Structural Repairs
Capitol Complex
Parking Garage/Capitol Circular-Senate
Jefferson City, Missouri

DESIGNED BY: Structural Engineering Associates, Inc.
1000 Walnut, Suite 1570
Kansas City, Missouri 64106

DATE ISSUED: 5/15/2020

PROJECT NO.: O1817-01

FOR: State of Missouri
Office of Administration
Division of Facilities Management,
Design and Construction
SECTION 000107 – PROFESSIONAL SEALS AND CERTIFICATIONS

PROJECT NUMBER: O1817-01

Structural Repairs
Capitol Complex
Parking Garage/Capitol Circular-Senate
Jefferson City, Missouri

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:

Structural Engineer:

P. D. Steed, P.E.

Structural Engineering Associates
Missouri Certificate of Authority: EGC000396
Missouri Professional Engineer Number: PE-2016001300
<table>
<thead>
<tr>
<th>SECTION</th>
<th>TITLE</th>
<th>NUMBER OF PAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DIVISION 00 – PROCUREMENT AND CONTRACTING INFORMATION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>000000</strong></td>
<td>INTRODUCTORY INFORMATION</td>
<td></td>
</tr>
<tr>
<td>000101</td>
<td>Project Manual Cover</td>
<td>1</td>
</tr>
<tr>
<td>000107</td>
<td>Professional Seals and Certifications</td>
<td>1</td>
</tr>
<tr>
<td>000110</td>
<td>Table of Contents</td>
<td>2</td>
</tr>
<tr>
<td>000115</td>
<td>List of Drawings</td>
<td>1</td>
</tr>
<tr>
<td><strong>001116</strong></td>
<td>INVITATION FOR BID (IFB) plus Missouri Buys instructions and special notice</td>
<td>3</td>
</tr>
<tr>
<td><strong>002113</strong></td>
<td>INSTRUCTIONS TO BIDDERS (Includes MBE/WBE/SDVE Information)</td>
<td>8</td>
</tr>
<tr>
<td>003144</td>
<td>MBE/WBE/SDVE Directory</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>The following documents may be found on MissouriBUYS at <a href="https://missouribuys.mo.gov/">https://missouribuys.mo.gov/</a></strong></td>
<td></td>
</tr>
<tr>
<td><strong>004000</strong></td>
<td>PROCUREMENT FORMS &amp; SUPPLEMENTS</td>
<td></td>
</tr>
<tr>
<td>004113</td>
<td>Bid Form</td>
<td>*</td>
</tr>
<tr>
<td>004322</td>
<td>Unit Prices Form</td>
<td>*</td>
</tr>
<tr>
<td>004336</td>
<td>Proposed Subcontractors Form</td>
<td>*</td>
</tr>
<tr>
<td>004337</td>
<td>MBE/WBE/SDVE Compliance Evaluation Form</td>
<td>*</td>
</tr>
<tr>
<td>004338</td>
<td>MBE/WBE/SDVE Eligibility Determination Form for Joint Ventures</td>
<td>*</td>
</tr>
<tr>
<td>004339</td>
<td>MBE/WBE/SDVE Good Faith Effort (GFE) Determination Forms</td>
<td>*</td>
</tr>
<tr>
<td>004340</td>
<td>SDVE Business Form</td>
<td>*</td>
</tr>
<tr>
<td>004541</td>
<td>Affidavit of Work Authorization</td>
<td>*</td>
</tr>
<tr>
<td><strong>005000</strong></td>
<td>CONTRACTING FORMS AND SUPPLEMENTS</td>
<td></td>
</tr>
<tr>
<td>005213</td>
<td>Construction Contract</td>
<td>3</td>
</tr>
<tr>
<td>005414</td>
<td>Affidavit for Affirmative Action</td>
<td>1</td>
</tr>
<tr>
<td>006113</td>
<td>Performance and Payment Bond</td>
<td>2</td>
</tr>
<tr>
<td>006325</td>
<td>Product Substitution Request</td>
<td>2</td>
</tr>
<tr>
<td>006519.16</td>
<td>Final Receipt of Payment and Release Form</td>
<td>1</td>
</tr>
<tr>
<td>006519.18</td>
<td>MBE/WBE/SDVE Progress Report</td>
<td>1</td>
</tr>
<tr>
<td>006519.21</td>
<td>Affidavit of Compliance with Prevailing Wage Law</td>
<td>1</td>
</tr>
<tr>
<td><strong>007000</strong></td>
<td>CONDITIONS OF THE CONTRACT</td>
<td></td>
</tr>
<tr>
<td>007213</td>
<td>General Conditions</td>
<td>20</td>
</tr>
<tr>
<td>007300</td>
<td>Supplementary Conditions</td>
<td>1</td>
</tr>
<tr>
<td>007346</td>
<td>Wage Rate</td>
<td>4</td>
</tr>
<tr>
<td><strong>DIVISION 1 - GENERAL REQUIREMENTS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>011000</td>
<td>Summary of Work</td>
<td>3</td>
</tr>
<tr>
<td>012100</td>
<td>Allowances</td>
<td>2</td>
</tr>
<tr>
<td>012200</td>
<td>Unit Prices</td>
<td>3</td>
</tr>
<tr>
<td>012600</td>
<td>Contract Modification Procedures</td>
<td>3</td>
</tr>
<tr>
<td>013100</td>
<td>Coordination</td>
<td>4</td>
</tr>
<tr>
<td>013200</td>
<td>Schedules</td>
<td>4</td>
</tr>
<tr>
<td>013300</td>
<td>Submittals</td>
<td>5</td>
</tr>
<tr>
<td>013513.10</td>
<td>Site Security and Health Requirements (OA)</td>
<td>4</td>
</tr>
<tr>
<td>015000</td>
<td>Construction Facilities and Temporary Controls</td>
<td>6</td>
</tr>
<tr>
<td>017400</td>
<td>Cleaning</td>
<td>3</td>
</tr>
<tr>
<td><strong>TECHNICAL SPECIFICATIONS INDEX:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DIVISION 2 – EXISTING CONDITIONS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>024119</td>
<td>Selective Demolition</td>
<td>5</td>
</tr>
</tbody>
</table>
TECHNICAL SPECIFICATIONS INDEX CONTINUED:

<table>
<thead>
<tr>
<th>DIVISION</th>
<th>SECTION</th>
<th>DESCRIPTION</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>030130</td>
<td>Structural Concrete Repairs</td>
<td>13</td>
</tr>
<tr>
<td>3</td>
<td>033713</td>
<td>Shotcrete</td>
<td>10</td>
</tr>
<tr>
<td>7</td>
<td>071800</td>
<td>Traffic Coating Systems</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>079200</td>
<td>Joint Sealants</td>
<td>8</td>
</tr>
</tbody>
</table>
### 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:

