MBE/WBE/SDVE participation goals for this project.
   D. **NOTE: Bidders are provided new Good Faith Effort (GFE) forms on MissouriBUYS.

5.0 PRE-BID MEETING:
   A. Place/Time: 1:00 pm, Monday December 21, 2020, at 201 West Capitol Avenue, Jefferson City, Missouri. Meeting to be held in basement hearing room #6. Masks and social distancing are required.
   B. Access to State of Missouri property requires presentation of a photo ID by all persons

6.0 HOW TO GET PLANS & SPECIFICATIONS:
   A. View Only Electronic bid sets are available at no cost or paper bid sets for a deposit of $100 from American Document Solutions (ADS). MAKE CHECKS PAYABLE TO: American Document Solutions. Mail to: American Document Solutions, 1400 Forum Blvd., Suite 7A, Columbia, Missouri 65203. Phone 573-446-7768, Fax 573-355-5433, https://www.adsplanroom.net. NOTE: Prime contractors will be allowed a maximum of two bid sets at the deposit rate shown above. Other requesters will be allowed only one bid set at this rate. Additional bid sets or parts thereof may be obtained by any bidder at the cost of printing and shipping by request to American Document Solutions at the address shown above. **Bidder must secure at least one bid set to become a planholder.
   B. Refunds: Return plans and specifications in unmarked condition within 15 working days of bid opening to American Document Solutions, 1400 Forum Blvd., Suite 7A, Columbia, Missouri 65203. Phone 573-446-7768, Fax 573-355-5433. Deposits for plans not returned within 15 working days shall be forfeited.
   C. Information for upcoming bids, including downloadable plans, specifications, Invitation for Bid, bid tabulation, award, addenda, and access to the ADS planholders list, is available on the Division of Facilities Management, Design and Construction’s web site: https://oa.mo.gov/facilities/bid-opportunities/bid-listing-electronic-plans.

7.0 POINT OF CONTACT:
   A. Designer: Midwest Engineering & Design, Jim Dove, phone # 573-875-0045
   B. Project Manager: Chris Lloyd, phone # 573-526-0160

8.0 GENERAL INFORMATION:
   A. The State reserves the right to reject any and all bids and to waive all informalities in bids. No bid may be withdrawn for a period of 20 working days subsequent to the specified bid opening time. The contractor shall pay not less than the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed, as determined by the Missouri Department of Labor and Industrial Relations and as set out in the detailed plans and specifications.
   B. Bid results will be available at https://oa.mo.gov/facilities/bid-opportunities/bid-listing-electronic-plans after it is verified that at least one bid is awardable and affordable.
Very Important MissouriBUYS Instructions to Help Submit a Bid Correctly

A. The bidder shall submit his or her bid and all supporting documentation on MissouriBUYS eProcurement System. No hard copy bids shall be accepted. Go to https://missouribuys.mo.gov and register. The bidder must register before access is granted to the solicitation details and bidding is possible. However, the bidder can review a summary of the project by selecting “Bid Board” and then checking off “Open” under “Status” and “OA-FMDC-Contracts Chapter 8” under “Organization” in the boxes shown on the left margin.

B. Once registered, log in.
2. Under “Filter by Agency” select “OA-FMDC-Contracts Chapter 8.”
4. Above the dark blue bar, select “Other Active Opportunities.”
5. To see the Solicitation Summary, single click the Opp. No. (Project Number) and the summary will open. Single quick click each blue bar to open detailed information.

C. Here are simplified instructions for uploading the bid to MissouriBUYS:
1. Find the solicitation by completing Steps 1 through 4 above.
2. Select the three dots under “Actions.” Select “Add New Response.”
3. When the Quote box opens, give the response a title and select “OK.”
4. The detailed solicitation will open. Select “Check All” for the Original Solicitation Documents, open each document, and select “Accept.” If this step is not completed, a bid cannot be uploaded. Scroll to the bottom of the page and select “Add Attachments.” If you do not see this command, not all documents have been opened and accepted.
5. The Supplier Attachments box will open. Select “Add Attachment” again.
6. The Upload Documents box will open. Read the instructions for uploading. Disregard the “Confidential” check box.
7. Browse and attach up to 5 files at a time. Scroll to bottom of box and select “Upload.” The Supplier Attachments box will open. Repeat Steps 5 through 7 if more than 5 files are to be uploaded.
8. When the Supplier Attachments box opens again and uploading is complete, select “Done.” A message should appear that the upload is successful. If it does not, go to the Bidder Response tab and select “Submit.”
9. The detailed solicitation will open. At the bottom select “Close.”

D. Any time a bidder wants to modify the bid, he or she will have to submit a new one. FMDC will open the last response the bidder submits. The bidder may revise and submit the bid up to the close of the solicitation (bid date and time). Be sure to allow for uploading time so that the bid is successfully uploaded prior to the 1:30 PM deadline; we can only accept the bid if it is uploaded before the deadline.

E. If you want to verify that you are uploading documents correctly, we encourage you to submit a fake bid early. Label the fake bid as such to distinguish it from the real bid. The contracts person you contact will let you know if your “bid” was received successfully. Please contact Paul Girouard: 573-751-4797, paul.girouard@oa.mo.gov OR Mandy Roberson: 573-522-0074.

F. If you are experiencing login issues, please contact Web Procure Support (Proactis) at 866-889-8533 anytime from 7:00 AM to 7:00 PM Central Time, Monday through Friday. If you try using a userid or password several times that is incorrect, the system will lock you out. Web Procure Support is the only option to unlock you! If you forget your userid or password, Web Procure Support will provide a temporary userid or password. Also, if it has been a while since your last successful login and you receive an “inactive” message, contact Web Procure (Proactis). If you are having a registration issue, you may contact Cathy Holliday at 573-751-3491 or by email: cathy.holliday@oa.mo.gov.
IMPORTANT REMINDER REGARDING REQUIREMENT FOR OEO CERTIFICATION

A. SECTION 002113 – INSTRUCTIONS TO BIDDERS: Article 14.0, Section D1:

As of July 1, 2020, all MBE, WBE, and MBE/WBE contractors, subcontractors, and suppliers must be certified by the State of Missouri, Office of Equal Opportunity. No certifications from other Missouri certifying agencies will be accepted.
SECTION 002113 – INSTRUCTIONS TO BIDDERS

1.0 - SPECIAL NOTICE TO BIDDERS

A. If awarded a contract, the Bidder’s employees, and the employees of all subcontractors, who perform the work on the project, will be required to undergo a fingerprint background check and obtain a State of Missouri identification badge prior to beginning work on site. The Bidder should review the information regarding this requirement in Section 013513 – Site Security and Health Requirements prior to submitting a bid.

B. The Bidder’s prices shall include all city, state, and federal sales, excise, and similar taxes that may lawfully be assessed in connection with the performance of work, and the purchased of materials to be incorporated in the work. THIS PROJECT IS NOT TAX EXEMPT.

2.0 - BID DOCUMENTS

A. The number of sets obtainable by any one (1) party may be limited in accordance with available supply.

B. For the convenience of contractors, sub-contractors and suppliers, copies of construction documents are on file at the office of the Director, Division of Facilities Management, Design and Construction and on the Division’s web site - https://oa.mo.gov/facilities/bid-opportunities/bid-listing-electronic-plans.

3.0 - BIDDERS' OBLIGATIONS

A. Bidders must carefully examine the entire site of the work and shall make all reasonable and necessary investigations to inform themselves thoroughly as to the facilities available as well as to all the difficulties involved in the completion of all work in accordance with the specifications and the plans. Bidders are also required to examine all maps, plans and data mentioned in the specifications. No plea of ignorance concerning observable existing conditions or difficulties that may be encountered in the execution of the work under this contract will be accepted as an excuse for any failure or omission on the part of the contractor to fulfill in every detail all of the requirements of the contract, nor accepted as a basis for any claims for extra compensation.

B. Under no circumstances will contractors give their plans and specifications to another contractor. Any bid received from a contractor whose name does not appear on the list of plan holders may be subject to rejection.

4.0 - INTERPRETATIONS

A. No bidder shall be entitled to rely on oral interpretations as to the meaning of the plans and specifications or the acceptability of alternate products, materials, form or type of construction. Every request for interpretation shall be made in writing and submitted with all supporting documents not less than five (5) working days before opening of bids. Every interpretation made to a bidder will be in the form of an addendum and will be sent as promptly as is practicable to all persons to whom plans and specifications have been issued. All such addenda shall become part of the contract documents.

B. Approval for an “acceptable substitution” issued in the form of an addendum as per Paragraph 4A above, and as per Article 3.1 of the General Conditions; ACCEPTABLE SUBSTITUTIONS shall constitute approval for use in the project of the product.

C. An “acceptable substitution” requested after the award of bid shall be approved if proven to the satisfaction of the Owner and the Designer as per Article 3.1, that the product is acceptable in design, strength, durability, usefulness, and convenience for the purpose intended. Approval of the substitution after award is at the sole discretion of the Owner.

D. A request for “Acceptable Substitutions” shall be made on the Section 006325 Substitution Request Form. The request shall be sent directly to the project Designer. A copy of said request should also be mailed to the Owner, Division of Facilities Management, Design and Construction, Post Office Box 809, Jefferson City, Missouri 65102.
5.0 - BIDS AND BIDDING PROCEDURE

A. Bidders shall submit all submission forms and accompanying documents listed in SECTION 004113 – BID FORM, Article 5.0, ATTACHMENTS TO BID by the stated time or their bid will be rejected for being non-responsive.

Depending on the specific project requirements, the following is a GENERIC list of all possible bid forms that may be due with bid submittals and times when they may be due. Please check for specific project requirements on the proposal form (Section 004113). Not all of the following bid forms may be required to be submitted.

Bid Submittal – due before stated date and time of bid opening (see IFB):

| 004113 | Bid Form (all pages are always required) |
| 004322 | Unit Prices Form |
| 004336 | Proposed Subcontractors Form |
| 004337 | MBE/WBE/SDVE Compliance Evaluation Form |
| 004338 | MBE/WBE/SDVE Eligibility Determination for Joint Ventures |
| 004339 | MBE/WBE/SDVE GFE Determination |
| 004340 | SDVE Business Form |
| 004541 | Affidavit of Work Authorization |
| 004545 | Anti-Discrimination Against Israel Act Certification form |

B. All bids shall be submitted without additional terms and conditions, modification or reservation on the bid forms with each space properly filled. Bids not on these forms will be rejected.

C. All bids shall be accompanied by a bid bond executed by the bidder and a duly authorized surety company, certified check, cashier's check or bank draft made payable to the Division of Facilities Management, Design and Construction, State of Missouri, in the amount indicated on the bid form, Section 004113. Failure of the contractor to submit the full amount required shall be sufficient cause to reject his bid. The bidder agrees that the proceeds of the check, draft or bond shall become the property of the State of Missouri, if for any reason the bidder withdraws his bid after closing, or if on notification of award refuses or is unable to execute tendered contract, provide an acceptable performance and payment bond, provide evidence of required insurance coverage and/or provide required copies of affirmative action plans within ten (10) working days after such tender.

D. The check or draft submitted by the successful bidder will be returned after the receipt of an acceptable performance and payment bond and execution of the formal contract. Checks or drafts of all other bidders will be returned within a reasonable time after it is determined that the bid represented by same will receive no further consideration by the State of Missouri. Bid bonds will only be returned upon request.

6.0 - SIGNING OF BIDS

A. A bid from an individual shall be signed as noted on the Bid Form.

B. A bid from a partnership or joint venture shall require only one signature of a partner, an officer of the joint venture authorized to bind the venture or an attorney-in-fact. If the bid is signed by an officer of a joint venture or an attorney-in-fact, a document evidencing the individual's authority to execute contracts should be included with the bid form.

C. A bid from a limited liability company (LLC) shall be signed by a manager or a managing member of the LLC.

D. A bid from a corporation shall have the correct corporate name thereon and the signature of an authorized officer of the corporation manually written. Title of office held by the person signing for the corporation shall appear, along with typed name of said individual. Corporate license number shall be provided and, if a corporation organized in a state other than Missouri, a Certificate of Authority to do business in the State of Missouri shall be attached. In addition, for corporate proposals, the President or Vice-President should sign as the bidder. If the signator is other than the corporate president or vice president, the bidder must provide satisfactory evidence that the signator has the legal authority to bind the corporation.
E. A bid should contain the full and correct legal name of the Bidder. If the Bidder is an entity registered with the Missouri Secretary of State, the Bidder’s name on the bid form should appear as shown in the Secretary of State’s records.

F. The Bidder should include its corporate license number on the Bid Form and, if the corporation is organized in a state other than Missouri, a Certificate of Authority to do business in the State of Missouri shall be attached to the bid form.

7.0 - RECEIVING BID SUBMITTALS

A. It is the bidder’s sole responsibility to assure receipt by Owner of bid submittals by the date and time specified in the Invitation for Bid. Bids received after the date and time specified shall not be considered by the Owner.

B. Bids must be submitted through the MissouriBUYS statewide eProcurement system (https://www.missouribuys.mo.gov/) in accordance with the instructions for that system. The Owner shall only accept bids submitted through MissouriBUYS. Bids received by the Owner through any other means, including hard copies, shall not be considered and will be discarded by the Owner unopened.

C. To respond to an Invitation for Bid, the Bidder must first register with MissouriBUYS by going through the MissouriBUYS Home Page (https://www.missouribuys.mo.gov/), clicking the “Register” button at the top of the page, and completing the Vendor Registration. Once registered, the Bidder accesses its account by clicking the “Login” button at the top of the MissouriBUYS Home Page. Enter your USERID and PASSWORD, which the Bidder will select. Under Solicitations, select “View Current Solicitations.” A new screen will open. Under “Filter by Agency” select “OA-FMDC-Contracts Chapter 8.” Under “Filter by Opp. No.” type in the State Project Number. Select “Submit.” Above the dark blue bar, select “Other Active Opportunities.” To see the Solicitation Summary, single click the Opp. No. (Project Number) and the summary will open. Single quick click each blue bar to open detailed information. The Bidder must read and accept the Original Solicitation Documents and complete all identified requirements. The Bidder should download and save all of the Original Solicitation Documents on its computer so that the Bidder can prepare its response to these documents. The Bidder should upload its completed response to the downloaded documents as an attachment to the electronic solicitation response.

D. Step-by-step instructions for how a registered vendor responds to a solicitation electronically are provided in Section 001116 – Invitation For Bid.

E. The Bidder shall submit its bid on the forms provided by the Owner on MissouriBUYS with each space fully and properly completed, including all amounts required for alternate bids, unit prices, cost accounting data, etc. The Owner may reject bids that are not on the Owner’s forms or that do not contain all requested information.

F. No Contractor shall stipulate in his bid any conditions not contained in the specifications or standard bid form contained in the contract documents. To do so may subject the Contractor’s bid to rejection.

G. The completed forms shall be without interlineations, alterations or erasures.

8.0 - MODIFICATION AND WITHDRAWAL OF BIDS

A. Bidder may withdraw his bid at any time prior to scheduled closing time for receipt of bids, but no bidder may withdraw his bid for a period of twenty (20) working days after the scheduled closing time for receipt of bids.

B. The Bidder shall modify his or her original bid by submitting a revised bid on MissouriBUYS.

9.0 - AWARD OF CONTRACT

A. The Owner reserves the right to reject any and/or all bids and further to waive all informalities in bidding when deemed in the best interest of the State of Missouri.

B. The Owner reserves the right to let other contracts in connection with the work, including but not by way of limitation, contracts for the furnishing and installation of furniture, equipment, machines, appliances and other apparatus.
C. In awarding the contract the Owner may take into consideration the bidder's skill, facilities, capacity, experience, responsibility, previous work record, financial standing and the necessity of prompt and efficient completion of work herein described. Inability of any bidder to meet the requirements mentioned above may be cause for rejection of his bid. However, no contract will be awarded to any individual, partnership or corporation, who has had a contract with the State of Missouri declared in default within the preceding twelve months.

D. Award of alternates, if any, will be made in numerical order unless all bids received are such that the order of acceptance of alternates does not affect the determination of the low bidder.

E. No bid shall be considered binding upon the Owner until the written contract has been properly executed, a satisfactory bond has been furnished, evidence of required insurance coverage, submittal of executed Section 004541, Affidavit of Work Authorization form, documentation evidencing enrollment and participation in a federal work authorization program has been received and an affirmative action plan submitted. Failure to execute and return the contract and associated documents within the prescribed period of time shall be treated, at the option of the Owner, as a breach of bidder's obligation and the Owner shall be under no further obligation to bidder.

F. If the successful bidder is doing business in the State of Missouri under a fictitious name, he shall furnish to Owner, attached to the Bid Form, a properly certified copy of the certificate of Registration of Fictitious Name from the State of Missouri, and such certificate shall remain on file with the Owner.

G. Any successful bidder which is a corporation organized in a state other than Missouri shall furnish to the Owner, attached to the Bid Form, a properly certified copy of its current Certificate of Authority to do business in the State of Missouri, such certificate to remain on file with the Owner. No contract will be awarded by the Owner unless such certificate is furnished by the bidder.

H. Any successful bidder which is a corporation organized in the State of Missouri shall furnish at its own cost to the Owner, if requested, a Certificate of Good Standing issued by the Secretary of State, such certificate to remain on file with the Owner.

I. Transient employers subject to Sections 285.230 and 285.234, RSMo, (out-of-state employers who temporarily transact any business in the State of Missouri) may be required to file a bond with the Missouri Department of Revenue. No contract will be awarded by the Owner unless the successful bidder certifies that he has complied with all applicable provisions of Section 285.230-234.

J. Sections 285.525 and 285.530, RSMo, require business entities to enroll and participate in a federal work authorization program in order to be eligible to receive award of any state contract in excess of $5,000. Bidders should submit with their bid an Affidavit of Work Authorization (Section 004541) along with appropriate documentation evidencing such enrollment and participation. Section-004541, Affidavit of Work Authorization is located on the MissouriBUYS solicitation for this project. Bidders must also submit an E-Verify Memorandum before the Owner may award a contract to the Bidder. Information regarding a E-Verify is located at https://www.uscis.gov/e-verify/. The contractor shall be responsible for ensuring that all subcontractors and suppliers associated with this contract enroll in E-Verify.

10.0 - CONTRACT SECURITY

A. The successful bidder shall furnish a performance/payment bond as set forth in General Conditions Article 6.1 on a condition prior to the State executing the contract and issuing a notice to proceed.

11.0 - LIST OF SUBCONTRACTORS

A. If required by “Section 004113 – Bid Form,” each bidder must submit as part of their bid a list of subcontractors to be used in performing the work (Section 004336). The list must specify the name of the single designated subcontractor, for each category of work listed in “Section 004336 - Proposed Subcontractors Form.” If work within a category will be performed by more than one subcontractor, the bidder must provide the name of each subcontractor and specify the exact portion of the work to be done by each. Failure to list the Bidder’s firm, or a subcontractor for each category of work identified on the Bid Form or the listing of more than one subcontractor for any category without designating the portion of work to be performed by each shall be cause for rejection of the bid. If the bidder intends to perform any of the designated subcontract work with the use of his own employees, the bidder shall make that fact clear, by listing his own firm for the subject category. **If any category of work is left vacant, the bid shall be rejected.**
12.0 - WORKING DAYS (Not Applicable; Project has fixed completion date.)

A. Contract duration time is stated in working days and will use the following definition in determining the actual calendar date for contract completion:


13.0 - AMERICAN AND MISSOURI - MADE PRODUCTS AND FIRMS

A. By signing the bid form and submitting a bid on this project, the Bidder certifies that it will use American and Missouri products as set forth in Article 1.7 of the General Conditions. Bidders are advised to review those requirements carefully prior to bidding.

B. A preference shall be given to Missouri firms, corporations or individuals, or firms, corporations or individuals that maintain Missouri offices or places of business, when the quality of performance promised is equal or better and the price quoted is the same or less.

C. Pursuant to Section 34.076, RSMo, a contractor or Bidder domiciled outside the boundaries of the State of Missouri shall be required, in order to be successful, to submit a bid the same percent less than the lowest bid submitted by a responsible contractor or Bidder domiciled in Missouri as would be required for such a Missouri domiciled contractor or Bidder to succeed over the bidding contractor or Bidder domiciled outside Missouri on a like contract or bid being let in the person's domiciliary state and, further, the contractor or Bidder domiciled outside Missouri shall be required to submit an audited financial statement as would be required of a Missouri domiciled contractor or Bidder on a like contract or bid being let in the domiciliary state of that contractor or Bidder.

14.0 – ANTI-DISCRIMINATION AGAINST ISRAEL ACT CERTIFICATION:

A. Pursuant to section 34.600, RSMo, if the Bidder meets the section 34.600, RSMo, definition of a “company” and the Bidder has ten or more employees, the Bidder must certify in writing that the Bidder is not currently engaged in a boycott of goods or services from the State of Israel as defined in section 34.600, RSMo, and shall not engage in a boycott of goods or services from the State of Israel, if awarded a contract, for the duration of the contract. The Bidder is requested to complete and submit the applicable portion of Section 004545 - Anti-Discrimination Against Israel Act Certification with their Bid Form. The applicable portion of the exhibit must be submitted prior to execution of a contract by the Owner and issuance of Notice to Proceed. If the exhibit is not submitted, the Owner shall rescind its Intent to Award and move to the next lowest, responsive, responsible bidder.

15.0 - MBE/WBE/SDVE INSTRUCTIONS

A. Definitions:

1. “MBE” means a Minority Business Enterprise.

2. “MINORITY” has the same meaning as set forth in 1 C.S.R. 10-17.010.

3. “MINORITY BUSINESS ENTERPRISE” has the same meaning as set forth in section 37.020, RSMo.


5. “WOMEN’S BUSINESS ENTERPRISE” has the same meaning as set forth in section 37.020, RSMo.


7. “SERVICE-DISABLED VETERAN” has the same meaning as set forth in section 34.074, RSMo.

8. “SERVICE-DISABLED VETERAN ENTERPRISE” has the same meaning as “Service-Disabled Veteran Business” set forth in section 34.074, RSMo.
B. MBE/WBE/SDVE General Requirements:

1. For all bids greater than $100,000, the Bidder shall obtain MBE, WBE and SDVE participation in an amount equal to or greater than the percentage goals set forth in the Invitation for Bid and the Bid Form, unless the Bidder is granted a Good Faith Effort waiver by the Director of the Division, as set forth below. If the Bidder does not meet the MBE, WBE and SDVE goals, or make a good faith effort to do so, the Bidder shall be non-responsive, and its bid shall be rejected.

2. The Bidder should submit with its bid all of the information requested in the MBE/WBE/SDVE Compliance Evaluation Form for every MBE, WBE, or SDVE subcontractor or material supplier the Bidder intends to use for the contract work. The Bidder is required to submit all appropriate MBE/WBE/SDVE documentation before the stated time and date set forth in the Invitation for Bid. If the Bidder fails to provide such information by the specified date and time, the Owner shall reject the bid.

3. The Director reserves the right to request additional information from a Bidder to clarify the Bidder’s proposed MBE, WBE, and/or SDVE participation. The Bidder shall submit the clarifying information requested by the Owner within two (2) Working Days of receiving the request for clarification.

4. Pursuant to section 34.074, RSMo, a Bidder that is a SDVE doing business as Missouri firm, corporation, or individual, or that maintains a Missouri office or place of business, shall receive a three-point bonus preference in the contract award evaluation process. The bonus preference will be calculated and applied by reducing the bid amount of the eligible SDVE by three percent of the apparent low responsive bidder’s bid. Based on this calculation, if the eligible SDVE’s evaluation is less than the apparent low responsive bidder’s bid, the eligible SDVE’s bid becomes the apparent low responsive bid. This reduction is for evaluation purposes only, and will have no impact on the actual amount(s) of the bid or the amount(s) of any contract awarded. In order to be eligible for the SDVE preference, the Bidder must complete and submit with its bid the Missouri Service Disabled Veteran Business Form, and any information required by the form. The form is available on the MissouriBUYS solicitation for this project.

C. Computation of MBE/WBE/SDVE Goal Participation:

1. A Bidder who is a MBE, WBE, or SDVE may count 100% of the contract towards the MBE, WBE or SDVE goal, less any amounts awarded to another MBE, WBE or SDVE. (NOTE: A MBE firm that bids as general contractor must obtain WBE and SDVE participation; a WBE firm that bids as a general contractor must obtain MBE and SDVE participation; and a SDVE firm that bids as general contractor must obtain MBE and WBE participation.) In order for the remaining contract amount to be counted towards the MBE, WBE or SDVE goal, the Bidder must complete the MBE/WBE/SDVE Compliance Evaluation Form (Section 004337) identifying itself as an MBE, WBE or SDVE.

2. The total dollar value of the work granted to a certified MBE, WBE or SDVE by the Bidder shall be counted towards the applicable goal.

3. Expenditures for materials and supplies obtained from a certified MBE, WBE, or SDVE supplier or manufacturer may be counted towards the MBE, WBE and SDVE goals, if the MBE, WBE, or SDVE assumes the actual and contractual responsibility for the provision of the materials and supplies.

4. The total dollar value of the work granted to a second or subsequent tier subcontractor or a supplier may be counted towards a Bidder’s MBE, WBE and SDVE goals, if the MBE, WBE, or SDVE properly assumes the actual and contractual responsibility for the work.

5. The total dollar value of work granted to a certified joint venture equal to the percentage of the ownership and control of the MBE, WBE, or SDVE partner in the joint venture may be counted towards the MBE/WBE/SDVE goals.

6. Only expenditures to a MBE, WBE, or SDVE that performs a commercially useful function in the work may be counted towards the MBE, WBE and SDVE goals. A MBE, WBE, or SDVE performs a commercially useful function when it is responsible for executing a distinct element of the work and carrying out its responsibilities by actually performing, managing and supervising the work or providing supplies or manufactured materials.
D. Certification of MBE/WBE/SDVE Subcontractors:

1. In order to be counted towards the goals, an MBE or WBE must be certified by the State of Missouri Office of Equal Opportunity and an SDVE must be certified by the State of Missouri, Office of Administration, Division of Purchasing and Material Management or by the Department of Veterans Affairs.

2. The Bidder may determine the certification status of a proposed MBE or WBE subcontractor or supplier by referring to the Office of Equal Opportunity (OEO)’s online MBE/WBE directory (https://apps1.mo.gov/oeo/). The Bidder may determine the eligibility of a SDVE subcontractor or supplier by referring to the Division of Purchasing and Materials Management’s online SDVE directory (http://oa.mo.gov/purchasing/vendor-information/missouri-service-disabled-veteranbusiness-enterprise-sdve-information) or the Department of Veterans Affairs’ directory (https://www.vip.vetbiz.gov/).

3. Additional information, clarifications, etc., regarding the listings in the directories may be obtained by calling the Division at (573)751-3339 and asking to speak to the Contract Specialist of record as shown in the Supplementary Conditions (Section 007300).

E. Waiver of MBE/WBE/SDVE Participation:

1. If a Bidder has made a good faith effort to secure the required MBE, WBE and/or SDVE participation and has failed, the Bidder shall submit with its bid the information requested in MBE/WBE/SDVE Good Faith Effort (GFE) Determination form. The GFE forms are located on the MissouriBUYS solicitation for this project. The Director will determine if the Bidder made a good faith effort to meet the applicable goals. If the Director determines that the Bidder did not make a good faith effort, the bid shall be rejected as being nonresponsive to the bid requirements. Bidders who demonstrate that they have made a good faith effort to include MBE, WBE, and/or SDVE participation will be determined to be responsive to the applicable participation goals, regardless of the percent of actual participation obtained, if the bid is otherwise acceptable.

2. In determining whether a Bidder has made a good faith effort to obtain MBE, WBE and/or SDVE participation, the Director may evaluate the factors set forth in 1 CSR 30-5.010(6)(C) and the following:
   a. The amount of actual participation obtained;
   b. How and when the Bidder contacted potential MBE, WBE, and SDVE subcontractors and suppliers;
   c. The documentation provided by the Bidder to support its contacts, including whether the Bidder provided the names, addresses, phone numbers, and dates of contact for MBE/WBE/SDVE firms contacted for specific categories of work;
   d. If project information, including plans and specifications, were provided to MBE/WBE/SDVE subcontractors;
   e. Whether the Bidder made any attempts to follow-up with MBE, WBE or SDVE firms prior to bid;
   f. Amount of bids received from any of the subcontractors and/or suppliers that the Bidder contacted;
   g. The Bidder’s stated reasons for rejecting any bids;

3. If no bidder has obtained any participation in a particular category (MBE/WBE/SDVE) or made a good faith effort to do so, the Director may waive that goal rather than rebid.
F. Contractor MBE/WBE/SDVE Obligations

1. If awarded a contract, the Bidder will be contractually required to subcontract with or obtain materials from the MBE, WBE, and SDVE firms listed in its bid, in amounts equal to or greater than the dollar amount bid, unless the amount is modified in writing by the Owner.

2. If the Contractor fails to meet or maintain the participation requirements contained in the Contractor’s bid, the Contractor must satisfactorily explain to the Director why it cannot comply with the requirement and why failing meeting the requirement was beyond the Contractor’s control. If the Director finds the Contractor's explanation unsatisfactory, the Director may take any appropriate action including, but not limited to:
   a. Declaring the Contractor ineligible to participate in any contracts with the Division for up to twelve (12) months (suspension); and/or
   b. Declaring the Contractor be non-responsive to the Invitation for Bid, or in breach of contract and rejecting the bid or terminating the contract.

3. If the Contractor replaces an MBE, WBE, or SDVE during the course of this contract, the Contractor shall replace it with another MBE, WBE, or SDVE or make a good faith effort to do so. All MBE, WBE and SDVE substitutions must be approved by the Director.

4. The Contractor shall provide the Owner with regular reports on its progress in meeting its MBE/WBE/SDVE obligations. At a minimum, the Contractor shall report the dollar-value of work completed by each MBE, WBE, or SDVE during the preceding month and the cumulative total of work completed by each MBE, WBE or SDVE to date with each monthly application for payment. The Contractor shall also make a final report, which shall include the total dollar-value of work completed by each MBE, WBE, and SDVE during the entire contract.
The MBE/WBE Directory for goods and services is maintained by the Office of Equal Opportunity (OEO). The current Directory can be accessed at the following web address:

https://apps1.mo.gov/MWBCertifiedFirms/

Please note that you may search by MBE, WBE, or both as well as by region, location of the business by city or state, as well as by commodity or service.

The SERVICE DISABLED VETERAN ENTERPRISE (SDVE) Directory (s) may be accessed at the following web addresses:

https://oa.mo.gov/sites/default/files/sdvelisting.pdf

https://www.vip.vetbiz.va.gov
THIS AGREEMENT, made (DATE) by and between:

Contractor Name and Address
hereinafter called the "Contractor,"

and the State of Missouri, hereinafter called the "Owner", represented by the Office of Administration, Division of Facilities Management, Design and Construction.

WITNESSETH, that the Contractor and the Owner, for the consideration stated herein agree as follows:

ARTICLE 1. STATEMENT OF WORK

The Contractor shall furnish all labor and materials and perform all work required for furnishing and installing all labor, materials, equipment and transportation and everything necessarily inferred from the general nature and tendency of the plans and specifications for the proper execution of the work for:

Replace Escalators & Elevators,
West and East Parking Garage,
Capitol Building, Jefferson City, Missouri

Project Number: O1910-01

in strict accordance with the Contract Documents as enumerated in Article 7, all of which are made a part hereof.

ARTICLE 2. TIME OF COMPLETION

The fixed contract completion date is November 16, 2021. This time includes ten (10) working days for the Contractor to receive, sign and return the contract form along with required bonding and insurance certificates. Failure of the Contractor to provide correct bonding and insurance within the ten (10) working days shall not be grounds for a time extension. Receipt of proper bonding and insurance is a condition precedent to the formation of the contract and if not timely received, may result in forfeiture of the Contractor's bid security. Work may not commence until the Owner issues a written Notice to Proceed and must commence within seven (7) working days thereafter.

ARTICLE 3. LIQUIDATED DAMAGES

Whenever time is mentioned in this contract, time shall be and is of the essence of this contract. The Owner would suffer a loss should the Contractor fail to have the work embraced in this contract fully completed on or before the time above specified. THEREFORE, the parties hereto realize in order to adjust satisfactorily the damages on account of such failure that it might be impossible to compute accurately or estimate the amount of such loss or damages which the Owner would sustain by reason of failure to complete fully said work within the time required by this contract. The Contractor hereby covenants and agrees to pay the Owner, as and for liquidated damages, the sum of $1,000 per day for each and every day, Sunday and legal holidays excepted, during which the work remains incomplete and unfinished. Any sum which may be due the Owner for such damages shall be deducted and retained by the Owner from any balance which may be due the Contractor when said work shall have been finished and accepted. But such provisions shall not release the Bond of the Contractor from liability according to its terms. In case of failure to complete, the Owner will be under no obligation to show or prove any actual or specific loss or damage.
ARTICLE 4. CONTRACT SUM

The Owner shall pay the Contractor for the prompt, faithful and efficient performance of the conditions and undertakings of this contract, subject to additions, and deductions as provided herein, in current funds the sum of:

Base Bid: $  

TOTAL CONTRACT AMOUNT: ($CONTRACT AMOUNT)

UNIT PRICES: The Owner accepts the following Unit Prices: NOT APPPLICABLE

For changing specified quantities of work from those indicated by the contract drawings and specifications, upon written instructions of Owner, the following unit prices shall prevail. The unit prices include all labor, overhead and profit, materials, equipment, appliances, bailing, shoring, shoring removal, etc., to cover the finished work of the several kinds of work called for. Only a single unit price shall be given and it shall apply for either MORE or LESS work than that shown on the drawings and called for in the specifications or included in the Base Bid. In the event of more or less units than so indicated or included, change orders may be issued for the increased or decreased amount.

ARTICLE 5. PREVAILING WAGE RATE

It is understood and agreed by and between the parties that not less than the prevailing hourly rate of wages shall be paid for work of a similar character in the locality in which the work is performed, and not less than the prevailing hourly rate of wages for legal holiday and overtime work in the locality in which the work is performed, both as determined by the Department of Labor and Industrial Relations or as determined by the court on appeal, to all workmen employed by or on behalf of the Contractor or any subcontractor, exclusive of maintenance work. Only such workmen as are directly employed by the Contractor or his subcontractors, in actual construction work on the site shall be deemed to be employed.

When the hauling of materials or equipment includes some phase of the construction other than the mere transportation to the site of the construction, workmen engaged in this dual capacity shall be deemed to be employed directly on the project and entitled to the prevailing wage.

ARTICLE 6. MINORITY/WOMEN/SERVICE DISABLED VETERAN BUSINESS ENTERPRISE PARTICIPATION

The Contractor has been granted a waiver of the 10% MBE and 10% WBE and 3% SDVE participation goals. The Contractor agrees to secure the MBE/WBE/SDVE participation amounts for this project as follows: (OR)

The Contractor has met the MBE/WBE/SDVE participation goals and agrees to secure the MBE/WBE/SDVE participation amounts for this project as follows:

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<th>MBE/WBE/SDVE Firm</th>
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MBE/WBE/SDVE assignments identified above shall not be changed without a Contract Change signed by the Owner.

The Director of the Division of Facilities Management, Design and Construction or his Designee shall be the final authority to resolve disputes and disagreements between the Contractor and the MBE/WBE/SDVE firms listed above when such disputes impact the subcontract amounts shown above.

ARTICLE 7. CONTRACT DOCUMENTS
Contract documents shall consist of the following component parts:

1. Division 0, with executed forms
2. Division 1
3. Executed Construction Contract Form
4. The Drawings
5. The Technical Specifications
6. Addenda
7. Contractor's Proposal as accepted by the Owner

By signature below, the parties hereby execute this contract document.

APPROVED:

________________________________________
Mark Hill, P.E., Director
Division of Facilities Management,
Design and Construction

________________________________________
Contractor’s Authorized Signature

DELETE IF PRIVATE OR PARTNERSHIP

I, Corporate Secretary, certify that I am Secretary of the corporation named above and that (CONTRACTOR NAME), who signed said contract on behalf of the corporation, was then (TITLE) of said corporation and that said contract was duly signed for and in behalf of the corporation by authority of its governing body, and is within the scope of its corporate powers.