<table>
<thead>
<tr>
<th>TITLE</th>
<th>SHEET #</th>
<th>DATE</th>
<th>CAD #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cover Sheet</td>
<td>Sheet S-001</td>
<td>05/15/20</td>
<td>S-COV-01</td>
</tr>
<tr>
<td>General Notes and Repair Schedule</td>
<td>Sheet S-100</td>
<td>05/15/20</td>
<td>S-GEN-01</td>
</tr>
<tr>
<td>1st Floor Repair Plan</td>
<td>Sheet S-101</td>
<td>05/15/20</td>
<td>S-PLN-01</td>
</tr>
<tr>
<td>2nd Floor Repair Plan</td>
<td>Sheet S-102</td>
<td>05/15/20</td>
<td>S-PLN-02</td>
</tr>
<tr>
<td>3rd Floor Repair Plan</td>
<td>Sheet S-103</td>
<td>05/15/20</td>
<td>S-PLN-03</td>
</tr>
<tr>
<td>4th Floor Repair Plan</td>
<td>Sheet S-104</td>
<td>05/15/20</td>
<td>S-PLN-04</td>
</tr>
<tr>
<td>5th Floor Repair Plan</td>
<td>Sheet S-105</td>
<td>05/15/20</td>
<td>S-PLN-05</td>
</tr>
<tr>
<td>1st, 2nd, &amp; 3rd Floor Striping &amp; Closure Plan</td>
<td>Sheet S-110</td>
<td>05/15/20</td>
<td>S-PLN-10</td>
</tr>
<tr>
<td>4th &amp; 5th Floor Striping &amp; Closure Plan</td>
<td>Sheet S111</td>
<td>05/15/20</td>
<td>S-PLN-11</td>
</tr>
<tr>
<td>Repair Details</td>
<td>Sheet S-201</td>
<td>05/15/20</td>
<td>S-DTL-01</td>
</tr>
<tr>
<td>Repair Details</td>
<td>Sheet S-202</td>
<td>05/15/20</td>
<td>S-DTL-02</td>
</tr>
<tr>
<td>Garage Entrance Repair Details</td>
<td>Sheet S-203</td>
<td>05/15/20</td>
<td>S-DTL-03</td>
</tr>
</tbody>
</table>

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. Structural Repairs
Senate Parking Garage
Capitol Complex
Jefferson City, Missouri
Project No.: O1817-01

3.0 BIDS WILL BE RECEIVED:

A. Until: 1:30 PM, Thursday, June 11, 2020

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 but is not limited to, full depth concrete repairs, partial depth vertical column/wall concrete repairs, partial depth overhead concrete girder/beam/rib repairs, epoxy crack injection repairs, vehicular traffic membrane patching repairs, repairs over the pedestrian tunnel to the capitol building, hydrophobic injections in the pedestrian tunnel, and painting/restriping of parking stalls.

B. Estimate: $350,000 to $480,000

C. MBE/WBE/SDVE Goals: MBE 10.00%, WBE 10.00%, & SDVE 3.00%. NOTE: Only MBE/WBE firms certified by a State of Missouri public entity 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: 10:00 AM; Friday, May 29, 2020; Parking lot adjacent to the Missouri State Senate Garage Lower Level Entrance, accessible from the Jefferson Landing State Historical Site, 100 Jefferson St, JCMO. ALL MEETING ATTENDEES SHALL PROVIDE AND WEAR HIS/HER OWN MASK. A walk-through of the Senate Garage will be conducted immediately following the Pre-Bid meeting and will follow the CDC guidelines for COVID-19 which includes groups less than 10 practicing social distancing of at least 6 feet. Additionally, in support of the CDC guidelines for COVID-19, this Pre-Bid meeting will also be available for participation via WebEx videoconferencing. To join the WebEx Meeting via computer, select the “Join Webex Meeting” hyperlink below. The Meeting Center “Quick Start” page will launch and will require you to enter your name and email address. To avoid audio issues during the call, when prompted to Connect Audio, select the “Call Me” option from the pull down menu and provide your phone number. WebEx will call the provided phone number to connect you to the audio portion of the meeting. Please remember to mute your audio to avoid interrupting the meeting. To join by phone only Dial 1-650-479-3207; enter access code 280 157 888.

OR click on: https://stateofmo.webex.com/stateofmo/j.php?MTID=m6e156f494f356d9ee9bd72dcd92ebb39

To join from a video system or application: Enter 280157888@stateofmo.webex.com or 173.243.2.68. Then enter meeting number (access code) 280 157 888.

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 $30 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:
B. Project Manager: Terry Bruns, phone # 573-526-5184, fax # 573-751-7277

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](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](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 Kelly Copeland: 573-522-2283, kelly.copeland@oa.mo.gov, or Paul Girouard: 573-751-4797, paul.girouard@oa.mo.gov.

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 INFORMATION REGARDING REQUIREMENT FOR OEO CERTIFICATION

SPECIFICATION CHANGES:

A. SECTION 002113 – INSTRUCTIONS TO BIDDERS: Article 14.0, Section B.1. (bottom of page 6 of 8): Delete: “an MBE or WBE must be certified by the State of Missouri, Office of Equal Opportunity and”.

To allow MBE, WBE, or MBE/WBE contractors, subcontractors, and suppliers to have ample time to register with the Office of Equal Opportunity, this requirement will not take effect until July 1, 2020. Until then, we will continue to accept certifications from the Office of Equal Opportunity and other Missouri certifying agencies.
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

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

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 the boundaries of 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 - 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.

A. 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.

B. 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-veteran-business-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).

C. 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.

D. 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
State of Missouri
Construction Contract

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, on behalf of the Office of Administration.

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:

<table>
<thead>
<tr>
<th>Project Name:</th>
<th>Structural Repairs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senate Parking Garage</td>
<td></td>
</tr>
<tr>
<td>Capitol Complex</td>
<td></td>
</tr>
<tr>
<td>Jefferson City, Missouri</td>
<td></td>
</tr>
</tbody>
</table>

Project Number: O1817-01

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 contract completion date is November 20, 2020. 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 $700 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: SEE ATTACHMENT A (two pages)
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:

MBE/WBE/SDVE Firm: Subcontract Amt:$
MBE/WBE/SDVE Firm: Subcontract Amt:$
MBE/WBE/SDVE Firm: Subcontract Amt:$

Total $ 

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 I
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  Contractor’s Authorized Signature
Division of Facilities Management,  
Design and Construction

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

AFFIDAVIT FOR AFFIRMATIVE ACTION

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

STATE OF MO
COUNTY (OR CITY OF ST. LOUIS)

SUBSCRIBED AND SWORN BEFORE ME, THIS DAY OF                        YEAR

NOTARY PUBLIC SIGNATURE

MY COMMISSION EXPIRES

NOTARY PUBLIC NAME (TYPED OR PRINTED)
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

_________________________________________________________________________________________________

_________________________________________________________________________________________________

_________________________________________________________________________________________________

(Insert Project Title and Number)

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

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:

<table>
<thead>
<tr>
<th>SPECIFIED PRODUCT OR SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECIFICATION SECTION NO.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>SPECIFIED PRODUCT</th>
<th>SUBSTITUTION REQUEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME, BRAND</td>
<td></td>
</tr>
<tr>
<td>CATALOG NO.</td>
<td></td>
</tr>
<tr>
<td>MANUFACTURER</td>
<td></td>
</tr>
<tr>
<td>VENDOR</td>
<td></td>
</tr>
</tbody>
</table>

PREVIOUS INSTALLATIONS

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>ARCHITECT/ENGINEER</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCATION</td>
<td>DATE INSTALLED</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SIGNIFICANT VARIATIONS FROM SPECIFIED PRODUCT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
**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.