________________________________________
Corporate Secretary
STATE OF MISSOURI  
OFFICE OF ADMINISTRATION  
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION  

NAME  
First being duly sworn on oath states: that

he/she is the □ sole proprietor □ partner □ officer or □ manager or managing member of

NAME  
a □ sole proprietorship □ partnership
□ limited liability company (LLC)

or □ corporation, and as such, said proprietor, partner, or officer is duly authorized to make this

affidavit on behalf of said sole proprietorship, partnership, or corporation; that under the contract known as

PROJECT TITLE

Less than 50 persons in the aggregate will be employed and therefore, the applicable Affirmative Action
requirements as set forth in Article 1.4 of the General Conditions of the State of Missouri have been met.

PRINT NAME & SIGNATURE  
DATE

NOTARY INFORMATION

NOTARY PUBLIC EMBOSSE SEAL  
STATE OF  
COUNTY (OR CITY OF ST. LOUIS)  
USE RUBBER STAMP IN CLEAR AREA BELOW

SUBSCRIBED AND SWORN BEFORE ME, THIS  
DAY OF  
YEAR

NOTARY PUBLIC SIGNATURE  
MY COMMISSION EXPIRES

NOTARY PUBLIC NAME (TYPED OR PRINTED)

MO 300-1401 (05/18)  
FILE/Construction Contract
SECTION 006113 - PERFORMANCE AND PAYMENT BOND FORM

KNOW ALL MEN BY THESE PRESENTS, THAT we ____________________________________________________ as principal, and ______________________ ________________________________________________________________ as Surety, are held and firmly bound unto the STATE OF MISSOURI. in the sum of ___________________________________ Dollars ($ ________ ) for payment whereof the Principal and Surety bind themselves, their heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

WHEREAS, the Principal has, by means of a written agreement dated the ______________________________________ day of_______________________________________, 20_________, enter into a contract with the State of Missouri for _________________________________________________________.

NOW, THEREFORE, if the Principal shall faithfully perform and fulfill all the undertakings, covenants, terms, conditions and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the State of Missouri, with or without notice to the Surety and during the life of any guaranty required under the contract; and shall also faithfully perform and fulfill all undertakings, covenants, terms, conditions and agreements of any and all duly authorized modifications of said contract that may hereafter be made with or without notice to the Surety; and shall also promptly make payment for materials incorporated, consumed or used in connection with the work set forth in the contract referred to above, and all insurance premiums, both compensation and all other kinds of insurance, on said work, and for all labor performed on such work, whether by subcontractor or otherwise, at not less than the prevailing hourly rate of wages for work of a similar character (exclusive of maintenance work) in the locality in which the work is performed and not less than the prevailing hourly rate of wages for legal holiday and overtime work (exclusive of maintenance work) in the locality in which the work is performed both as determined by the Department of Labor and Industrial Relations or determined by the Court of Appeal, as provided for in said contract and in any and all duly authorized modifications of said contract that may be hereafter made with or without notice to the Surety; then, this obligation shall be void and of no effect, but it is expressly understood that if the Principal should make default in or should fail to strictly, faithfully and efficiently do, perform and comply with any or more of the covenants, agreements, stipulations, conditions, requirements or undertakings, as specified in or by the terms of said contract, and with the time therein named, then this obligation shall be valid and binding upon each of the parties hereto and this bond shall remain in full force and effect; and the same may be sued on at the instance of any material man, laborer, mechanic, subcontractor, individual, or otherwise to whom such payment is due, in the name of the State of Missouri, to the use of any such person.
AND, IT IS FURTHER specifically provided that any modifications which may hereinafter be made in the terms of the contract or in the work to be done under it or the giving by the Owner of any extension of the time for the performance of the contract or any other forbearance on the part of either the Owner or the Principal to the other, shall not in any way release the Principal and the Surety, or either or any of them, their heirs, executors, administrators and successors, from their liability hereunder, notice to the Surety of any such extension, modifications or forbearance being hereby waived.

IN WITNESS WHEREOF, the above bounden parties have executed the within instrument this _____________ day of ______________, 20 ___.

AS APPLICABLE:

AN INDIVIDUAL

Name: ____________________________________________

Signature: _______________________________________

A PARTNERSHIP

Name of Partner: __________________________________

Signature of Partner: ______________________________

Name of Partner: __________________________________

Signature of Partner: ______________________________

CORPORATION

Firm Name: ______________________________________

Signature of President: _____________________________

SURETY

Surety Name: ______________________________________

Attorney-in-Fact: __________________________________

Address of Attorney-in-Fact: __________________________

_________________________________________________

Telephone Number of Attorney-in-Fact: __________________

Signature Attorney-in-Fact: ___________________________

NOTE: Surety shall attach Power of Attorney
STATE OF MISSOURI  
OFFICE OF ADMINISTRATION  
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

PRODUCT SUBSTITUTION REQUEST

PROJECT NUMBER

PROJECT TITLE AND LOCATION

CHECK APPROPRIATE BOX

☐ SUBSTITUTION PRIOR TO BID OPENING  
(Minimum of (5) working days prior to receipt of Bids as per Article 4 – Instructions to Bidders)

☐ SUBSTITUTION FOLLOWING AWARD  
(Maximum of (20) working days from Notice to Proceed as per Article 3 – General Conditions)

FROM: BIDDER/CONTRACTOR [PRINT COMPANY NAME]

TO: ARCHITECT/ENGINEER [PRINT COMPANY NAME]

Bidder/Contractor hereby requests acceptance of the following product or systems as a substitution in accordance with provisions of Division One of the Bidding Documents:

SPECIFIED PRODUCT OR SYSTEM

SPECIFICATION SECTION NO.

SUPPORTING DATA

☐ Product data for proposed substitution is attached (include description of product, standards, performance, and test data)

☐ Sample  ☐ Sample will be sent, if requested

QUALITY COMPARISON

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<tr>
<th>SPECIFIED PRODUCT</th>
<th>SUBSTITUTION REQUEST</th>
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<td>NAME, BRAND</td>
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<td>MANUFACTURER</td>
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PREVIOUS INSTALLATIONS

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<th>PROJECT</th>
<th>ARCHITECT/ENGINEER</th>
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<td>LOCATION</td>
<td>DATE INSTALLED</td>
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SIGNIFICANT VARIATIONS FROM SPECIFIED PRODUCT

________________________________________________________________________

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________________________________________________________________________
**REASON FOR SUBSTITUTION**


**DOES PROPOSED SUBSTITUTION AFFECT OTHER PARTS OF WORK?**

| YES | NO |

| IF YES, EXPLAIN |


**SUBSTITUTION REQUIRES DIMENSIONAL REVISION OR REDESIGN OF STRUCTURE OR A/E WORK**

| YES | NO |


**BIDDER’S/CONTRACTOR’S STATEMENT OF CONFORMANCE OF PROPOSED SUBSTITUTION TO CONTRACT REQUIREMENT:**

We have investigated the proposed substitution. We believe that it is equal or superior in all respects to specified product, except as stated above; that it will provide the same Warranty as specified product; that we have included complete implications of the substitution; that we will pay redesign and other costs caused by the substitution which subsequently become apparent; and that we will pay costs to modify other parts of the Work as may be needed, to make all parts of the Work complete and functioning as a result of the substitution.


**REVIEW AND ACTION**

| Resubmit Substitution Request with the following additional information: |

| Substitution is accepted. |

| Substitution is accepted with the following comments: |

| Substitution is not accepted. |
KNOW ALL MEN BY THESE PRESENT THAT: hereinafter called “Subcontractor” who heretofore entered into an agreement with hereinafter called “Contractor”, for the performance of work and/or furnishing of material for the construction of the project entitled

(PROJECT TITLE, PROJECT LOCATION, AND PROJECT NUMBER)

at

(ADDRESS OF PROJECT)

for the State of Missouri (Owner) which said subcontract is by this reference incorporated herein, in consideration of such final payment by Contractor.

DOES HEREBY:

1. ACKNOWLEDGE that they have been PAID IN FULL all sums due for work and materials contracted or done by their Subcontractors, Material Vendors, Equipment and Fixture Suppliers, Agents and Employees, or otherwise in the performance of the Work called for by the aforesaid Contract and all modifications or extras or additions thereto, for the construction of said project or otherwise.

2. RELEASE and fully, finally, and forever discharge the Owner from any and all suits, actions, claims, and demands for payment for work performed or materials supplied by Subcontractor in accordance with the requirements of the above referenced Contract.

3. REPRESENT that all of their Employees, Subcontractors, Material Vendors, Equipment and Fixture Suppliers, and everyone else has been paid in full all sums due them, or any of them, in connection with performance of said Work, or anything done or omitted by them, or any of them in connection with the construction of said improvements, or otherwise.

DATED this day of , 20 .

NAME OF SUBCONTRACTOR

BY (TYPED OR PRINTED NAME)

SIGNATURE

TITLE

ORIGINAL: FILE/Closedout Documents
STATE OF MISSOURI
OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

MBE/WBE/SDVE PROGRESS REPORT
SUBMIT WITH ALL INVOICES. (PLEASE CHECK APPROPRIATE BOX BELOW)

CONSULTANT  CONSTRUCTION

---

PROJECT TITLE

PROJECT LOCATION

FIRM

TOTAL CONTRACT AMOUNT

$

THE PERCENTAGE AND DOLLAR AMOUNT OF THIS PROJECT THAT ARE TO BE MBE/WBE/SDVE AS INDICATED IN THE ORIGINAL CONTRACT: % and $.

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<td>TOTAL AMOUNT OF SUBCONTRACT</td>
<td>$ AMOUNT &amp; % COMPLETE (PAID-TO-DATE)</td>
<td>CONSULTANT/SUBCONSULTANT OR CONTRACTOR/SUBCONTRACTOR/SUPPLIER NAME, ADDRESS, CONTACT, AND PHONE NUMBER</td>
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ORIGINAL: Attach to ALL Progress and Final Payments
Before me, the undersigned Notary Public, in and for the County of ___________________________  
State of ____________________ personally came and appeared ____________________________  
of the ____________________________ of the ____________________________  
(NAME)  
(POSITION)  
(NAME OF THE COMPANY)  
(a corporation) (a partnership) (a proprietorship) and after being duly sworn did depose and say that all provisions and requirements set out in Chapter 290, Sections 290.210 through and including 290.340, Missouri Revised Statutes, pertaining to the payment of wages to workmen employed on public works project have been fully satisfied and there has been no exception to the full and completed compliance with said provisions and requirements and with Wage Determination No: ____________________________ issued by the Department of Labor and Industrial Relations, State of Missouri on the ______ day of _______ 20___ in carrying out the contract and working in connection with ____________________________  
(NAME OF PROJECT)  
(NAME OF THE INSTITUTION)  
Missouri, and completed on the _______ day of _______ 20___

SIGNATURE  

NOTARY INFORMATION  

NOTARY PUBLIC EMBOSSER OR BLACK INK RUBBER STAMP SEAL  
STATE  
COUNTY (OR CITY OF ST. LOUIS)  

SUBSCRIBED AND SWORN BEFORE ME, THIS _______ DAY OF _______ YEAR  
USE RUBBER STAMP IN CLEAR AREA BELOW  

NOTARY PUBLIC SIGNATURE  
MY COMMISSION EXPIRES  

NOTARY PUBLIC NAME (TYPED OR PRINTED)  

FILE: Closeout Documents  

SECTION 006519.21 - Affidavit of Compliance with Prevailing Wage Law  07/16  
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# GENERAL CONDITIONS

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A. These General Conditions apply to each section of these specifications. The Contractor is subject to the provisions contained herein.

B. The General Conditions are intended to define the relationship of the Owner, the Designer and the Contractor thereby establishing certain rules and provisions governing the operation and performance of the work so that the work may be performed in a safe, orderly, expeditious and workmanlike manner.

ARTICLE 1 – GENERAL PROVISIONS

ARTICLE 1.1 - DEFINITIONS

As used in these contract documents, the following terms shall have the meanings and refer to the parties designated in these definitions.

1. "COMMISSIONER": The Commissioner of the Office of Administration.

2. “CONSTRUCTION DOCUMENTS”: The “Construction Documents” shall consist of the Project Manual, Drawings and Addenda.

3. "CONSTRUCTION REPRESENTATIVE:" Whenever the term "Construction Representative" is used, it shall mean the Owner’s Representative at the work site.

4. "CONTRACTOR": Party or parties who have entered into a contract with the Owner to furnish work under these specifications and drawings.

5. "DESIGNER": When the term "Designer" is used herein, it shall refer to the Architect, Engineer, or Consultant of Record specified and defined in Paragraph 2.0 of the Supplemental Conditions, or his duly authorized representative. The Designer may be either a consultant or state employee.

6. "DIRECTOR": Whenever the term "Director" is used, it shall mean the Director of the Division of Facilities Management, Design and Construction or his Designee, representing the Office of Administration, State of Missouri. The Director is the agent of the Owner.


8. “INCIDENTAL JOB BURDENS”: Shall mean those expenses relating to the cost of work, incurred either in the home office or on the job-site, which are necessary in the course of doing business but are incidental to the job. Such costs include office supplies and equipment, postage, courier services, telephone expenses including long distance, water and ice and other similar expenses.

9. "JOINT VENTURE": An association of two (2) or more businesses to carry out a single business enterprise for profit for which purpose they combine their property, capital, efforts, skills and knowledge.

10. "OWNER": Whenever the term “Owner” is used, it shall mean the State of Missouri.

11. “PROJECT”: Wherever the term “Project” is used, it shall mean the work required to be completed by the construction contract.


13. "SUBCONTRACTOR": Party or parties who contract under, or for the performance of part or this entire Contract between the Owner and Contractor. The subcontract may or may not be direct with the Contractor.

14. "WORK": Labor, material, supplies, plant and equipment required to perform and complete the service agreed to by the Contractor in a safe, expeditious, orderly and workmanlike manner so that the project shall be complete and finished in the best manner known to each respective trade.


ARTICLE 1.2 DRAWINGS AND SPECIFICATIONS

A. In case of discrepancy between drawings and specifications, specifications shall govern. Should discrepancies in architectural drawings, structural drawings and mechanical drawings occur, architectural drawings shall govern and, in case of
conflict between structural and mechanical drawings, structural drawings shall govern.

B. Specifications are separated into titled divisions for convenience of reference only and to facilitate letting of contracts and subcontracts. The Contractor is responsible for establishing the scope of work for subcontractors, which may cross titled divisions. Neither the Owner nor Designer will establish limits and jurisdiction of subcontractors.

C. Figured dimensions take precedence over scaled measurements and details over smaller scale general drawings. In the event of conflict between any of the documents contained within the contract, the documents shall take precedence and be controlling in the following sequence: addenda, supplementary general conditions, general conditions, division 1 specifications, technical division specifications, drawings, bid form and instructions to bidders.

D. Anything shown on drawings and not mentioned in these specifications or vice versa, as well as any incidental work which is obviously necessary to complete the project within the limits established by the drawings and specifications, although not shown on or described therein, shall be performed by the Contractor at no additional cost as a part of his contract.

E. Upon encountering conditions differing materially from those indicated in the contract documents, the Contractor shall promptly notify the Designer and Construction Representative in writing before such conditions are disturbed. The Designer shall promptly investigate said conditions and report to the Owner, with a recommended course of action. If conditions do materially differ and cause an increase or decrease in contract cost or time required for completion of any portion of the work, a contract change will be initiated as outlined in Article 4 of these General Conditions.

E. Only work included in the contract documents is authorized, and the Contractor shall do no work other than that described therein or in accordance with appropriately authorized and approved contract changes.

ARTICLE 1.3 - COMPLIANCE WITH LAWS, PERMITS, REGULATIONS AND INSPECTIONS

A. Since the Owner is the State of Missouri, municipal or political subdivisions, zoning ordinances, construction codes (other than licensing of trades), and other like ordinances are not applicable to construction on Owner’s property, and Contractor will not be required to submit drawings and specifications to any municipal or political subdivision, authority, obtain construction permits or any other licenses (other than licensing of trades) or permits from or submit to inspections by any municipality or political subdivision relating to the construction for this project. All permits or licenses required by municipality or political subdivision for operation on property not belonging to Owner shall be obtained by and paid for by Contractor. Each Contractor shall comply with all applicable laws, ordinances, rules and regulations that pertain to the work of this contract.

B. Contractors, subcontractors and their employees engaged in the businesses of electrical, mechanical, plumbing, carpentry, sprinkler system work, and other construction related trades shall be licensed to perform such work by the municipal or political subdivision where the project is located, if such licensure is required by local code. Local codes shall dictate the level (master, journeyman, and apprentice) and the number, type and ratio of licensed tradesmen required for this project within the jurisdiction of such municipal or political subdivision.

C. Equipment and controls manufacturers and their authorized service and installation technicians that do not maintain an office within the jurisdiction of the municipal or political subdivision but are a listed or specified contractor or subcontractor on this project are exempt from Paragraph 1.3 B above.

D. The Contractor shall post a copy of the wage determination issued for the project and included as a part of the contract documents, in a prominent and easily accessible location at the site of construction for the duration of the project.

E. Any contractor or subcontractor to such contractor at any tier signing a contract to work on this project shall provide a ten-hour Occupational Safety and Health Administration (OSHA) construction safety program for their on-site employees which includes a course in construction safety and health approved by OSHA or a similar program approved by the Department of Labor and Industrial Relations which is at least as stringent as an approved OSHA program. The contractor shall forfeit as a penalty to the public body on whose behalf the contract is made or awarded, two thousand five hundred dollars plus one hundred dollars for each employee employed by the contractor or subcontractor, for each calendar day, or portion thereof, such employee is employed without the required training.

ARTICLE 1.4 - NONDISCRIMINATION IN EMPLOYMENT

A. The Contractor and his subcontractors will not discriminate against individuals based on race, color, religion, national origin, sex, disability, or
age, but may use restrictions which relate to bona
dee occupational qualifications. Specifically, the
Contractor and his subcontractors shall not
discriminate:

1. Against recipients of service on the basis of
race, color, religion, national origin, sex,
disability or age.

2. Against any employee or applicant, for
employment on the basis of race, color,
religion, national origin, sex or otherwise
qualified disability status.

3. Against any applicant for employment or
employee on the basis of age, where such
applicant or employee is between ages 40 and
70 and where such Contractor employs at least
20 persons.

4. Against any applicant for employment or
employee on the basis of that person's status as
a disabled or Vietnam-era veteran.

The Contractor and his Subcontractors will take
affirmative action to insure applicants for
employment and employees are treated equally
without regard to race, color, religion, national
origin, sex, disability, or age. Such action shall
include, but not be limited to, the following:
employment, upgrading, demotion and transfer;
recruitment or recruitment advertising; and
selection for training, including apprenticeship.
The Contractor and his Subcontractors will give
written notice of their commitments under this
clause to any labor union with which they have
bargaining or other agreements.

B. The Contractor and his subcontractors shall
develop, implement, maintain and submit in
writing to the Owner an affirmative action program
if at least fifty (50) persons in the aggregate are
employed under this contract. If less than fifty
(50) persons in the aggregate are to be employed
under this contract, the Contractor shall submit, in
lieu of the written affirmative action program, a
properly executed Affidavit for Affirmative Action
in the form included in the contract specifications.
For the purpose of this section, an "affirmative
action program" means positive action to influence
all employment practices (including, but not
limited to, recruiting, hiring, promoting and
training) in providing equal employment
opportunity regardless of race, color, sex, national
origin, religion, age (where the person affected is
between age 40 and 70), disabled and Vietnam-era
veteran status, and disability. Such "affirmative
action program" shall include:

1. A written policy statement committing the
total organization to affirmative action and
assigning management responsibilities and
procedures for evaluation and dissemination;

2. The identification of a person designated to
handle affirmative action;

3. The establishment of non-discriminatory
selection standards, objective measures to
analyze recruitment, an upward mobility
system, a wage and salary structure, and
standards applicable to lay-off, recall,
discharge, demotion and discipline;

4. The exclusion of discrimination from all
collective bargaining agreements; and

5. Performance of an internal audit of the
reporting system to monitor execution and to
provide for future planning.

In the enforcement of this non-discrimination
clause, the Owner may use any reasonable
procedures available, including, but not limited to:
requests, reports, site visits and inspection of
relevant documents of contractors and
subcontractors.

C. In the event of the Contractor's or his
subcontractor's noncompliance with any provisions
of this Article of the Contract, the Owner may
cancel this contract in whole or in part or require
the Contractor to terminate his contract with the
subcontractor.

ARTICLE 1.5 - ANTI-KICKBACK

No employee of the division, shall have or acquire
any pecuniary interest, whether direct or indirect,
in this contract or in any part hereof. No officer,
employee, designer, attorney, or administrator of or
for the Owner who is authorized in such capacity
and on behalf of the Owner to exercise any
legislative, executive, supervisory or other similar
functions in connection with the construction of the
project, shall have or acquire any pecuniary
interest, whether direct or indirect, in this contract,
any material supply contract, subcontract,
insurance contract, or any other contract pertaining
to the project.

ARTICLE 1.6 - PATENTS AND ROYALTIES

A. The Contractor shall hold and save the Owner and
its officers, agents, servants and employees
harmless from liabilities of any nature or kind,
including cost and expenses, for, or on account of,
any patented or unpatented invention, process,
article or appliance manufactured or used in the
performance of this contract, including its use by
the Owner, unless otherwise specifically stipulated
in the contract documents.

B. If the Contractor uses any design, device or
materials covered by letters, patent or copyright,
the Contractor shall provide for such use by suitable agreement with the Owner of such patented or copyrighted design, device or material. It is mutually agreed and understood, without exception, that the contract prices shall include all royalties or costs arising from the use of such design, device or materials, in any way involved in the work. The Contractor and/or his sureties shall indemnify and save harmless the Owner of the project from any and all claims for infringement by reason of the use of such patented or copyrighted design, device or materials or any trademark or copyright in connection with work agreed to be performed under this contract and shall indemnify the Owner for any cost, expense or damage it may be obliged to pay by reason of such infringement at any time during the prosecution of the work or after completion of the work.

ARTICLE 1.7 - PREFERENCE FOR AMERICAN AND MISSOURI PRODUCTS AND SERVICES

A. By virtue of statutory authority a preference will be given to Missouri labor and to products of mines, forests and quarries of the state of Missouri when they are found in marketable quantities in the state, and all such materials shall be of the best quality and suitable character that can be obtained at reasonable market prices, all as provided for in Section 8.280, Missouri Revised Statutes and Cumulative Supplements.

B. Furthermore, pursuant to Section 34.076 Missouri Revised Statutes and Cumulative Supplements, a preference shall be given to those persons doing business as Missouri firms, corporations, or individuals, or which maintain Missouri offices or places of business, when the quality of performance promised is equal or better and the price quoted is the same or less. In addition, in order for a non-domiciliary bidder to be successful, his bid must be that same percentage lower than a domiciliary Missouri bidder's bid, as would be required for a Missouri bidder to successfully bid in the non-domiciliary state.

C. In accordance with the Missouri Domestic Products Procurement Act Section 34.350 RSMo and Cumulative Supplements any manufactured goods or commodities used or supplied in the performance of this contract or any subcontract thereto shall be manufactured, assembled or produced in the United States, unless the specified products are not manufactured, assembled or produced in the United States in sufficient quantities to meet the agency's requirements or cannot be manufactured, assembled or produced in the United States within the necessary time in sufficient quantities to meet the contract requirements, or if obtaining the specified products manufactured, assembled or produced in the United States would increase the cost of this contract for purchase of the product by more than ten percent.

ARTICLE 1.8 - COMMUNICATIONS

A. All notices, requests, instructions, approvals and claims must be in writing and shall be delivered to the Designer and copied to the Construction Representative for the project except as required by Article 1.12 Disputes and Disagreements, or as otherwise specified by the Owner in writing as stated in Section 012600. Any such notice shall be deemed to have been given as of the time of actual receipt.

B. The Contractor shall attend on-site progress and coordination meetings, as scheduled by the Construction Representative, no less than once a month.

C. The Contractor shall ensure that major subcontractors and suppliers shall attend monthly progress meetings as necessary to coordinate the work, and as specifically requested by the Construction Representative.

ARTICLE 1.9 - SEPARATE CONTRACTS AND COOPERATION

A. The Owner reserves the right to let other contracts in connection with this work. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work and shall properly connect and coordinate his work with theirs.

B. The Contractor shall consult the drawings for all other contractors in connection with this work. Any work conflicting with the above shall be brought to the attention of the Owner’s Representative before the work is performed. If the Contractor fails to do this, and constructs any work which interferes with the work of another contractor, the Contractor shall remove any part so conflicting and rebuild same, as directed by the Owner’s Representative at no additional cost to the Owner.

C. Each contractor shall be required to coordinate his work with other contractors so as to afford others reasonable opportunity for execution of their work. No contractor shall delay any other contractor by neglecting to perform contract work at the proper time. If any contractor causes delay to another, they shall be liable directly to that contractor for such delay in addition to any liquidated damages which might be due the Owner.

D. Should the Contractor or project associated subcontractors refuse to cooperate with the instructions and reasonable requests of other Contractors or other subcontractors in the overall...
coordinating of the work, the Owner may take such
appropriate action and issue directions, as required,
to avoid unnecessary and unwarranted delays.

E. Each Contractor shall be responsible for damage
done to Owner's or other Contractor's property by
him/her or workers in his employ through their
fault or negligence.

F. Should a Contractor sustain any damage through
any act or omission of any other Contractor having
a contract with the Owner, the Contractor so
damaged shall have no claim or cause of action
against the Owner for such damage, but shall have
a claim or cause of action against the other
Contractor to recover any and all damages sustained by reason of the acts or omissions of
such Contractor. The phrase "acts or omissions" as
used in this section shall be defined to include, but
not be limited to, any unreasonable delay on the
part of any such contractors.

ARTICLE 1.10 - ASSIGNMENT OF CONTRACT

A. No assignment by Contractor of any amount or any
part of this contract or of the funds to be received
there under will be recognized unless such
assignment has had the written approval of the
Director and the surety has been given due notice
of such assignment and has furnished written
consent thereto. In addition to the usual recitals in
assignment contracts, the following language must
be set forth: "It is agreed that the funds to be paid
to the assignee under this assignment are subject to
performance by the Contractor of this contract and
to claims or liens for services rendered or materials
supplied for the performance of the work called for
in said contract in favor of all persons, firms or
corporations rendering such services or supplying
such materials."

ARTICLE 1.11 - INDEMNIFICATION

A. Contractor agrees to indemnify and save harmless
Owner and its respective commissioners, officers,
officials, agents, consultants and employees and
Designer, their agents, servants and employees,
from and against any and all liability for damage
arising from injuries to persons or damage to
property occasioned by any acts or omissions of
Contractor, any subcontractors, agents, servants or
employees, including any and all expense, legal or
otherwise, which may be incurred by Owner or
Designer, its agents, servants or employees, in
defense of any claim, action or suit.

B. The obligations of the Contractor under this
paragraph shall not extend to the liability of the
Designer, his agents or employees, arising out of
(1) the preparation or approval of maps, drawings,
opinions, reports, surveys, contract changes, design
or specifications, or (2) giving of or the failure to
give directions or instructions by the Designer, his
agents or employees as required by this contract
documents provided such giving or failure to give
is the primary cause of the injury or damage.

ARTICLE 1.12 - DISPUTES AND
DISAGREEMENTS

It is hereby expressly agreed and understood that
in case any controversy or difference of opinion
arises during construction, best efforts will be
given to resolution at the field level. Should those
efforts be unsuccessful, the Contractor has the
right to appeal in writing, the decision of the
Director’s Designee to the Director at Room 730
Truman Building, P.O. Box 809, Jefferson City,
Missouri 65102. The decision of the Director shall
be final and binding on all parties.

ARTICLE 2 -- OWNER/DESIGNER
RESPONSIBILITIES

A. The Owner shall give all orders and directions
contemplated under this contract relative to the
execution of the work. During progress of work
the Owner will be represented at the project site by
the Construction Representative and/or Designer,
whose responsibilities are to see that this contract
is properly fulfilled.

B. The Owner shall at all times have access to the
work whenever it is in preparation or progress.
The Contractors shall provide proper facilities for
such access and for inspection and supervision.

C. All materials and workmanship used in the work
shall be subject to the inspection of the Designer
and Construction Representative, and any work
which is deemed defective shall be removed,
rebuilt or made good immediately upon notice.
The cost of such correction shall be borne by the
Contractor. Contractor shall not be entitled to an
extension of the contract completion date in order
to remedy defective work. All rejected materials
shall be immediately removed from the site of the
work.

D. If the Contractor fails to proceed at once with the
correction of rejected defective materials or
workmanship, the Owner may, by separate
contract or otherwise, have the defects remedied or
rejected. Materials removed from the site and
charge the cost of the same against any monies
which may be due the Contractor, without
prejudice to any other rights or remedies of the
Owner.

E. Failure or neglect on the part of Owner to observe
faulty work, or work done which is not in
accordance with the drawings and specifications
shall not relieve the Contractor from responsibility
for correcting such work without additional compensation.

F. The Owner shall have the right to direct the Contractor to uncover any completed work.
   1. If the Contractor fails to adequately notify the Construction Representative and/or Designer of an inspection as required by the Contract Documents, the Contractor shall, upon written request, uncover the work. The Contractor shall bear all costs associated with uncovering and again covering the work exposed.
   2. If the Contractor is directed to uncover work, which was not otherwise required by the Contract Documents to be inspected, and the work is found to be defective in any respect, no compensation shall be allowed for this work. If, however, such work is found to meet the requirements of this contract, the actual cost of labor and material necessarily involved in the examination and replacement plus 10% shall be allowed the Contractor.

G. The Designer shall give all orders and directions contemplated under this contract relative to the scope of the work and shall give the initial interpretation of the contract documents.

H. The Owner may file a written notice to the Contractor to dismiss immediately any subcontractors, project managers, superintendents, foremen, workers, watchmen or other employees whom the Owner may deem incompetent, careless or a hindrance to proper or timely execution of the work. The Contractor shall comply with such notice as promptly as practicable without detriment to the work or its progress.

I. If in the Owner’s judgment it becomes necessary at any time to accelerate work, when ordered by the Owner in writing, the Contractor shall redirect resources to such work items and execute such portions of the work as may be required to complete the work within the current approved contract schedule.

ARTICLE 3 -- CONTRACTOR RESPONSIBILITIES

The Contractor shall register and utilize the Owner’s eBuilder digital project management system for submission of documents described in the following sections. This includes but is not limited to submittals as required by designer, payment applications, Request for Information (RFI), construction change orders, Request for Proposals (RFP), Designer Supplemental Instructions (DSI), etc.

ARTICLE 3.1 -- ACCEPTABLE SUBSTITUTIONS

A. The Contractor may request use of any article, device, product, material, fixture, form or type of construction which in the judgment of the Owner and Designer is equal in all respects to that named. Standard products of manufacturers other than those specified will be accepted when, prior to the ordering or use thereof, it is proven to the satisfaction of the Owner and Designer that they are equal in design, strength, durability, usefulness and convenience for the purpose intended.

B. Any changes required in the details and dimensions indicated on the drawings for the substitution of products other than those specified shall be properly made at the expense of the Contractor requesting the substitution or change.

C. The Contractor shall submit a request for such substitutions in writing to the Owner and Designer within twenty (20) working days after the date of the "Notice to Proceed." Thereafter no consideration will be given to alternate forms of accomplishing the work. This Article does not preclude the Owner from exercising the provisions of Article 4 hereof.

D. Any request for substitution by the Contractor shall be submitted in accordance with SECTION 002113 - INSTRUCTIONS TO BIDDERS.

E. When a material has been approved, no change in brand or make will be permitted unless:
   1. Written verification is received from the manufacturer stating they cannot make delivery on the date previously agreed, or
   2. Material delivered fails to comply with contract requirements.

ARTICLE 3.2 -- SUBMITTALS

A. The Contractor’s submittals must be submitted with such promptness as to allow for review and approval so as not to cause delay in the work. The Contractor shall coordinate preparation and processing of submittals with performance of construction activities.

   Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

   Submit four (4) copies to the Designer and additional copies as required for the subcontractors and material suppliers. Also provide copies to meet the requirements for maintenance manuals.

B. All subcontractors' shop drawings and schedules shall be submitted by the Contractor and shall bear evidence that Contractor has received, reviewed, and approved them. Any shop drawings and
schedules submitted without this evidence will be returned to the Contractor for resubmission.

C. The Contractor shall include with the shop drawing, a letter indicating any and all deviations from the drawings and/or specifications. Failure to notify the Designer of such deviations will be grounds for subsequent rejection of the related work or materials. If, in the opinion of the Designer, the deviations are not acceptable, the Contractor will be required to furnish the item as specified and indicated on the drawings.

D. The Designer shall check shop drawings and schedules with reasonable promptness and approve them only if they conform to the design concept of the project and comply with the information given in the contract documents. The approval shall not relieve the Contractor from the responsibility to comply with the drawings and specifications, unless the Contractor has called the Designer's attention to the deviation, in writing, at the time of submission and the Designer has knowingly approved thereof. An approval of any such modification will be given only under the following conditions:
   1. It is in the best interest of the Owner
   2. It does not increase the contract sum and/or completion time
   3. It does not deviate from the design intent
   4. It is without prejudice to any and all rights under the surety bond.

E. No extension of time will be granted because of the Contractor's failure to submit shop drawings and schedules in ample time to allow for review, possible resubmission, and approval. Fabrication of work shall not commence until the Contractor has received approval. The Contractor shall furnish prints of approved shop drawings and schedules to all subcontractors whose work is in any way related to the work under this contract. Only prints bearing this approval will be allowed on the site of construction.

F. The Contractor shall maintain a complete file on-site of approved shop drawings available for use by the Construction Representative.

ARTICLE 3.3 – AS-BUILT DRAWINGS

A. The Contractor shall update a complete set of the construction drawings, shop drawings and schedules of all work monthly by marking changes, and at the completion of their work (prior to submission of request for final payment) note all changes and turn the set over to the Construction Representative. The updates shall show all addenda, all field changes that were made to adapt to field conditions, changes resulting from contract changes or supplemental instructions, and all locations of structures, buried installations of piping, conduit, and utility services. All buried and concealed items both inside and outside shall be accurately located as to depth and referenced to permanent features such as interior or exterior wall faces and dimensions shall be given in a neat and legible manner in a contrasting colored pencil or ink. If approved by the Designer, an electronic file format may be provided.

ARTICLE 3.4 – GUARANTY AND WARRANTIES

A. General Guaranty
   1. Neither the final certificate of payment nor any provision in the contract documents nor partial use or occupancy of the premises by the Owner shall constitute an acceptance of work not done in accordance with contract requirements.
   2. The Contractor or surety shall remedy any defects in the work and pay for any damage to property resulting there from which shall appear within a period of one (1) year from the date of substantial completion unless a longer period is otherwise specified or a differing guaranty period has been established in the substantial completion certificate. The Owner will give notice of observed defects with reasonable promptness.
   3. In case of default on the part of the Contractor in fulfilling this part of this contract, the Owner may correct the work or repair the damage and the cost and expense incurred in such event shall be paid by or recoverable from the Contractor or surety.
   4. The work will be free from defects not inherent in the quality required or permitted, and that the Work will conform to the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The Contractor's guaranty excludes remedy for damage or defect caused by abuse, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear under normal usage. If required by the Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

B. Extended Warranty
   Manufacturer's certificates of warranty shall be obtained for all major equipment. Warranty shall be obtained for at least one year. Where a longer
ARTICLE 3.5 – OPERATION AND MAINTENANCE MANUALS

A. Immediately after equipment submittals are approved and no later than ten (10) working days prior to the substantial completion inspection, the Contractor shall provide to the Designer three (3) copies of operating instructions and service manuals, containing the following:

1. Start-up and Shut-down Procedures: Provide a step-by-step write up of all major equipment. When manufacturer’s printed start-up, trouble shooting and shut-down procedures are available; they may be incorporated into the operating manual for reference.

2. Operating Instructions: Written operating instructions shall be included for the efficient and safe operation of all equipment.