**ARCHITECT/ENGINEER**

DATE
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/Closeout Documents
## MBE/WBE/SDVE Progress Report

**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

- [ ] FINAL

**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 $  

<table>
<thead>
<tr>
<th>CHECK</th>
<th>MBE</th>
<th>WBE</th>
<th>SDVE</th>
<th>ITEM OF WORK</th>
<th>TOTAL AMOUNT OF SUBCONTRACT</th>
<th>$ AMOUNT &amp; % COMPLETE (PAID-TO-DATE)</th>
<th>CONSULTANT/SUBCONSULTANT OR CONTRACTOR/SUBCONTRACTOR/SUPPLIER NAME, ADDRESS, CONTACT, AND PHONE NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WBE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SDVE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MBE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WBE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SDVE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MBE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WBE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SDVE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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 ________________________________

(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)

Located at ________________________________ in ________________________________ County

(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
# GENERAL CONDITIONS

## INDEX

<table>
<thead>
<tr>
<th>ARTICLE:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1. Definitions</td>
<td>6.1. Bond</td>
</tr>
<tr>
<td>1.2. Drawings and Specifications</td>
<td>6.2. Insurance</td>
</tr>
<tr>
<td>1.3. Compliance with Laws, Permits, Regulations and Inspections</td>
<td>7. Termination or Suspension of Contract</td>
</tr>
<tr>
<td>1.4. Nondiscrimination in Employment</td>
<td>7.1. For Site Conditions</td>
</tr>
<tr>
<td>1.5. Anti-Kickback</td>
<td>7.2. For Cause</td>
</tr>
<tr>
<td>1.6. Patents and Royalties</td>
<td>7.3. For Convenience</td>
</tr>
<tr>
<td>1.7. Preference for American and Missouri Products and Services</td>
<td></td>
</tr>
<tr>
<td>1.8. Communications</td>
<td></td>
</tr>
<tr>
<td>1.9. Separate Contracts and Cooperation</td>
<td></td>
</tr>
<tr>
<td>1.10. Assignment of Contract</td>
<td></td>
</tr>
<tr>
<td>1.11. Indemnification</td>
<td></td>
</tr>
<tr>
<td>1.12. Disputes and Disagreements</td>
<td></td>
</tr>
<tr>
<td>2. Owner/Designer Responsibilities</td>
<td></td>
</tr>
<tr>
<td>3. Contractor Responsibilities</td>
<td></td>
</tr>
<tr>
<td>3.1. Acceptable Substitutions</td>
<td></td>
</tr>
<tr>
<td>3.2. Submittals</td>
<td></td>
</tr>
<tr>
<td>3.3. As-Built Drawings</td>
<td></td>
</tr>
<tr>
<td>3.4. Guaranty and Warranties</td>
<td></td>
</tr>
<tr>
<td>3.5. Operation and Maintenance Manuals</td>
<td></td>
</tr>
<tr>
<td>3.6. Other Contractor Responsibilities</td>
<td></td>
</tr>
<tr>
<td>3.7. Subcontracts</td>
<td></td>
</tr>
<tr>
<td>4. Changes in the Work</td>
<td></td>
</tr>
<tr>
<td>4.1. Changes in the Work</td>
<td></td>
</tr>
<tr>
<td>4.2. Changes in Completion Time</td>
<td></td>
</tr>
<tr>
<td>5. Construction and Completion</td>
<td></td>
</tr>
<tr>
<td>5.1. Construction Commencement</td>
<td></td>
</tr>
<tr>
<td>5.2. Project Construction</td>
<td></td>
</tr>
<tr>
<td>5.3. Project Completion</td>
<td></td>
</tr>
<tr>
<td>5.4. Payments</td>
<td></td>
</tr>
</tbody>
</table>
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

A. 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 subcontracts.

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
fide 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
A. 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

A. 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

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 to a 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 period is offered at no additional cost or called for in the specific equipment specifications, the longer period shall govern.

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 and 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
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 or release the contract balance to the Contractor less 150% of the approved estimate to complete the outstanding items. Upon completion of the outstanding items, when a final estimate has been established, any monies remaining shall be paid to the Contractor. Failure to complete items of work does not relieve the Contractor from the obligation to complete the administrative requirements of the contract, such as the provisions of Article 5.3 FAILURE TO COMPLETE ALL ITEMS OF WORK UNDER THE CONTRACT SHALL BE CONSIDERED A DEFAULT AND BE GROUNDS FOR CONTRACT TERMINATION AND DEBARMENT.

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 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 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 contract 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)
   - 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 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.

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

A. 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 Owner may 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 acquire 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:  Phillip Steed  
   Structural Engineering Associates, Inc.  
   1000 Walnut, Ste. 1570  
   Kansas City, MO  64106-2144  
   Telephone:  816-421-1042; Fax:  816-421-1061  
   Email:  psteed@seassociates.com

   Construction Representative:  Bob Rehagen  
   Division of Facilities Management, Design and Construction  
   201 West Capitol Ave., Room B2, Jefferson City, MO 65101  
   Telephone:  573-522-0002; Fax:  573-522-1763  
   Email:  Robert.Rehagen@oa.mo.gov

   Project Manager:  Terry Bruns  
   Division of Facilities Management, Design and Construction  
   301 West High Street, Room 730  
   Jefferson City, Missouri  65102  
   Telephone:  573-526-5184; Fax:  573-751-7277  
   Email:  Terry.Bruns@oa.mo.gov

   Contract Specialist:  Kelly Copeland  
   Division of Facilities Management, Design and Construction  
   301 West High Street, Room 730  
   Jefferson City, Missouri  65102  
   Telephone:  573-522-2283  
   Email:  Kelly.Copeland@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 5 complete sets of drawings and specifications at no charge.
   B. The Owner will furnish the Contractor with approximately 5 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 ILLEGAL IMMIGRATION REFORM AND IMMIGRANT RESPONSIBILITY ACT
   The Contractor understands and agrees that by signing a contract for this project, they certify the following:
   A. The Contractor shall only utilize personnel authorized to work in the United States in accordance with applicable federal and state laws. This includes but is not limited to the Illegal Immigration Reform and Immigrant Responsibility Act (IIRIRA) and INA Section 274A.
   B. If the Contractor is found to be in violation of this requirement or the applicable laws of the state, federal and local laws and regulations, and if the State of Missouri has reasonable cause to believe that the Contractor has knowingly employed individuals who are not eligible to work in the United States, the state shall have the right to cancel the contract immediately without penalty or recourse and suspend or debar the contractor from doing business with the state.
   C. The Contractor agrees to fully cooperate with any audit or investigation from federal, state or local law enforcement agencies.