3. Equipment List: List of all major equipment as installed shall be prepared to include model number, capacities, flow rate, name place data, shop drawings and air and water balance reports.

4. Service Instructions: Provide the following information for all pieces of equipment.
   a. Recommended spare parts including catalog number and name of local supplier or factory representative.
   b. Belt sizes, types, and lengths.
   c. Wiring diagrams.

5. Manufacturer's Certificate of Warranty as described in Article 3.4.

6. Prior to the final payment, furnish to the Designer three (4) copies of parts catalogs for each piece of equipment furnished by him/her on the project with the components identified by number for replacement ordering.

B. Submission of operating instructions shall be done in the following manner.

1. Manuals shall be in quadruplicate, and all materials shall be bound into volumes of standard 8½" x 11" hard binders. Large drawings too bulky to be folded into 8½" x 11" shall be separately bound or folded in envelopes, cross referenced and indexed with the manuals.

2. The manuals shall identify project name, project number, and include the name and address of the Contractor, subcontractors and manufacturers who were involved with the activity described in that particular manual.

3. Internally subdivide the binder contents with permanent page dividers, logically organized with tab titles clearly printed under reinforced laminated plastic tabs.

4. Contents: Prepare a Table of Contents for each volume, with each product or system description identified.

ARTICLE 3.6 – OTHER CONTRACTOR RESPONSIBILITIES

A. The Contractor shall keep on site, during progress of the work, a competent superintendent satisfactory to the Construction Representative. The superintendent shall represent the Contractor and all agreements made by the superintendent shall be binding. The superintendent shall carefully study and compare all drawings, specifications and other instructions and shall promptly notify the Construction Representative and Designer, in writing, any error, inconsistency or omission which may be discovered. The superintendent shall coordinate all work on the project. Any change of the superintendent shall be approved by the Construction Representative.

B. Contractor shall, at all times, enforce strict discipline and good order among his employees, and shall not employ on the work any unfit person or anyone not skilled in the work assigned to him/her.

C. The Contractor shall supply sufficient labor, material, plant and equipment and pay when due any laborer, subcontractor or supplier for supplies furnished and otherwise prosecute the work with diligence to prevent work stoppage and insure completion thereof within the time specified.

D. The Contractor and each of his subcontractors shall submit to the Construction Representative, through the Designer such schedules of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data as the Owner may request concerning work performed or to be performed under this contract.

E. The Contractor, subcontractors, and material suppliers shall upon written request, give the Owner access to all time cards, material invoices, payrolls, estimates, profit and loss statements, and all other direct or indirect costs related to this work.

F. The Contractor shall be responsible for laying out all contract work such as layout of architectural, structural, mechanical and electrical work, which shall be coordinated with layouts of subcontractors.
for general construction work. The Contractor is also responsible for unloading, uncrating and handling of all materials and equipment to be erected or placed by him/her, whether furnished by Contractor or others. No extra charges or compensation will be allowed as a result of failure to verify dimensions before ordering materials or fabricating items.

G. The Contractor must notify the Construction Representative at least one working day before placing concrete or burying underground utilities, pipelines, etc.

H. Contractors shall prearrange time with the Construction Representative for the interruption of any facility operation. Unless otherwise specified in these documents, all connections, alterations or relocations as well as all other portions of the work will be performed during normal working hours.

I. The Contractor shall coordinate all work so there will not be prolonged interruptions of existing equipment operation. Any existing plumbing, heating, ventilating, air conditioning or electrical disconnections necessary for the project, which affect portions of this construction or building or any other building must be scheduled with the Construction Representative to minimize or avoid any disruption of facility operations. In no case, unless previously approved in writing by the Construction Representative, shall utilities be left disconnected at the end of a work day or over a weekend. Any interruption of utilities either intentionally or accidentally shall not relieve the Contractor responsible for the interruption from the responsibility to repair and restore the utility to normal service. Repairs and restoration shall be made before the workers responsible for the repair and restoration leave the job.

J. Contractors shall limit operations and storage of materials to the area within the project, except as necessary to connect to existing utilities, and shall not encroach on neighboring property. The Contractor shall be responsible for repair of their damage to property on or off the project site occurring during construction of project. All such repairs shall be made to the satisfaction of the property owner.

K. Unless otherwise permitted, all materials shall be new and both workmanship and materials shall be of the best quality.

L. Unless otherwise provided and stipulated within these specifications, the Contractor shall furnish, construct, and/or install and pay for materials, devices, mechanisms, equipment, all necessary personnel, utilities including, but not limited to water, heat, light and electric power, transportation services, applicable taxes of every nature, and all other facilities necessary for the proper execution and completion of the work.

M. Contractor shall carefully examine the plans and drawings and shall be responsible for the proper fitting of his material, equipment and apparatus into the building.

N. The Contractor or subcontractors shall not overload, or permit others to overload, any part of any structure during the performance of this contract.

O. All temporary shoring, bracing, etc., required for the removal of existing work and/or for the installation of new work shall be included in this contract. The Contractor shall make good, at no cost to the Owner, any damage caused by improper support or failure of shoring in any respect. Each Contractor shall be responsible for shoring required to protect his work or adjacent property and improvements of Owner and shall be responsible for shoring or for giving written notice to adjacent property owners. Shoring shall be removed only after completion of permanent supports.

P. The Contractor shall provide at the proper time such material as is required for support of the work. If openings are required, whether shown on drawings or not, the Contractor shall see that they are properly constructed.

Q. During the performance of work the Contractor shall be responsible for providing and maintaining warning signs, lights, signal devices, barricades, guard rails, fences and other devices appropriately located on site which will give proper and understandable warning to all persons of danger of entry onto land, structure or equipment.

R. The Contractor shall be responsible for protection, including weather protection, and proper maintenance of all equipment and materials.

S. The Contractor shall be responsible for care of the finished work and shall protect same from damage or defacement until substantial completion by the Owner. If the work is damaged by any cause, the Contractor shall immediately begin to make repairs in accordance with the drawings and specifications. Contractor shall be liable for all damage or loss unless attributable to the acts or omissions of the Owner or Designer. Any claim for reimbursement shall be submitted in accordance with Article 4. After substantial completion the Contractor will only be responsible for damage resulting from acts or omissions of the Contractor or subcontractors through final warranty.

T. In the event the Contractor encounters an unforeseen hazardous material, the Contractor...
shall immediately stop work in the area affected
and report the condition to the Owner and
Designer in writing. The Contractor shall not be
required, pursuant to Article 4, to perform, any
work relating to hazardous materials.

U. In an emergency affecting safety of persons or
property, the Contractor shall act, at the
Contractor's discretion, to prevent threatened
damage, injury or loss. Additional compensation
or extension of time claimed by the Contractor on
account of an emergency shall be determined as
provided in Article 4.

V. Before commencing work, Contractors shall confer
with the Construction Representative and facility
representative and review any facility rules and
regulations which may affect the conduct of the
work.

W. Project signs will only be erected on major
projects and only as described in the specifications.
If no sign is specified, none shall be erected.

ARTICLE 3.7 -- SUBCONTRACTS

A. Subcontractor assignments as identified in the bid
form shall not be changed without written approval
of the Owner. The Owner will not approve
changes of a listed subcontractor unless the
Contractor documents, to the satisfaction of the
Owner that the subcontractor cannot or will not
perform the work as specified.

B. The Contractor is fully responsible to the Owner
for the acts and omissions of all subcontractors and
of persons either directly or indirectly employed by
them.

C. Every subcontractor shall be bound by the
applicable terms and provisions of these contract
documents, but no contractual relationship shall
exist between any subcontractor and the Owner
unless the right of the Contractor to proceed with
the work is suspended or this contract is terminated
as herein provided, and the Owner in writing elects
to assume the subcontract.

D. The Contractor shall upon receipt of "Notice to
Proceed" and prior to submission of the first
payment request, notify the Designer and
Construction Representative in writing of the
names of any subcontractors to be used in addition
to those identified in the bid form and all major
material suppliers proposed for all parts of the
work.

ARTICLE 4 -- CHANGES IN THE WORK

4.1 CHANGES IN THE WORK

A. The Construction Representative, without giving
notice to the surety and without invalidating this
contract, may order extra work or make changes by
altering, adding to or deducting from the work, this
contract sum being adjusted accordingly. All such
work shall be executed under the conditions of the
original contract. A claim for extension of time
caused by any change must be adjusted at the time
of ordering such change. No future request for
time will be considered.

B. Each Contract Change shall include all costs
required to perform the work including all labor,
material, equipment, overheads and profit, delay,
disruptions, or other miscellaneous expenses. No
subsequent requests for additional compensation
including claims for delay, disruption, or reduced
efficiency as a result of each change will be
considered. Values from the Schedule of Values
will not be binding as a basis for additions to or
deductions from the contract price.

C. The amount of any adjustment in this contract
price for authorized changes shall be agreed upon
before such changes become effective and shall be
determined, through submission of a request for
proposal, as follows:

1. By an acceptable fixed price proposal from the
Contractor. Breakdowns shall include all
takeoff sheets of each Contractor and
subcontractor. Breakdown shall include a
listing of each item of material with unit prices
and number of hours of labor for each task.
Labor costs per hour shall be included with
labor burden identified, which shall be not less
than the prevailing wage rate, etc. Overhead
and profit shall be shown separately for each
subcontractor and the Contractor.

2. By a cost-plus-fixed-fee (time and material)
basis with maximum price, total cost not to
exceed said maximum. Breakdown shall include
a listing of each item of material with unit prices
and number of hours of labor for each task. Labor costs per hour shall be included with
labor burden identified, which shall be not less than the prevailing wage rate, etc. Overhead and profit shall be shown
separately for each subcontractor and the Contractor.

3. By unit prices contained in Contractor's
original bid form and incorporated in the
construction contract.

D. Overhead and Profit on Contract Changes shall be
applied as follows:

1. The overhead and profit charge by the
Contractor and all subcontractors shall be
considered to include, but is not limited to:
incidental job burdens, small truck (under 1
ton) expense, mileage, small hand tools,
warranty costs, company benefits and general office overhead. Project supervision including field supervision and job site office expense shall be considered a part of overhead and profit unless a compensable time extension is granted.

2. The percentages for overhead and profit charged on Contract Changes shall be negotiated, and may vary according to the nature, extent, and complexity of the work involved. However, the overhead and profit for the Contractor or subcontractor actually performing the work shall not exceed 14%. When one or more tiers of subcontractors are used, in no event shall any Contractor or subcontractor receive as overhead and profit more than 3% of the cost of the work performed by any of his subcontractors. In no case shall the total overhead and profit paid by the Owner on any Contract Changes exceed twenty percent (20%) of the cost of materials, labor and equipment (exclusive of Contractor or any Subcontractor overhead and profit) necessary to put the contract change work in place.

3. The Contractor will be allowed to add the cost of bonding and insurance to their cost of work. This bonding and insurance cost shall not exceed 2% and shall be allowed on the total cost of the added work, including overhead and profit.

4. On proposals covering both increases and decreases in the amount of this contract, the application of overhead and profit shall be on the net change in the cost of the work.

5. The percentage for overhead and profit to be credited to the Owner on Contract Changes that are solely decreases in the quantity of work or materials shall be negotiated, and may vary according to the nature, extent and complexity of the work involved, but in no case shall be less than ten percent (10%). If the percentage for overhead and profit charged for work added by Contract Changes for this contract has been negotiated to less than 10%, the negotiated rate shall then apply to credits as well.

E. No claim for an addition to this contract sum shall be valid unless authorized as aforesaid in writing by the Owner. In the event that none of the foregoing methods are agreed upon, the Owner may order the Contractor to perform work on a time and material basis. The cost of such work shall be determined by the Contractor's actual labor and material cost to perform the work plus overhead and profit as outlined herein. The Designer and Construction Representative shall approve the Contractor's daily time and material invoices for the work involved.

F. If the Contractor claims that any instructions involve extra cost under this contract, the Contractor shall give the Owner’s Representative written notice thereof within a reasonable time after the receipt of such instructions, and in any event before proceeding to execute the work. No such claim shall be valid unless so made and authorized by the Owner, in writing.

G. In an emergency affecting the safety of life or of the structure or of adjoining property, the Contractor, without special instruction or authorization from the Construction Representative, is hereby permitted to act at their discretion to prevent such threatened loss or injury. The Contractor shall submit a claim for compensation for such emergency work in writing to the Owner’s Representative.

ARTICLE 4.2 – CHANGES IN COMPLETION TIME

A. Extension of the number of work days stipulated in the Contract for completion of the work with compensation may be made when:

1. The contractor documents that proposed Changes in the work, as provided in Article 4.1, extends construction activities critical to contract completion date, OR

2. The Owner suspends all work for convenience of the Owner as provided in Article 7.3, OR

3. An Owner caused delay extends construction activities critical to contract completion (except as provided elsewhere in these General Conditions). The Contractor is to review the work activities yet to begin and evaluate the possibility of rescheduling the work to minimize the overall project delay.

B. Extension of the number of work days stipulated in the Contract for completion of the work without compensation may be made when:

1. Weather-related delays occur, subject to provisions for the inclusion of a specified number of "bad weather" days when provided for in Section 012100-Allowances, OR

2. Labor strikes or acts of God occur, OR

3. The work of the Contractor is delayed on account of conditions which were beyond the control of the Contractor, subcontractors or suppliers, and were not the result of their fault or negligence.

C. No time extension or compensation will be provided for delays caused by or within the control
of the Contractor, subcontractors or suppliers and for concurrent delays caused by the Owner.

D. The Contractor shall notify the Owner promptly of any occurrence or conditions which in the Contractor's opinion results in a need for an extension of time. The notice shall be in writing and shall include all necessary supporting materials with details of any resultant costs and be submitted in time to permit full investigation and evaluation of the Contractor's claim. The Owner shall promptly acknowledge the Contractor's notice and, after recommendation from the Owner's Representative and/or Designer, shall provide a decision to the Contractor. Failure on the part of the Contractor to provide such notice and to detail the costs shall constitute a waiver by the Contractor of any claim. Requests for extensions of time shall be for working days only.

ARTICLE 5 - CONSTRUCTION AND COMPLETION

ARTICLE 5.1 – CONSTRUCTION COMMENCEMENT

A. Upon receipt of the "Intent to Award" letter, the Contractor must submit the following properly executed instruments to the Owner:

1. Contract;
2. Performance/payment bond as described in Article 6.1;
3. Certificates of Insurance, or the actual policies themselves, showing that the Contractor has obtained the insurance coverage required by Article 6.2.

Above referenced items must be received by the Owner within ten (10) working days after the effective date of the contract. If not received, the Owner may treat the failure to timely submit them as a refusal by the Contractor to accept a contract for this work and may retain as liquidated damages the Contractor's bid bond, cashier's check or certified check as provided in the Instructions to Bidders. Upon receipt the Owner will issue a "Notice to Proceed" with the work to the Contractor.

B. Within the time frame noted in Section 013200 - Schedules, following receipt of the "Notice to Proceed", the Contractor shall submit to the Owner a progress schedule and schedule of values, showing activities through the end of the contract period. Should the Contractor not receive written notification from the Owner of the disapproval of the schedule of values within fifteen (15) working days, the Contractor may consider it approved for purpose of determining when the first monthly Application and Certification for Payment may be submitted.

C. The Contractor may commence work upon receipt of the Division of Facilities Management, Design and Construction's "Notice to Proceed" letter. Contractor shall prosecute the work with faithfulness and energy, and shall complete the entire work on or before the completion time stated in the contract documents or pay to the Owner the damages resulting from the failure to timely complete the work as set out within Article 5.4.

ARTICLE 5.2 -- PROJECT CONSTRUCTION

A. Each Contractor shall submit for the Owner's approval, in reproducible form, a progress schedule showing the rate of progress and the order of the work proposed to carry on various phases of the project. The schedule shall be in conformance with the requirements outlined in Section 013200 – Schedules.

B. Contractor shall employ and supply a sufficient force of workers, material, and equipment and shall pay when due, any worker, subcontractor or supplier and otherwise prosecute the work with such diligence so as to maintain the rate of progress indicated on the progress schedule, prevent work stoppage, and insure completion of the project within the time specified.

ARTICLE 5.3 -- PROJECT COMPLETION

A. Substantial Completion. A Project is substantially complete when construction is essentially complete and work items remaining to be completed can be done without interfering with the Owner’s ability to use the Project for its intended purpose.

1. Once the Contractor has reached what they believe is Substantial Completion, the Contractor shall notify the Designer and the Construction Representative of the following:
   a. That work is essentially complete with the exception of certain listed work items. The list shall be referred to as the “Contractor’s Punch.”
   b. That all Operation and Maintenance Manuals have been assembled and submitted in accordance with Article 3.5A.
   c. That the Work is ready for inspection by the Designer and Construction Representative. The Owner shall be entitled to a minimum of ten working
days notice before the inspection shall be performed.

2. If the work is acceptable, the Owner shall issue a Certificate of Substantial Completion, which shall set forth the responsibilities of the Owner and the Contractor for utilities, security, maintenance, damage to the work and risk of loss. The Certificate shall also identify those remaining items of work to be performed by the Contractor. All such work items shall be complete within 30 working days of the date of the Certificate, unless the Certificate specifies a different time. If the Contractor shall be required to perform tests that must be delayed due to climatic conditions, it is understood that such tests and affected equipment will be identified on the Certificate and shall be accomplished by the Contractor at the earliest possible date. Performance of the tests may not be required before Substantial Completion can be issued. The date of the issuance of the Certificate of Substantial Completion shall determine whether or not the work was completed within the contract time and whether or not Liquidated Damages are due.

3. If the work is not acceptable, and the Owner does not issue a Certificate of Substantial Completion, the Owner shall be entitled to charge the Contractor with the Designer’s and Owner’s costs of re-inspection, including time and travel.

B. Partial Occupancy. Contractor agrees that the Owner shall be permitted to occupy and use any completed or partially completed portions of the Project, when such occupancy and use is in the Owner’s best interest. Owner shall notify Contractor of its desire and intention to take Partial Occupancy as soon as possible but at least ten (10) working days before the Owner intends to occupy. If the Contractor believes that the portion of the work the Owner intends to occupy is not ready for occupancy, the Contractor shall notify the Owner immediately. The Designer shall inspect the work in accordance with the procedures above. If the Contractor claims increased cost of the project or delay in completion as a result of the occupancy, he shall notify the Owner immediately but in all cases before occupancy occurs.

C. Final Completion. The Project is finally complete when the Certificate of Substantial Completion has been issued and all work items identified therein as incomplete have been completed, and when all administrative items required by the contract have been completed. Final Completion entitles the Contractor to payment of the outstanding balance of the contract amount including all change orders and retainage. Within five (5) working days of the date of the Certificate of Substantial Completion, the Contractor shall identify the cost to complete any outstanding items of work. The Designer shall review the Contractor’s estimate and either approve it or provide an independent estimate for all such items. If the Contractor fails to complete the remaining items within the time specified in the Certificate, the Owner may terminate the contract and go to the surety for project completion in accordance with Article 7.2. If the Contractor fails to complete the remaining items within the time specified in the Certificate, the Owner may terminate the contract and go to the surety for project completion in accordance with Article 7.2. If the Contractor fails to complete the remaining items within the time specified in the Certificate, the Owner may terminate the contract and go to the surety for project completion in accordance with Article 7.2.

D. Liquidated Damages. Contractor agrees that the Owner may deduct from the contract price and retain as liquidated damages, and not as penalty or forfeiture, the sum stipulated in this contract for each work day after the Contract Completion Day on which work is not Substantially Complete. Assessment of Liquidated Damages shall not relieve the Contractor or the surety of any responsibility or obligation under the Contract. In addition, the Owner may, without prejudice to any other rights, claims, or remedies the Owner may have including the right to Liquidated Damages, charge the Contractor for all additional expenses incurred by the Owner and/or Designer as the result of the extended contract period through Final Completion. Additional Expenses shall include but not be limited to the costs of additional inspections.

E. Early Completion. The Contractor has the right to finish the work before the contract completion date; however, the Owner assumes no liability for any hindrances to the Contractor unless Owner caused delays result in a time extension to the contract completion date. The Contractor shall not be entitled to any claims for lost efficiencies or for delay if a Certificate of Substantial Completion is given on or before the Contract Completion Date.

ARTICLE 5.4 -- PAYMENT TO CONTRACTOR

A. Payments on account of this contract will be made monthly in proportion to the work which has been completed. Request for payment must be submitted on the Owner’s forms. No other pay request will
be processed. Supporting breakdowns must be in the same format as Owner’s forms and must provide the same level of detail. The Designer will, within 5 working days from receipt of the contractor’s request for payment either issue a Certificate for Payment to the Owner, for such amount as the Designer determines is properly due, or notify the Contractor in writing of reasons for withholding a Certificate. The Owner shall make payment within 30 calendar days after the "Application and Certification for Payment" has been received and certified by the Designer. The following items are to be attached to the contractor’s pay request:

1. Updated construction schedule
2. Certified payrolls consisting of name, occupation and craft, number of hours worked and actual wages paid for each individual employee, of the Contractor and all subcontractors working on the project

B. The Owner shall retain 5 percent of the amount of each such payment application, except as allowed by Article 5.4, until final completion and acceptance of all work covered by this contract.

C. Each payment made to Contractor shall be on account of the total amount payable to Contractor and all material and work covered by paid partial payment shall thereupon become the sole property of Owner. This provision shall not be construed as relieving Contractor from sole responsibility for care and protection of materials and work upon which payments have been made or restoration of any damaged work or as a waiver of the right of Owner to require fulfillment of all terms of this contract.

D. Materials delivered to the work site and not incorporated in the work will be allowed in the Application and Certification for Payment on the basis of one hundred (100%) percent of value, subject to the 5% retainage providing that they are suitably stored on the site or in an approved warehouse in accordance with the following requirements:

1. Material has previously been approved through submittal and acceptance of shop drawings conforming to requirements of Article 3.2 of General Conditions.
2. Delivery is made in accordance with the time frame on the approved schedule.
3. Materials, equipment, etc., are properly stored and protected from damage and deterioration and remain so - if not, previously approved amounts will be deleted from subsequent pay applications.

4. The payment request is accompanied by a breakdown identifying the material equipment, etc. in sufficient detail to establish quantity and value.

E. The Contractor shall be allowed to include in the Application and Certification for Payment, one hundred (100%) of the value, subject to retainage, of major equipment and material stored off the site if all of the following conditions are met:

1. The request for consideration of payment for materials stored off site is made at least 15 working days prior to submittal of the Application for Payment including such material. Only materials inspected will be considered for inclusion on Application for Payment requests.
2. Materials stored in one location off site are valued in excess of $25,000.
3. That a Certificate of Insurance is provided indicating adequate protection from loss, theft, conversion or damage for materials stored off site. This Certificate shall show the State of Missouri as an additional insured for this loss.

4. The materials are stored in a facility approved and inspected, by the Construction Representative.

5. Contractor shall be responsible for, Owner costs to inspect out of state facilities, and any delays in the completion of the work caused by damage to the material or for any other failure of the Contractor to have access to this material for the execution of the work.

F. The Owner shall determine the amount, quality and acceptability of the work and materials which are to be paid for under this contract. In the event any questions shall arise between the parties, relative to this contract or specifications, determination or decision of the Owner or the Construction Representative and the Designer shall be a condition precedent to the right of the Contractor to receive any money or payment for work under this contract affected in any manner or to any extent by such question.

G. Payments Withheld: The Owner may withhold or nullify in whole or part any certificate to such extent as may be necessary to protect the Owner from loss on account of:

1. Defective work not remedied. When a notice of noncompliance is issued on an item or items, corrective action shall be undertaken immediately. Until corrective action is completed, no monies will be paid and no additional time will be allowed for the item or
items. The cost of corrective action(s) shall be borne by the Contractor.

2. A reasonable doubt that this contract can be completed for the unpaid balance.

3. Failure of the Contractor to update as-built drawings monthly for review by the Construction Representative.

4. Failure of the Contractor to update the construction schedule.

When the Construction Representative is satisfied the Contractor has remedied above deficiencies, payment shall be released.

H. Final Payment: Upon receipt of written notice from the Contractor to the Designer and Project Representative that the work is ready for final inspection and acceptance, the Designer and Project Representative, with the Contractor, shall promptly make such inspection. If the work is acceptable and the contract fully performed, the Construction Representative shall complete a final acceptance report and the Contractor will be directed to submit a final Application and Certification for Payment. If the Owner approves the same, the entire balance shall be due and payable, with the exception of deductions as provided for under Article 5.4.

1. Where the specifications provide for the performance by the Contractor of (certain tests for the purpose of balancing and checking the air conditioning and heating equipment and the Contractor shall have furnished and installed all such equipment in accordance with the specifications, but said test cannot then be made because of climatic conditions, such test shall may be considered as required under the provisions of the specifications, Section 013300 and this contract may be substantial. Full payment will not be made until the tests have been made and the equipment and system is finally accepted. If the tests are not completed when scheduled, the Owner may deduct 150% of the value of the tests from the final payment.

2. The final payment shall not become due until the Contractor delivers to the Construction Representative:

   a) A complete file of releases, on the standard form included in the contract documents as "Final Receipt of Payment and Release Form", from subcontractors and material suppliers evidencing payment in full for services, equipment and materials, as the case may require, if the Owner approves, or a consent from the Surety to final payment accepting liability for any unpaid amounts.

   b) An Affidavit of Compliance with Prevailing Wage Law, in the form as included in this contract specifications, properly executed by each subcontractor, and the Contractor

   c) Certified copies of all payrolls

   d) As-built drawings

3. If any claim remains unsatisfied after all payments are made, the Contractor shall refund to the Owner all monies that the latter may be compelled to pay in discharging such a claim including all costs and a reasonable attorney's fee.

4. Missouri statute requires prompt payment from the Owner to the Contractor within thirty calendar days and from the Contractor to his subcontractors within fifteen calendar days. Failure to make payments within the required time frame entitles the receiving party to charge interest at the rate of one and one half percent per month calculated from the expiration of the statutory time period until paid.

5. The value of all unused unit price allowances and/or 150% of the value of the outstanding work items, and/or liquidated damages may be deducted from the final pay request without executing a Contract Change. Any unit price items which exceed the number of units in the contract may be added by Contract Change.

ARTICLE 6 -- INSURANCE AND BONDS

ARTICLE 6.1 -- BOND

A. Contractor shall furnish a performance/payment bond in an amount equal to 100% of the contract price to guarantee faithful performance of the contract and 100% of the contract price to guarantee the payment of all persons performing labor on the project and furnishing materials in connection therewith under this contract as set forth in the standard form of performance and payment bond included in the contract documents. The surety on such bond shall be issued by a surety company authorized by the Missouri Department of Insurance to do business in the state of Missouri.

B. All Performance/Payment Bonds furnished in response to this provision shall be provided by a bonding company with a rating of B+ or higher as established by A.M. Best Company, Inc. in their most recent publication.
ARTICLE 6.2 – INSURANCE

A. The successful Contractor shall procure and maintain for the duration of the contract issued a policy or policies of insurance for the protection of both the Contractor and the Owner and their respective officers, officials, agents, consultants and employees. The Owner requires certification of insurance coverage from the Contractor prior to commencing work.

B. Minimum Scope and Extent of Coverage

1. General Liability
   Commercial General Liability, ISO coverage form number or equivalent CG 00 01 ("occurrence" basis), or I-SO coverage form number CG 00 02, or ISO equivalent. If ISO equivalent or manuscript general liability coverage forms are used, minimum coverage will be as follows: Premises/Operations; Independent Contractors; Products/Completed Operations; personal Injury; Broad Form Property Damage including Completed Operations; Broad Form Contractual Liability Coverage to include Contractor's obligations under Article 1.11 Indemnification and any other Special Hazards required by the work of the contract.

2. Automobile Liability
   Business Automobile Liability Insurance, ISO Coverage form number or equivalent CA 00 01 covering automobile liability, code 1 "ANY AUTO".

3. Workers' Compensation and Employer's Liability
   Statutory Workers' Compensation Insurance for Missouri and standard Employer's Liability Insurance, or the authorization to self-insure for such liability from the Missouri Division of Workers’ Compensation.

4. Builder's Risk or Installation Floater Insurance
   Insurance upon the work and all materials, equipment, supplies, temporary structures and similar items which may be incident to the performance of the work and located at or adjacent to the site, against loss or damage from fire and such other casualties as are included in extended coverage in broad "All Risk" form, including coverage for Flood and Earthquake, in an amount not less than the replacement cost of the work or this contact price, whichever is greater, with loss payable to Contractor and Owner as their respective interests may appear.

Contractor shall maintain sufficient insurance to cover the full value of the work and materials as the work progresses, and shall furnish Owner copies of all endorsements. If Builder's Risk Reporting - Form of Endorsement is used, Contractor shall make all reports as required therein so as to keep in force an amount of insurance which will equal the replacement cost of the work, materials, equipment, supplies, temporary structures, and other property covered thereby; and if, as a result of Contractor's failure to make any such report, the amount of insurance so recoverable shall be less than such replacement cost, Contractor's interest in the proceeds of such insurance, if any, shall be subordinated to Owner's interest to the end that Owner may receive full reimbursement for its loss.

C. Minimum Limits of Insurance

1. General Liability
   Contractor
   $2,000,000 combined single limit per occurrence for bodily injury, personal injury, and property damage
   $2,000,000 annual aggregate

2. Automobile Liability
   $2,000,000 combined single limit per occurrence for bodily injury and property damage

3. Workers' Compensation and Employers Liability
   Workers' Compensation limits as required by applicable State Statutes (generally unlimited) and minimum of $1,000,000 limit per accident for Employer's Liability.

   General Liability and Automobile Liability insurance may be arranged under individual policies for the full limits required or by a combination of underlying policies with the balance provided by a form-following Excess or Umbrella Liability policy.

D. Deductibles and Self-Insured Retentions

All deductibles, co-payment clauses, and self-insured retentions must be declared to and approved by the Owner. The Owner reserves the right to request the reduction or elimination of unacceptable deductibles or self-insured retentions, as they would apply to the Owner, and their respective officers, officials, agents, consultants and employees. Alternatively, the Owner may request Contractor to procure a bond guaranteeing
payment of losses and related investigations, claims administration, and defense expenses.

E. Other Insurance Provisions and Requirements

The respective insurance policies and coverage, as specified below, must contain, or be endorsed to contain the following conditions or provisions:

1. General Liability

The Owner, and its respective commissioners, officers, officials, agents, consultants and employees shall be endorsed as additional insured’s by ISO form CG 20 26 Additional Insured - Designated Person or Organization. As additional insured’s, they shall be covered as to work performed by or on behalf of the Contractor or as to liability which arises out of Contractor’s activities or resulting from the performance of services or the delivery of goods called for by the Contract.

Contractor’s insurance coverage shall be primary with respect to all additional insured’s. Insurance of self-insurance programs maintained by the designated additional insured’s shall be in excess of the Contractor’s insurance and shall not contribute with it.

Additionally, the Contractor and Contractor’s general liability insurer shall agree to waive all rights of subrogation against the Owner and any of their respective officers, officials, agents, consultants or employees for claims, losses, or expenses which arise out of Contractor's activities or result from the performance of services or the delivery of goods called for by the Contract.

Contractor’s failure to comply with the terms and conditions of these insurance policies shall not affect or abridge coverage for the Owner or for any of its officers, officials, agents, consultants or employees.

2. Automobile Insurance

The Owner, and their respective officers, officials, agents, consultants and employees shall be endorsed as additional insured’s by ISO form CG 20 26 - Additional Insured Designated Person or Organization. As additional insured’s, they shall be covered as to work performed by or on behalf of the Contractor or as to liability which arises out of Contractor's activities or resulting from the performance of services or the delivery of goods called for by the Contract.

Additionally, the Contractor and Contractor’s automobile insurer shall agree to waive all rights of subrogation against the Owner and any of their respective officers, officials, agents, consultants or employees for claims, losses, or expenses which arise out of Contractor's activities or result from the performance of services or the delivery of goods called for by the Contract.

Contractor’s failure to comply with the terms and conditions of these insurance policies shall not affect or abridge coverage for the Owner or for any of its officers, officials, agents, consultants or employees.

3. Workers' Compensation/Employer's Liability

Contractor's workers' compensation insurance shall be endorsed with NCCI form WC 00 03 01 A - Alternative Employer Endorsement. The Alternative Employer Endorsement shall designate the Owner as "alternate employers."

4. All Coverages

Each insurance policy required by this section of the Contract shall contain a stipulation, endorsed if necessary, that the Owner will receive a minimum of a thirty (30) calendar day advance notice of any policy cancellation. Ten (10) calendar days advance notice is required for policy cancellation due to non-payment of premium.

F. Insurer Qualifications and Acceptability

Insurance required hereunder shall be issued by an A.M. Best, “B+” rated, Class IX insurance company approved to conduct insurance business in the state of Missouri.

G. Verification of Insurance Coverage

Prior to Owner issuing a Notice to Proceed, the Contractor-shall furnish the Owner with Certificate(s) of Insurance and with any applicable original endorsements evidencing the required insurance coverage. The insurance certificates and endorsements are to be signed by a person authorized by that insurer to bind coverage on its behalf. All certificates and endorsements received by the Owner are subject to review and approval by the Owner. The Owner reserves the right to require certified copies of all required policies at any time. If the scope of this contract will exceed one (1) year - or, if any of Contractor's applicable insurance coverage expires prior to completion of the work or services required under this contract -
the Contractor will provide a renewal or replacement certificate before continuing work or services hereunder. If the Contractor fails to provide documentation of required insurance coverage, the Owner may issue a stop work order and no additional contract completion time and/or compensation shall be granted as a result thereof.

ARTICLE 7 – SUSPENSION OR TERMINATION OF CONTRACT

ARTICLE 7.1 - FOR SITE CONDITIONS

When conditions at the site of the proposed work are considered by the Owner to be unsatisfactory for prosecution of the work, the Contractor may be ordered in writing to suspend the work or any part thereof until reasonable conditions exist. When such suspension is not due to fault or negligence of the Contractor, time allowed for completion of such suspended work will be extended by a period of time equal to that lost due to delay occasioned by ordered suspension. This will be a no cost time extension.

ARTICLE 7.2 - FOR CAUSE

A. Termination or Suspension for Cause:
   1. If the Contractor shall file for bankruptcy, or should make a general assignment for the benefit of the creditors, or if a receiver should be appointed on account of insolvency, or if the contractor should persistently or repeatedly refuse or fail to supply enough properly skilled workers or proper materials, or if the contractor should fail to make prompt payment to subcontractors or for material or labor, or persistently disregard laws, ordinances or the instructions of the Owner, or otherwise be guilty of a substantial violation of any provision of this contract, then the Owner may serve notice on the Contractor and the surety setting forth the violations and demanding compliance with this contract. Unless within ten (10) consecutive calendar days after serving such notice, such violations shall cease and satisfactory arrangements for correction be made, the Owner may suspend the Contractor's right to proceed with the work or terminate this contract.
   2. In the event the Owner suspends Contractor's right to proceed with the work or terminates the contract, the Owner may demand that the Contractor's surety take over and complete the work on this contract, after the surety submits a written proposal to the Owner and receives written approval and upon the surety's failure or refusal to do so within ten (10) consecutive calendar days after demand therefore, the Owner may take over the work and prosecute the same to completion by bid or negotiated contract, or the Owner may elect to take possession of and utilize in completing the work such materials, supplies, appliances and plant as may be on the site of the work, and all subcontractors, if the Owner elects, shall be bound to perform their contracts.

B. The Contractor and its surety shall be and remain liable to the Owner for any excess cost or damages occasioned to the Owner as a result of the actions above set forth.

C. The Contractor in the event of such suspension or termination shall not be entitled to receive any further payments under this contract until the work is wholly finished. Then if the unpaid balance under this contract shall exceed all expenses of the Owner as certified by the Director, such excess shall be paid to the Contractor; but, if such expenses shall exceed the unpaid balance as certified by the Director, the Contractor and their surety shall be liable for and shall pay the difference and any damages to the Owner.

D. In exercising Owner's right to secure completion of the work under any of the provisions hereof, the Director shall have the right to exercise Owner's sole discretion as to the manner, methods and reasonableness of costs of completing the work.

E. The rights of the Owner to suspend or terminate as herein provided shall be cumulative and not exclusive and shall be in addition to any other remedy provided by law.

F. The Contractor in the event of such suspension or termination may be declared ineligible for Owner contracts for a minimal period of twelve (12) months. Further, no contract will be awarded to any Contractor who lists in their bid form any subcontractor whose prior performance has contributed, as determined by the Owner, to a breach of a contract. In order to be considered for state-awarded contracts after this period, the Contractor/subcontractor will be required to forward acceptance reports to the Owner regarding successful completion of non-state projects during the intervening twelve (12) months from the date of default. No contracts will be awarded to a subcontractor/Contractor until the ability to perform responsibly in the private sector has been proven to the Owner.

ARTICLE 7.3 -- FOR CONVENIENCE

A. The Owner may terminate or suspend the Contract or any portion of the Work without cause at any time, and at the Owner's convenience. Notification of a termination or suspension shall be in writing
and shall be given to the Contractor and their surety. If the Contract is suspended, the notice will contain the anticipated duration of the suspension or the conditions under which work will be permitted to resume. If appropriate, the Contractor will be requested to demobilize and re-mobilize and will be reimbursed time and costs associated with the suspension.

B. Upon receipt of notification, the Contractor shall:
   1. Cease operations when directed.
   2. Take actions to protect the work and any stored materials.
   3. Place no further subcontracts or orders for material, supplies, services or facilities except as may be necessary to complete the portion of the Contract that has not been terminated. No claim for payment of materials or supplies ordered after the termination date shall be considered.
   4. Terminate all existing subcontracts, rentals, material, and equipment orders.
   5. Settle all outstanding liabilities arising from termination with subcontractors and suppliers.
   6. Transfer title and deliver to the Owner, work in progress, completed work, supplies and other material produced or acquired for the work terminated, and completed or partially completed plans, drawings information and other property that, if the Contract had been completed, would be required to be furnished to the Owner.

C. For termination without cause and at the Owner's convenience, in addition to payment for work completed prior to date of termination, the Contractor may be entitled to payment of other documented costs directly associated with the early termination of the contract. Payment for anticipated profit and unapplied overhead will not be allowed.
SECTION 007300 - SUPPLEMENTARY CONDITIONS

1.0 GENERAL:
   A. These Supplementary General Conditions clarify, add, delete, or otherwise modify standard terms and conditions of DIVISION 0, BIDDING AND CONTRACTING REQUIREMENTS.

2.0 CONTACTS:
   Designer: Jim Dove
   Midwest Engineering & Design
   3100 Brown Station Rd., Columbia, MO 65202
   Telephone: 573-875-0045
   Email: jdoe@moengineering.com

   Construction Representative: Robert Rehagen
   Division of Facilities Management, Design and Construction
   709 Missouri Boulevard (Upper Level)
   Jefferson City, MO 65109
   Telephone: 573-522-0002
   Email: Robert.Rehagen@oa.mo.gov

   Project Manager: Chris Lloyd
   Division of Facilities Management, Design and Construction
   301 West High Street, Room 730
   Jefferson City, Missouri 65102
   Telephone: 573-526-0160
   Email: Christopher.Lloyd@oa.mo.gov

   Contract Specialist: Mandy Roberson
   Division of Facilities Management, Design and Construction
   301 West High Street, Room 730
   Jefferson City, Missouri 65102
   Telephone: 573-522-0074
   Email: Mandy.Roberson@oa.mo.gov

3.0 NOTICE: ALL BID MATERIALS ARE DUE AT THE TIME OF BID SUBMITTAL. THERE IS NO SECOND SUBMITTAL FOR THIS PROJECT.

4.0 FURNISHING CONSTRUCTION DOCUMENTS:
   A. The Owner will furnish the Contractor with approximately 10 complete sets of drawings and specifications at no charge.
   B. The Owner will furnish the Contractor with approximately 10 sets of explanatory or change drawings at no charge.
   C. The Contractor may make copies of the documents as needed with no additional cost to the Owner.

5.0 SAFETY REQUIREMENTS
   Contractor and subcontractors at any tier shall comply with RSMo 292.675 and Article 1.3, E, of Section 007213, General Conditions.
Missouri
Division of Labor Standards
WAGE AND HOUR SECTION

MICHAEL L. PARSON, Governor

Annual Wage Order No. 27
Section 026
COLE COUNTY

In accordance with Section 290.262 RSMo 2000, within thirty (30) days after a certified copy of this Annual Wage Order has been filed with the Secretary of State as indicated below, any person who may be affected by this Annual Wage Order may object by filing an objection in triplicate with the Labor and Industrial Relations Commission, P.O. Box 599, Jefferson City, MO 65102-0599. Such objections must set forth in writing the specific grounds of objection. Each objection shall certify that a copy has been furnished to the Division of Labor Standards, P.O. Box 449, Jefferson City, MO 65102-0449 pursuant to 8 CSR 20-5.010(1). A certified copy of the Annual Wage Order has been filed with the Secretary of State of Missouri.

Original Signed by
Taylor Burks, Director
Division of Labor Standards

Filed With Secretary of State: ____________________________ March 10, 2020

Last Date Objections May Be Filed: April 9, 2020

Prepared by Missouri Department of Labor and Industrial Relations
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</tr>
</tbody>
</table>

*The Division of Labor Standards received less than 1,000 reportable hours for this occupational title.
Public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center.

**The Prevailing Hourly Rate includes any applicable fringe benefit amounts for each occupational title.
<table>
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<tr>
<th>OCCUPATIONAL TITLE</th>
<th><strong>Prevailing Hourly Rate</strong></th>
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<tr>
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<td>Groundman</td>
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<tr>
<td>Group IV</td>
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</tbody>
</table>

Use Heavy Construction Rates on Highway and Heavy construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(3).

Use Building Construction Rates on Building construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(2).

If a worker is performing work on a heavy construction project within an occupational title that is not listed on the Heavy Construction Rate Sheet, use the rate for that occupational title as shown on the Building Construction Rate Sheet.

*The Division of Labor Stancards received less than 1,000 reportable hours for this occupational title. Public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center.

**The Prevailing Hourly Rate includes any applicable fringe benefit amounts for each occupational title.
OVERTIME

For all work performed on a Sunday or a holiday, not less than twice (2x) the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed or the public works contracting minimum wage, whichever is applicable, shall be paid to all workers employed by or on behalf of any public body engaged in the construction of public works, exclusive of maintenance work.

For all overtime work performed, not less than one and one-half (1½) the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed or the public works contracting minimum wage, whichever is applicable, shall be paid to all workers employed by or on behalf of any public body engaged in the construction of public works, exclusive of maintenance work or contractual obligation. For purposes of this subdivision, "overtime work" shall include work that exceeds ten hours in one day and work in excess of forty hours in one calendar week; and

A thirty-minute lunch period on each calendar day shall be allowed for each worker on a public works project, provided that such time shall not be considered as time worked.

HOLIDAYS

January First;
The last Monday in May;
July Fourth;
The first Monday in September;
November Eleventh;
The fourth Thursday in November; and
December Twenty-Fifth;

If any holiday falls on a Sunday, the following Monday shall be considered a holiday.
PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. The Project consists of the renovation of two escalators, the senate garage traction elevator, and the house hydraulic elevator.
   1. Project Location: State Capitol Campus, 201 West Capitol Ave, Jefferson City, MO.
   2. Owner: State of Missouri, Office of Administration, Division of Facilities Management, Design and Construction, Harry S Truman State Office Building, Post Office Box 809, 301 West High Street, Jefferson City, Missouri 65102.

B. Contract Documents, dated 11/30/2020 were prepared for the Project by Midwest Engineering & Design – 3100 Brown Station Rd. Suite C Columbia, MO.

C. The Work consists of the renovation a traction elevator in the senate parking garage, a hydraulic elevator in the house parking garage, and the escalators between the house parking garage and the state capital.
   1. The Work includes replacing most moving parts of these three aged systems.

D. The Work will be constructed under a single prime contract.

1.3 DESIGNER’S ESTIMATE OF CONSTRUCTION COST RANGE

A. The project designer has prepared this cost estimate range. The State of Missouri makes no guarantee regarding the accuracy of the estimate range nor does the State of Missouri intend to imply that the estimate range in any way reflect actual cost required to perform the work represented by the specifications and drawings. The contractor should not rely on this estimate range in any way while preparing a bid for this project or otherwise.

B. Designer’s estimate range: $937,000 to $1,288,000.

1.4 WORK SEQUENCE

A. Contractor shall supply a bar chart schedule of work, per specification section 013200, within 10 working days of notice to proceed. Schedule should account for phasing of work to minimize disruption of capital staff’s entrance and exit of the building. The following is the recommended phasing plan.

   a. May 21st - Post signs at escalator and Senate elevator of future work.
   b. May 31st – Work on escalators and Senate garage elevator begins.
   c. Aug 6th – Signs posted at House Elevator
   d. Aug 13th – Work begins on House Elevator
   e. Aug 20th – Senate elevator work is completed
f. Oct 29th – Escalator and House elevator work is completed.

B. Signs must be posted at least one week prior to commencing any work so people can make alternate parking arrangements.

C. Work may commence on May 31st and must be substantially complete and fully operational by November 16, 2021.

D. Once the work has begun and any conveyance system is out of commission, contractor shall work constantly on each shut down system until it is up and working. Contractor shall not shut down any system without the means necessary to work constantly towards completion of that system. The start of the project will be coordinated with an inactive period as determined by the owner.

1.5 CONTRACTOR USE OF PREMISES

A. General: During the construction period the Contractor shall have regulated use of the premises for construction operations, including use of the site. The Contractor’s use of the premises shall be limited by work hours and for security reasons. The Owner reserves the right to regulate work throughout the construction period.

B. Use of the Site: Limit use of the premises to work in areas indicated. Confine operations to areas within contract limits indicated. Do not disturb portions of the site beyond the areas in which the Work is indicated.

1. Owner Occupancy: Allow for Owner occupancy and use by the public except for the work areas.

2. Driveways and Entrances: Keep driveways and entrances serving the premises clear and available to the Owner, the Owner’s employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

C. Use of the Existing Building: Maintain the existing building in a weathertight condition throughout the construction period. Repair damage cause by construction operations. Take all precautions necessary to protect the building and its occupants during the construction period.

D. The contractor shall be given parking spots adjacent to work areas for laydown space. These areas shall be coordinated with the owner during the pre-construction meeting.

1.6 OCCUPANCY REQUIREMENTS

A. Full Owner Occupancy: The Owner will occupy the site and existing building during the entire construction period. Cooperate with the Owner during construction operations to minimize conflicts and facilitate owner usage. Perform the Work so as not to interfere with the Owner’s operations.

1.7 OWNER-FURNISHED PRODUCTS

A. The Owner is not expected to furnish any equipment is the scope of work. The contractor shall be responsible for supplying a complete and operable system, which is to include all system programming.
1.8 MISCELLANEOUS PROVISIONS

A. Testing, inspections, and certifications:
   1. Contractor shall provide all required licensing for a fully operational system.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 SCHEDULE OF PRODUCTS ORDERED IN ADVANCE

A. Contractor shall be responsible for shop drawing submittals in a timely fashion such that equipment can be approved and ordered in a way as not do delay the progress of the project. Work may not be commenced or equipment shut down until the necessary materials for the completion of that system have been delivered.

END OF SECTION 011000
SECTION 012600 – CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for handling and processing Contract Modifications.

B. Related Sections include the following:
   1. Division 0, Section 007213, Article 3.1 "Acceptable Substitutions" for administrative procedures for handling Requests for Substitutions made after Contract award.
   2. Division 0, Section 007213, Article 4.0 "Changes in the Work" for Contract Change requirements.

1.3 REQUESTS FOR INFORMATION

A. In the event that the Contractor or Subcontractor, at any tier, determines that some portion of the Drawings, Specifications, or other Contract Documents requires clarification or interpretation, the Contractor shall submit a “Request for Information” (RFI) in writing to the Designer. A RFI may only be submitted by the Contractor and shall only be submitted on the RFI forms provided by the Owner. The Contractor shall clearly and concisely set forth the issue for which clarification or interpretation is sought and why a response is needed. In the RFI, the Contractor shall set forth an interpretation or understanding of the requirement along with reasons why such an understanding was reached.

B. Responses to RFI shall be issued within ten (10) working days of receipt of the Request from the Contractor unless the Designer determines that a longer time is necessary to provide an adequate response. If a longer time is determined necessary by the Designer, the Designer will, within five (5) working days of receipt of the request, notify the Contractor of the anticipated response time. If the Contactor submits a RFI on a time sensitive activity on the current project schedule, the Contractor shall not be entitled to any time extension due to the time it takes the Designer to respond to the request provided that the Designer responds within the ten (10) working days set forth above.

C. Responses from the Designer will not change any requirement of the Contract Documents. In the event the Contractor believes that a response to a RFI will cause a change to the requirements of the Contract Document, the Contractor shall give written notice to the Designer requesting a Contract Change for the work. Failure to give such written notice within ten (10) working days, shall waive the Contractor’s right to seek additional time or cost under Article 4, “Changes in the Work” of the General Conditions.
1.4 MINOR CHANGES IN THE WORK

A. Designer will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Amount or the Contract Time, on "Designer's Supplemental Instructions" (DSI).

1.5 PROPOSAL REQUESTS

A. The Designer or Owner Representative will issue a detailed description of proposed Changes in the Work that may require adjustment to the Contract Amount or the Contract Time. The proposed Change Description will be issued using the “Request for Proposal” (RFP) form. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Proposal Requests issued by the Designer or Owner Representative are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.

2. Within ten (10) working days after receipt of Proposal Request, submit a proposal for the cost adjustments to the Contract Amount and the Contract Time necessary to execute the Change. The Contractor shall submit his proposal on the appropriate Contract Change Detailed Breakdown form. Subcontractors may use the appropriate Contract Change Detailed Breakdown form or submit their proposal on their letterhead provided the same level of detail is included. All proposals shall include:

   a. A detailed breakdown of costs per Article 4.1 of the General Conditions.

   b. If requesting additional time per Article 4.2 of the General Conditions, include an updated Contractor's Construction Schedule that indicates the effect of the Change including, but not limited to, changes in activity duration, start and finish times, and activity relationship.

1.6 CONTRACT CHANGE PROCEDURES

A. On Owner's approval of a Proposal Request, the Designer or Owner Representative will issue a Contract Change for signatures of Owner and Contractor on the “Contract Change” form.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 REFERENCED FORMS

A. The following forms can be found on our website at [oa.mo.gov/fmdc/dc/aeforms.htm](http://oa.mo.gov/fmdc/dc/aeforms.htm) or [oa.mo.gov/fmdc/dc/contractorforms.htm](http://oa.mo.gov/fmdc/dc/contractorforms.htm):

1. Request for Information
2. Designer’s Supplemental Instructions
3. Request for Proposal
4. Contract Change
5. Contract Change Detailed Breakdown – SAMPLES
6. Contract Change Detailed Breakdown – General Contractor (GC)
7. Contract Change Detailed Breakdown – Subcontractor (SUB)

END OF SECTION 012600
SECTION 013100 – COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Projects including, but not limited to, the following:

1. Coordination Drawings.
2. Administrative and supervisory personnel.
3. Project meetings.

B. Each Contractor shall participate in coordination requirements. Certain areas of responsibility will be assigned to a specific Contractor.

C. Related Sections include the following:

1. Division 1, Section 013200 "Schedules" for preparing and submitting Contractor's Construction Schedule.
3. Article 5.4.H of Section 007213 "General Conditions" for coordinating Closeout of the Contract.

1.3 COORDINATION

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections, which depend on each other for proper installation, connection, and operation.

B. Coordination: Each Contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each Contractor shall coordinate its operations with operations included in different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components with other Contractors to ensure maximum accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.
4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required
maintenance, service, and repair of all components including mechanical and electrical.

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

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

E. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
   1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. Refer to other Sections for disposition of salvaged materials that are designated as Owner's property.

1.4 SUBMITTALS

A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.

B. Key Personnel Names: Within fifteen (15) work days of starting construction operations, submit a list of key personnel assignments including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.
   1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

1.5 PROJECT MEETINGS

A. The Owner’s Construction Representative will schedule a Pre-Construction Meeting prior to beginning of construction. The date, time, and exact place of this meeting will be determined after Contract Award and notification of all interested parties. The
Contractor shall arrange to have the Job Superintendent and all prime Subcontractors present at the meeting. During the Pre-Construction Meeting, the construction procedures and information necessary for submitting payment requests will be discussed and materials distributed along with any other pertinent information.

1. Minutes: Designer will record and distribute meeting minutes.

B. Progress Meetings: The Owner’s Construction Representative will conduct Monthly Progress Meetings as stated in Articles 1.8.B and 1.8.C of Section 007213 “General Conditions”.

1. Minutes: Designer will record and distribute to Contractor the meeting minutes.

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

1. Attendees: Installer and representatives of Manufacturers and Fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Designer and Construction Representative of scheduled meeting dates.

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

3. Contractor shall record significant conference discussions, agreements, and disagreements including required corrective measures and actions.  
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.  
5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.  
6. Revise paragraph below if Project requires holding progress meetings at different intervals. Insert special intervals such as "every third Tuesday" to suit special circumstances.  
7. Project name  
8. Name and address of Contractor  
9. Name and address of Designer  
10. RFI number including RFIs that were dropped and not submitted  
11. RFI description  
12. Date the RFI was submitted  
13. Date Designer's response was received  
14. Identification of related DSI or Proposal Request, as appropriate  

PART 2 - PRODUCTS (Not Used)  

PART 3 - EXECUTION (Not Used)  

END OF SECTION 013100
SECTION 013115 - PROJECT MANAGEMENT COMMUNICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Division 1, Section 013300 - Submittals

C. Division 1, Section 012600 – Contract Modification Procedures

1.2 SUMMARY

A. Project Management Communications: The Contractor shall use the Internet web based project management communications tool, E-Builder® ASP software, and protocols included in that software during this project. The use of project management communications as herein described does not replace or change any contractual responsibilities of the participants.

1. Project management communications is available through E-Builder® as provided by "e-Builder®" in the form and manner required by the Owner.

2. The project communications database is on-line and fully functional. User registration, electronic and computer equipment, and Internet connections are the responsibility of each project participant. The sharing of user accounts is prohibited

B. Support: E-Builder® will provide on-going support through on-line help files.

C. Copyrights and Ownership: Nothing in this specification or the subsequent communications supersedes the parties’ obligations and rights for copyright or document ownership as established by the Contract Documents. The use of CAD files, processes or design information distributed in this system is intended only for the project specified herein.

D. Purpose: The intent of using E-Builder® is to improve project work efforts by promoting timely initial communications and responses. Secondly, to reduce the number of paper documents while providing improved record keeping by creation of electronic document files

E. Authorized Users: Access to the web site will be by individuals who are authorized users.

1. Individuals shall complete the E-Builder New Company/User Request Form located at the following web site: https://oa.mo.gov/facilities/vendor-links/contractor-forms.
Completed forms shall be emailed to the following email address: OA.FMDCE-BuilderSupport@oa.mo.gov.

2. Authorized users will be contacted directly and assigned a temporary user password.

3. Individuals shall be responsible for the proper use of their passwords and access to data as agents of the company in which they are employed.

F. Administrative Users: Administrative users have access and control of user licenses and all posted items. DO NOT POST PRIVATE OR YOUR COMPANY CONFIDENTIAL ITEMS IN THE DATABASE! Improper or abusive language toward any party or repeated posting of items intended to deceive or disrupt the work of the project will not be tolerated and will result in deletion of the offensive items and revocation of user license at the sole discretion of the Administrative User(s).

G. Communications: The use of fax, email and courier communication for this project is discouraged in favor of using E-Build® to send messages. Communication functions are as follows:

1. Document Integrity and Revisions:
   a. Documents, comments, drawings and other records posted to the system shall remain for the project record. The authorship time and date shall be recorded for each document submitted to the system. Submitting a new document or record with a unique ID, authorship, and time stamp shall be the method used to make modifications or corrections.
   b. The system shall make it easy to identify revised or superseded documents and their predecessors.
   c. Server or Client side software enhancements during the life of the project shall not alter or restrict the content of data published by the system. System upgrades shall not affect access to older documents or software.

2. Document Security:
   a. The system shall provide a method for communication of documents. Documents shall allow security group assignment to respect the contractual parties communication except for Administrative Users. DO NOT POST PRIVATE OR YOUR COMPANY CONFIDENTIAL ITEMS IN THE DATABASE!

3. Document Integration:
   a. Documents of various types shall be logically related to one another and discoverable. For example, requests for information, daily field reports, supplemental sketches and photographs shall be capable of reference as related records.

4. Reporting:
   a. The system shall be capable of generating reports for work in progress, and logs for each document type. Summary reports generated by the system shall be available for team members.

5. Notifications and Distribution:
   a. Document distribution to project members shall be accomplished both within the extranet system and via email as appropriate. Project document distribution to parties outside of the project communication system shall be
accomplished by secure email of outgoing documents and attachments, readable by a standard email client.

6. Required Document Types:
   a. RFI, Request for Information.
   b. Submittals, including record numbering by drawing and specification section.
   c. Transmittals, including record of documents and materials delivered in hard copy.
   d. Meeting Minutes.
   e. Application for Payments (Draft or Pencil).
   f. Review Comments.
   g. Field Reports.
   h. Construction Photographs.
   i. Drawings.
   j. Supplemental Sketches.
   k. Schedules.
   l. Specifications.
   m. Request for Proposals
   n. Designer’s Supplemental Instructions
   o. Punch Lists

H. Record Keeping: Except for paper documents, which require original signatures and large format documents (greater than 8½ x 11 inches), all other 8½ x 11 inches documents shall be submitted by transmission in electronic form to the E-Builder® web site by licensed users.
   a. The Owner and his representatives, the Designer and his consultants, and the Contractor and his Sub Contractors and suppliers at every tier shall respond to documents received in electronic form on the web site, and consider them as if received in paper document form.
   b. The Owner and his representatives, the Designer and his consultants, and the Contractor and his Sub Contractors and suppliers at every tier reserves the right to and shall reply or respond by transmissions in electronic form on the web site to documents actually received in paper document form.
   c. The Owner and his representatives, the Designer and his consultants, and the Contractor and his Sub Contractors and suppliers at every tier reserves the right to and shall copy any paper document into electronic form and make same available on the web site.

I. Minimum Equipment and Internet Connection: In addition to other requirements specified in this Section, the Owner and his representatives, the Construction Manager and his representatives, the Architect and his consultants, and the Contractor and his sub-contractors and suppliers at every tier required to have a user license(s) shall be responsible for the following:
1. Providing suitable computer systems for each licensed user at the users normal work location\(^1\) with high-speed Internet access, i.e. DSL, local cable company's Internet connection, or T1 connection.

2. Each of the above referenced computer systems shall have the following minimum system\(^2\) and software requirements:
   a. Desktop configuration (Laptop configurations are similar and should be equal to or exceed desktop system.)
      1) Operating System: Windows XP or newer
      2) Internet Browser: Internet Explorer 6.01SP2+ (Recommend IE7.0+)
      3) Minimum Recommend Connection Speed: 256K or above
      4) Processor Speed: 1 Gigahertz and above
      5) RAM: 512 mb
      6) Operating system and software shall be properly licensed.
      7) Internet Explorer version 7 (current version is a free distribution for download). This specification is not intended to restrict the host server or client computers provided that industry standard HTTP clients may access the published content.
      8) Adobe Acrobat Reader (current version is a free distribution for download).
      9) Users should have the standard Microsoft Office Suite (current version must be purchased) or the equivalent.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable.)

END OF SECTION 013115

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\(^1\) The normal work location is the place where the user is assigned for more than one-half of his time working on this project.

\(^2\) The minimum system herein will not be sufficient for many tasks and may not be able to process all documents and files stored in the E-Builder® Documents area.
SECTION 013200 – SCHEDULES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes requirements for a Bar Chart Schedule for the project construction
   activities, schedule of submittals, and schedule for testing.

PART 2 - PRODUCTS – (Not Applicable)

PART 3 - EXECUTION

3.1 SUBMITTAL PROCEDURES

A. The Contractor shall submit to the Designer, within ten (10) working days following the
   Notice to Proceed, a Progress Schedule showing the rate of progress the Contractor
   agrees to maintain and the order in which he proposed to carry out the various phases of
   Work. No payments shall be made to the Contractor until the Progress Schedule has been
   approved by the Owner.

B. The Contractor shall submit an updated Schedule for presentation at each Monthly
   Progress Meeting. The Schedule shall be updated by the Contractor as necessary to
   reflect the current Schedule and its relationship to the original Schedule. The updated
   Schedule shall reflect any changes in the logic, sequence, durations, or completion date.
   Payments to the Contractor shall be suspended if the Progress Schedule is not adequately
   updated to reflect actual conditions.

C. The Contractor shall submit Progress Schedules to Subcontractors to permit coordinating
   their Progress Schedules to the general construction Work. The Contractor shall
   coordinate preparation and processing of Schedules and reports with performance of
   other construction activities.

3.2 CONSTRUCTION PROGRESS SCHEDULE – BAR CHART SCHEDULE

A. Bar-Chart Schedule: The Contractor shall prepare a comprehensive, fully developed,
   horizontal bar chart-type Contractor’s Construction Schedule. The Contractor for general
   construction shall prepare the Construction Schedule for the entire Project. The Schedule
   shall show the percentage of work to be completed at any time, anticipated monthly
   payments by Owner, as well as significant dates (such as completion of excavation,
   concrete foundation work, underground lines, etc.) which shall serve as check points to
   determine compliance with the approved Schedule. The Schedule shall also include an
   activity for the number of “bad” weather days specified in Section 012100 – Allowances.

1. The Contractor shall provide a separate time bar for each significant construction
   activity. Provide a continuous vertical line to identify the first working day of
   each week.
a. If practical, use the same Schedule of Values breakdown for schedule time bars.

2. The Contractor shall provide a base activity time bar showing duration for each construction activity. Each bar is to indicate start and completion dates for the activity. The Contractor is to place a contrasting bar below each original schedule activity time for indicating actual progress and planned remaining duration for the activity.

3. The Contractor shall prepare the Schedule on a minimal number of separate sheets to readily show the data for the entire construction period.

4. Secure time commitments for performing critical elements of the Work from parties involved. Coordinate each element on schedule with other construction activities. Include minor elements involved in the overall sequence of the Work. Show each activity in proper sequence. Indicate graphically the sequences necessary for completion of related portions of the Work.

5. Coordinate the Contractor’s Construction Schedule with the Schedule of Values, list of subcontracts, Submittal Schedule, progress reports, payment requests, and other required schedules and reports.

6. Indicate the Intent to Award and the Contract Substantial Completion dates on the schedule.

B. Phasing: Provide notations on the schedule to show how the sequence of the Work is affected by the following:

1. Requirement for Phased completion
2. Work by separate Contractors
3. Work by the Owner
4. Pre-purchased materials
5. Coordination with existing construction
6. Limitations of continued occupancies
7. Un-interruptible services
8. Partial Occupancy prior to Substantial Completion
9. Site restrictions
10. Provisions for future construction
11. Seasonal variations
12. Environmental control

C. Work Stages: Use crosshatched bars to indicate important stages of construction for each major portion of the Work. Such stages include, but are not necessarily limited to, the following:

1. Subcontract awards
2. Submittals
3. Purchases
4. Fabrication
5. Sample testing
6. Deliveries
7. Installation
8. Testing
9. Adjusting
10. Curing
11. Startup and placement into final use and operation

D. Area Separations: Provide a separate time bar to identify each major area of construction for each major portion of the Work. For the purposes of this Article, a “major area” is a site of construction, a separate building, or a similar significant construction element.

1. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
   a. Completion of mechanical installation
   b. Substantial Completion

3.3 SCHEDULE OF SUBMITTALS

A. Upon acceptance of the Construction Progress Schedule, prepare and submit a complete schedule of submittals. Coordinate the submittal schedule with Section 013300 SUBMITTALS, the approved Construction Progress Schedule, list of subcontracts, Schedule of Values and the list of products.

B. Prepare the schedule in chronological order. Provide the following information

1. Scheduled date for the first submittal
2. Related Section number
3. Submittal category
4. Name of the Subcontractor
5. Description of the part of the Work covered
6. Scheduled date for resubmittal
7. Scheduled date for the Designer’s final release or approval

C. Distribution: Following the Designer’s response to the initial submittal schedule, print and distribute copies to the Designer, Owner, subcontractors, and other parties required to comply with submittal dates indicated.

1. Post copies in the Project meeting room and temporary field office.
2. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned part of the Work and are no longer involved in construction activities.

D. Schedule Updating: Revise the schedule after each meeting or other activity where revisions have been recognized or made. Issue the updated schedule concurrently with the report of each meeting.
3.4 SCHEDULE OF INSPECTIONS AND TESTS

A. Prepare a schedule of inspections, tests, and similar services required by the Contract Documents. Submit the schedule with (15) days of the date established for commencement of the Contract Work. The Contractor is to notify the testing agency at least (5) working days in advance of the required tests unless otherwise specified.

B. Form: This schedule shall be in tabular form and shall include, but not be limited to, the following:
   1. Specification Section number
   2. Description of the test
   3. Identification of applicable standards
   4. Identification of test methods
   5. Number of tests required
   6. Time schedule or time span for tests
   7. Entity responsible for performing tests
   8. Requirements for taking samples
   9. Unique characteristics of each service

C. Distribution: Distribute the schedule to the Owner, Architect, and each party involved in performance of portions of the Work where inspections and tests are required.

END OF SECTION 013200
SECTION 013300 – SUBMITTALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for submittals required for performance of the Work, including the following:

1. Shop Drawings.
2. Product Data.
3. Samples.
5. Operating and Maintenance Manuals.

B. Administrative Submittals: Refer to General and Supplementary Conditions other applicable Division 01 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to, the following:

1. Construction Progress Schedule including Schedule of Values.
2. Performance and Payment Bonds.
3. Insurance Certificates.
4. Applications for Payment.
5. Certified Payroll Reports.
6. Partial and Final Receipt of Payment and Release Forms.
7. Affidavit Compliance with Prevailing Wage Law.
8. Record Drawings.
9. Notification, Permits, etc.

C. The Contractor is obliged and responsible to check all shop drawings and schedules to assure compliance with contract plans and specifications. The Contractor is responsible for the content of the shop drawings and coordination with other contract work. Shop drawings and schedules shall indicate, in detail, all parts of an item or work, including erection and setting instructions and integration with the work of other trades.

D. The Contractor shall at all times make a copy, of all approved submittals, available on site to the Construction Representative.

1.3 SUBMITTAL PROCEDURES

A. The Contractor shall comply with the General and Supplementary Conditions and other applicable sections of the Contract Documents. The Contractor shall submit, with such promptness as to cause no delay in his work or in that of any other contractors, all required submittals indicated in Part 3.1 of this section and elsewhere in the Contract Documents.
Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
   a. The Designer reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received.

B. Each drawing and/or series of drawings submitted must be accompanied by a letter of transmittal giving a list of the titles and numbers of the drawings. Each series shall be numbered consecutively for ready reference and each drawing shall be marked with the following information:
   1. Date of Submission
   2. Name of Project
   3. Location
   4. Section Number of Specification
   5. State Project Number
   6. Name of Submitting Contractor
   7. Name of Subcontractor
   8. Indicate if item is submitted as specified or as a substitution

1.4 SHOP DRAWINGS

A. Comply with the General Conditions, Article 3.2.

B. The Contractor shall submit newly prepared information drawn accurately to scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not a Shop Drawing.

C. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Include the following information.
   1. Dimensions.
   2. Identification of products and materials included by sheet and detail number.
   3. Compliance with specified standards.
   4. Notation of coordination requirements.
   5. Notation of dimensions established by field measurement.
   6. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 36 by 48 inches.

1.5 PRODUCT DATA

A. The Contractor shall comply with the General Conditions, Article 3.2.

B. The Contractor shall collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information, such as manufacturer’s
installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams, and performance curves.

1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products that are not required, mark copies to indicate the applicable information. Include the following information:

   a. Manufacturer’s printed recommendations.
   b. Compliance with trade association standards.
   c. Compliance with recognized testing agency standards.
   d. Application of testing agency labels and seals.
   e. Notation of dimensions verified by field measurement.
   f. Notation of coordination requirements.

2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.

1.6 QUALITY ASSURANCE DOCUMENTS

A. The Contractor shall comply with the General Conditions, Article 3.2.

B. The Contractor shall submit quality-control submittals, including design data, certifications, manufacturer’s instructions, manufacturer’s field reports, and other quality-control submittals as required under other Sections of the Specifications.

C. Certifications: Where other Sections of the Specifications require certification that a product, material, or installation complies with specified requirements, submit a notarized certification from the manufacturer certifying compliance with specified requirements.

   1. Signature: Certification shall be signed by an officer of the manufacturer or other individual authorized to contractually bind the company.

D. Inspection and Test Reports: The Contractor shall submit the required inspection and test reports from independent testing agencies as specified in this section and in other sections of the Contract Documents.

1.7 OPERATING AND MAINTENANCE MANUALS AND WARRANTIES

A. The Contractor shall submit all required manufacturer’s operating instructions, maintenance/service manuals and warranties in accordance with the General Conditions Article 3.5 and Supplementary Conditions and this and other sections of the Contract Documents.
PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 REQUIRED SUBMITTALS

A. Contractor shall submit the following information for materials and equipment to be provided under this contract.

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<th>SECTION</th>
<th>DESCRIPTION</th>
<th>Shop Drawings</th>
<th>Product Data</th>
<th>Samples</th>
<th>Certifications</th>
<th>Manufacturer’s Instructions</th>
<th>Test Reports</th>
<th>Inspection Reports</th>
<th>Wiring Diagrams</th>
<th>Maintenance Data</th>
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END OF SECTION 013300

SUBMITTALS 013300 - 4
PART 1 - GENERAL

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

1.2 SUBMITTALS
   A. List of required submittals:
      1. Materials Safety Data Sheets for all hazardous materials to be brought onsite.
      2. Schedule of proposed shutdowns, if applicable.
      3. A list of the names of all employees who will submit fingerprints for a background check, and the signed privacy documents identified below for each employee.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 ACCESS TO THE SITE
   A. The Contractor shall arrange with Facility Representatives to establish procedures for the controlled entry of workers and materials into the work areas at the Facility.
   B. The Contractor shall establish regular working hours with Facility Representatives. The Contractor must report changes in working hours or overtime to Facility Representatives and obtain approval twenty-four (24) hours ahead of time. The Contractor shall report emergency overtime to Facility Representatives as soon as it is evident that overtime is needed. The Contractor must obtain approval from Facility Representatives for all work performed after dark.
   C. The Contractor shall provide the name and phone number of the Contractor’s employee or agent who is in charge onsite; this individual must be able to be contacted in case of emergency. The Contractor must be able to furnish names and address of all employees upon request.
   D. All construction personnel shall visibly display issued identification cards.

3.2 FIRE PROTECTION, SAFETY, AND HEALTH CONTROLS
   A. The Contractor shall take all necessary precautions to guard against and eliminate possible fire hazards.
      1. Onsite burning is prohibited.
      2. The Contractor shall store all flammable or hazardous materials in proper containers located outside the buildings or offsite, if possible.
      3. The Contractor shall provide and maintain, in good order, during construction fire extinguishers as required by the National Fire Protection Association. In
areas of flammable liquids, asphalt, or electrical hazards, 15-pound carbon
dioxide or 20-pound dry chemical extinguishers shall be provided.

B. The Contractor shall not obstruct streets or walks without permission from the Owner’s
Construction Representative and Facility Representatives.

C. The Contractor’s personnel shall not exceed the speed limit of 15 mph while at the
Facility unless otherwise posted.

D. The Contractor shall take all necessary, reasonable measures to reduce air and water
pollution by any material or equipment used during construction. The Contractor shall
keep volatile wastes in covered containers, and shall not dispose of volatile wastes or oils
in storm or sanitary drains.

E. The Contractor shall keep the project site neat, orderly, and in a safe condition at all
times. The Contractor shall immediately remove all hazardous waste, and shall not allow
rubbish to accumulate. The Contractor shall provide onsite containers for collection of
rubbish and shall dispose of it at frequent intervals during the progress of the Work.