6.0 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. 26
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 8, 2019

Last Date Objections May Be Filed: April 8, 2019

Prepared by Missouri Department of Labor and Industrial Relations
<table>
<thead>
<tr>
<th>OCCUPATIONAL TITLE</th>
<th>** Date of Increase</th>
<th>Basic Hourly Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asbestos Worker</td>
<td></td>
<td>$51.05</td>
</tr>
<tr>
<td>Boilermaker</td>
<td></td>
<td>$24.20*</td>
</tr>
<tr>
<td>Bricklayer</td>
<td></td>
<td>$49.43</td>
</tr>
<tr>
<td>Carpenter</td>
<td></td>
<td>$45.02</td>
</tr>
<tr>
<td>Lather</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linoleum Layer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Millwright</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pile Driver</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cement Mason</td>
<td></td>
<td>$42.77</td>
</tr>
<tr>
<td>Plasterer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communications Technician</td>
<td></td>
<td>$50.10</td>
</tr>
<tr>
<td>Electrician (Inside Wireman)</td>
<td></td>
<td>$50.26</td>
</tr>
<tr>
<td>Electrician Outside Lineman</td>
<td></td>
<td>$24.20*</td>
</tr>
<tr>
<td>Lineman Operator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lineman - Tree Trimmer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Groundman</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Groundman - Tree Trimmer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elevator Constructor</td>
<td></td>
<td>$24.20*</td>
</tr>
<tr>
<td>Glazier</td>
<td></td>
<td>$60.75</td>
</tr>
<tr>
<td>Ironworker</td>
<td></td>
<td>$56.98</td>
</tr>
<tr>
<td>Laborer</td>
<td></td>
<td>$37.75</td>
</tr>
<tr>
<td>General Laborer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Semi-Skilled</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Second Semi-Skilled</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mason</td>
<td></td>
<td>$24.20*</td>
</tr>
<tr>
<td>Marble Mason</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marble Finisher</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terrazzo Worker</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terrazzo Finisher</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tile Setter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tile Finisher</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Engineer</td>
<td></td>
<td>$57.54</td>
</tr>
<tr>
<td>Group I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group III</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group III-A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group IV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Painter</td>
<td></td>
<td>$36.63</td>
</tr>
<tr>
<td>Plumber</td>
<td></td>
<td>$60.73</td>
</tr>
<tr>
<td>Pipe Fitter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roofer</td>
<td></td>
<td>$46.97</td>
</tr>
<tr>
<td>Sheet Metal Worker</td>
<td></td>
<td>$53.31</td>
</tr>
<tr>
<td>Sprinkler Fitter</td>
<td></td>
<td>$50.85</td>
</tr>
<tr>
<td>Truck Driver</td>
<td></td>
<td>$24.20*</td>
</tr>
<tr>
<td>Truck Control Service Driver</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group III</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group IV</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*The Division of Labor Standards received less than 1,000 reportable hours as required by RSMo 290.257.4(b). Public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center, in accordance with RSMo 290.257.2.

**Annual Incremental Increase**

ANNUAL WAGE ORDER NO. 26

3/29/19
<table>
<thead>
<tr>
<th>OCCUPATIONAL TITLE</th>
<th>** Date of Increase</th>
<th>Basic Hourly Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carpenter</td>
<td></td>
<td>$52.37</td>
</tr>
<tr>
<td>Millwright</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pile Driver</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrician (Outside Lineman)</td>
<td></td>
<td>$24.20*</td>
</tr>
<tr>
<td>Lineman Operator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lineman - Tree Trimmer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Groundman</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Groundman - Tree Trimmer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laborer</td>
<td></td>
<td>$43.08</td>
</tr>
<tr>
<td>General Laborer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skilled Laborer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Engineer</td>
<td></td>
<td>$55.67</td>
</tr>
<tr>
<td>Group I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group III</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group IV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Truck Driver</td>
<td></td>
<td>$42.54</td>
</tr>
<tr>
<td>Truck Control Service Driver</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group III</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group IV</td>
<td></td>
<td></td>
</tr>
</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 Standards received less than 1,000 reportable hours as required by RSMo 290.257.4(b). Public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center, in accordance with RSMo 290.257.2.
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.
SECTION 011000 – SUMMARY OF WORK

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 structural repairs to the Missouri State Senate Garage.
   1. Project Location: Missouri State Senate Garage at Senate Drive, 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 May 15, 2020 were prepared for the Project by Structural Engineering Associates, Inc. (1000 Walnut, Suite 1570, Kansas City, MO 64106).

C. The Work consists of but is not limited to structural repairs to the Missouri State Senate Garage.
   1. The Work includes full depth concrete repairs, partial depth vertical column/wall concrete repairs, partial depth overhead concrete girder/beam/rib repairs, epoxy crack injection repairs, vehicular traffic membrane patching repairs, repairs over the pedestrian tunnel to the capitol building, hydrophilic injections in the pedestrian tunnel, and painting/restriping of parking stalls.

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

1.3 DESIGNER’S ESTIMATE OF CONSTRUCTION COSTS

A. The project designer has prepared this cost estimate. It is intended to provide an indication of the relative amounts of work by division and section only. The State of Missouri makes no guarantee regarding the accuracy of the values contained herein nor does the State of Missouri intend to imply that the values associated with any specification section are accurate or in any way reflect actual costs required to perform the work represented by the specifications and drawings. The contractor should not rely on this estimate in any way while preparing a bid for this project or otherwise.

Estimate of Probable Costs: $350,000 to $480,000.

1.4 WORK UNDER OTHER CONTRACTS

A. Separate Contract: A separate contract for performance of certain construction operations at the site. Those operations are scheduled to be under construction during or substantially complete before work under this Contract begins. The separate contract includes the following:
   1. The Bicentennial Bridge to Adrian's Island project, adjacent to the Senate Garage, will be underway during the construction phase of the Senate Garage
Repairs project. It will not directly affect this project, but periodic coordination may be required with the Bicentennial Bridge project.

1.5 WORK SEQUENCE

A. The Work will be conducted in two phases.
   1. Phase One: Fourth and Fifth Level Repairs, Canopy Repairs, Repairs at Pedestrian Tunnel. Third Level will be closed to tenants, but no repair work shall be performed for the Third Level during Phase One. First and Second Level will be open for tenant occupancy during construction. Work of this phase shall be substantially complete, ready for occupancy prior to start of Phase Two.
   2. Phase Two: First, Second, and Third Level Repairs. Fourth and Fifth Level and Pedestrian Tunnel will be open for tenant occupancy during construction.
   3. Work for both phases shall be substantially complete, ready for occupancy by November 20, 2020.