F. Fire exits, alarm systems, and sprinkler systems shall remain fully operational at all
times, unless written approval is received from the Owner’s Construction Representative
and the appropriate Facility Representative at least twenty-four (24) hours in advance.
The Contractor shall submit a written time schedule for any proposed shutdowns.

G. For all hazardous materials brought onsite, Material Safety Data Sheets shall be on site
and readily available upon request at least a day before delivery.

H. Alcoholic beverages or illegal substances shall not be brought upon the Facility premises.
The Contractor’s workers shall not be under the influence of any intoxicating substances
while on the Facility premises.

3.3 SECURITY CLEARANCES AND RESTRICTIONS

A. FMDC REQUIRED FINGERPRINTING FOR CRIMINAL BACKGROUND AND
WARRANTS CHECK

1. All employees of the Contractor are required to submit fingerprints to the
Missouri State Highway Patrol to enable the Office of Administration, Division
of Facilities Management, Design and Construction (FMDC) to receive state and
national criminal background checks on such employees. FMDC reserves the
right to prohibit any employee of the Contractor from performing work in or on
the premises of any facility owned, operated, or utilized by the State of Missouri
for any reason.

2. The Contractor shall ensure all of its employees submit fingerprints to the
Missouri State Highway Patrol and pay for the cost of such background checks.
The Contractor shall submit to FMDC via email to FMDCSecurity@oa.mo.gov a
list of the names of the Contractor’s employees who will be fingerprinted and a
signed Missouri Applicant Fingerprint Privacy Notice, Applicant Privacy Rights
and Privacy Act Statement for each employee. All employees of the Contractor
approved by FMDC to work at a State facility must obtain a contractor ID badge
from FMDC prior to beginning work on-site, unless the Director of FMDC, at the
Director’s discretion, waives the requirement for a contractor ID badge. The
Contractor and its employees must comply with the process for background
checks and contractor ID badges found on FMDC’s website at: https://oa.mo.gov/fmdc-contractor-id-badges.

3. Pursuant to section 43.540, RSMo, FMDC participates in the Missouri Rap Back and National Rap Back programs as of August 28, 2018. This means that the Missouri State Highway Patrol, Central Records Repository, and the Federal Bureau of Investigation will retain the fingerprints submitted by each of the Contractor’s employees, and those fingerprints will be searched against other fingerprints on file, including latent fingerprints. While retained, an employee’s fingerprints may continue to be compared against other fingerprints submitted or retained by the Federal Bureau of Investigation, including latent fingerprints.

4. As part of the Missouri and National Rap Back programs, FMDC will receive notification if a new arrest is reported for an employee whose fingerprints have been submitted for FMDC after August 28, 2018. If the employee is performing work on a State contract at the time of the arrest notification, FMDC will request and receive the employee’s updated criminal history records. If the employee is no longer performing work on a State contract, FMDC will not obtain updated criminal records.

5. Pursuant to section 43.540, RSMo, the Missouri State Highway Patrol will provide the results of the employee’s background check directly to FMDC. FMDC may NOT release the results of a background check to the Contractor or provide the Contractor any information obtained from a background check, either verbally or in writing. FMDC will notify the Contractor only whether an employee is approved to work on State property.

6. Each employee who submits fingerprints to the Missouri State Highway Patrol has a right to obtain a copy of the results of his or her background check. The employee may challenge the accuracy and completeness of the information contained in a background check report and obtain a determination from the Missouri State Highway Patrol and/or the FBI regarding the validity of such challenge prior to FMDC making a final decision about his or her eligibility to perform work under a State contract.

7. The Contractor shall notify FMDC via email to FMDCSecurity@oa.mo.gov if an employee is terminated or resigns from employment with the Contractor. If the Contractor does not anticipate performing work on a State contract in the future, the Contractor may request that FMDC remove its employees from the Rap Back programs. However, if removed from the Rap Back programs, employees will be required to submit new fingerprints should the contractor be awarded another State contract.

8. Upon award of a Contract, the Contractor should contact FMDC at FMDCSecurity@oa.mo.gov to determine if its employees need to provide a new background check. If a Contractor’s employee has previously submitted a fingerprint background check to FMDC as part of the Missouri and National Rap Back programs, the employee may not need to submit another fingerprint search for a period of three to six years, depending upon the circumstances. The Contractor understands and agrees that FMDC may require more frequent background checks without providing any explanation to the Contractor. The fact that an additional background check is requested by FMDC does not indicate that the employee has a criminal record.
3.4 DISRUPTION OF UTILITIES

A. The Contractor shall give a minimum of seventy-two (72) hours written notice to the Construction Representative and the Facility Representative before disconnecting electric, gas, water, fire protection, or sewer service to any building.

B. The Contractor shall give a minimum of seventy-two (72) hours written notice to the Construction Representative and Facility Representative before closing any access drives, and shall make temporary access available, if possible. The Contractor shall not obstruct streets, walks, or parking.

END OF SECTION 013513.10
SECTION 015000 – CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes requirements for construction facilities and temporary controls including temporary utilities, support facilities, security, and protection.

B. Temporary utilities include, but are not limited to, the following:
   1. Temporary electric power and light
   2. Sanitary facilities, including drinking water
   3. Storm and sanitary sewer

C. Support facilities include, but are not limited to, the following:
   1. Temporary project identification signs and bulletin boards
   2. Waste disposal services
   3. Construction aids and miscellaneous services and facilities

D. Security and protection facilities include, but are not limited to, to following:
   1. Temporary fire protection
   2. Barricades, warning signs, and lights
   3. Sidewalk bridge or enclosure fence for the site

1.3 QUALITY ASSURANCE

A. Regulations: Comply with industry standards and applicable laws and regulations including, but not limited to, the following:
   1. Building code requirements
   2. Health and safety regulations
   3. Utility company regulations
   4. Police, fire department, and rescue squad rules
   5. Environmental protection regulations

   1. Electrical Service: Comply with NEMA, NECA, and UL standards and regulations for temporary electric service. Install service in compliance with NFPA 70 “National Electric Code”.

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

015000 - 1
1.4 PROJECT CONDITIONS

A. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Relocate temporary services and facilities as the Work progresses. Do not overload facilities or permit them to interfere with progress. Take necessary fire-prevention measures. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist onsite.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide new materials. If acceptable to the Designer, the Contractor may use undamaged, previously used materials in serviceable condition. Provide materials suitable for use intended.

B. Lumber and Plywood:

1. For job-built temporary construction, provide UL-labeled, fire-treated lumber and plywood for framing, sheathing, and siding.

2. For signs and directory boards, provide exterior-type, Grade B-B high-density concrete form overlay plywood of sized and thicknesses indicated.

3. For fences and vision barriers, provide minimum 3/9” (9.5mm) thick exterior plywood.

4. For safety barriers, sidewalk bridges, and similar uses, provide minimum 5/8” (16mm) thick exterior plywood.

C. Paint:

1. For job-built temporary fences, and other exposed lumber and plywood, provide exterior-grade acrylic-latex emulsion over exterior primer.

2. For sign panels and applying graphics, provide exterior-grade alkyd gloss enamel over exterior primer.

D. Open-Mesh Fencing: Provide 0.120” (3mm) thick, galvanized 2” (50mm) chainlink fabric fencing 6’ (2m) high with galvanized steel pipe posts, 1½” (38mm) ID for line posts and 2½” (64mm) ID for corner posts.

2.2 EQUIPMENT

A. General: Provide new equipment. If acceptable to the Designer, the Contractor may use undamaged, previously used equipment in serviceable condition. Provide equipment suitable for use intended.

B. Electrical Outlets: Provide properly configured, NEMA-polarized outlets equipped with ground-fault circuit interrupters, reset button, and pilot light for connection of power tools and equipment if required.

C. Electrical Power Cords: Provide grounded extension cords. Use hard-service cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage rating.
D. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered-glass enclosures where exposed to breakage. Provide exterior fixture where exposed to moisture.

E. Fire Extinguishers: Provide hand-carried, portable, UL-rated, Class A fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, Class ABC, dry-chemical extinguishers, or a combination of extinguishers of NFPA-recommended classes for the exposures.
   1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

PART 3 - EXECUTION

3.1 INSTALLATION

   A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

   B. Provide each Facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

   A. Temporary Lighting: Provide temporary lighting with local switching if required.
      1. Install and operate temporary lighting that will fulfill security and protection requirements without operating the entire system. Provide temporary lighting that will provide adequate illumination for construction operations and traffic conditions.

   B. Temporary Toilets: Use of the Owner’s existing toilet facilities will be permitted, so long as facilities are cleaned and maintained in a condition acceptable to the Owner. All construction personnel will be allowed access only to those specific facilities designed by the Construction Representative. At substantial completion, restore these facilities to the condition prevalent at the time of initial use.

   C. Wash Facilities: The Owner will provide wash facilities within the building. All construction personnel will be allowed access only to those specific facilities designated by the Construction Representative.

   D. Drinking-Water Facilities: The Owner will provide drinking water facilities within the building. All construction personnel will be allowed access only to those specific facilities designated by the Construction Representative.

3.3 SUPPORT FACILITIES INSTALLATION

   A. Storage Facilities: Limited areas for storage of building materials are available onsite. Available storage areas are to be coordinated with the Facility Representative or Construction Representative. The Contractor shall provide his own security. Specific locations for storage will be discussed at the Pre-Bid Meeting and the Pre-Construction Meeting.
B. Construction Parking: Parking at the site will be provided in the areas designated at the Pre-Construction Meeting.

C. Construction Parking: Contractors must be prepared to discuss their storage and parking needs at the Pre-Bid Meeting. Under no circumstances will any vehicle be parked in a fire lane. Parking on lawns shall be prohibited.

D. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities.
   1. Where temporary wood or plywood enclosure exceeds 100SqFt (9.2SqM) in area, use UL-labeled, fire-retardant-treated material for framing and main sheathing.

E. Project Identification and Temporary Signs: Prepare project identification and other signs of size indicated. Install signs where indicated to inform the public and persons seeking entrance to the Project. Support on posts or framing of preservative-treated wood or steel. Do not permit installation of unauthorized signs.
   1. Project Identification Signs: Engage an experienced sign painter to apply graphics. Comply with details indicated.
   2. Temporary Signs: Prepare signs to provide directional information to construction personnel and visitors.

F. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than seven (7) days during normal weather or three (3) days when the temperature is expected to rise above 80°F (27°C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material lawfully.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Do not change over from use of temporary security and protection facilities to permanent facilities until Substantial Completion, or longer, as requested by the Designer.

B. Temporary Fire Protection: Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of the types needed to protect against reasonable predictable and controllable fire losses. Comply with NFPA 10 “Standard for Portable Fire Extinguishers” and NFPA 241 “Standard for Safeguarding Construction, Alterations, and Demolition Operations”.
   1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one (1) extinguisher on each floor at or near each usable stairwell.
   2. Store combustible materials in containers in fire-safe locations.
   3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, stairways, and other access routes for fighting fires. Prohibit smoking in hazardous fire-exposure areas.
   4. Provide supervision of welding operations, combustion-type temporary heating units, and similar sources of fire ignition.
C. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed, provide lighting including flashing red or amber lights.

D. Enclosure or Fence: Before construction begins, install an enclosure or fence with lockable entrance gates. Locate where required to prevent accidental public access to construction zone. Install in a manner that will prevent people, dogs, and other animals from easily entering the site, except by the entrance gates. Provide adequate separation to safeguard public.
   1. Provide temporary open-mesh, chain link fencing where required.

E. Security Enclosure and Lockup: Install substantial temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.
   1. Storage: Where materials and equipment must be stored and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.

F. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and minimize the possibility that air, waterways, and subsoil might be contaminated or polluted or that other undesirable effects might result. Avoid use of tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms near the site.

3.5 OPERATION, TERMINATION AND REMOVAL

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

B. Termination and Removal: Remove each temporary facility when the need has ended, when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
   1. Materials and facilities that constitute temporary facilities are the Contractor’s property. The Owner reserves the right to take possession of project identification signs.
   2. At Substantial Completion, clean and renovate permanent facilities used during the construction period.

END OF SECTION 015000
SECTION 017400 – CLEANING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for cleaning during the Project.

B. Environmental Requirements: Conduct cleaning and waste-disposal operations in compliance with local laws and ordinances. Comply fully with federal and local environmental and anti-pollution regulations.

   1. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
   2. Burning or burying of debris, rubbish, or other waste material on the premises is not permitted.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by the manufacturer or fabricator for the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 PROGRESS CLEANING

A. General

   1. Retain all stored items in an orderly arrangement allowing maximum access, not impending drainage or traffic, and providing the required protection of materials.
   2. Do not allow the accumulation of scrap, debris, waste material, and other items not required for construction of this Work.
   3. At least twice each week, and more often if necessary, completely remove all scrap, debris, and waste material from the jobsite.
   4. Provide adequate storage for all items awaiting removal from the jobsite, observing all requirements for fire protection and protection of the ecology.

B. Site

   1. Daily, inspect the site and pick up all scrap, debris, and waste material. Remove all such items to the place designated for their storage.
   2. Weekly, inspect all arrangements of materials stored onsite. Re-stack, tidy, or otherwise service all material arrangements.
3. Maintain the site in a neat and orderly condition at all times.

C. Structures

1. Daily, inspect the structures and pick up all scrap, debris, and waste material. Remove all such items to the place designated for their storage.

2. Weekly, sweep all interior spaces clean. “Clean” for the purposes of this paragraph, shall be interpreted as meaning free from dust and other material capable of being removed by use of reasonable effort and handheld broom.

3. In preparation for installation of succeeding materials, clean the structures or pertinent portions thereof to the degree of cleanliness recommended by the manufacturer of the succeeding material, using all equipment and materials required to achieve the required cleanliness.

4. Following the installation of finish floor materials, clean the finish floor daily while work is being performed in the space in which finish materials have been installed. “Clean” for the purposes of this subparagraph, shall be interpreted as meaning free from all foreign material which, in the opinion of the Construction Representative, may be injurious to the finish of the finish floor material.

3.2 FINAL CLEANING

A. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for the entire Project or a portion of the Project.

1. Clean the Project Site, yard and grounds, in areas disturbed by construction activities including landscape development areas, of rubbish, waste material, litter, and foreign substances.

2. Sweep paved areas broom clean. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.

3. Remove petrochemical spills, stains, and other foreign deposits.

4. Remove tools, construction equipment, machinery, and surplus material from the site.

5. Remove snow and ice to provide safe access to the building.

6. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.

7. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.


9. Vacuum clean carpet and similar soft surfaces removing debris and excess nap.

10. Clean transparent material, including mirrors and glass in doors and windows. Remove glazing compounds and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.

11. Remove labels that are not permanent labels.
12. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
   a. Do not paint over “UL” and similar labels, including mechanical and electrical nameplates.

13. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.

14. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs and defective and noisy starters in fluorescent and mercury vapor fixtures.

15. Leave the Project clean and ready for occupancy.

B. Removal of Protection: Remove temporary protection and facilities installed during construction to protect previously completed installations during the remainder of the construction period.

C. Compliances: Comply with governing regulations and safety standards for cleaning operations. Remove waste materials from the site and dispose of lawfully.

1. Where extra materials of value remain after Final Acceptance by the Owner, they become the Owner’s property.

END OF SECTION 017400
PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Resilient tile flooring.
   B. Installation accessories.

1.02 REFERENCE STANDARDS

1.03 SUBMITTALS
   A. See Section 01 3300 – Submittals, for submittal procedure and requirements.
   B. Product Data: Provide data on specified products, describing physical and performance
      characteristics; including sizes, patterns and colors available; and installation instructions.
   C. Shop Drawings: Indicate seaming plans and floor patterns.
   D. Selection Samples: Submit manufacturer's complete set of color samples for Owner's initial
      selection.
   E. Maintenance Data: Include maintenance procedures, recommended maintenance materials,
      and suggested schedule for cleaning, stripping, and re-waxing.
   F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
      1. Extra Flooring Material: 5 extra tiles of each type and color.

1.04 FIELD CONDITIONS
   A. Follow manufactures instructions on installation temperature to achieve proper adhesion and
      stability.

PART 2 PRODUCTS

2.01 TILE FLOORING
   A. Rubber Tile - Type Homogeneous, color and pattern throughout thickness.
      1. Manufacturers:
         a. Burke Flooring; Endura Line: www.burkeflooring.com
         b. Flexco, Inc; www.flexcofloors.com
         c. Johnsonite, a Tarkett Company; www.johnsonite.com
      2. Minimum Requirements: Comply with ASTM F1344, of Class corresponding to type
         specified.
      3. Size: 18 by 18 inch (457 by 457 mm) nominal.
      4. Total Thickness: 0.125 inch (3.2 mm).
      5. Color: To be selected by Owner from manufacturer's full range.

2.02 ACCESSORIES
   A. Subfloor Filler: White premix latex; type recommended by adhesive material manufacturer.
   B. Primers, Adhesives, and Seam Sealer: Waterproof; types recommended by flooring
      manufacturer.
   C. Adhesive for Vinyl Flooring:
      1. Manufacturers:
         a. Stauf USA, LLC; D737 High-Tack: www.staufusa.com/#sle.
         b. TEC, an H.B. Fuller Construction Products Brand; TEC Trowel Fast Vinyl Flooring
            Adhesive: www.tecspecialty.com/#sle.
         c. TEC, an H.B. Fuller Construction Products Brand; TEC Trowel Fast Vinyl Flooring
            Adhesive: www.tecspecialty.com/#sle.
      D. Moldings, Transition and Edge Strips: Same material as flooring.
PART 3 EXECUTION

3.01 EXAMINATION
A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring to substrate.
B. Cementitious Subfloor Surfaces: Verify that substrates are ready for resilient flooring installation by testing for moisture and alkalinity (pH).
   1. Obtain instructions if test results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.

3.02 PREPARATION
A. Prepare floor substrates as recommended by flooring and adhesive manufacturers.
B. Remove subfloor ridges and bumps. Fill minor low spots, cracks, joints, holes, and other defects with subfloor filler to achieve smooth, flat, hard surface.
C. Prohibit traffic until filler is fully cured.
D. Clean substrate.

3.03 INSTALLATION - GENERAL
A. Starting installation constitutes acceptance of subfloor conditions.
B. Install in accordance with manufacturer’s written instructions.
C. Adhesive-Applied Installation:
   1. Spread only enough adhesive to permit installation of materials before initial set.
   2. Fit joints and butt seams tightly.
   3. Set flooring in place, press with heavy roller to attain full adhesion.

3.04 INSTALLATION - TILE FLOORING
A. Mix tile from container to ensure shade variations are consistent when tile is placed, unless otherwise indicated in manufacturer’s installation instructions.
B. Lay flooring with joints and seams parallel to building lines to produce symmetrical pattern.

3.05 CLEANING
A. Remove excess adhesive from floor, base, and wall surfaces without damage.
B. Clean in accordance with manufacturer’s written instructions.

3.06 PROTECTION
A. Prohibit traffic on resilient flooring for 48 hours after installation.

END OF SECTION 09 6500
SECTION 09 9123
INTERIOR PAINTING

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Surface preparation.
B. Field application of paints.
C. Scope: Finish interior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated.
   1. Elevator pit ladders.
   2. Mechanical and Electrical:
      a. In finished areas, paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, mechanical equipment, and electrical equipment, unless otherwise indicated.
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, bar code labels, and operating parts of equipment.
   5. Stainless steel, anodized aluminum, bronze, terne coated stainless steel, and lead items.
   6. Floors, unless specifically indicated.
   7. Ceramic and other tiles.
   8. Glass.
   9. Concealed pipes, ducts, and conduits.

1.02 REFERENCE STANDARDS
A. ASTM D4258 - Standard Practice for Surface Cleaning Concrete for Coating; 2005 (Reapproved 2017).
C. SSPC-SP 1 - Solvent Cleaning; 2015, with Editorial Revision (2016).
D. SSPC-SP 6 - Commercial Blast Cleaning; 2007.
E. SSPC-SP 13 - Surface Preparation of Concrete; 1997 (Reaffirmed 2003).

PART 2 PRODUCTS

2.01 MANUFACTURERS
A. Provide paints and finishes from the same manufacturer to the greatest extent possible.
   1. In the event that a single manufacturer cannot provide specified products, minor exceptions will be permitted provided approval by Engineer is obtained using the specified procedures for substitutions.
B. Paints:
C. Primer Sealers: Same manufacturer as top coats.
2.02 PAINTS AND FINISHES - GENERAL
A. Paints and Finishes: Ready mixed, unless intended 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. Supply each paint material in quantity required to complete entire project's work from a single production run.
   3. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.

2.03 PAINT SYSTEMS - INTERIOR
A. Paint I-OP - Interior Surfaces to be Painted, Unless Otherwise Indicated: Including concrete, concrete masonry units, uncoated steel, shop primed steel, galvanized steel, and aluminum.
   1. Two top coats and one coat primer.
B. Paint I-OP-MD-DT - Medium Duty Door/Trim: For surfaces subject to frequent contact by occupants, including metals:
   1. Medium duty applications include railings, handrails, guardrails, and balustrades.
   2. Two top coats and one coat primer.
C. Paint CI-OP-3E - Concrete/Masonry, Epoxy Enamel, 3 Coat:
   1. One coat of catalyzed epoxy primer.
   2. Gloss: Two coats of catalyzed epoxy enamel.

2.04 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. Do not begin application of paints and finishes until substrates have been properly prepared.
B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially effect proper application.
D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
   1. Masonry, Concrete, and Concrete Masonry Units: 12 percent.
   2. Concrete Floors and Traffic Surfaces: 8 percent.

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 or finishing.
E. Seal surfaces that might cause bleed through or staining of topcoat.
F. Concrete:
   1. Remove release agents, curing compounds, efflorescence, and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions.
2. Clean surfaces with pressurized water. Use pressure range of 1,500 to 4,000 psi (10,350 to 27,580 kPa) at 6 to 12 inches (150 to 300 mm). Allow to dry.
3. Clean concrete according to ASTM D4258. Allow to dry.
4. Prepare surface as recommended by top coat manufacturer and according to SSPC-SP 13.

G. Masonry:
1. Remove efflorescence and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces or if alkalinity of mortar joints exceed that permitted in manufacturer's written instructions. Allow to dry.
2. Prepare surface as recommended by top coat manufacturer.
3. Clean surfaces with pressurized water. Use pressure range of 600 to 1,500 psi (4,140 to 10,350 kPa) at 6 to 12 inches (150 to 300 mm). Allow to dry.

H. Concrete Floors and Traffic Surfaces: Remove contamination, acid etch, and rinse floors with clear water. Verify required acid-alkali balance is achieved. Allow to dry.

I. Aluminum: Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.

J. Galvanized Surfaces:

K. Ferrous Metal:
1. Solvent clean according to SSPC-SP 1.
3. Remove rust, loose mill scale, and other foreign substances using methods recommended in writing by paint manufacturer and blast cleaning according to SSPC-SP 6 "Commercial Blast Cleaning". Protect from corrosion until coated.

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. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
D. Apply each coat to uniform appearance in thicknesses specified by manufacturer.
E. Sand metal surfaces lightly between coats to achieve required finish.
F. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
G. 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.

3.06 SCHEDULE - PAINT SYSTEMS
A. Concrete, Concrete Masonry Units (CMU), Concrete Block, Brick Masonry: Finish surfaces exposed to view.
B. Steel Doors and Frames: Finish surfaces exposed to view; MI-OP-3A, gloss.
C. Steel Fabrications: Finish surfaces exposed to view.
   1. Interior: MI-OP-3L, gloss.

D. Shop-Primed Metal Items: Finish surfaces exposed to view.
   1. Finish the following items:
      a. Elevator pit ladders.

END OF SECTION 09 9123
SECTION 10 4400
FIRE PROTECTION SPECIALTIES

PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Fire extinguishers.
   B. Fire extinguisher cabinets.
   C. Accessories.

1.02 REFERENCE STANDARDS
   C. UL (DIR) - Online Certifications Directory; Current Edition.

1.03 SUBMITTALS
   A. See Section 01 3300 – Submittals, for submittal procedure and requirements.
   B. Product Data: Provide extinguisher product data.

PART 2 PRODUCTS

2.01 MANUFACTURERS
   A. Fire Extinguishers:
      1. Ansul, a Tyco Business; www.ansul.com
      2. Kidde, a unit of United Technologies Corp; www.kidde.com
      3. Nystrom, Inc; www.nystrom.com
      4. Oval Brand Fire Products; Oval Dry Chemical Fire Extinguisher - Multipurpose ABC:
         www.ovalfireproducts.com
      5. Potter-Roemer; www.potterroemer.com
   
   B. Fire Extinguisher Cabinets and Accessories:
      2. Ansul, a Tyco Business; www.ansul.com
      3. Kidde, a unit of United Technologies Corp; www.kidde.com
      4. Larsen’s Manufacturing Co; www.larsensmfg.com
      5. Nystrom, Inc; www.nystrom.com
      6. Oval Brand Fire Products; Cabinets for Low Profile Extinguishers:
         www.ovalfireproducts.com
      7. Potter-Roemer; www.potterroemer.com

2.02 FIRE EXTINGUISHERS
   A. Fire Extinguishers - General: Comply with product requirements of NFPA 10 and applicable
codes, whichever is more stringent.
      1. Provide extinguishers labeled by UL (DIR) or FM (AG) for purpose specified and as
indicated.
   
   B. Multipurpose Dry Chemical Type Fire Extinguishers: Carbon steel tank, with pressure gauge.
      2. Size: 2.5 pound (1.13 kg).
      3. Finish: Baked polyester powder coat, RED color.
      4. Temperature range: Minus 40 degrees F (Minus 40 degrees C) to 120 degrees F (48.9
degrees C).

2.03 FIRE EXTINGUISHER CABINETS
   A. Cabinet Construction: Non-fire rated.
1. Formed primed steel sheet; 0.036 inch (0.9 mm) thick base metal.

B. Cabinet Configuration: Surface mounted type.
   1. Size to accommodate accessories.
   C. Finish of Cabinet Interior: White colored enamel.

2.04 ACCESSORIES
   A. Lettering: FIRE EXTINGUISHER decal, or vinyl self-adhering, pre-spaced black lettering in accordance with authorities having jurisdiction (AHJ).

PART 3 EXECUTION
3.01 INSTALLATION
   A. Install in accordance with manufacturer's instructions.
   B. Install cabinets plumb and level, 36” from finished floor to inside bottom of cabinet.
   C. Secure rigidly in place.
   D. Place extinguishers in cabinets.

END OF SECTION 10 4400
SECTION 14 2100
ELECTRIC TRACTION ELEVATORS

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Complete electric traction elevator systems.
   1. Passenger type.
B. Elevator Maintenance Contract.

1.02 RELATED REQUIREMENTS
A. Section 09 6500 - Resilient Flooring: Floor finish in car.
B. Section 09 9123 - Interior Painting: Field painting of hoistway entrance doors and frames.
C. Section 10 4400 - Fire Protection Specialties: Fire extinguisher in elevator machine room.
D. Section 22 0513 - Common Motor Requirements for Plumbing Equipment: Motor for sump pump in pit.
E. Section 22 3000 - Plumbing Equipment: Pit drain.
F. Section 26 0533.13 - Conduit for Electrical Systems:
   1. Conduit to elevator equipment devices remote from elevator machine room or hoistway.
G. Section 26 0583 - Wiring Connections:
   1. Electrical power for elevator installation and testing.
   2. Electrical service for machine room, convenience outlets, elevator pit, and sump motor.
   3. Lighting in machine room and elevator pit.
   4. Conduit for telephone and video service to location(s) as indicated on drawings.

1.03 REFERENCE STANDARDS
E. ASME QEI-1 - Standard for the Qualification of Elevator Inspectors; 2018.
F. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2015.
J. NEMA LD 3 - High-Pressure Decorative Laminates; 2005.
K. NEMA MG 1 - Motors and Generators; 2017.
L. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
N. PS 1 - Structural Plywood; 2009.

1.04 ADMINISTRATIVE REQUIREMENTS
A. Coordination:
   1. Coordinate work with other installers to provide necessary conduits for proper installation of wiring, including but not limited to, the following:
      a. Elevator equipment devices remote from elevator machine room or hoistway.
b. Telephone service for machine room.
c. Elevator pit for lighting and sump pump.

2. Coordinate work with other installers for equipment provisions necessary for proper
elevator operation, including but not limited to, the following:
   a. Overcurrent protection devices selected to achieve required selective coordination.

B. Preinstallation Meeting: Convene meeting at least one week prior to start of this work.
   1. Review schedule of installation, proper procedures and conditions, and coordination with
      related work.

1.05 SUBMITTALS
A. See Section 01 3300 – Submittals, for submittal procedure and additional requirements.
B. Product Data: Submit data on following items:
   1. Signal and operating fixtures, operating panels, and indicators.
   2. Car design, dimensions, layout, and components.
   3. Car and hoistway door and frame details.
   4. Electrical characteristics and connection requirements.
C. Shop Drawings: Include appropriate plans, elevations, sections, diagrams, and details on
   following items:
   1. Elevator Equipment and Machines: Size and location of driving machines, power units,
      controllers, governors, and other components.
   2. Hoistway Components: Size and location of car machine beams, guide rails, buffers,
      ropes, and other components.
   3. Rail bracket spacing; maximum loads imposed on guide rails requiring load transfer to
      building structural framing.
   4. Clearances and over-travel of car and counterweight.
   5. Locations in hoistway and machine room of traveling cables and connections for car
      lighting, telephone, and video.
   6. Location and sizes of hoistway and car doors and frames.
   7. Electrical characteristics and connection requirements.
   8. Indicate arrangement of elevator equipment and allow for clear passage of equipment
      through access openings.

D. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been
   completed in Owner's name and registered with manufacturer.
E. Initial Maintenance Contract.
F. Maintenance Contract: Submit proposal to Owner for standard one year continuing
   maintenance contract agreement in accordance with ASME A17.1 and requirements as
   indicated, starting on date initial maintenance contract is scheduled to expire.
   1. Indicate in proposal the services, obligations, conditions, and terms for agreement period
      and for renewal options.

1.06 QUALITY ASSURANCE
A. Testing Agency Qualifications: Independent firm specializing in performing testing and
   inspections of type specified in this section.

1.07 WARRANTY
A. Provide manufacturer's warranty for elevator operating equipment and devices. Warranty shall
   cover all parts and labor for a period of one year from date of substantial completion.
B. Refer to Division 1 for additional information regarding additional warranty requirements.

PART 2 PRODUCTS
2.01 MANUFACTURERS
A. Basis of Design - Electric Traction Elevators: Kone.
B. Other Acceptable Manufacturers - Electric Traction Elevators:

C. Products other than Basis of Design are subject to compliance with specified requirements. By using products other than Basis of Design, the Contractor accepts responsibility for costs associated with any necessary modifications to related work, including any design fees.

D. Source Limitations: Provide elevator and associated equipment and components produced by a single manufacturer and obtained from a single supplier.

2.02 ELECTRIC TRACTION ELEVATORS

A. Electric Traction Passenger Elevator:
   1. Electric Traction Elevator Equipment:
   2. Drive System:
   3. Operation Control Type:
      a. Selective Collective Automatic Operation Control.
   4. Service Control Type:
      a. Standard service control only.
   5. Interior Car Height: 93 inch (2362 mm).
   6. Electrical Power: 208 volts; alternating current (AC); three phase; 60 Hz.
   8. Rated Speed: 125 fpm in the up and down direction.
   9. Hoistway Size: As indicated on drawings.
   10. Interior Car Platform Size: As indicated on drawings.
   11. Elevator Pit Depth: 60 inch (1524 mm).
   12. Overhead Clearance at Top Floor: 151 inch (3835 mm).
   13. Travel Distance: As indicated on drawings.
   14. Number of Stops: 5.
   15. Number of Openings: 1 Front; 0 Rear.

2.03 COMPONENTS

A. Elevator Equipment:
   1. Motors, Controllers, Controls, Buttons, Wiring, Devices, and Indicators: Comply with NFPA 70 requirements, and refer to Section 26 0583 for additional requirements.
   2. Guide Rails, Cables, Counterweights, Sheaves, Buffers, Attachment Brackets and Anchors: Design criteria for components includes safety factors in accordance with applicable requirements of Elevator Code, ASME A17.1.
   3. Buffers:
      a. Spring type for elevators with speed less than or equal to 200 feet per minute (1 m per second).
   4. Lubrication Equipment:
      a. Provide grease fittings for periodic lubrication of bearings.
      b. Lubrication Points: Visible and easily accessible.

B. Electrical Equipment:
   1. Motors: NEMA MG 1.
   2. Boxes, Conduit, Wiring, and Devices: Complying with NFPA 70 and in accordance with Sections 26 0533.13 and 26 0583.
   3. Sump Pump in Pit: Refer to Section 22 0513.
   4. Spare Conductors: Provide ten percent in extra conductors and two pairs of shielded audio cables in traveling cables.
   5. Include wiring and connections to elevator devices remote from hoistway and between elevator machine room. Provide additional components and wiring to suit machine room layout. Refer to Section 26 0583.
2.04 PERFORMANCE REQUIREMENTS
A. Regulatory Requirements: Comply with ASME A17.1, applicable local codes, and authorities having jurisdiction (AHJ).
B. Accessibility Requirements: Comply with ADA Standards.
C. Perform welding of steel in accordance with AWS D1.1/D1.1M.
D. Fabricate and install door and frame assemblies in accordance with NFPA 80 and complying with requirements of authorities having jurisdiction (AHJ).
E. Perform electrical work in accordance with NFPA 70.

2.05 OPERATION CONTROLS
A. Elevator Controls: Provide landing operating panels and landing indicator panels.
   1. Landing Operating Panels: Metallic type, one for originating "Up" and one for originating "Down" calls, one button only at terminating landings; with illuminating indicators.
   3. Comply with ADA Standards for elevator controls.
B. Interconnect elevator control system with building security systems.
C. Door Operation Controls:
   1. Door Safety Devices: Moveable, retractable safety edges, quiet in operation; equipped with photo-electric light rays.
D. Provide "Firefighter's Emergency Operation" in accordance with ASME A17.1, applicable building codes, authorities having jurisdiction (AHJ).
   1. Designated Landing: As indicated on drawings.

2.06 OPERATION CONTROL TYPE
A. Selective Collective Automatic Operation Control: Applies to car in single elevator shaft.
   1. Refer to description provided in ASME A17.1.
   2. Automatic operation by means of one button in the car for each landing served and by "UP" and "DOWN" buttons at the landings.
   3. Stops are registered by momentary actuation of landing car buttons without consideration of the number of buttons actuated or the sequence buttons are actuated, but the stops are made in the order that landings are reached in each direction of travel.
   4. All "UP" landing calls are made when car is traveling in the up direction.
   5. All "DOWN" landing calls are made when car is traveling in the down direction.
   6. Uppermost and lowermost calls are answered as soon as they are reached without consideration of the car travel direction.

2.07 MATERIALS
A. Stainless Steel Sheet: ASTM A666, Type 304; No. 4 Brushed finish unless otherwise indicated.
B. Extruded Aluminum: ASTM B221 (ASTM B221M), natural anodized finish unless otherwise indicated.
C. Plywood: PS 1, Structural I, Grade C-D or better, sanded.
D. Resilient Flooring: Vinyl tile flooring and Resilient base, as specified in Section 09 6500.

2.08 CAR AND HOISTWAY ENTRANCES
A. Elevator:
   1. Car and Hoistway Entrances, Each Elevator Floor Lobby:
      a. Framed Opening Finish and Material: As indicated on drawings.
      b. Car Door Material: Existing.
      c. Hoistway Door Material: Existing.
      d. Paint Color: As selected by Owner from manufacturer's standard line.
2.09 CAR EQUIPMENT AND MATERIALS

A. Elevator Car:

1. Car Operating Panel: Provide main and auxiliary; flush-mounted applied face plate, with illuminated call buttons corresponding to floors served with "Door Open/Door Close" buttons, "Door Open" button, "Door Close" button, alarm button.
   a. Panel Material: Stainless steel; one per car.
   b. Car Floor Position Indicator: Above door with illuminating position indicators.
   c. Locate alarm button where it is unlikely to be accidentally actuated; not more than 54 inch (1372 mm) above car finished floor.


3. Flooring: Resilient vinyl tile.

4. Wall Base: Brushed Stainless Steel (4SS Grade 441).

5. Front Return Panel: Brushed Stainless Steel.


7. Side Walls: Plastic laminate on plywood (amber cherry).


9. Hand Rail: Aluminum, at three side walls. Provide open clearance space 1-1/2 inch (38 mm) wide to face of wall.

10. Ceiling:
    b. Frame Finish: Brushed stainless steel (standard).
    c. Lighting: Recessed LED.

11. Provide emergency access panel for egress from car at ceiling.

B. Car Accessories:

1. Protective Pads: Canvas cover, padded with impact-resistant fill material, sewn with piping edges; fire resistant in compliance with ASME A17.1; brass grommets for supports, covering side and rear walls and front return, with cut-out for control panel; provide one set.
   b. Provide at least 4 inch (102 mm) clearance from bottom of pad to finished floor.
   c. Pad Supports: Stainless steel studs, and mounted from ceiling frame.

2.10 MACHINE ROOM FITTINGS

A. Wall-Mounted Frames: Glazed with clear plastic; sized as required. Provide one chart each for master electric schematic and for lubrication chart. Install charts.

2.11 FINISHES

A. Field Painting: Comply with requirements as specified in Section 09 9123.

B. Powder Coat on Steel: Clean and degrease metal surface; apply one coat of primer; two coats of powder coat.

C. Clear Anodized Finish: Class I, AAMA 611 AA-M12C22A41 Clear anodic coating with electrolytically deposited organic seal; not less than 0.7 mils, 0.0007 inch (0.018 mm) thick.

D. Color Anodized Finish: Class I, AAMA 611 AA-M12C22A44 Electrolytically deposited colored anodic coating not less than 0.7 mils, 0.0007 inch (0.018 mm) thick.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting this work.

B. Verify that hoistway, pit, machine room, are ready for work of this section.

C. Verify hoistway shaft and openings are of correct size and within tolerance.

D. Verify location and size of machine foundation and position of machine foundation bolts.
E. Verify that electrical power is available and of correct characteristics.

3.02 INSTALLATION
A. Install system components, and connect equipment to building utilities.
B. Provide conduit, electrical boxes, wiring, and accessories. Refer to Sections 26 0533.13 and 26 0583.
C. Mount machine motor on vibration and acoustic isolators.
   1. Place on structural supports and bearing plates.
   2. Securely fasten to building supports.
   3. Prevent lateral displacement.
D. Install hoistway, elevator equipment, and components in accordance with approved shop drawings.
E. Field Welds: Chip and clean away oxidation and residue with wire brush; spot prime with two coats.
F. Structural Metal Surfaces: Clean surfaces of rust, oil or grease; wipe clean with solvent; prime with two coats.
G. Machine Room Components: Clean and degrease; prime one coat, finish with one coat of enamel.
H. Adjust equipment for smooth and quiet operation.

3.03 TOLERANCES
A. Guide Rail Alignment: Plumb and parallel to each other in accordance with ASME A17.1 and ASME A17.2.
B. Car Movement on Aligned Guide Rails: Smooth movement, without any objectionable lateral or oscillating movement or vibration.

3.04 FIELD QUALITY CONTROL
A. Perform testing and inspection in accordance with requirements.
   1. Inspectors shall be certified in accordance with ASME QEI-1.
   2. Perform tests in accordance with ASME A17.2.
   3. Provide at least two weeks written notice of date and time of tests and inspections.
B. Operational Tests:
   1. Perform operational tests in the presence of Owner and Architect.
   2. At an agreed time, and the building occupied with normal building traffic, conduct tests to verify performance.

3.05 ADJUSTING
A. Adjust for smooth acceleration and deceleration of car to minimize passenger discomfort.
B. Adjust with automatic floor leveling feature at each floor landing to reach 1/4 inch (6.4 mm) maximum from flush with sill.

3.06 CLEANING
A. Remove protective coverings from finished surfaces.
B. Clean surfaces and components in accordance with manufacturers written instructions.

3.07 CLOSEOUT ACTIVITIES
A. Demonstrate proper operation of equipment to Owner's designated representative.
B. Demonstration: Demonstrate operation of system to Owner's personnel.
   1. Use operation and maintenance data as reference during demonstration.
   2. Briefly describe function, operation, cleaning and maintenance of each component.
C. Training: Train Owner's personnel on cleaning and operation and maintenance of system.
   1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
2. Provide minimum of two hours of training.

3.08 PROTECTION
A. Do not permit construction traffic within car after cleaning.
B. Protect installed products until Date of Substantial Completion.
C. Touch-up, repair, or replace damaged products and materials before Date of Substantial Completion.

3.09 MAINTENANCE
A. Provide Initial Maintenance Contract of elevator system and components in accordance with ASME A17.1 and requirements as indicated for twelve months from Date of Substantial Completion.
B. Perform maintenance contract services using competent and qualified personnel under the supervision and direct employ of the elevator manufacturer or installer.
C. Examine system components bi-monthly.
D. Include systematic examination, adjustment, and lubrication of elevator equipment.
E. Maintain and repair or replace parts, whenever required, using parts produced by original equipment manufacturer.
F. Perform work without removing cars from use during peak traffic periods.
G. Provide emergency call back service during regular working hours throughout period of this maintenance contract.
H. Maintain an adequate stock of parts for replacement or emergency purposes, and have personnel available to ensure the fulfillment of this maintenance contract without unreasonable loss of time.
I. At the end of the 12-month maintenance period, but prior to being released from this contract, elevator shall be evaluated by an owner selected third party inspector. Any items identified in this inspection shall be the contractor responsibility to address prior to being released from this maintenance contract.

END OF SECTION 14 2100
PART 1 GENERAL

1.01 RELATED DOCUMENTS
   A. General Provisions of Contract, including general and supplementary conditions, special conditions and Division I Specification sections, apply to work of this section.
   B. Provide all labor, materials, services, and equipment necessary to complete the installation of the elevator as specified herein.
   C. Drawings and specifications are intended to show general arrangement, design, and extent of work. As such they are not intended to be scaled for roughed in measurements or to serve as shop drawings.
   D. Anything shown on drawings and not mentioned in these specifications or vice versa, as well as any work which is obviously necessary to complete the Project, within the limits established by the drawings, specifications and codes, although not shown on or described therein, shall be performed by the Contractor as part of their work.

1.02 RELATED REQUIREMENTS
   A. Section 09 6500 - Resilient Flooring: Floor finish in car.
   B. Section 09 9123 - Interior Painting: Field painting of hoistway entrance doors and frames.
   C. Section 10 4400 - Fire Protection Specialties: Fire extinguisher in elevator machine room.
   D. Section 22 0513 - Common Motor Requirements for Plumbing Equipment: Motor for sump pump in pit.
   E. Section 22 3000 - Plumbing Equipment: Pit drain.
   F. Section 26 0533.13 - Conduit for Electrical Systems:
      1. Conduit to elevator equipment devices remote from elevator machine room, hoistway.
   G. Section 26 0583 - Wiring Connections:
      1. Electrical power for elevator installation and testing.
      2. Electrical service for machine room, convenience outlets, elevator pit.
      3. Lighting in elevator pit.
      4. Conduit for telephone service to location(s) as indicated on drawings.

1.03 REFERENCE STANDARDS
   E. ASME QEI-1 - Standard for the Qualification of Elevator Inspectors; 2018.
   F. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2015.
   J. NEMA LD 3 - High-Pressure Decorative Laminates; 2005.
   K. NEMA MG 1 - Motors and Generators; 2017.
   L. NFPA 70 - National Electrical Code; Most Recent Edition, Including All Applicable Amendments and Supplements.
N. PS 1 - Structural Plywood; 2009.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
1. Coordinate work with other installers to provide conduits necessary for installation of wiring including but not limited to:
   a. Elevator equipment devices remote from elevator machine room or hoistway.
   b. Telephone service for machine room.
   c. Elevator pit for lighting, sump pump, and convenience outlet.
2. Coordinate work with other installers for equipment provisions necessary for proper elevator operation, including but not limited to, the following:
   a. Overcurrent protection devices selected to achieve required selective coordination.

B. Preinstallation Meeting: Convene meeting at least one week prior to start of this work.
1. Review schedule of installation, proper procedures and conditions, and coordination with related work.

1.05 DESCRIPTION OF WORK

A. This section includes the renovation of one (1) direct plunger, holed hydraulic passenger elevator in the House Parking Garage, Jefferson City, Missouri, as noted in the elevator schedule below. The schedule indicates required performance, control, capacities, features, and finishes for the elevator.

B. Hydraulic elevator is defined to include a plunger & cylinder unit connected to the elevator platform which will raise and lower the elevator by using pumping units using oil as the medium complete with components, controls and devices as indicated as required for safely operating elevator at rated speed and capacity.

C. Elevator in this project shall be renovated in an off-peak period. Once removed from service, work shall remain steady on the elevator until substantial completion.

1.06 ELEVATOR SCHEDULE

Renovate One (1) hydraulic passenger elevator.

Type of Machine New dry type hydraulic power units and cutoffs in machine room. Retain direct plunger/cylinder type lift.

Capacity & Speed Retain the existing contract speed of 125 fpm in the up and down direction and 3500 lbs. capacity.

Operation Provide new microprocessor controller with simplex collective operation with Fireman’s Emergency Service Operation (1st Floor G) Independent Service Operation Hoistway Access

Approximate Travel Retain 31'-0"

Number of Stops Four (4) stops with Front Openings doors. Floor G is main accessibility (★) floor.

Opening Size Retain 3'-6" wide by 7'-0" high.


Door Operating Equipment Provide new heavy-duty, closed loop door operators with new clutch and door restrictor device. Provide new infrared, non-contact door reversal devices.
Guide Rails  Retain and clean existing steel tees and realign as necessary.

Car Structure  Retain existing car platform and sling. Provide new spring-loaded roller guides.

Buffers & Pit Equipment  Retain pit ladder, channels, and spring buffers. Provide new lighting as specified on drawings.

Car Enclosure  Provide completely new car enclosures changing to a brushed stainless-steel base design.

Car Control Station  Provide new single car control stations with integral car position indicator, speakerphone and emergency light in the front return panel.

Hall Lantern  Provide new hall lantern with illuminating arrows and adjustable electronic direction tones in all lobbies.

Hall Buttons  Provide new, flush mounted hall button fixtures. Hall button at First Floor to include Fireman’s Phase I key switch, engraved instructions. Hall button at fourth floor to include hoistway access key switch.

New Installation Maintenance Service  Maintenance to be provided for twelve (12) months after the final elevator renovation and the project is substantially complete.

1.07 QUALITY ASSURANCE

A. Installer Qualification: The elevator manufacturer, or a licensee of the manufacturer, who has a record of successful experience with the installation of similar elevators. The contractors shall have, as a minimum, the following qualifications and documentation verifying these qualifications shall be submitted prior to award:
   a. Minimum of five (5) years successful experience in installing and servicing similar elevator installations.
   b. Installed at least ten (10) completed and accepted elevator systems of similar size, scope, logic control, and motion control required by this contract.
   c. An existing in-house administrative and technical organization staffed with competent personnel who are experienced in the elevator related work required to install and service the elevator system as specified located within one hundred and twenty (120) miles of the project location.

B. Elevator Code: Except for more stringent requirements as indicated or imposed by governing regulations (which must be complied with), comply with applicable requirements of the ASME A17.1-2004 Safety Code for Elevators and Escalators up to and including the A17.1a2005 addenda and the A17.1S-2005 supplement hereinafter referred to as the “Elevator Code” and the 2018 International Building Code, hereinafter referred to as the “Building Code”.

C. NEC Code: Comply with the NEC Code and specifically with sections relating to electrical work for elevators.

D. Fire Resistance of Entrances: Comply with NFPA No. 80 and provide units bearing appropriate UL labels or other equivalent testing agency.


F. Performance Requirements: Provide an elevator that meets the following performance requirements:
   a. Speed: +/- 5% of specified contract speed under a full load condition in either direction.
   b. Stopping Accuracy: 1/4 inch under any loading condition.
   c. Floor to Floor Performance Time: ~16.0 seconds based on 10'-0" floor height between levels. Time is measured from start of doors closing until doors are ¾ open and car is
level and stopped at the next successive floor under any loading condition or travel
direction.
d. Door Close Time: 3.0 seconds.
e. Door Open Time: 2.0 seconds.
f. Door Open Dwell Time: 3.0 seconds car call / 5.0 seconds hall call.
g. Smooth acceleration and deceleration for comfort of ride.

1.08 SUBMITTALS
A. Refer to Division 1 for additional information regarding submittals, including submittal
requirements, processing procedures, and limitations of review.
B. Product Data: Submit data on following items:
1. Signal and operating fixtures, operating panels, and indicators.
2. Car design, dimensions, layout, and components.
3. Car and hoistway door and frame details.
4. Electrical characteristics and connection requirements.
C. Shop Drawings: Shop drawings shall be prepared by skilled draftsmen and presented in a
clear and thorough manner. Include appropriate plans, elevations, sections, diagrams, and
details that are job-specific on following items:
2. Elevator Equipment and Machines: Size and location of driving machines, power units,
controllers, governors, and other components.
3. Hoistway Components: Size and location of car guide rails, buffers, jack unit and other
components.
4. Clearances and over-travel of car (field verified by contractor).
5. Locations in hoistway and machine room of traveling cables and connections for car
lighting, telephone, and camera.
6. Location and sizes of hoistway and car doors and frames (field verified by contractor).
7. Electrical characteristics and connection requirements.
8. Indicate arrangement of elevator equipment and allow for clear passage of equipment
through access openings.
9. Samples of exposed finishes of the car enclosure and any owner selectable components.
D. Maintenance Manuals: Submit bound manuals for each elevator with operating and
maintenance instructions, lubricating schedule and instructions, parts listing, recommended
parts inventory listing for motor and critical components, diagnostic device operations manual,
emergency instructions and similar information.
1. The diagnostic device operations manual shall be complete with adjustment settings,
sequence of operation, and other diagnostic technical data required for adjustments, tuning,
maintenance, and operation of the elevators including performance of all required acceptance
and periodic testing required by the Elevator Code. User's instruction manual shall include
access codes required for accessing microprocessor equipment for adjusting or programming.
2. Provide three (3) copies of manual bound in standard three-ring, hard binders. Identify each
binder with Owner's name.
3. Include a detailed "Maintenance Control Program", specific to the elevator, in each maintenance
manual as required by Elevator Code. One (1) of the copies of the "Maintenance Control
Program" shall be laminated and placed for use in the elevator control room. The MCP shall be
set up to maintain the following documentation throughout the life of the elevator:
a. A written description of all examinations and maintenance of equipment at scheduled intervals. Intervals shall be based on job specific characteristics including equipment age, condition, and accumulated wear, design and inherent quality of the equipment, usage, environmental conditions, etc.

b. Instructions for cleaning, lubricating, and adjusting applicable components at regular intervals and repairing or replacing all worn or defective components where necessary.

c. A description of tests of equipment at scheduled intervals.

d. All Code required written procedures such as inspection, testing, and maintenance, and maintenance records. Maintenance records shall:
   1) document description of maintenance task performed and dates.
   2) list description and dates of examinations, tests, adjustments, repairs, and replacements.
   3) list description and dates of call backs (trouble calls) or reports that are reported to elevator personnel by any means, including corrective action taken.
   4) contain written record of the findings on the firefighter’s service operation.

e. Up-to-date wiring diagrams detailing circuits of all electrical protective devices and critical operating circuits and shall be available in the elevator control room.

E. Wiring Diagrams: Provide two (2) sets of complete electrical circuit diagrams, and one (1) electronic copy in “.pdf” format on CD-ROM, for control and operational features as installed, showing location and wiring for power, signal and control systems. The diagrams shall differentiate clearly between manufacturer-installed wiring and field installed wiring. In addition, provide one (1) bound set of 11”x17” minimum, clear laminated wiring diagrams in the elevator machine room.

F. Keys: Provide three (3) sets of keys for all key fixtures on elevator equipment.

G. Certificate Frame: Provide a certificate frame in the elevator machine room mounted in a conspicuous location. Frame shall be made of a quality metal with a window size to house the operating certificate from the State of Missouri.

H. Certificates and Permits: Provide Owner with copies of all inspection/acceptance certificates and operating permits as required by governing authorities to allow normal, unrestricted use of elevator. If any variances are required from the State of Missouri for the product installed they shall be obtained by the Contractor. Provide a copy of any variances to the Owner upon completion of the project.

I. Maintenance Certification: The Contractor shall submit a written certification, signed by the Contractor and the manufacturer of the equipment, making a commitment to provide direct support to the Owner, or the Owner’s elevator maintenance service representative, including availability of parts (for inventory, not on an “exchange only” basis), diagnostic tools, and technical & engineering support. In addition all parts and support shall be provided at a reasonable cost in line for which the original manufacturer would charge to its own customer base and response shall be in a timely manner. This commitment shall remain in effect for a minimum of twenty-five (25) years after substantial completion of the project.

J. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner’s name and registered with manufacturer.

K. One (1) Year Preventative Maintenance and Service Contract.


1.10 INITIAL MAINTENANCE AND SERVICE
A. Maintenance Service: Furnish maintenance and callback service on the elevator for a period of
twelve (12) months following date of final acceptance of all elevator work as specified herein.
The maintenance and callback service shall include at a minimum, but not be limited to, the full
maintenance requirements as follows:

a. Maintenance service shall be performed by skilled elevator personnel directly employed
and supervised by the same company that furnished and installed the elevator
equipment specified herein.

b. This service shall include:
   i. Monthly examination of the hydraulic unit as a minimum.
   ii. Lubricating, adjusting, repairing and replacing of all parts as necessary to keep
   the equipment, including battery packs, in a first-class condition and proper
   working order.
   iii. Furnish all lubricants and parts required.
   iv. Assure smooth and consistent operation of automatic hoistway doors and car
doors.
   v. Assure smooth starting and stopping and accurate leveling at all times.
   vi. Provide all periodic annual and maintenance testing in accordance with the
   Elevator Code.
   vii. The contractor shall keep clean of all dirt and debris guide rails, top of car,
   bottom of platform, machine room, unit hoistway and pit. All necessary cleaning
   supplies and equipment shall be furnished by the contractor.
   viii. An annual inspection, as described in the Elevator Code and/or as required by
   governing authorities, in the eleventh (11th) month of the new installation
   maintenance period.

c. The maintenance service shall not include the performance of any work required as a
result of improper use, accidents or negligence, for which the contractor is not directly
responsible.

d. All work shall be completed by trained employees of the elevator contractor and
performed during normal working hours. Include 24 hour/day, 7 days/week callback
service. Owner is responsible for overtime cost of said callbacks. Exclude only
repair/replacement due to misuse, abuse, accidents, or neglect caused by persons
other than installer's personnel. Emergency callbacks shall be of highest priority.

e. The contractor shall maintain a log in the elevator machine room. The log shall list the
date and time of monthly examinations and all trouble calls. Each trouble call shall be
fully described including the nature of the call, necessary corrections performed and or
parts replaced.

f. Maintenance service shall conform to the requirements of Section 8.6 of Elevator Code.
This shall include the provision of a written Maintenance Control Program and
maintenance record keeping that is consistent with Elevator Code requirements.

1.11 WARRANTY

A. The elevator warranty specified in this section shall not deprive the Owner of other rights the
Owner may have under other provisions of the Contract Documents and shall be in addition to,
and run concurrent with, other warranties made by the Contractor under requirements of the
Contract Documents. Refer to Division 1 for additional information regarding additional warranty
requirements.

B. Provide special project warranty, signed by contractor, installer, and Manufacturer, agreeing to
replace, repair/restore defective materials and workmanship of elevator work during warranty
period. "Defective" is hereby defined to include, but not by way of limitation, operation or control
system failures, performances below required minimums, excessive wear, unusual deterioration
or aging of materials or finishes, unsafe conditions, the need for excessive maintenance,
abnormal noise or vibration, and similar unusual, unexpected and unsatisfactory conditions.
The warranty period is twelve (12) months starting on date of final acceptance of the elevator
and shall be extended until "defects" as defined in this warranty are corrected.
PART 2 PRODUCTS

2.01 MANUFACTURERS

2.01 GENERAL
A. Provide manufacturer's base pre-engineered elevator system with modifications or added features that will comply with the elevator work requirements as specified herein or, at manufacturer's option, provide custom manufactured base elevator system that will comply with the requirements. Where components are not otherwise indicated, provide standard components, published by manufacturer as included in standard pre-engineered elevator systems, and as required for a complete system.

2.02 MANUFACTURERS
A. Pre-Approved Manufactures - Hydraulic Elevators:
   2. Otis Elevator Company:  www.otis.com
   3. Schindler Elevator Corporation:  www.schindler.com
   3. ThyssenKrupp Elevator:  www.thyssenkuppelevator.com
B. Products from other than Approved Manufactures are subject to compliance with specified requirements and prior approval of Engineer.
C. Source Limitations: Provide elevator and associated equipment and components produced by a single manufacturer and obtained from a single supplier.

2.03 ELEVATOR MACHINERY AND CONTROL EQUIPMENT
A. Hydraulic Power Unit: The pumping unit shall be of integral design and shall include an electric motor connected to a pump, a hydraulic control system, storage tank, necessary piping connections, and a controller, all compactly designed as a self-contained unit. The pumping unit shall be located in the elevator machine room and the controller shall be mounted on the end of the machine or mounted on the wall of the machine room to meet NEC working clearance requirements. The hydraulic power unit shall be securely fastened to the machine room floor to prevent the tank from being overturned or displaced. Elevator contractor shall verify location and dimensions in general layout of machine room.
   a. The hydraulic control system shall be a compact design suitable for operation under the required pressures and it shall be mounted in the storage tank. The control valve will be a manifold type with up, down and check valve sections. A control section including solenoid valves will direct the main valve and control up and down starting, transition from full speed to leveling speed, up and down stops, pressure relief and manual lowering. Down speed and up and down leveling shall be controlled at the main valve sections. All of these functions shall be fully adjustable for maximum smoothness and to meet contract conditions. All control systems shall be pre-adjusted at the factory. A manual lowering feature shall be provided to permit lowering the elevator at slow speed in the event of power failure or for adjusting purposes.
   b. The pump shall be a positive displacement screw type to give smooth operation and shall be especially designed and manufactured for elevator service.
   c. The motor shall be of the submersible alternating current, poly-phase squirrel cage induction type with solid-state, reduced starting current and shall be of a design especially adapted to electro-hydraulic requirements.
   d. The storage tank shall be constructed of steel and shall be provided with a removable cover and a means to gauge the proper level of the oil. The pump and submersible motor shall be mounted on a special reinforced isolation mount in the bottom of the tank. The control valve shall be mounted in the discharge line above the oil level and easily accessible from the top of the tank. An initial supply of oil sufficient for proper operation shall be provided.
e. Provide a muffler in the discharge oil line near the pump unit designed to dampen and absorb pulsation and noise in the flow of hydraulic fluid.

f. Provide a manual shut off valve in the supply line adjacent to the pump unit.

B. Cylinder: The existing cylinder shall be reused under the scope of this work. The cylinder head and drip ring were recently replaced and should considered to be in good condition. to collect any oil seepage as well as an internal guide ring and self-adjusting packing seals on this cylinder were recently rebuilt and should be in good condition. e for the operating pressure per the Elevator Code. The top of the cylinder shall be equipped with a cylinder head with drip ring to collect any oil seepage as well as an internal guide ring and self-adjusting packing.

a. The plunger shall be constructed of selected steel tubing or pipe of proper diameter machined true and smooth with a fine polished finish. The plunger shall be provided with a stop ring electrically welded to it to prevent the plunger from leaving the cylinder. The plunger and cylinder shall be installed plumb and must operate freely with minimum friction. The plunger shall be securely mounted to the car frame and be isolated from the frame to eliminate any vibration from the jack unit to the car frame.

b. Install new piping of adequate size and thickness between the pumping unit and the cylinder head. Any piping running between a remote elevator machine room and the respective elevator hoistway shall be welded or threaded.

c. Controller:

a. A microprocessor computer-based control system shall be provided to perform all of the functions of safe elevator motion and elevator door control and shall be one of the following control systems or approved equal:

i. Motion Control Engineering • Motion 2000 (with onboard diagnostic keyboard and display)

ii. Vertitron Midwest Inc. VHC-102

iii. Otis Elevonic (with one Diagnostic Tool per Group and Adjustors Manual)

iv. ThyssenKrupp TAC32 (with one Diagnostic Laptop per Group and Adjustors Manual)

v. SmartRise SRH

b. The controller shall be designed with a split cabinet to separate high voltage from low voltage for efficiency and safety of future maintenance and troubleshooting of the unit.

c. The controller shall include all the hardware required to connect, transfer, and interrupt power and protect car operational and group supervisory control. A three-phase overload device shall be provided to protect the motor against overloading.

d. Identify each device, module and fuse (with ampere rating) by name, letter, or standard symbol, in an indelible and legible manner on the device or panel. Coordinate identification markings with identical markings on wiring diagrams. Use light emitting diodes (LED) for visual monitoring of individual modules. Components shall have interlocking circuits to assure fail-safe operation and to prevent unwarranted elevator movement should any component fail to function properly. Modules shall be of the type that plug into pre-wired mounting racks. Field wiring or alteration shall not be necessary in order to replace defective modules.

e. The elevator shall be provided with an automatic leveling device that will bring the car to a stop within 1/4" of the landing level regardless of load or direction of travel. Landing level will be maintained within the leveling zone irrespective of the hoistway doors being open or closed.

f. A protective circuit shall be provided which will stop the motor and the pump and return the car to its lowest landing in the event that the car while traveling up, does not reach its designated landing within a predetermined time interval. This circuit shall permit a normal exit from the car but prevent further operation of the elevator until the trouble has been corrected.

g. Solid state, reduced current starting shall be furnished which shall limit both the initial starting current and peak current drawn by the motor.
h. The control equipment and hydraulic power unit enclosures shall be mechanically fastened to the machine room floor.

i. Design the system so that it will start properly when power is restored in the event of a power failure. Provide system memory so that data is retained in the event of power failure or disturbance.

j. Provide manufacturer’s standard pre-engineered microprocessor system, which shall control car movements as a simplex collective operation. Provide automatic dispatching of the car in response to hall calls with automatic response of system to changes in demand.

k. A car control station shall be furnished for the elevator and shall contain a bank of buttons numbered to correspond to the landing served. At each terminal landing a single push button fixture shall be provided containing the appropriate up or down push buttons.

l. When a call is registered by momentary pressure on a car or landing button, that button shall become illuminated and remain illuminated until the call is answered. Illuminated buttons serve as a visual indication that a call has been registered and that the car will stop at that landing.

m. Operation shall be automatic by means of the car and landing buttons. Stops registered by the momentary actuating of the car and landing buttons shall be made in the order in which the landings are reached in each direction of travel after the buttons have been actuated. All stops shall be subject to the respective car or landing button being actuated sufficiently in advance of the arrival of the car at the landing to enable the stop to be made. The direction of travel for an idle car shall be established by the first car or landing button actuated.

i. “UP” landing calls shall be answered while the car is traveling in the up direction and “DOWN” landing calls shall be answered while the car is traveling in the down direction. The car shall reverse after the uppermost or lowermost car or landing call has been answered and proceed to answer car calls and landing calls registered in the opposite direction of travel.

ii. When the car, without registered calls arrives at a floor where both the ”UP” and ”DOWN” calls are registered, it shall initially respond to the hall call in the direction that the car was traveling. When no car call or hall call is registered for further travel in that direction, the car shall close its doors and immediately reopen them in response to the hall call in the opposite direction. The hall lantern shall indicate the changed direction when the doors reopen.

n. A diagnostic testing device, or maintenance terminal, suitable for all troubleshooting and testing procedures related to the specific type of microprocessor control, shall be installed on this project and provided at the final acceptance. This diagnostic testing device, or maintenance terminal, shall conform to the operating procedures under the testing section of these specifications.

i. After successful testing of the diagnostic device, in conjunction with the microprocessor control, the testing device shall become the property of the Owner. The diagnostic testing device shall not become inoperative after a period of time requiring factory rehabilitation. The contractor shall provide written certification that repair, and support of the diagnostic tool components is readily available to the Owner in the future.

ii. If repairs or replacement to the testing device become necessary prior to the end of the one (1) year maintenance and service contract, the repairs, or replacement, shall be provided at no cost to the Owner.

o. Additional special operations shall be included with the elevator control system:

i. Independent Service: A key switch shall be provided in the car operating station of the elevator which, when actuated, shall disconnect the elevator from the hall buttons and permit operation from the car buttons only. Close doors by constant pressure on desired destination floor button. Open doors automatically upon arrival at selected floor.

ii. Top of Car Inspection Operation: Provide an operating fixture on top of the car containing continuous pressure "Up" and "Down" buttons for operating the
elevator, an emergency stop button, a light and duplex GFCI receptacle, and a toggle switch that will make the top of car operating device operative.

iii. Fireman's Emergency Service: Furnish emergency operation to return the elevator to the main fire access Floor 1. Furnish "in car" control of the elevator during emergency operation by means of a key switch.

iv. Hoistway Access Key Switch Operation: Key operated switches shall be provided in the car and at the top landing for selecting hoistway access operation. When the inspection switch in the car is turned to the "ON" position, the car is put on inspection operation and can only be run by use of the switch at the top landing.

1. The car parks with the doors open and the closing circuit rendered operative. The inspector runs the car at low speed with the doors open by constant operation of the switch located in the elevator lobby.

2. The car can be run down from the top floor to gain access to the top of the car. The movement of the car initiated and maintained by the upper access switch shall be limited in the down direction to a travel not greater than the height of the car crosshead above the car platform, and limited in the up direction to the distance the platform guard extends below the car platform.

2.04 CAR STRUCTURE

A. Platform & Car Frame: The existing platform and frame, including brace rods, shall be retained.
   a. The complete platforms and car frames shall be thoroughly cleaned of all dirt, grime and grease accumulated from past years of service. Replace any rubber isolation pads between the platform and the plunger which provide a cushion between the two surfaces.
   b. With the replacement of the cab, provide completely new subflooring and nickel silver car door sills.
   c. Inspect all structural steel members for adequate bracing and support of car enclosure.

B. Car Guides: Provide new adjustable, spring loaded, high speed roller guide assemblies to guide the car on the rails. The guides shall be rubber tired rollers with a minimum six inch (6") diameter rollers. The assemblies shall be properly adjusted and aligned with the rails to provide a smooth quality of ride upon completion of the installation.

C. Top of Car Handrail: A standard railing, consisting of a top rail, intermediate rail, posts, and toeboard, shall be provided on the top of elevator car. The top rail shall have a smooth surface and the upper surface shall be located at a vertical height of 42" from the top of the car. The intermediate rail shall be located approximately half-way between the top rail and the top of the car. Posts shall be located not more than 7'10" apart. The toe-board shall be securely fastened to the posts and extend from the top of the car to a height not less than 4".

D. Balance: After all new components are assembled on the car structures, the elevator cars shall be statically balanced in alignment with the guide rails to equalize pressure for a smooth ride upon completion of the installation.

2.05 HOISTWAY COMPONENTS

A. Guide Rails: The contractor shall reuse the existing steel elevator guide rails. Rails are solid steel T-shaped rails. Contractor shall inspect that rails are plumb and securely fastened to the building structure.
   a. It shall be the responsibility of the contractor to inspect and provide any required modifications needed for the new car.

B. Hoistway Operating Devices: Normal terminal stopping devices shall be provided. When an emergency terminal speed-limiting device is furnished, the controller switches and circuitry shall be arranged in accordance with the requirements of the Elevator Code.
C. Pit Switch: An emergency stop switch shall be located in the elevator pit adjacent to the pit access ladder and 4’ above the pit floor.

D. Top of Car Operating Device: A top of car operating device shall be provided and shall have the proper buttons, switches, and stop switch to operate the elevator on top of the car under inspection operation. The device shall be provided with a GFCI duplex receptacle and a guarded incandescent light.
   a. If the stop switch on the top of car operating device is not within reach of the hoistway landing, a second stop switch shall be provided on the car top that is within reach of the hoistway landing.

E. Wiring: All wiring and electrical interconnections shall comply with the governing codes. Insulated wiring shall have flame retardant and moisture-proof outer covering, and shall be run in conduit, tubing or electrical wireways.

F. Traveling Cable: Traveling cables shall be flexible, with a flame and moisture resistant outer cover, and shall be suspended to relieve strain on individual conductors. Include the required number in addition to one (1) cat6 camera wire and three (3) spare sets of shielded communication wires and car lighting circuits from the machine room to the car connection points on the elevator. Provide 10% spare wires in traveling cable.

G. Spring Buffers: Spring buffers in the elevator pit are to be reused. Inspect, clean and paint existing springs as part of the scope of this project.

2.06 DOOR OPERATING SYSTEM

A. Door Operator: Doors on the car and at the hoistway entrances shall be power operated by means of a high speed, heavy duty, closed-loop, master door operator mounted on top of the car. The motor shall have positive control over door movement for smooth operation.
   a. Door operation shall be automatic at each landing with door opening being initiated as the car arrives at the landing and closing taking place after expiration of a time interval. A car door electric contact shall prevent starting the elevator away from the landing unless the car door is in the closed position. Door close shall be arranged to start within a time consistent with accessibility requirements.
   b. The time interval for which the elevator doors remain open when a car stops at a landing shall be independently adjustable for response to car calls and response to hall calls.

B. Interlocks: An approved positive interlock shall be provided for each hoistway entrance which shall prevent operation of the elevator unless all doors for that elevator are closed and shall maintain the doors in their closed position while the elevator is away from the landing.
   a. Hoistway door unlocking devices shall be provided at all hoistway landings to permit access to the top of the car and pit areas. The unlocking devices shall be actuated by a special key and access holes in hoistway doors shall be protected by a naturally finished, barrel type escutcheon plate.

C. Car Door Safety Device: A proximity type, non-contact, infrared ray, door reversal device shall be furnished for the elevator entrance. Operation for all devices to be as follows:
   a. The doors shall be prevented from closing from their full open position if a person or object comes within the zone of detection. The detection zone shall move with the doors and if a person or object enters the zone as the doors are closing, the doors shall reverse and reopen prior to physical contact. The doors shall reclose after a minimal time interval. After a stop is made, the doors shall remain open for a time interval to permit passenger transfer, after which the doors shall close automatically. This interval shall be less for a car call stop than for a hall call stop or a coincident car/hall call stop.
   b. If the doors are prevented from closing for a fixed time period an audible chime shall sound on the car. When the object is removed from the zone of detection the doors shall close at reduced power and speed to below 2 1/2 ft.-lbs. of kinetic energy. If an object enters the zone of detection while the doors are closing at reduced power and speed the doors shall stall and not reopen. Once the object is removed from the zone of detection the doors will continue to close at reduced power and speed. This operation will continue until the doors are totally closed. Normal operation shall resume at the next landing reached by the car.
D. Car Door Restrictors: The door operating mechanism shall be arranged so that the car and hoistway doors cannot be opened by hand more than four inches from within the elevator car when the car is outside the unlocking zone. Design of door restricting mechanism shall permit opening of car doors from outside of the elevator car without the use of special tools. Only mechanical type door restrictors are permitted.