1.6 CONTRACTOR USE OF PREMISES

A. 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.
   2. Driveways and Entrances: Keep driveways and entrances serving the premises clear and available to the Owner, the Owner’s employees, and emergency vehicles in areas occupied by Owner 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.
   3. Staging Areas: Staging for the project must be contained within the project area associated with each phase. Additional areas for parking or storage of materials and equipment shall be coordinated with the Owner if necessary.
   4. Electrical Usage: Electrical power is available in the garage structure for use by the Contractor. Contractor to determine if voltage is sufficient for construction purposes. If insufficient, electric power must be provided by the contractor.
   5. Bathroom Facilities: No bathroom facilities are available on the site for use by the contractor.
   6. Site Disturbances: Any disturbance to the site by the contractor or by construction activities shall be restored by the contractor prior to project completion.

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

A. Partial Owner Occupancy: The Owner reserves the right to occupy and to place and install equipment in completed areas of the building prior to Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placing of equipment and partial occupancy shall not constitute acceptance of the total Work.

1. The Designer will prepare a Certificate of Partial Occupancy for each specific portion of the Work to be occupied prior to substantial completion.

2. Prior to partial Owner occupancy, mechanical and electrical systems shall be fully operational. Required inspections and tests shall have been successfully completed. Upon occupancy, the Owner will operate and maintain mechanical and electrical systems serving occupied portions for the building.

3. Upon occupancy, the Owner will assume responsibility for maintenance and custodial service for occupied portions for the building.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 011000
SECTION 012100 – ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements governing allowances.
   1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Contract Change.

B. Types of allowances include the following:
   1. Weather allowances.

C. Related Sections include the following:
   1. Division 1 Section "Contract Modification Procedures" for procedures for submitting and handling Contract Changes for allowances.
   2. Division 1 Section "Unit Prices" for procedures for using unit prices.

1.3 WEATHER ALLOWANCE

A. Included within the completion period for this project are a specified number of “bad weather” days (see Schedule of Allowances).

B. The Contractor’s progress schedule shall clearly indicate the bad weather day allowance as an “activity” or “activities”. In the event weather conditions preclude performance of critical work activities for 50% or more of the Contractor’s scheduled workday, that day shall be declared unavailable for work due to weather (a “bad weather” day) and charged against the above allowance. Critical work activities will be determined by review of the Contractor’s current progress schedule.

C. The Contractor’s Representative and the Construction Representative shall agree monthly on the number of “bad weather” days to be charged against the allowance. This determination will be documented in writing and be signed by the Contractor and the Construction Representatives. If there is a failure to agree on all or part of the “bad weather” days for a particular month, that disagreement shall be noted on this written document and signed by each party’s representative. Failure of the Contractor’s representative to sign the “bad weather” day documentation after it is presented, with or without the notes of disagreement, shall constitute agreement with the “bad weather” day determination contained in that document.

D. There will be no modification to the time of contract performance due solely to the failure to deplete the “bad weather” day allowance.
E. Once this allowance is depleted, a no cost Contract Change time extension will be executed for “bad weather” days, as defined above, encountered during the remainder of the Project.

1.4 SELECTION AND PURCHASE

A. At the earliest practical date after award of the Contract, Designer of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.

B. At Designer's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

C. Purchase products and systems selected by Designer from the designated supplier.

1.5 SUBMITTALS

A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Contract Changes.

B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.6 COORDINATION

A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

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

3.2 PREPARATION

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

3.3 SCHEDULE OF ALLOWANCES

A. Weather Allowance: Included within the completion period for this Project 5 ”bad weather” days.

END OF SECTION  012100
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.

B. Quantities of Units to be included in the Base Bid are indicated in Section 004322 – Unit Prices Form.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for Unit Prices.

B. Related Sections include the following:
   1. Division 1 Section "Allowances" for procedures for using Unit Prices to adjust quantity allowances.
   2. Division 1 Section "Contract Modification Procedures" for procedures for submitting and handling Contract Changes.
   3. Division 030130 Section "Structural Concrete Repairs" for procedures for measurement and payment for all concrete repair prices and Division 071800 Section “Traffic Coating Systems” for procedures for measurement and payment for traffic coating repairs.

1.3 DEFINITIONS

A. Unit Price is a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

A. Unit Prices include all necessary material plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.

B. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of Unit Prices. Methods of measurement and payment for Unit Prices are specified in those Sections.

C. Owner reserves the right to reject Contractor's measurement of Work in-place that involves use of established Unit Prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

D. List of Unit Prices: A list of Unit Prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each Unit Price.
PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 LIST OF UNIT PRICES

A. Unit Price No. R1 - Full Depth Concrete Slab Repair:
   1. Description: Full-Depth Concrete Repairs according to Division 030130 Section "Structural Concrete Repairs".
   2. Unit of Measurement: Square Feet (SF).
   3. Base Bid Quantity: 525 SF.

B. Unit Price No. R2 - Partial Depth Vertical Concrete Column/Wall Repair:
   1. Description: Partial Depth Vertical Concrete Column/Wall Repairs according to Division 030130 Section "Structural Concrete Repairs" and 033713 Section “Shotcrete”.
   2. Unit of Measurement: Square Feet (SF).
   3. Base Bid Quantity: 55 SF.

C. Unit Price No. R3 - Partial Depth Overhead Concrete Girder/Beam/Rib Repair:
   1. Description: Partial Depth Overhead Concrete Girder/Beam/Rib Repair according to Division 030130 Section "Structural Concrete Repairs" and 033713 Section “Shotcrete”.
   2. Unit of Measurement: Square Feet (SF).
   3. Base Bid Quantity: 375 SF.

D. Unit Price No. R4 - Epoxy Crack Injection Repair:
   1. Description: Epoxy crack injection repairs according to Division 030130 Section "Structural Concrete Repairs".
   2. Unit of Measurement: Linear Feet (LF).
   3. Base Bid Quantity: 110 LF.

E. Unit Price No. R5 – Top Steel Corrosion Full Depth Repair:
   1. Description: Partial Depth Slab Concrete Repair according to Division 030130 Section "Structural Concrete Repairs".
   2. Unit of Measurement: Square Feet (SF).
   3. Base Bid Quantity: 425 SF.

F. Unit Price No. R6 – Traffic Membrane (Vehicular) Patching Repair:
   1. Description: Traffic Membrane Patching Repair according to Division 071800 Section "Traffic Coating Systems".
      Note: Base bid quantity includes membrane reinstallation at locations of slab repair.
   2. Unit of Measurement: Square Feet (SF).
3. Base Bid Quantity: 1680 SF.

G. Unit Price No. R8 – Hydrophilic Injections in Pedestrian Tunnel:
1. Description: Hydrophilic injection repairs according to Division 030130 Section "Structural Concrete Repairs".
2. Unit of Measurement: Linear Feet (LF).
3. Base Bid Quantity: 40 LF.

H. Unit Price No. R10 – Partial Depth Slab Repair Over Beam:
1. Description: Concrete repairs according to Division 030130 Section "Structural Concrete Repairs".
2. Unit of Measurement: Square Feet (SF).
3. Base Bid Quantity: 325 SF.