2.07 OPERATIONAL FIXTURES

A. Car Control Station: A car control station shall be applied to the front return panel of the elevator car or integral with the swing return. The panel or swing return shall be provided with a concealed, heavy-duty hinge to swing the panel open for maintenance and inspection access.

a. The car control station panel shall contain a bank of mechanical illuminated buttons and Braille marked to correspond to the landings served and contain an illuminated alarm bell, door open & close buttons, fireman's phase II service key & fixtures, key switches for lights, fan, and other controls required for specified car operation and control. Mount the panel at height to comply with accessibility standards. Floor buttons shall be positioned in a single column. Braille plates shall not be the same shape as the floor call buttons.

b. The car control station panel for each elevator shall incorporate the fireman's phase II key switch and associated fire operation fixtures inside a locked cabinet located at the upper portion of the panel. The fireman’s keyswitch shall be of a tubular, 7 pin, style 137 construction and shall have a bitting code of 6143521. The key shall be coded “FEO-K1.” The phase II key switch, instructions, call cancel button, fire jewel, door open and door close buttons, and stop switch shall all be located within this locked panel. The front of the cabinet shall be engraved with the label “FIREFIGHTERS’ OPERATION”. The cover to the cabinet shall be openable with the same key that is used to operate the phase II key switch. This cabinet shall meet Elevator Code requirements.

c. The car capacity shall be permanently engraved on the lower portion of the car control station panel, or engraved on an inset panel at this location. Lettering shall not be less than 3/8 inch high and shall be black filled. The elevator number shall be permanently engraved at the top of the main car control station panel, or engraved on an inset panel at this location; lettering shall not be less than 1/2 inch high and shall be black filled.

d. Car control station shall not contain plastic or polycarbonate components, labels or frames.

e. The car control station shall also contain an integral speakerphone located at ADA/accessibility height requirements. Provide operating switches with manufacturer's standard identification for required use or function. The activation button shall match the car operating panel button fixtures. The speaker shall be mounted behind the car operating panel with vandal resistant perforations drilled through the car operating panel.

i. The speakerphone shall be of the automatic dialing type and shall have the capability to automatically identify its location upon receipt of the call to the party answering the call.

ii. Provide an activation button, with integral legend, and identification plate adjacent to the button. Illuminate button to indicate call registration. Provide means to cause indicator light to flash when call is answered. Provide engraved legend below indicator light explaining phone instruction. The speakerphone shall meet the requirements of ADA guidelines.

iii. Necessary shielded wires shall be provided by the contractor from the speakerphone in the elevator car, through the traveling cables, and shall terminate in a junction box on the elevator controller in the elevator machine room. Connections to the existing building service system shall be provided by the Contractor.

f. The car control station shall also contain a digital position indicator in the upper portion of the car control station panel.

g. The car control station panel shall also contain emergency car lights and the emergency power unit employing a sealed rechargeable battery and static circuits, or a portion of the cab ceiling lights shall be made to work on a similar emergency power unit. The battery
shall be 6-volt minimum, sealed, maintenance free, of either lead acid or gel cell
collection, and designed to give a life expectancy of not less than 5 years. Illumination
for the elevator car and power for alarm bell shall be provided in the event of power
failure.

B. Car Position Indicator: A digital car position indicator with direction arrows shall be provided in the
top of the car control station panel. The position of the car in the hoistway shall be shown by the
illumination of the indication corresponding to the landing at which the car is stopped or passing.
Provide an electronic, adjustable, floor bypass tone to indicate to passengers that car is stopping
at a particular floor served.

C. Hall Push Button Station: A single riser of hall push button stations for the elevator shall be
provided at each lobby. At each terminal landing, single type button fixtures shall contain the
appropriate “Up” or “Down” buttons. All fixtures shall be installed at proper height to comply with
the accessibility standards. The hall button fixture faceplates shall be the flat, applied type that is
flush mounted with the wall. The hall buttons shall operate such that when a call is registered by
any momentary pressure on the landing button, the button shall become illuminated and remain
illuminated until the call is answered.

a. The face plate of the Floor M hall button shall additionally contain the fireman’s phase I
key switch. The fireman’s keyswitch shall be of a tubular, 7 pin, style 137
construction and shall have a bitting code of 6143521. The key shall be coded “FEO-K1.” The fireman’s phase I instructions shall be permanently engraved on the face plate
or on an inset plate mechanically fastened flush with the face of the hall button fixture.

b. The call buttons in the hall button fixture shall be centered at 42” above the
finished floor.

c. The hall button at the top landing shall contain the hoistway access key switch to activate
Hoistway Access Operation.

D. “In-Car” Hall Lantern: An in-car hall lantern shall be located in the car entrance jamb at the
ADA/accessibility required height. The lantern shall be the applied type with a flush-mounted
faceplate and shall be on the side of the entrance opposite the hall button location. The lantern
shall incorporate the appropriate triangular direction arrows for the up and down directions. The
operating function of the lantern shall incorporate the appropriate directional tones per
accessibility standards. An adjustable, electronic, audible tone shall sound to announce the
arrival of the elevator car. The tone shall sound once for the “UP” direction and twice for the
“DOWN” direction upon opening of the car doors.

E. Fixtures: All newly provided fixtures shall be constructed of stainless steel with a no. 4 satin grain
finish. Vandal resistant screws shall be provided for mounting all signal and operational fixture
face plates. Fixtures shall be as manufactured by the following or approved equal:
1. Otis Standard with stainless steel button targets
2. ThyssenKrupp Sherman Classic with V7 Buttons
3. Innovation Universal

2.7 CAR ENCLOSURE
A. The elevator cab shall be a steel shell cab with exterior sound deadening mastic. The car
side and rear walls shall each consist of formed steel panels, bolted together to form a
complete steel shell cab. Cab shell panels shall be a maximum of 24” wide and made of a
minimum of 16 gauge steel (or, at Contractor’s option, provide 14 gauge steel with a
maximum panel width of 36”). Cab finish to include 5/8” minimum pressed wood, plastic
laminate-covered panels secured to cab shell. Color of panels shall be as selected from
manufacturer’s standard. All vents in the cab walls shall be concealed. Reveals between
panels shall be a maximum of 1”. Provide stainless steel base on all walls with panels. The clear inside height of the cab shell shall be the manufacturer’s standard 8’-0” cab.

B. The front return panel shall incorporate an integral entrance column, shall be brushed stainless steel a minimum of 16 gauge, and shall extend from finished floor to underside of fascia. The strike jamb shall also be stainless steel a minimum of 16 gauge. The front return panel shall be arranged for mounting the car control station panel. A full width fascia of brushed stainless steel shall be furnished over the return panel and car entrance.

C. The car top shall consist of a panel which shall be clad with sheet metal and contain a hinged top emergency exit panel 17” x 24”, or code compliant equal. The car top material shall be 12-gauge furniture steel suitably reinforced with matte white painted finish.

1. Provide an interlock on the top of car emergency exit that will prevent operation of the elevator car if the exit cover is open more than 2”. Interlock shall be designed in accordance with code requirements.

2. The ceiling shall be furnished with a concealed suspended frame supporting individual wood-core panels incorporating a brushed stainless steel finish on the exposed surfaces. Each panel shall contain a down light fixture with LED bulbs. A dimmer switch shall be provided on the car top to adjust the car lighting in the elevator car.

3. The ceiling shall be furnished with an extruded aluminum suspended ceiling frame supporting individual translucent white panels. LED lighting shall be provided above the suspended ceiling for car illumination.

4. A two-speed fan shall be mounted in the car top above the ceiling. Mount with rubber grommets and adjust for smooth, quiet operation.

D. The car entrance shall be provided with single-speed, center-opening car doors with a brushed stainless steel facing on the car side suitably reinforced with applied hangers with track. Hangers shall be of the sheave type, two sheaves per door, rotating on a precision ball bearing. The roller shall be on an eccentric stud to provide adjustment. The door shall be of hollow metal construction. Car doors shall be provided with two phenolic gibs per car door panel.

E. The platform shall be recessed below the car door sill to accept the car flooring so the flooring is flush with the car door sill upon completion of the installation. The car shall be provided with vinyl tile flooring furnished and installed by the Contractor in this section. Tile to be as specified in Division 9.

F. A solid stainless steel handrail shall be furnished on the sides of the elevator cab and shall be mounted such that the top of the handrail is 34” above the finished floor. The handrail shall be approximately 3/8” by 2” square and the ends shall return back to the car walls.

G. The elevator cab shall be provided with protective stainless steel pad buttons permanently installed on the sides, rear, and front return panels. The contractor shall supply one (1) set of protective pads for the elevator upon substantial completion of the elevator work, pad color to be chosen from manufacturer’s standards.

H. The car enclosure shall comply with the ASME A17.1 Safety Code for Elevators and Escalators. All stainless steel shall be provided with #4 brushed finish.

2.8 HOISTWAY ENTRANCES

A. Hydraulic Passenger Elevator, No. 1:

1. Hydraulic Elevator Equipment:
   a. Hydraulic cylinder: Reuse existing cylinder in elevator pit.

2. Drive System:
   a. Variable voltage variable frequency (VVF) to modulate motor speed.

3. Operation Control Type:
4. Service Control Type:
   a. Standard service control only.
5. Interior Car Height: 96 inch (field verify).
6. Electrical Power: 480/277 volts; 60Amps; three phase; 60 Hz.
8. Rated Speed: 125 feet per minute.
9. Hoistway Size: 7'4” W x 8'4” D as indicated on drawings (field verify).
11. Elevator Pit Depth: 4'-6” (field verify).
12. Elevator Sump Depth: 2' x 2' x 2' deep (field verify).
15. Number of Openings: 1 Front;
16. Hydraulic Equipment Location: Elevator Equipment Room on first floor as indicated on drawings

2.03 COMPONENTS
A. Elevator Equipment:
   1. Motors, Hydraulic Equipment, Controllers, Controls, Buttons, Wiring, Devices, and Indicators: Comply with NFPA 70. Refer to Section 26 0583
   2. Guide Rails, Cables, Buffers, Attachment Brackets and Anchors: Design criteria for components includes safety factors in accordance with applicable requirements of Elevator Code, ASME A17.1.
   3. Buffers:
      a. Spring type for elevators with speed less than or equal to 200 feet per minute (1 m per second).
   4. Lubrication Equipment:
      a. Provide grease fittings for periodic lubrication of bearings.
      b. Lubrication Points: Visible and easily accessible.
B. Electrical Equipment:
   1. Motors: NEMA MG 1.
   2. Boxes, Conduit, Wiring, and Devices: As required by NFPA 70. Refer to Sections 26 0533.13 and 26 0583.
   3. Sump Pump in Pit: Refer to Section 22 0513.
   4. Spare Conductors: Provide ten percent in extra conductors, two pairs of shielded audio cables, and one Cat6 video cable in traveling cables.
   5. Include wiring and connections to elevator devices remote from hoistway and between elevator machine room. Provide additional components and wiring to suit machine room layout. Refer to Section 26 0583.

2.04 PERFORMANCE REQUIREMENTS
A. Regulatory Requirements: Comply with ASME A17.1, and applicable local codes.
B. Accessibility Requirements: Comply with ADA Standards.
C. Perform welding of steel in accordance with AWS D1.1/D1.1M.
D. Fabricate and install door and frame assemblies in accordance with NFPA 80.
E. Perform electrical work in accordance with NFPA 70.

2.05 OPERATION CONTROLS
A. Elevator Controls: Provide landing operating panels, landing indicator panels, and fire recall switch on designated landing.
   1. Landing Operating Panels: Metallic type, one for originating "Up" and one for originating "Down" calls, one button only at terminating landings; with illuminating indicators.
3. Comply with ADA Standards for elevator controls.

B. Interconnect elevator control system with building security systems.

C. Door Operation Controls:
   1. Door Safety Devices: Moveable, retractable safety edges, quiet in operation; equipped with photo-electric light rays.

D. Provide "Firefighter’s Emergency Operation" in accordance with ASME A17.1, applicable building codes, and governing authorities.

2.06 OPERATION CONTROL TYPE
A. Selective Collective Automatic Operation Control: Applies to car in single elevator shaft.
   1. Refer to description provided in ASME A17.1.
   2. Automatic operation by means of one button in the car for each landing served and by "UP" and "DOWN" buttons at the landings.
   3. Stops are registered by momentary actuation of landing car buttons without consideration of the number of buttons actuated or the sequence buttons are actuated, but the stops are made in the order that landings are reached in each direction of travel.
   4. All "UP" landing calls are made when car is traveling in the up direction.
   5. All "DOWN" landing calls are made when car is traveling in the down direction.
   6. Uppermost and lowermost calls are answered as soon as they are reached without consideration of the car travel direction.

2.07 MATERIALS
A. Stainless Steel Sheet: ASTM A666, Type 304; No. 4 Brushed finish unless otherwise indicated.
B. Extruded Aluminum: ASTM B221 (ASTM B221M), natural anodized finish unless otherwise indicated.
C. Plywood: PS 1, Structural I, Grade C-D or better, sanded.
D. Resilient Flooring: Vinyl tile flooring and Resilient base, as specified in Section 09 6500.
E. Plastic Laminate: NEMA LD 3, Type HGS, color as selected by Owner from manufacturer's standard line of colors.

2.08 CAR AND HOISTWAY ENTRANCES
A. Elevator, No. 1:
   1. Car and Hoistway Entrances, Each Elevator Floor Lobby:
      a. Framed Opening Finish and Material: As indicated on drawings.
      b. Car Door Material: Stainless steel, with rigid sandwich panel construction.
      c. Hoistway Door Material: Powder coat on steel, with rigid sandwich panel construction.
      d. Paint Color: As selected by Owner from manufacturer's standard line.

2.09 CAR EQUIPMENT AND MATERIALS
A. Elevator Car, No. 1:
   1. Car Operating Panel: Provide main and auxiliary; flush-mounted applied face plate, with illuminated call buttons corresponding to floors served with "Door Open/Door Close" buttons, "Door Open" button, "Door Close" button, alarm button, and fire operation switch.
      a. Panel Material: Integral with front return; one per car.
      b. Car Floor Position Indicator: Above door with illuminating position indicators.
      c. Locate alarm button where it is unlikely to be accidentally actuated; not more than 54 inch (1.372 m) above car finished floor.
   3. Flooring: Resilient vinyl tile.
   4. Wall Base: Resilient base, 4 inch (102 mm) high.
   5. Front Return Panel: Match material of car door.
7. Side Walls: Plastic laminate on plywood.
9. Hand Rail: Aluminum, at all three sides. Provide open clearance space 1-1/2 inch (38 mm) wide to face of wall.
10. Ceiling:
    b. Frame Finish: Color anodized aluminum.
    c. Lighting: Recessed LED.
11. Provide emergency access panel for egress from car at ceiling.

B. Car Accessories:
1. Protective Pads: Canvas cover, padded with impact-resistant fill material, sewn with piping edges; fire resistant in compliance with ASME A17.1; brass grommets for supports, covering side and rear walls and front return, with cut-out for control panel; provide one set for each elevator.
   b. Provide at least 4 inch (102 mm) clearance from bottom of pad to finished floor.
   c. Pad Supports: Stainless steel studs, and mounted from ceiling frame.

2.10 MACHINE ROOM FITTINGS
   A. Wall-Mounted Frames: Glazed with clear plastic; sized as required. Provide one chart each for master electric and hydraulic schematic and for lubrication chart. Install charts.

2.11 FINISHES
   A. Field Painting: Comply with requirements as specified in Section 09 9123.
   B. Powder Coat on Steel: Clean and degrease metal surface; apply one coat of primer; two coats of powder coat.
   C. Clear Anodized Finish: Class I, AAMA 611 AA-M12C22A41 clear anodic coating with electrolytically deposited organic seal; not less than 0.7 mils, 0.0007 inch (0.018 mm) thick.
   D. Color Anodized Finish: Class I, AAMA 611 AA-M12C22A44 electrolytically deposited colored anodic coating not less than 0.7 mils, 0.0007 inch (0.018 mm) thick.

PART 3 EXECUTION
3.01 EXAMINATION
   A. Site Inspection and verification of existing conditions before starting work: Examine elevator areas, with installer present, for installation tolerances, and other conditions affecting performance of elevator work. Examine hoistway, hoistway openings, pit, and machine room; verify critical dimensions; and examine supporting structure and other conditions under which elevator work is to be installed. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 INSTALLATION
   A. Install system components, and connect equipment to building utilities.
   B. Provide conduit, electrical boxes, wiring, and accessories. Refer to Sections 26 0533.13 and 26 0583.
   C. Install hydraulic piping between cylinder and pump unit.
   D. Mount machines, motors, and pumps on vibration and acoustic isolators.
      1. Place on structural supports and bearing plates.
      2. Securely fasten to building supports.
      3. Prevent lateral displacement.
   E. Install elevator equipment and components in accordance with approved shop drawings.
F. Field Welds: Chip and clean away oxidation and residue with wire brush; spot prime surface with two coats.

G. Structural Metal Surfaces: Clean surfaces of rust, oil or grease; wipe clean with solvent; prime two coats.

H. Machine Room Components: Clean and degrease; prime one coat, finish with one coat of enamel.

I. Adjust equipment for smooth and quiet operation.

3.03 TOLERANCES

A. Guide Rail Alignment: Plumb and parallel to each other in accordance with ASME A17.1 and ASME A17.2.

B. Car Movement on Aligned Guide Rails: Smooth movement, without any objectionable lateral or oscillating movement or vibration.

3.04 FIELD QUALITY CONTROL

A. Perform testing and inspection in accordance with requirements.
   1. Inspectors shall be certified in accordance with ASME QEI-1.
   2. Perform tests as required by ASME A17.2.
   3. Provide at least two weeks written notice of date and time of tests and inspections.

B. Operational Tests:
   1. Perform operational tests in the presence of Owner and Engineer.
   2. At an agreed time, and the building occupied with normal building traffic, conduct tests to verify performance.

C. Furnish test and approval certificates issued by authorities having jurisdiction.

3.05 ADJUSTING

A. Adjust for smooth acceleration and deceleration of car to minimize passenger discomfort.

B. Adjust with automatic floor leveling feature at each floor landing to reach 1/4 inch (6.4 mm) maximum from flush with sill.

3.06 PROTECTION

A. Temporary Use: Comply with the following requirements for elevator used for construction purposes.
   a. Provide car with temporary enclosure, either within finished car or in place of finished car, to protect finishes from damage.
   b. Provide strippable protective film on entrance and car doors and frames.
   c. Provide padded wood bumpers on entrance door frames covering jambs and frame faces.
   d. Provide other protective coverings, barriers, devices, signs, and procedures as needed to protect elevator and elevator equipment.
   e. Engage elevator installer to provide full maintenance service for elevators used for construction purposes. Include preventative maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper elevator operation at rated speed and capacity. Use parts and supplies as used in the manufacture and installation of original equipment.
   f. Engage elevator installer to restore damaged work, if any, so that no evidence remains of corrective work. Return items that cannot be refinished in the field to the shop, make required repairs and refinish entire unit, or provide new units as required.

B. At the time of substantial completion of elevator work (or portion thereof) provide suitable protective covering, barriers, devices, signs, or such other methods or procedures to protect elevator work from damage or deterioration. Maintain protective measures throughout remainder of construction period.

C. Do not permit construction traffic within car after cleaning.
D. Protect installed products until Date of Substantial Completion.
E. Touch-up, repair, or replace damaged products and materials prior to Date of Substantial Completion.

3.07 CLEANING
A. Remove protective coverings from finished surfaces.
B. Clean surfaces and components in accordance with manufacturers written instructions.

3.08 ELEVATOR SCHEDULE
A. Furnish and install: One (1) Passenger Elevator
B. Type of Machine: Hydraulic Power Drive Machine (utilize existing cylinder and car platform).
C. Load Capacity: 2500 lbs.
D. Car Speed: 100 Feet Per Minute
E. Drive: A.C. Motor Drive with Reduced Starting Current and Automatic Two Way Leveling
F. Operation: Simplex Collective Operation with Fireman’s Emergency Service Independent Service.
G. Seismic: Non-seismic
H. Approximate Travel: 40’
I. Number of Stops: Four (4) Stops, all front opening.
J. Opening Size: 6’-8” W by 7’-0” H
K. Type of Car & Hoistway Entrance: Center Opening, Single Speed
L. Door Operation: Automatic Closed-Loop
M. Car Enclosure: As Specified.
N. Minimum Car Inside Dimensions: 6’-8” wide by 7’-4” deep (match existing platform).
O. Signal Fixtures: Car Control Panel Provide a single car control station in the front return panel with integral, car position indicator and emergency car light.
P. Hall Buttons: Provide one riser of hall buttons.
Q. In-Car Lantern: Provide in-car lantern with electronic, adjustable directional tones.

3.09 MAINTENANCE
A. Refer to Division 1 for additional information regarding requirements relating to initial maintenance service.
B. Provide Initial Maintenance Contract of elevator system and components in accordance with ASME A17.1 and requirements as indicated for 12 months from Date of Substantial Completion.
C. Perform maintenance contract services using competent and qualified personnel under the supervision and direct employ of the elevator manufacturer or original installer.
D. Examine system components bi-monthly.
E. Include systematic examination, adjustment, and lubrication of elevator equipment.
F. Maintain and repair or replace parts, whenever required, using parts produced by original equipment manufacturer.
G. Perform work without removing cars from use during peak traffic periods.
H. Provide emergency call back service during regular working hours throughout period of this maintenance contract.

I. Maintain an adequate stock of parts for replacement or emergency purposes, and have personnel available to ensure the fulfillment of this maintenance contract without unreasonable loss of time.

3.10 FIELD QUALITY CONTROL

A. Acceptance Testing: Upon nominal completion of the elevator installation, and before permitting use of elevator (either temporary or permanent), perform acceptance tests as depicted in Rule 8.10.3, "Acceptance Inspection and Tests of Passenger & Freight Hydraulic Elevators", of the Elevator Code. Also perform other tests, if required by governing regulations.

3.07 INSTRUCTION, MAINTENANCE AND CLOSEOUT ACTIVITIES

A. Demonstration: Demonstrate operation of system to Owner's personnel.
   1. Use operation and maintenance data as reference during demonstration.
   2. Briefly describe proper use, operation and daily maintenance of elevators.
   3. Review emergency provisions, including emergency access and procedures to be followed at time of failure in operation and other building emergencies.
   4. Train Owner's personnel in normal procedures to be followed in checking for sources of operational failures or malfunctions.

B. Training: Train Owner's personnel on cleaning and operation and maintenance of system.
   1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
   2. Provide minimum of two hours of training.

C. Diagnostic Testing:
   1. The diagnostic testing device, or maintenance terminal, provided shall be demonstrated and tested during the final testing of the elevator installation. This diagnostic tool shall have the capability of troubleshooting and field programmability of all control variables providing interaction between the service man and the microprocessor controller including performance of all ongoing safety testing as required by ASME A17.1 elevator code.

END OF SECTION 14 2400
SECTION 14 3100
ESCALATORS

PART 1 GENERAL

1.01 RELATED DOCUMENTS
A. General Provisions of Contract, including general and supplementary conditions, special conditions and Division I Specification sections, apply to work of this section.
B. Provide all labor, materials, services, and equipment necessary to complete the installation of the escalators as specified herein.
C. Drawings and specifications are intended to show general arrangement, design, and extent of work. As such they are not intended to be scaled for roughed in measurements or to serve as shop drawings.
D. Anything shown on drawings and not mentioned in these specifications or vice versa, as well as any work which is obviously necessary to complete the Project, within the limits established by the drawings, specifications and codes, although not shown on or described therein, shall be performed by the Contractor as part of their work.

1.02 REFERENCE STANDARDS

1.03 DESCRIPTION OF WORK
A. This section includes the renovation of two (2) escalators running from the House Parking Garage, to the capital bldg. basement, as noted in the escalator schedule below. The schedule indicates required performance, control, capacities, features, and finishes for both escalators.
B. Escalators in this project shall be renovated in an off-peak period. Once removed from service, work shall remain steady on the escalators until substantial completion.
C. Supply, delivery, installation (including all the associated skilled/unskilled labor and the hire of any mobile cranes for offloading purposes) testing and commissioning of 2 escalators.

1.04 ESCALATOR SCHEDULE
1. Duty of Escalators:
   a. The escalators shall be proven in use in an infrastructure environment (e.g. metro, railway, airport, etc.) and shall be capable of operating continuously for a period of 20 to 24 hours for 7 days a week throughout the year.
   b. The escalator components shall be designed to offer a service life of min. 70,000 hours without replacement of major parts
2. Operating Environment:
   a. The escalator shall be equipped and configured for indoor usage.
3. Truss:
   a. The existing truss is expected to be reused. Contractor shall be responsible for any alterations or modifications as well as the cleaning and priming.
   b. Replace the truss supports at each end with new isolation (anti-vibration) pads, to dampen vibration and prevent structure-borne noise being transmitted to the building structure.
4. Operational Mode:
   a. Microprocessor based controller capable or standby operation. Escalator shall be capable of running at reduced speed with no passengers on the step band (changing from a normal speed of 100fpm to a standby speed ~40% slower).
a. The escalator shall have a “Closed-Loop” braking system which shall be capable of bringing an unloaded and loaded escalator to rest within the stopping distances while controlling the deceleration rate. The action of the brake shall be smooth so that the step band is brought to a standstill without subjecting the passengers to sudden deceleration forces.
b. Provision shall be made for the temporary release of the brake by means of a manually operated release lever.
c. The escalator shall stop automatically in the event of the operation of any safety device or electrical power failure.
d. Each escalator shall have the facility to lock the step band in position to enable work to be carried out safely within the step band.

6. Mechanical system:
   a. Drive with a planetary gear to power both steps and handrails, providing full synchronization between steps and handrails.

7. Step Chain:
   a. The step chains shall be specifically designed for escalator applications and be of the roller type with heat-treated.
   b. The step chains shall be of the sealed-for-life, lubrication-free type which require no external oil lubrication. The links, pins and bushes shall be suitably treated to prevent corrosion (e.g. zinc plated).
   c. The stair rollers shall be 4” or larger and mounted outside the
   d. Designed to meet ASME A17.1-2013/CSA B44-13 with a safety factor 10 as a minimum.

8. Step Chain Tension Carriage:
   a. A step chain tension device shall be provided in an easily accessible position in the lower machine pit.
   b. The tension carriage assembly shall be mounted on rollers with adequate lateral guidance to prevent skewing and shall be fitted with adjustable pressure springs to ensure uniform tensioning of the step chains.

9. Steps:
   a. The silver painted steps shall be of an interchangeable design of rigid high tensile die cast aluminum, incorporating grooved tread plates and risers, and shall be capable of being removed and replaced without removing the skirtings or inside balustrade. Multi-piece step assemblies are not acceptable.
   b. The step rollers shall have sealed ball bearings which are permanently grease lubricated. The steps are of distortion-resistant design, made of high tensile, die-cast aluminium. The tread plates have narrow grooves. The inner width between the cleats is 1/4” (average). Similar to the tread plate, the step riser is grooved vertically. Each step is provided with two step rollers of 3” diameter with encased, sealed-for-life ball bearings.

10. Step Combs:
   a. Step combs shall be manufactured from aluminum and be easily replaceable. The escalator must incorporate step guides of wear-resistant material to ensure precise lateral entrance of the step into the comb.
   b. Safety contacts shall be fitted to the comb plate, acting both vertically and horizontally, to stop the escalator in the event of an object becoming entrapped between the steps and the combs.

11. Skirtings:
   a. Rigid brushed stainless-steel skirt ing panels shall be provided adjacent to the steps. They shall be coated with a clear long-wearing friction reduction compound and adequately supported to prevent bending or deflection. Flexible skirt ing panels with micro-switches shall not be accepted.

12. Brush Guards:
   a. Single brush guards shall be provided to protect the step/skirting gap. They shall follow the nose line of the steps, running continuously throughout the length of the moving step
band and terminating 2" before the comb plates at both ends. At each end of the brush guard there shall be a smooth tapered aluminum leading piece to ensure that there are no sharp edges, which may be a hazard to passengers. The holder/basis shall be made of black anodized aluminum.

13. Floor Cover Plates:
   a. Single panel covers of aluminum shall be provided at the escalator entrances, covered with ribbed aluminum flooring. The covers shall be removable for maintenance purposes.

14. Finishes:
   a. The inner/outer decking shall be of brushed stainless steel. The joints of all sections shall be of the flush butted type. Provide decking with stainless steel anti slide devices no more than 78" apart.
   b. Parallel arranged escalators shall have a common center deck.

15. Control Cabinet:
   a. The controller for the escalators shall be in a sheet metal cabinet located within the top machine compartment and shall be removable for maintenance purposes. The controller shall incorporate all devices for controlling the direction of travel of the escalator and all overload and safety devices.

16. Operational Mode:
   a. The escalator shall run continuously, but shall reduce its speed after a pre-selected time if no passengers are detected. If a passenger is then detected, the unit re-accelerates in the pre-selected direction. The reduced speed (stand-by speed) shall be approximately 40% of the nominal speed.

17. Safety Devices: The escalators shall be equipped with the following safety devices and features:
   a. Emergency stop buttons for passengers in the top left and bottom right handrail inlet front plates.
   b. Auxiliary brake.
   c. Broken step chain (chain tension) switches in the return station which stop the escalator in case of failure of the step chain.
   d. Finger protection with contact at the handrail inlet at the balustrade heads.
   e. Comb plate impact device switches which stop the escalator in case objects become trapped between the comb teeth and the moving step band.
   f. Step lowering device to switch off the escalator in the event of a step being lowered more than 1/4" from its correct path.
   g. Step return guards at both top and bottom ends to provide protection to/from the step band.
   h. A locking device, with mechanical and electrical protection, to lock the step band in position for when it is necessary to work within the step band.
   i. Speed sensor system, which electronically monitors the motor for over/under speeds and step band reversal.
   j. Motor thermal protection for temperature monitoring.
   k. Main switch with thermal and magnetic release.
   l. Stop switches for engineers’ use within upper and lower end pits.
   m. Sockets for inspection use installed in the upper and lower machine compartments.
   n. Brush-type skirting deflectors to protect the gap between the skirting panels and the sides of the step treads.
   o. Access cover contacts.
   p. Handrail speed monitor.
   q. Missing step monitor.
r. Diagnostic display.
s. Skirt fiber optic monitor  
i. This monitors the skirt panels deformation caused by any foreign object stuck in the gap between the skirts and the steps, and stops the escalator. The detection function is realized by the skirt deformation, which is more accurate to reflect the forcing situation of the skirt panels comparing to the typical switch.

18. Notice/signs: Two notices per escalator shall be provided by the escalator sub-contractor depicting the following:
a. Small children must be held firmly  
b. Dogs must be carried  
c. Stand facing the direction of travel: Keep feet away from sides  
d. Hold moving handrails.

19. Wiring:  
a. Provide all cables and conductors from the main disconnect to the individual controls, lighting, and safety devices inside the escalator. 
b. All the electrical installation material must be suitable for humid conditions. The cables, switching elements and electrical devices must be in accordance with current NEC.

20. Control Switches:  
a. The control switch shall be mounted at the lower end of the escalator and shall be key operated.

21. Bearings:  
a. All bearings of rotating shafts are to be of a high quality, high precision and self aligning, and ball or roller type as appropriate. 
b. All bearings are to be selected to give, under an appropriate load profile for applications, a minimum calculated design life of 100,000 hours (L10h) based on the ISO definition of life rating.

22. Step width, speed and inclination (Field verify all existing conditions):  
a. Step Width – 24” (Match existing)  
b. Speed – 100 fpm  
c. Inclination – 30 deg (Match existing)  
d. Horizontal steps/pallets 2 (Match existing)  
e. Vertical rise 28.5’ (Match existing)

23. Aesthetic Features:  
a. Handrails – Black, molded neoprene, steel mesh reinforced to minimize stretch  
b. Handrail inlets – Black plastic  
c. Red Static LED Comb Lighting

1.05 QUALITY ASSURANCE  
A. Installer Qualification: The escalator manufacturer, or a licensee of the manufacturer, who has a record of successful experience with the installation of similar escalators. The contractors shall have, as a minimum, the following qualifications and documentation verifying these qualifications shall be submitted prior to award:  
a. Minimum of five (5) years successful experience in installing and servicing similar escalator installations. 
b. Installed at least five (5) completed and accepted escalator systems of similar size, scope, logic control, and motion control required by this contract.
c. An existing in-house administrative and technical organization staffed with competent personnel who are experienced in the escalator related work required to install and service the escalator system as specified located within one hundred and twenty (120) miles of the project location.

B. 1.08 SUBMITTALS

A. Refer to Division 1 for additional information regarding submittals, including submittal requirements, processing procedures, and limitations of review.

B. Product Data: Submit data on all aspects of the equipment listed in the escalator schedule.

C. Shop Drawings: Shop drawings shall be prepared by skilled draftsmen and presented in a clear and thorough manner. Include appropriate plans, elevations, sections, diagrams, and details that are job-specific.

D. Maintenance Manuals: Submit bound manuals for escalator with operating and maintenance instructions, lubricating schedule and instructions, parts listing, recommended parts inventory listing for motor and critical components, and similar information.
   1. Provide three (3) copies of manual bound in standard three-ring, hard binders.

E. Wiring Diagrams: Provide two (2) sets of complete electrical circuit diagrams, and one (1) electronic copy in "pdf" format, for control and operational features as installed, showing location and wiring for power, signal and control systems. The diagrams shall differentiate clearly between manufacturer-installed wiring and field installed wiring.

F. Keys: Provide three (3) sets of keys for all key fixtures on escalator equipment.

G. Certificate Frame: Provide a certificate frame in the elevator machine room mounted in a conspicuous location. Frame shall be made of a quality metal with a window size to house the operating certificate from the State of Missouri.

H. Certificates and Permits: Provide Owner with copies of all inspection/acceptance certificates and operating permits as required by governing authorities to allow normal, unrestricted use of escalator. If any variances are required from the State of Missouri for the product installed they shall be obtained by the Contractor. Provide a copy of any variances to the Owner upon completion of the project.

I. Maintenance Certification: The Contractor shall submit a written certification, signed by the Contractor and the manufacturer of the equipment, making a commitment to provide direct support to the Owner, or the Owner’s escalator maintenance service representative, including availability of parts (for inventory, not on an “exchange only” basis), diagnostic tools, and technical & engineering support. In addition all parts and support shall be provided at a reasonable cost in line for which the original manufacturer would charge to its own customer base and response shall be in a timely manner. This commitment shall remain in effect for a minimum of twenty-five (25) years after substantial completion of the project.

J. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

K. One (1) Year Preventative Maintenance and Service Contract.


Record drawings;
Supply two sets of record drawings and operating manuals on completion of installation.

1.10 INITIAL MAINTENANCE AND SERVICE

A. Maintenance Service: Furnish maintenance and callback service on the escalator for a period of twelve (12) months following date of final acceptance of all escalator work as specified herein. The maintenance and call back service shall be fully comprehensive service performed by skilled escalator personnel directly employed and supervised by the same company that furnished and installed the escalator equipment specified herein.
a. This service shall include:
   i. Monthly examination of the unit as a minimum.
   ii. Lubricating, adjusting, repairing and replacing of all parts as necessary to keep the equipment, including battery packs, in a first-class condition and proper working order.
   iii. Furnish all lubricants and parts required.
   iv. Provide all periodic annual and maintenance testing in accordance with the Elevator Code.
   v. The contractor shall keep clean of all dirt and debris guide rails, top of car, bottom of platform, machine room, unit hoistway and pit. All necessary cleaning supplies and equipment shall be furnished by the contractor.
   vi. An annual inspection, as described in the Elevator Code and/or as required by governing authorities, in the eleventh (11th) month of the new installation maintenance period.

b. The maintenance service shall not include the performance of any work required as a result of improper use, accidents or negligence, for which the contractor is not directly responsible.

c. All work shall be completed by trained employees of the escalator contractor and performed during normal working hours. Include 24 hour/day, 7 days/week callback service. Owner is responsible for overtime cost of said callbacks. Exclude only repair/replacement due to misuse, abuse, accidents, or neglect caused by persons other than installer's personnel. Emergency callbacks shall be of highest priority.

d. The contractor shall maintain a log in the escalator upper drive pit. The log shall list the date and time of monthly examinations and all trouble calls. Each trouble call shall be fully described including the nature of the call, necessary corrections performed and or parts replaced.

e. Maintenance service shall conform to the requirements of Section 8.6 of Elevator Code. This shall include the provision of a written Maintenance Control Program and maintenance record keeping that is consistent with Elevator Code requirements.

1.11 WARRANTY

A. The escalator warranty specified in this section shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents. Refer to Division 1 for additional information regarding additional warranty requirements.

B. Provide special project warranty, signed by contractor, installer, and Manufacturer, agreeing to replace, repair/restore defective materials and workmanship of elevator work during warranty period. "Defective" is hereby defined to include, but not by way of limitation, operation or control system failures, performances below required minimums, excessive wear, unusual deterioration or aging of materials or finishes, unsafe conditions, the need for excessive maintenance, abnormal noise or vibration, and similar unusual, unexpected and unsatisfactory conditions. The warranty period is twelve (12) months starting on date of final acceptance of the elevator and shall be extended until “defects” as defined in this warranty are corrected.

PART 2 PRODUCTS

2.01 GENERAL

A. Provide manufacturer's base pre-engineered escalator system with modifications or added features that will comply with the escalator work requirements as specified herein or, at manufacturer's option, provide custom manufactured base escalator system that will comply with the requirements. Where components are not otherwise indicated, provide standard components, published by manufacturer as included in standard pre-engineered escalator systems, and as required for a complete system.
2.02 MANUFACTURERS
A. Pre-Approved Manufactures - Escalators - Straight:
B. Products from other than Approved Manufactures are subject to compliance with specified requirements and prior approval of Engineer.
C. Source Limitations: Provide escalator and associated equipment and components produced by a single manufacturer and obtained from a single supplier.

2.03 ESCALATOR ELECTRICAL CHARACTERISTICS AND COMPONENTS.
A. Utilize existing 208v 3 phase 60A circuit.
   1. Existing circuit from panel to fused disconnect in upper pit is intended to be reused. Contractor shall reduce fuse size to if required to match new equipment MOP.

2.03 OPERATION
A. Operation: Constant speed under light to heavy load conditions in either direction, transit speed of handrail same as treads.
B. Switching: Key operated "On/Off" and reversing direction, control and emergency "Stop" buttons located at each end of unit.

2.04 MATERIALS
A. Bolts, Nuts, and Washers: ASTM F3125/F3125M, Type 1.
B. Welding Materials: Type required for materials being welded.

2.06 OPERATING CONTROLS
A. Buttons: Stainless steel, key operated switch type, capable of operating escalator in either direction.
B. Emergency Stop Switches: Locate guard in accordance with ASME A17.1.

2.09 FINISHES
A. Metal Surfaces Concealed From View: Clean surfaces of contaminants, and wipe clean with solvent; prime one coat.
B. Galvanized Surfaces: Clean with neutralizing solvent; prime one coat.
C. Touch-Up Primer for Galvanized Surfaces: Zinc rich type.
D. Handrail: Black.
E. Skirts: Stainless steel, No. 4 finish.
F. Decks: Stainless steel, No. 4 finish.
G. Interior Panels: Stainless steel, No. 4 finish with reinforced backing.

PART 3 EXECUTION

3.01 EXAMINATION
A. Site Inspection and verification of existing conditions before starting work: Examine escalator areas, with installer present, for installation tolerances, and other conditions affecting performance of escalator work. Examine critical dimensions; and examine supporting structure and other conditions under which escalator work is to be installed. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 INSTALLATION
A. Install system and components in accordance with ASME A17.1.
B. Align components within manufacturer's allowed tolerances to obtain operation without objectionable noise, squeaks, pulsations, jumping, vibration, or roughness.
C. Install components to permit orderly servicing, ease of component replacement, and minimum service down time.
D. Connect equipment to building utilities.
E. Field Welds: Chip and clean away oxidation and residue, wire brush and apply two coats of primer.
F. Provide ready access to lubrication points.

3.03 FIELD QUALITY CONTROL

A. Perform testing and inspection in accordance with requirements.
   1. Inspectors shall be certified in accordance with ASME QEI-1.
   2. Perform tests as required by ASME A17.2.
   3. Provide at least two weeks written notice of date and time of tests and inspections.

B. Operational Tests:
   1. Perform operational tests in the presence of Owner and Engineer.
   2. At an agreed time, and the building occupied with normal building traffic, conduct tests to verify performance.

C. Furnish test and approval certificates issued by authorities having jurisdiction.

3.04 CLEANING

A. Remove protective coverings from finished surfaces.

3.05 PROTECTION

A. Do not permit traffic over unprotected surfaces.
B. Do not permit use of escalator during construction.

3.06 MAINTENANCE

A. Perform maintenance work using competent personnel, under the supervision and in the direct employ of escalator manufacturer or installer.

B. Provide complete service and maintenance of escalator system and components for one year after Date of Substantial Completion.

C. Examine monthly, clean, adjust, and lubricate equipment.

D. Repair or replace parts whenever required. Use parts produced by manufacturer of original equipment.

E. Provide emergency call back service during regular working hours during this maintenance period.

3.07 INSTRUCTION, MAINTENANCE AND CLOSEOUT ACTIVITIES

A. Demonstration: Demonstrate operation of system to Owner's personnel.
   1. Use operation and maintenance data as reference during demonstration.
   2. Briefly describe proper use, operation and daily maintenance of escalators.
   3. Train Owner's personnel in normal procedures to be followed in checking for sources of operational failures or malfunctions.

B. Training: Train Owner's personnel on cleaning and operation and maintenance of system.
   1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
   2. Provide minimum of two hours of training.

END OF SECTION 14 3100
SECTION 22 0513
COMMON MOTOR REQUIREMENTS FOR PLUMBING EQUIPMENT

PART 1 GENERAL

1.01 SECTION INCLUDES
A. General construction and requirements.
B. Applications.
C. Single phase electric motors.

1.02 REFERENCE STANDARDS
A. NEMA MG 1 - Motors and Generators; 2017.
B. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.03 SUBMITTALS
A. See Section 01 3300 – Submittals, for submittal procedure and requirements.
B. Product Data: Provide wiring diagrams with electrical characteristics and connection requirements.
C. Operation Data: Include instructions for safe operating procedures.
D. Maintenance Data: Include assembly drawings, bearing data including replacement sizes, and lubrication instructions.

PART 2 PRODUCTS

2.01 GENERAL CONSTRUCTION AND REQUIREMENTS
A. Electrical Service:
   1. Motors 1/2 HP and Smaller: 115 volts, single phase, 60 Hz.
B. Construction:
   1. Design for temperature rise in accordance with NEMA MG 1 limits for insulation class, service factor, and motor enclosure type.
C. Visible Nameplate: Indicating motor horsepower, voltage, phase, cycles, RPM, full load amps, locked rotor amps, frame size, manufacturer's name and model number, service factor, power factor, efficiency.
D. Wiring Terminations:
   1. Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated. Enclose terminal lugs in terminal box sized to NFPA 70, threaded for conduit.
   2. For fractional horsepower motors where connection is made directly, provide threaded conduit connection in end frame.

2.02 APPLICATIONS
A. Single phase motors for shaft mounted fans or blowers: Permanent split capacitor type.

2.03 SINGLE PHASE POWER - PERMANENT-SPLIT CAPACITOR MOTORS
A. Starting Torque: Exceeding one fourth of full load torque.
B. Starting Current: Up to six times full load current.

PART 3 EXECUTION

3.01 INSTALLATION
A. Install in accordance with manufacturer's instructions.
B. Install securely on firm foundation. Mount ball bearing motors with shaft in any position.
C. Check line voltage and phase and ensure agreement with nameplate.

END OF SECTION 22 0513
SECTION 22 3000
PLUMBING EQUIPMENT

PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Submersible sump pumps.

1.02 SUBMITTALS
   A. See Section 01 3000 - Administrative Requirements, for submittals procedures.
   B. Product Data:
      1. Indicate pump type, capacity, power requirements.
      2. Provide certified pump curves showing pump performance characteristics with pump and system operating point plotted. Include NPSH curve when applicable.
      3. Provide electrical characteristics and connection requirements.
   C. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.03 WARRANTY
   A. Provide five year manufacturer warranty for sump pumps.

PART 2 PRODUCTS

2.01 SUBMERSIBLE SUMP PUMPS
   A. Manufacturers:
      1. Armstrong Fluid Technology; www.armstrongfluidtechnology.com
      2. Goulds Water Technology, a xylem brand; www.goulds.com
      3. Zoeller Company; www.zoeller.com
      4. Stancor: www.stancorpumps.com
   B. Type: Completely submersible, vertical, centrifugal.
   C. Pump Design: The motor shall be rated ½ H.P., 1 phase, 60 Hertz, 115 volts. Maximum running amp draw of 8 at 115 volts. The pump shall be designed to handle without clogging clean water, contaminated water, wastewater effluent, storm water, and other similar liquids that may contain small solids. The pump shall have integrated feet allowing it to stand on a hard bottom wet well.
   D. Pump construction: Major pump components shall be made from Stainless Steel 304 and FC-20 Cast Iron, with smooth surfaces devoid of porosity or other irregularities. All exposed fasteners shall be AISI type 316 stainless steel. Critical mating surfaces, where a watertight seal is required, shall be machined and fitted with Nitrile (Buna N) o-rings. Sealing will be the result of controlled compression of rubber o-rings without requiring a specific torque on fasteners to accomplish sealing. Rectangular cross sectioned gaskets, requiring specific fastener torque to achieve compression, shall not be considered adequate or equal. No secondary sealing compounds shall be used or required. Cast iron pump body and oil filled motor chamber.
   E. Impeller: The impeller shall be a non-clogging, dynamically balanced, vortex design, capable of passing a 35 mm diameter spherical solid. The impeller shall be threaded onto the motor shaft and shall be fastened to the shaft by a stainless steel impeller nut. The use of adjustable bottom plates to maintain efficiency shall not be considered equal..
   F. Bearings: The pump shaft shall rotate on permanently lubricated, greaseless bearings. The upper bearing shall be a single row deep grooved ball bearing. The lower bearing shall be a heavy duty, single row, deep grooved ball bearing. Upper and lower bearings shall be of sufficient size and properly spaced to transfer all radial and axial loads to the pump housing and minimize shaft deflection. B-10 bearing life shall be a minimum of 30,000 hours at BEP. Pump designs utilizing components other than ball bearings, or those requiring supplemental guide bushings for the shaft or impeller, shall not be considered acceptable.
G. Pump Volute: The pump volute shall be a single-piece design with vertical discharge. Passages shall be smooth and large enough to pass any solids that may enter the impeller. Volute inlet opening shall be 35mm. Discharge design shall permit attachment to standard 2" NPT pipe fittings.

H. Shaft & Rotating Assembly: The common motor/pump shaft shall be of Stainless Steel (410) material that is in contact with pump’s mechanical seals and shall have a polished finish and accurately machined shoulders to accommodate the bearings, seals and impeller. Carbon steel shafts shall not be considered adequate or equal. The rotating assembly (impeller, shaft and rotor) shall be dynamically balanced such that undue vibration or other unsatisfactory characteristics will not result when the pump is in operation.

I. Triple seal system: The pump shall be equipped with a tandem mechanical shaft seal system consisting of two independent seal assemblies with a common spring between them and a radial lip seal; providing three complete levels of sealing between the pump wet end and the motor. The mechanical seals shall operate in an oil filled chamber which is completely separate from the motor chamber. The seal faces shall be Silicon Carbide/ Silicon Carbide for the lower seal and Carbon/Ceramic for the upper seal. Metallic components of the mechanical seal shall be constructed of 300 series stainless steel. The seal system shall not rely upon the pumped media for lubrication and shall not be damaged when the pump is run dry. A readily accessible inspection screw shall be provided for inspecting the condition of the seal chamber oil during routine maintenance.

J. Motor: The motor housing shall be 304 stainless steel and the top cover of Nylon 66. The motor shall be of the squirrel-cage induction design with copper windings, housed in an air filled, water tight chamber. The motor shall be capable of continuous submerged operation under water to a depth of 30 feet. The stator windings and stator leads shall be insulated with moisture resistant Class E insulation rated for 120°C (248°F). The motor shall be capable of operating continuously, submerged in liquid of 40°C (104°F) without overheating. The motor shall be capable of handling up to 10 evenly spaced starts per hour. All motors shall have a voltage tolerance of +/- 10% from nominal name plate rating.

K. Accessories: Oil resistant 6 foot (2 m) cord and plug with three-prong connector for connection to electric wiring system including grounding connector.

L. Servicing: Slide-away coupling consisting of discharge elbow secure to sump floor, movable bracket, guide pipe system, lifting chain and chain hooks.

M. Controls: Solid state control system with field adjustable switch and oil sensor probe detection system, hermetically sealed and sleeved to prevent liquid from compromising the probe assembly.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install plumbing equipment in accordance with manufacturer's instructions, as required by code, and complying with conditions of certification, if any.

B. Coordinate with plumbing piping and related fuel piping work to achieve operating system.

C. Pumps:
   1. Ensure pumps operate at specified system fluid temperatures without vapor binding and cavitation, are non-overloading in parallel or individual operation, and operate within 25 percent of midpoint of published maximum efficiency curve.

3.02 OPERATION SEQUENCE

A. The main float shall rise (close) when the liquid level increases in the sump pit. The main pump relay shall close to allow the pump to discharge the liquid as long as the oil sensor has a resistance to ground lower than the set point (i.e., the oil sensor is in conductive water and
normal operation is allowed). The pump relay shall open when the liquid level drops below the oil sensor probe tip (pump off). There is a one-second time delay after the liquid level drops below the oil sensor probe tip. At this point, the oil sensor probe voltage drops from 5VDC to 15 millivolts DC until the “pump-on” float rises again, at which point the oil sensor input voltage returns to 5VDC. The 15-millivolt input greatly reduces the potential field and subsequent metal ion exchange, thus preventing buildup of foreign matter on the probe surface. If either float is closed, and the oil sensor measures a higher resistance than its set point, the pump shall be disabled and the oil LED, audible alarm, and remote alarm relay shall be energized. This failure condition is non-latching and is automatically cleared by returning the oil sensor to a conductive fluid, or by lowering the floats.

3.03

A. High-level alarm/redundant run float: The high-level liquid alarm shall be enabled by an additional float placed at a level in the pit above normal acceptable liquid levels. The rising of this float (closing) shall cause the controller to energize the audible alarm (where applicable), remote alarm relay (dry contacts), and the high-level LED. The high-level alarm shall only be de-energized after the high-level float drops to its normal state (open). The high-level liquid alarm shall not disable the pump motor from normal operation. In addition, the activation of the high-level float will also attempt to run the pump should the normal start float have become incapacitated. This provides 100% redundancy for the primary run float.

B. Silence Button: An external control mounted silence alarm button shall be provided to de-energize the audible alarm for the convenience of maintenance personnel. Depressing this button shall not clear any fault, but shall silence the alarm for 5 minutes. If a fault is removed and returns, the audible alarm shall reenergize as expected.

C. Self-Diagnostic: The control shall include a “push to test” feature for all pump and control diagnostic functions. This test helps ensure the system is installed properly and remains in working order.

D. Floats: The float shall be a normally open, wide angle type. The material of construction shall be A.B.S. The standard length of float supplied shall be 16`. The cable shall be 16-2 AWG with SJOW insulation. Floats shall be factory mounted to ensure correct operation.

E. Oil sensing probe: The oil sensing probe major construction shall be 316 stainless steel, and black Delrin. The probe shall be hermetically sealed to prevent liquid compromising the probe. The wire shall be 18-2 AWG with SJOOW insulation. Standard length Shall be 16`. Probe shall be factory mounted to the pump to ensure the correct level for shutting the system down due to lack of water or oil present. Field mounted probes or sensing devices are not considered equal due to installation by untrained personnel.

END OF SECTION 22 3000
SECTION 26 0519

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Single conductor building wire.
B. Wiring connectors.

1.02 RELATED REQUIREMENTS

A. Section 26 0526 – Grounding and Bonding for Electrical systems.

1.03 REFERENCE STANDARDS

E. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.
G. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
K. UL 486C - Splicing Wire Connectors; Current Edition, Including All Revisions.

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. Conductor Material:
   1. Copper Conductors: Soft drawn annealed, 98 percent conductivity, uncoated copper conductors complying with ASTM B3, ASTM B8, or ASTM B787/B787M unless otherwise indicated.
   2. Tinned Copper Conductors: Comply with ASTM B33.
H. Minimum Conductor Size:
   1. Branch Circuits: 12 AWG.

I. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

J. 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.
   3. Color Code:
      a. 208Y/120 V, 3 Phase, 4 Wire System:
         1) Phase A: Black.
         2) Phase B: Red.
         3) Phase C: Blue.
         4) Neutral/Grounded: White.

2.03 SINGLE CONDUCTOR BUILDING WIRE
   A. Description: Single conductor insulated wire.
   B. Conductor Strandig:
      1. Feeders and Branch Circuits:
         b. Size 8 AWG and Larger: Stranded.
   C. Insulation Voltage Rating: 600 V.
   D. Insulation:
      1. Copper Building Wire: Type THHN/THWN or THHN/THWN-2, except as indicated below.

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.

PART 3 EXECUTION
3.01 EXAMINATION
   A. Verify that interior of building has been protected from weather.
   B. Verify that work likely to damage wire and cable has been completed.
   C. Verify that raceways, boxes, and equipment enclosures are installed and are properly sized to accommodate conductors and cables in accordance with NFPA 70.
   D. Verify that field measurements are as indicated.
   E. 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. Common Neutrals: Unless otherwise indicated, sharing of neutral/grounded conductors among up to three single phase branch circuits of different phases installed in the same
raceway is not permitted. Provide dedicated neutral/grounded conductor for each individual branch circuit.

B. Install products in accordance with manufacturer's instructions.

C. Perform work in accordance with NECA 1 (general workmanship).

D. 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.

E. Paralleled Conductors: Install conductors of the same length and terminate in the same manner.

F. 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.

G. Install conductors with a minimum of 12 inches (300 mm) of slack at each outlet.

H. Neatly train and bundle conductors inside boxes, wireways, panelboards and other equipment enclosures.

I. Group or otherwise identify neutral/grounded conductors with associated ungrounded conductors inside enclosures in accordance with NFPA 70.

J. 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 suitable remove corrosion, oxides, and other contaminates. Do not use wire brush on plated connector surfaces.

K. 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.

L. Insulate ends of spare conductors using vinyl insulating electrical tape.

M. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 8400.

N. 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.

END OF SECTION 26 0519
SECTION 26 0526
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 26 0519 - Low-Voltage Electrical Power Conductors and Cables: Additional requirements for conductors for grounding and bonding, including conductor color coding.

1.03 REFERENCE STANDARDS
A. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.
B. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
C. UL 467 - Grounding and Bonding Equipment; Current Edition, Including All Revisions.

PART 2 PRODUCTS
2.01 GROUNDING AND BONDING REQUIREMENTS
A. Do not use products for applications other than as permitted by NFPA 70 and product listing.
B. 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.
C. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

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 26 0526:
   1. Use insulated copper conductors unless otherwise indicated.
      a. Exceptions:
         1) Use bare copper conductors where installed underground in direct contact with earth.
         2) Use bare copper conductors where directly encased in concrete (not in raceway).
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. 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.

END OF SECTION 26 0526
SECTION 26 0529
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 26 0533.13 - Conduit for Electrical Systems: Additional support and attachment requirements for conduits.
B. Section 26 0533.16 - Boxes for Electrical Systems: Additional support and attachment requirements for boxes.
C. Section 26 5100 - Interior Lighting: Additional support and attachment requirements for interior luminaires.

1.03 REFERENCE STANDARDS

D. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.
E. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

PART 2 PRODUCTS

2.01 SUPPORT AND ATTACHMENT COMPONENTS

A. General Requirements:
   1. Provide all required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for the complete installation of electrical work.
   2. Provide products listed, classified, and labeled as suitable for the purpose intended, where applicable.
   3. Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer's application criteria as required for the load to be supported. Include consideration for vibration, equipment operation, and shock loads 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 the environment where installed.
      a. Zinc-Plated Steel: Electroplated in accordance with ASTM B633.
      b. Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.

B. Conduit and Cable Supports: Straps, clamps, etc. suitable for the 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. Outlet Box Supports: Hangers, brackets, etc. suitable for the boxes to be supported.

D. Hanger Rods: Threaded zinc-plated steel unless otherwise indicated.

E. Anchors and Fasteners:
1. Unless otherwise indicated and where not otherwise restricted, use the anchor and fastener types indicated for the 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. Perform work in accordance with NECA 1 (general workmanship).
C. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
D. Do not penetrate or otherwise notch or cut structural members without approval of engineer.
E. Secure fasteners according to manufacturer's recommended torque settings.
F. Remove temporary supports.

END OF SECTION 26 0529
SECTION 26 0533.13
CONDUIT FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Intermediate metal conduit (IMC).
B. Flexible metal conduit (FMC).
C. Liquidtight flexible metal conduit (LFMC).
D. Electrical metallic tubing (EMT).
E. Rigid polyvinyl chloride (PVC) conduit.
F. Electrical nonmetallic tubing (ENT).
G. Liquidtight flexible nonmetallic conduit (LFNC).
H. Conduit fittings.
I. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 26 0526 - Grounding and Bonding for Electrical Systems.
B. Section 26 0529 - Hangers and Supports for Electrical Systems.

1.03 REFERENCE STANDARDS

A. ANSI C80.3 - American National Standard for Electrical Metallic Tubing -- Steel (EMT-S); 2015.
B. ANSI C80.6 - American National Standard for Electrical Intermediate Metal Conduit (EIMC); 2005.
C. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.
D. NECA 101 - Standard for Installing Steel Conduits (Rigid, IMC, EMT); 2013.
E. NECA 111 - Standard for Installing Nonmetallic Raceways (RNC, ENT, LFNC); 2003.
F. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable; 2014.
G. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
H. UL 1 - Flexible Metal Conduit; Current Edition, Including All Revisions.
I. UL 360 - Liquid-Tight Flexible Steel Conduit; Current Edition, Including All Revisions.
J. UL 514B - Conduit, Tubing, and Cable Fittings; Current Edition, Including All Revisions.
K. UL 797 - Electrical Metallic Tubing-Steel; Current Edition, Including All Revisions.
L. UL 1242 - Electrical Intermediate Metal Conduit-Steel; Current Edition, Including All Revisions.

PART 2 PRODUCTS

2.01 CONDUIT APPLICATIONS

A. Do not use conduit and associated fittings for applications other than as permitted by NFPA 70 and product listing.
B. Unless otherwise indicated and where not otherwise restricted, use the conduit types indicated for the specified applications. Where more than one listed application applies, comply with the most restrictive requirements. Where conduit type for a particular application is not specified, use galvanized steel rigid metal conduit.
C. Interior, Damp or Wet Locations: Use PVC.
D. Exposed, Interior, Not Subject to Physical Damage: Use electrical metallic tubing (EMT).
E. Exposed, Interior, Subject to Physical Damage: Use galvanized steel rigid metal conduit or intermediate metal conduit (IMC).

2.02 CONDUIT 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 a mandrel through them.
B. Provide all conduit, fittings, supports, and accessories required for a complete raceway system.
C. Provide products listed, classified, and labeled as suitable for the purpose intended.
D. Minimum Conduit Size, Unless Otherwise Indicated:
   1. Branch Circuit Homeruns: 3/4 inch (21 mm) trade size.
   2. Control Circuits: 1/2 inch (16 mm) 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 INTERMEDIATE METAL CONDUIT (IMC)
A. Description: NFPA 70, Type IMC galvanized steel intermediate metal conduit complying with ANSI C80.6 and listed and labeled as complying with UL 1242.
B. Fittings:
   1. Non-Hazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
   2. Material: Use steel or malleable iron.
   3. Connectors and Couplings: Use threaded type fittings only. Threadless set screw and compression (gland) type fittings are not permitted.

2.04 FLEXIBLE METAL CONDUIT (FMC)
A. Description: NFPA 70, Type FMC standard wall steel flexible metal conduit listed and labeled as complying with UL 1, and listed for use in classified firestop systems to be used.
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.

2.05 LIQUITIGHT 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.

2.06 ELECTRICAL METALLIC TUBING (EMT)
A. Description: NFPA 70, Type EMT steel electrical metallic tubing complying with ANSI C80.3 and listed and labeled as complying with UL 797.
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.
   3. Connectors and Couplings: Use compression (gland) or set-screw type.
      a. Do not use indenter type connectors and couplings.

2.07 LIQUITIGHT FLEXIBLE NONMETALLIC CONDUIT (LFNC)
A. Description: NFPA 70, Type LFNC liquidtight flexible nonmetallic conduit listed and labeled as complying with UL 1660.
B. Fittings:
   1. Manufacturer: Same as manufacturer of conduit to be connected.
   2. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B; suitable for the type of conduit to be connected.

2.08 ACCESSORIES
   A. Conduit Joint Compound: Corrosion-resistant, electrically conductive; suitable for use with the conduit to be installed.
   B. Solvent Cement for PVC Conduit and Fittings: As recommended by manufacturer of conduit and fittings to be installed.
   C. Pull Strings: Use nylon cord with average breaking strength of not less than 200 pound-force (890 N).

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.

3.02 INSTALLATION
   A. Install products in accordance with manufacturer's instructions.
   B. Perform work in accordance with NECA 1 (general workmanship).
   C. Install intermediate metal conduit (IMC) in accordance with NECA 101.
   D. Install liquidtight flexible nonmetallic conduit (LFNC) in accordance with NECA 111.
   E. Conduit Support:
      1. Secure and support conduits in accordance with NFPA 70 and Section 26 0529 using suitable supports and methods approved by the authority having jurisdiction.
      2. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
   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 or insulated throats at all conduit terminations to protect conductors.
      7. Secure joints and connections to provide maximum mechanical strength and electrical continuity.
   G. Penetrations:
      1. Do not penetrate or otherwise notch or cut structural members, including footings and grade beams, without approval of Structural Engineer.
      2. Make penetrations perpendicular to surfaces unless otherwise indicated.
      3. Provide sleeves for penetrations as indicated or as required to facilitate installation. Set sleeves flush with exposed surfaces unless otherwise indicated or required.
      4. Conceal bends for conduit risers emerging above ground.
      5. Seal interior of conduits entering the building from underground at first accessible point to prevent entry of moisture and gases.
6. Where conduits penetrate waterproof membrane, seal as required to maintain integrity of membrane.
7. Make penetrations for roof-mounted equipment within associated equipment openings and curbs where possible to minimize roofing system penetrations. Where penetrations are necessary, seal as indicated or as required to preserve integrity of roofing system and maintain roof warranty. Include proposed locations of penetrations and methods for sealing with submittals.
8. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 8400.

H. Conduit Movement Provisions: Where conduits are subject to movement, provide expansion and expansion/deflection fittings to prevent damage to enclosed conductors or connected equipment. This includes, but is not limited to:
   1. Where conduits cross structural joints intended for expansion, contraction, or deflection.
   2. Where conduits are subject to earth movement by settlement or frost.

I. Condensation Prevention: Where conduits cross barriers between areas of potential substantial temperature differential, provide sealing fitting or approved sealing compound at an accessible point near the penetration to prevent condensation. This includes, but is not limited to:
   1. Where conduits pass from outdoors into conditioned interior spaces.
   2. Where conduits pass from unconditioned interior spaces into conditioned interior spaces.

J. Provide grounding and bonding in accordance with Section 26 0526.

3.03 CLEANING

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

END OF SECTION 26 0533.13
SECTION 26 0533.16
BOXES FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Outlet and device boxes up to 100 cubic inches (1,650 cu cm), including those used as junction
   and pull boxes.
B. Cabinets and enclosures, including junction and pull boxes larger than 100 cubic inches (1,650
   cu cm).

1.02 RELATED REQUIREMENTS
A. Section 26 0526 - Grounding and Bonding for Electrical Systems.
B. Section 26 0529 - Hangers and Supports for Electrical Systems.
C. Section 26 0533.13 - 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; 2010.
C. NEMA OS 1 - Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports; 2013.
D. NEMA OS 2 - Nonmetallic Outlet Boxes, Device Boxes, Covers and Box Supports; 2013.
E. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2018.
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
H. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations; Current Edition,
   Including All Revisions.
I. UL 508A - Industrial Control Panels; 2013.
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.

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 (1,650 cu cm), Including Those Used as
   Junction and Pull Boxes:
   1. Use sheet-steel boxes for dry locations unless otherwise indicated or required.
2. Use PVC for damp or wet locations unless otherwise indicated or required; furnish with compatible weatherproof gasketed covers.
3. Use raised covers suitable for the type of wall construction and device configuration where required.
4. Use shallow boxes where required by the type of wall construction.
5. Sheet-Steel Boxes: Comply with NEMA OS 1, and list and label as complying with UL 514A.
6. Nonmetallic Boxes: Comply with NEMA OS 2, and list and label as complying with UL 514C.
8. Wall Plates: Comply with Section 26 2726.

C. Cabinets and Enclosures, Including Junction and Pull Boxes Larger Than 100 cubic inches (1,650 cu cm):
   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. Indoor Clean, Dry Locations: Type 1, painted steel.
      b. Outdoor Locations: Type 3R, painted steel.
   3. Junction and Pull Boxes Larger Than 100 cubic inches (1,650 cu cm):
      a. Provide screw-cover or hinged-cover enclosures unless otherwise indicated.
   4. Finish for Painted Steel Enclosures: Manufacturer's standard grey unless otherwise indicated.

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. Box Supports:
      1. Secure and support boxes in accordance with NFPA 70 and Section 26 0529 using suitable supports and methods approved by the authority having jurisdiction.
      2. Provide independent support from building structure except for cast metal boxes (other than boxes used for fixture support) supported by threaded conduit connections in accordance with NFPA 70. Do not provide support from piping, ductwork, or other systems.
   E. Install boxes plumb and level.
   F. Flush-Mounted Boxes:
      1. Install boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that front edge of box or associated raised cover is not set back from finished surface more than 1/4 inch (6 mm) or does not project beyond finished surface.
      2. Install boxes in combustible materials such as wood so that front edge of box or associated raised cover is flush with finished surface.
3. Repair rough openings around boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that there are no gaps or open spaces greater than 1/8 inch (3 mm) at the edge of the box.

G. Install boxes as required to preserve insulation integrity.

H. Install permanent barrier between ganged wiring devices when voltage between adjacent devices exceeds 300 V.

I. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 8400.

J. Close unused box openings.

K. Install blank wall plates on junction boxes and on outlet boxes with no devices or equipment installed or designated for future use.

L. Provide grounding and bonding in accordance with Section 26 0526.

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 26 0533.16
SECTION 26 0583
WIRING CONNECTIONS

PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Electrical connections to equipment.

1.02 RELATED REQUIREMENTS
   A. Section 26 0519 - Low-Voltage Electrical Power Conductors and Cables.
   B. Section 26 0533.13 - Conduit for Electrical Systems.
   C. Section 26 0533.16 - Boxes for Electrical Systems.

PART 2 PRODUCTS

2.01 MATERIALS
   A. Flexible Conduit: As specified in Section 26 0533.13.
   B. Wire and Cable: As specified in Section 26 0519.
   C. Boxes: As specified in Section 26 0533.16.

PART 3 EXECUTION

3.01 EXAMINATION
   A. Verify that equipment is ready for electrical connection, wiring, and energization.

3.02 ELECTRICAL CONNECTIONS
   A. Make electrical connections in accordance with equipment manufacturer's instructions.
   B. Make conduit connections to equipment using flexible conduit. Use liquidtight flexible conduit with watertight connectors in damp or wet locations.
   C. Connect heat producing equipment using wire and cable with insulation suitable for temperatures encountered.
   D. Provide receptacle outlet to accommodate connection with attachment plug.
   E. Provide cord and cap where field-supplied attachment plug is required.
   F. Install suitable strain-relief clamps and fittings for cord connections at outlet boxes and equipment connection boxes.
   G. Install disconnect switches, controllers, control stations, and control devices to complete equipment wiring requirements.
   H. Install terminal block jumpers to complete equipment wiring requirements.
   I. Install interconnecting conduit and wiring between devices and equipment to complete equipment wiring requirements.

END OF SECTION 26 0583
SECTION 26 5100
INTERIOR LIGHTING

PART 1 GENERAL
1.01 SECTION INCLUDES
   A. Interior luminaires.
   B. Emergency lighting units.

1.02 RELATED REQUIREMENTS
   A. Section 26 0529 - Hangers and Supports for Electrical Systems.
   B. Section 26 0533.16 - Boxes for Electrical Systems.

1.03 REFERENCE STANDARDS
   E. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
   H. UL 1598 - Luminaires; Current Edition, Including All Revisions.

1.04 SUBMITTALS
   A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
   B. Shop Drawings:
      1. Indicate dimensions and components for each luminaire that is not a standard product of the manufacturer.
   C. Product Data: Provide manufacturer’s standard catalog pages and data sheets including detailed information on luminaire construction, dimensions, ratings, finishes, mounting requirements, listings, service conditions, photometric performance, installed accessories, and ceiling compatibility; include model number nomenclature clearly marked with all proposed features.
      1. LED Luminaires:
         a. Include estimated useful life, calculated based on IES LM-80 test data.

1.05 WARRANTY
   A. Provide three year manufacturer warranty for LED luminaires, including drivers.

PART 2 PRODUCTS
2.01 LUMINAIRE TYPES
   A. Furnish products as indicated in luminaire schedule included on the drawings.

2.02 LUMINAIRES
   A. Manufacturers:
      2. Cooper Lighting, a division of Cooper Industries: www.cooperindustries.com
3. Hubbell Lighting, Inc: www.hubbelllighting.com
4. Lutron Electronics Company, Inc; www.lutron.com
5. Philips Lighting North America Corporation; www.lightingproducts.philips.com

B. Provide products that comply with requirements of NFPA 70.
C. Provide products that are listed and labeled as complying with UL 1598, where applicable.
D. Provide products listed, classified, and labeled as suitable for the purpose intended.
E. Unless otherwise indicated, provide complete luminaires including lamp(s) and all sockets, ballasts, reflectors, lenses, housings and other components required to position, energize and protect the lamp and distribute the light.
F. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, hardware, supports, trims, accessories, etc. as necessary for a complete operating system.
G. Provide products suitable to withstand normal handling, installation, and service without any damage, distortion, corrosion, fading, discoloring, etc.

H. LED Luminaires:
   1. Components: UL 8750 recognized or listed as applicable.
   2. Tested in accordance with IES LM-79 and IES LM-80.
   3. LED Estimated Useful Life: Minimum of 50,000 hours at 70 percent lumen maintenance, calculated based on IES LM-80 test data.

2.03 EMERGENCY LIGHTING UNITS

A. Manufacturers:
   2. Cooper Lighting, a division of Cooper Industries; www.cooperindustries.com/#sle.

B. Description: Emergency lighting units complying with NFPA 101 and all applicable state and local codes, and listed and labeled as complying with UL 924.

C. Operation: Upon interruption of normal power source or brownout condition exceeding 20 percent voltage drop from nominal, solid-state control automatically switches connected lamps to integral battery power for minimum of 90 minutes of rated emergency illumination, and automatically recharges battery upon restoration of normal power source.

D. Battery:
   1. Size battery to supply all connected lamps, including emergency remote heads where indicated.

E. Diagnostics: Provide power status indicator light and accessible integral test switch to manually activate emergency operation.

F. Provide low-voltage disconnect to prevent battery damage from deep discharge.

G. Accessories:
   1. Provide compatible accessory mounting brackets where indicated or required to complete installation.
   2. Provide compatible accessory high impact polycarbonate vandal shields where indicated.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.
B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate conductors in accordance with NFPA 70.
C. Verify that suitable support frames are installed where required.
D. Verify that branch circuit wiring installation is completed, tested, and ready for connection to luminaires.
E. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION
A. Coordinate locations of outlet boxes provided under Section 26 0533.16 as required for installation of luminaires provided under this section.
B. Install products in accordance with manufacturer's instructions.
C. Install luminaires securely, in a neat and workmanlike manner, as specified in NECA 500 (commercial lighting) and NECA 502 (industrial lighting).
D. Provide required support and attachment in accordance with Section 26 0529.
E. Install luminaires plumb and square and aligned with building lines and with adjacent luminaires.
F. Suspended Luminaires:
   1. Install using the suspension method indicated, with support lengths and accessories as required for specified mounting height.
G. Install accessories furnished with each luminaire.
H. Bond products and metal accessories to branch circuit equipment grounding conductor.
I. Emergency Lighting Units:
J. Install lamps in each luminaire.

3.03 CLEANING
A. Clean surfaces according to NECA 500 (commercial lighting), NECA 502 (industrial lighting), and manufacturer's instructions to remove dirt, fingerprints, paint, or other foreign material and restore finishes to match original factory finish.

3.04 PROTECTION
A. Protect installed luminaires from subsequent construction operations.

END OF SECTION 26 5100