END OF SECTION 012200
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 1, Section 012100 "Allowances" for procedural requirements for
         handling and processing Allowances.
      2. Division 1, Section 012200 "Unit Prices" for administrative requirements for
         using Unit Prices.
      3. Division 0, Section 007213, Article 3.1 "Acceptable Substitutions" for
         administrative procedures for handling Requests for Substitutions made after
         Contract award.
      4. 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 https://oa.mo.gov/facilities/vendor-links/architectengineering-forms or https://oa.mo.gov/facilities/vendor-links/contractor-forms:

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 RFI's
   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 013200 – SCHEDULE – BAR CHART

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 including Schedule of Values 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, superstructure, rough-ins, enclosure, hanging of fixtures, 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. Mockups
5. Fabrication
6. Sample testing
7. Deliveries
8. Installation
9. Testing
10. Adjusting
11. Curing
12. 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 story 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. Structural completion.
   b. Permanent space enclosure
   c. Completion of mechanical installation
   d. Completion of the electrical portion of the Work
   e. 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 1 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
4. Quality Assurance Submittals
5. Construction Photographs
6. Operating and Maintenance Manuals
7. Warranties

B. Administrative Submittals: Refer to General and Supplementary Conditions other applicable Division 1 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. Notifications, 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 including 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 8½”x11” but no larger than 36”x48”.

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 including 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 SAMPLES

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

B. The Contractor shall submit full-size, fully fabricated samples, cured and finished as specified, and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern.

1. The Contractor shall mount or display samples in the manner to facilitate review of qualities indicated. Prepare samples to match the Designer’s sample including the following:
   a. Specification Section number and reference
   b. Generic description of the Sample
   c. Sample source
   d. Product name or name of the Manufacturer
   e. Compliance with recognized standards
   f. Availability and delivery time

2. The Contractor shall submit samples for review of size, kind, color, pattern, and texture. Submit samples for a final check of these characteristics with other elements and a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
a. Where variation in color, pattern, texture, or other characteristic is inherent in the material or product represented, submit at least three (3) multiple units that show approximate limits of the variations.

b. Refer to other Specification Sections for requirements for samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.

c. Refer to other Sections for samples to be returned to the Contractor for incorporation in the Work. Such samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of sample submittals.

d. Samples not incorporated into the Work, or otherwise designated as the Owner’s property, are the property of the Contractor and shall be removed from the site prior to Substantial Completion.

3. Field samples are full-size examples erected onsite to illustrate finishes, coatings, or finish materials and to establish the Project standard.

a. The Contractor shall comply with submittal requirements to the fullest extent possible. The Contractor shall process transmittal forms to provide a record of activity.

1.7 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.

E. Construction Photographs: The Contractor shall submit record construction photographs as specified in this Section and in other Sections of the Contract Documents.

1. The Contractor shall submit two (2) sets of prints, black and white, glossy; 8”x10” size; mounted on 8½”x11” soft card stock with left edge binding margin for 3-hole punch.

2. The Contractor shall identify each photograph with project name, location, number, date, time, and orientation.

3. The Contractor shall submit progress photographs monthly unless specified otherwise. Photographs shall be taken one (1) week prior to submitting.

4. The Contractor shall take four (4) site photographs from differing directions and a minimum of five (5) interior photographs indicating the relative progress of the Work.
1.8 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 along with 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.

<table>
<thead>
<tr>
<th>SECTION</th>
<th>DESCRIPTION</th>
<th>Shop Drawings</th>
<th>Product Data</th>
<th>Sample</th>
<th>Certifications</th>
<th>Manufacturer’s Instructions</th>
<th>Test report</th>
<th>Inspection Report</th>
<th>Wiring Diagrams</th>
<th>Record Photographs</th>
<th>Maintenance Data</th>
<th>Operating Instruction</th>
<th>Warranty</th>
</tr>
</thead>
<tbody>
<tr>
<td>013100</td>
<td>Coordination Drawings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>013100</td>
<td>Key Personnel Names</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>013200</td>
<td>Construction Schedule</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>013200</td>
<td>Schedule of Submittals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>013200</td>
<td>Schedule of Inspections</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>013513.10</td>
<td>Site Security and Health</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>015000</td>
<td>Temporary Utilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>024119</td>
<td>Selective Demolition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>030130</td>
<td>Structural Concrete Repairs</td>
<td>X X</td>
<td>X X X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>033713</td>
<td>Shotcrete</td>
<td>X X</td>
<td>X X X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>071800</td>
<td>Traffic Coating Systems</td>
<td>X X X</td>
<td>X X X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>079200</td>
<td>Joint Sealants</td>
<td>X X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

END OF SECTION  013300
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. Temporary heat
   3. Sanitary facilities, including drinking water

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

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

1.3 SUBMITTALS

A. Temporary Utilities: Submit reports of tests, inspections, meter readings, and similar procedures performed on temporary utilities.

B. Implementation and Termination Schedule: Within (15) days of the date established for commencement of the Work, submit a schedule indicating implementation and termination of each temporary utility.

1.4 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”.

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

1.5 PROJECT CONDITIONS

A. Temporary Utilities: Prepare a schedule indicating dates for implementation and termination of each temporary utility. At the earliest feasible time, when acceptable to the Owner, change over from use of temporary service to use of permanent service.

B. 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 signs and directory boards, provide exterior-type, Grade B-B high-density concrete form overlay plywood of sized and thicknesses indicated.
   2. For fences and vision barriers, provide minimum 3/8” (9.5mm) thick exterior plywood.
   3. For safety barriers, sidewalk bridges, and similar uses, provide minimum 5/8” (16mm) thick exterior plywood.

C. Paint:

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

D. Tarpaulins: Provide waterproof, fire-resistant, UL-labeled tarpaulins with flame-spread rating of (15) or less. For temporary enclosures, provide translucent, nylon-reinforced laminated polyethylene or polyvinyl chloride, fire-retardant tarpaulins.

E. 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 to prevent insertion of 110 to 120V plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button, and pilot light for connection of power tools and equipment.

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 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. Heating Units: Provide temporary heating units that have been tested and labeled by UL, FM, or another recognized trade association related to the type of fuel being consumed.

F. Temporary Offices: Provide prefabricated or mobile units or similar job-built construction with lockable entrances, operable windows, and serviceable finishes. Provide heated and air-conditioned units on foundations adequate for normal loading.

G. Temporary Toilet Units: Provide self-contained, single-occupant toilet units of the chemical, aerated re-circulation, or combustion type. Provide units properly vented and fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.

H. 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. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with company recommendations.

1. Arrange with company and existing users for a time when service can be interrupted, if necessary, to make connections for temporary services.

2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.

3. Obtain easements to bring temporary utilities to the site where the Owner’s easements cannot be used for that purpose.

4. Use Charges: Cost or use charges for temporary facilities are not chargeable to the Owner or Designer. Neither the Owner nor Designer will accept cost or use charges as a basis of claims for Contract Change.

B. Temporary Electric Power Service: The Owner will provide electric power for construction lighting and power tools only to the extent that is currently available on the project site. Electric power needs by the contractor in excess of what is available shall be provided by the contractor through coordination with existing utility company or by use of portable power generators. Contractors using such services shall pay all costs of temporary services, circuits, outlet, extensions, etc.

C. Temporary Lighting: When overhead floor or roof deck has been installed, provide temporary lighting with local switching.

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.

D. Temporary Heating: Provide temporary heat required by construction activities for curing or drying of completed installations or for protection of installed construction from adverse effects of low temperatures or high humidity. Select safe equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce the ambient condition required and minimize consumption of energy.

1. Heating Facilities: Except where the Owner authorizes use of the permanent system, provide vented, self-contained, LP gas or fuel-oil heaters with individual space thermostatic control.

2. Use of gasoline-burning space heaters, open flame, or salamander heating units is prohibited.

E. Temporary Toilets: Install self-contained toilet units. Use of pit-type privies will not be permitted. Comply with regulations and health codes for the type, number, location, operation, and maintenance of fixtures and facilities. Install where facilities will best serve the Project’s needs.

1. Provide toilet tissue materials for each facility.
3.3 SUPPORT FACILITIES INSTALLATION

A. General: Locate field offices, storage sheds, and other temporary construction and support facilities for easy access.
   1. Maintain support facilities until near Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.

B. Storage Facilities: Limited areas for storage of building materials are available onsite. Available storage areas are shown on the drawings. The Contractor shall provide his own security. Specific locations for storage and craning operations will be discussed at the Pre-Bid Meeting and the Pre-Construction Meeting.

C. Construction Parking: Parking at the site will be provided in the areas designated at the Pre-Construction Meeting.

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. Close openings through floor or roof decks and horizontal surfaces with load-bearing, wood-framed construction.

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. Except for use of permanent fire protection as soon as available, 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. 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.
C. Enclosure Fence: Before excavation begins, install an enclosure fence with lockable entrance gates. Locate where indicated, or enclose the entire site or the portion determined sufficient to accommodate construction operations. Install in a manner that will prevent people, dogs, and other animals from easily entering the site, except by the entrance gates.

D. 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.

E. 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. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

2. Protection: Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.

3. Non-interruption of service: Prevent any non-interruption of existing electrical, lighting, or fire suppression systems for adjacent properties and project areas that are completed or not yet begun. Temporary disruption of services in the course of construction activities, as may occur during demolition, shall be coordinated with the Owner and restored immediately.

C. Termination and Removal: Unless the Designer requests that it be maintained longer, 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.

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 month, 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. General: Provide final cleaning operations when indicated. Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit of Work to the condition expected from a commercial building cleaning and maintenance program. Comply with manufacturer’s instructions.

B. 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. Shampoo, if required.

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 plumbing fixtures to a sanitary condition free of stains, including stains resulting from water exposure.

15. 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.

16. Leave the Project clean and ready for occupancy.

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

D. 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
SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:
   1. Demolition and removal of concrete for structural repairs
   2. Removal of traffic membrane.

B. Related Sections include the following:
   1. Division 1 Section "Photographic Documentation" for preconstruction photographs taken before selective demolition operations.
   2. Division 1 Section "Temporary Facilities and Controls" for temporary construction and environmental-protection measures for selective demolition operations.

1.3 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.

B. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.4 SUBMITTALS

A. Schedule of Selective Demolition Activities: Indicate the following:
   1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's building manager's and other tenants' on-site operations are uninterrupted.
   2. Coordination of Owner's continuing occupancy of portions of existing building.
   3. Means of protection for items to remain and items in path of waste removal from building.
   4. Shoring Design prepared and sealed by Engineer licensed in the state where project is located. Submit for information purposes.
1.5 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
2. Comply with all OSHA regulations.

B. Standards: Comply with ANSI A10.6 and NFPA 241.

C. Predemolition Conference: Conduct conference at Project site. Review methods and procedures related to selective demolition including, but not limited to, the following:

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
3. Review areas where existing construction is to remain and requires protection.

1.6 PROJECT CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Notify Engineer of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. Hazardous materials will be removed by Owner before start of the Work.
2. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Engineer and Owner. Owner will direct a contractor how to proceed.

E. Storage or sale of removed items or materials on-site is not permitted.

F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.
PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped.

B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.

D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Engineer.

E. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.

3.3 PREPARATION

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
4. Provide temporary enclosures as required to contain dust and debris.
5. Provide temporary lighted signage to direct pedestrians to emergency exits.

C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes
to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

1. Submit shoring plan to Engineer for informational purposes.
2. Shoring shall be designed and sealed by an Engineer licensed in the state where the project is located.
3. Strengthen or add new supports when required during progress of selective demolition.

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
5. Maintain adequate ventilation when using cutting torches.
6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
9. Provide minimum 2 hour fire watch after completion of any flame cutting or abrasive cutting of steel.

B. Reuse of Building Elements: Project has been designed to result in end-of-Project rates for reuse of building elements as follows. Do not demolish building elements beyond what is indicated on Drawings without Engineer's approval.

C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Engineer, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.
3.5 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.6 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119
PART 1 – GENERAL

1.1 SUMMARY

A. Furnish all labor, materials, tools, and equipment required to perform the structural concrete repairs. The Work of this specification section shall include:

1. Full-depth concrete slab repairs;
2. Partial-depth concrete wall and column repairs;
3. Partial-depth overhead beam and joist repairs;
4. Partial-depth concrete slab repairs.

B. Work covered under this Section shall conform to the following sections of ACI 301, except as modified by these Contract Documents:

1. Section 1-General Requirements;
2. Section 2-Formwork and Formwork Accessories;
3. Section 3-Reinforcement and Reinforcement Supports;
4. Section 4-Concrete Mixtures;
5. Section 5-Handling, Placing, and Constructing.

C. Related Sections include the following:

1. 033713 Shotcrete
2. 079200 Joint Sealants
3. 071800 Traffic Coatings

1.2 DEFINITIONS

A. Design Professional: Engineer or Architect issuing Contract Documents or administering the Work under the Contract Documents, or both.

1.3 SUBMITTALS

A. Products:

1. Submit in accordance with the Division 1 General Requirements. Include product standards, physical and chemical characteristics, technical specifications, limitations, maintenance instructions, and general recommendations regarding each material indicated.
2. Select materials from the product or products noted in these specifications, or the submittal is permitted to be rejected at the discretion of the Design Professional or Owner. Provide documentation that alternate materials submitted are equivalent or superior to those provided in these specifications. Material submittals can be accompanied by requests for credits or additional charges when appropriate.
3. All submittals shall be made 2 weeks prior to the start of Work. Do not proceed with the Work prior to submittal acceptance. Submittals requested during the project for unforeseen Work shall be provided 2 weeks prior to the use of the material to allow adequate time for engineering evaluation and acceptance. If a substitution request is accompanied by a cost savings offer to the Owner, the cost savings shall be returned to the Owner in the form of a credit change order.
4. Submit product data for the following:
   
a. Bonding Agents;
b. Packaged Repair Material;
c. Corrosion Inhibitor;
d. Form Release Agent;
e. Admixtures;
f. Epoxy-Coating Repair Material;
g. Curing Compounds;
h. Corrosion-Resisting Coating;
i. Doweling Bonding Material;
j. Sacrificial Anodes.

B. Shop Drawings:

1. Shoring and Bracing: Ensure the adequacy of the structure and temporary supports to withstand the anticipated loads during construction, and the effect of demolition on the capacity of the structure. Submit design calculations, sealed by an Engineer licensed to practice in the jurisdiction where the Work is performed, for shoring and bracing at all repair types. Submit shoring and bracing drawings, or documentation from the Shoring Engineer that none is required prior to the start of demolition on the structure.
2. Formwork: Ensure the adequacy of the formwork to withstand the anticipated pressures exerted by the wet concrete. Submit design calculations, sealed by an Engineer licensed to practice in the jurisdiction where the Work is performed, for the formwork when required by the Design Professional. Submit formwork drawings.
3. Reinforcement: Submit data and shop drawings in accordance with the requirements of ACI 301.
4. Form and Pump: Pumps and fittings used for the placement of concrete in sealed forms shall be submitted. The proposed spacing of fittings and the means for assuring proper vibration and complete filling of the repair cavity shall be demonstrated.

C. Repair Materials

1. Ready Mixed/Site Batch Concrete: Submit all proposed concrete mixture designs for use on the project. Mixture design submittals shall include trial-batch test results or historical test data for the specific mixture proposed. All components of ready mixed and site batched concrete shall be listed.
2. Packaged Materials: Packaged material submittals shall include all relevant manufacturers’ literature, including technical data. Submit data on materials and limitations where aggregate extension is planned.
3. Include MSDS for all materials submitted.

D. Qualifications: Submit documentation demonstrating conformance with the qualification requirements for the concrete repair Contractor and the foreman for the concrete repair Contractor as described in the Quality Assurance section.

E. Quality Control Test Results: Submit copies of all quality control test results and inspection reports. Delivery tickets shall be submitted for all ready mixed concrete.

F. Include special provisions where extra care is required to avoid damage to critical structural or building systems.

G. Equipment and Procedures for Concrete Removal: Submit a list of concrete removal equipment to be used on the project, and the locations and circumstances under which each piece of
equipment will be used. Include special provisions that will be used to avoid post-tensioning
tendons and related hardware, embedded conduit, or other embedded items not specified for
removal. Include a description of procedures that will be used to dispose of waste water from
water jetting, blasting, and hydrodemolition.

H. Equipment and Procedures for Surface Preparation: Submit a description of the equipment and
procedures that will be used to achieve the required bond of the repair material.

I. Concrete Conveyance and Placement Methods: Submit a summary of conveyance equipment
and placement methods for the repair Work such as the use of pumping equipment, Georgia
Buggies, etc., and provisions which will be taken related to these activities.

J. Submit a Placement Plan that includes hot and cold weather provisions, methods to achieve
Saturated Surface Dry (if applicable) or to apply bonding agent if specified, consolidation,
finishing, and curing.

K. Records Retention: Retain all design and as-built records for a period of 7 years. These
documents shall include, as a minimum, the original contract drawings and specifications,
material submittals including MSDS, shop drawings, patch logs, test and inspection reports,
progress photographs, and warranties.

1.4 PREINSTALLATION CONFERENCE

A. Prior to the start of work, the following personnel shall attend a preinstallation conference:

1. Contractor’s Project Manager;
2. Contractor’s Superintendent;
3. Concrete Repair Subcontractor;
4. Inspectors;
5. Anode Manufacturer; and

1.5 QUALITY ASSURANCE

A. Concrete Restoration Specialist Qualifications: Engage an experienced, approved concrete
restoration firm to perform work of this Section.

1. Firm shall have a minimum of five (5) years of experience performing work on concrete
restoration projects of similar scope, size, design and extent to that indicated for this Project
with a record of successful in-service performance.
2. Restoration specialist firm shall have completed at least five concrete restoration projects in
the last five years of similar scope, size, design and extent to that indicated for this Project
with a record of successful in-service performance.
3. Field Supervision: Restoration specialist firms shall maintain experienced full-time
supervisors on Project site during times that concrete restoration is in progress.

   a. Supervisors shall have a minimum of five years of full-time experience in the
      field of concrete restoration. Supervisors shall not be changed during Project
      except for causes beyond control of restoration specialist firm.

   b. Onsite Field Supervisors shall hold a “Tier 1 Certificate of Achievement” from
      the International Concrete Repair Institute for Concrete Surface Repair
      Technician.
4. Restoration Worker Qualifications: Persons who are experienced and specialize in restoration work of types they will be performing.

B. Notify the Design Professional for scheduling purposes at least 24 hours in advance of when repair locations are ready for repair material placement and allow adequate time for inspection. Schedule all inspection Work with the Design Professional. Any Work covered up without inspection is subject to rejection by the Design Professional.

C. Provide and maintain a facility or location for the safe storage and proper curing of freshly cast test specimens. The temporary storage area and access for the Design Professional or testing agency to perform concrete testing during placement shall comply with the requirements of ASTM C31/C31M.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to the project site in the manufacturer’s original and unopened containers, label intact with type and name of products and manufacturers.

B. Comply with the manufacturer’s written instructions for conditions for temperature requirements as well as other conditions for storage.

C. Do not use materials that have exceeded their stated expiration date.

D. Store all materials off the ground, under cover, and in a dry location. Protect from rain, water, freezing, excessive heat, foreign matter, and other damaging conditions until ready for use. If materials have frozen, obtain manufacturer’s written approval prior to use. Do not stir liquids or mix materials until they are completely thawed. Do not force-thaw materials. Do not use damaged containers or broken bags.

E. Comply with the material manufacturer’s ordering instructions and lead-time requirements to avoid construction delays.

1.7 PROJECT CONDITIONS

A. Environmental Limitations and Requirements:

1. Execute demolition in a manner to limit unnecessary dust and noise. Enclose each phase of the Work with a minimum of a plastic or cloth barrier to maximize confinement of dust and debris inside the Work area. Enclosures shall be securely constructed and inspected by the Contractor each working day to ensure there are no holes or tears. Take other steps as required to keep dust and debris confined to the Work, such as providing air filtration equipment, the use of wet cutting equipment, and the use of wet abrasive cleaning equipment. Vent exhaust fumes from enclosed Work areas. If the exhaust fume level cannot be kept at an acceptable level, use other equipment or relocate the equipment so that the exhaust can be properly vented away from occupied areas.

2. Dispose of water from operations in a safe and lawful manner.

B. Existing Electrical, Plumbing, and Mechanical Services:

1. Protect all electrical conduits, boxes, wiring, and fixtures from damage. Safe removal of lighting fixtures and existing surface mounted electrical lines, when required, shall be the responsibility of the Contractor. All electrical lines shall be reattached to the structure after completion of the repairs.
2. Take reasonable precautions to avoid damaging embedded electrical conduits. Reasonable precautions shall include, but are not limited to, reviewing existing documentation and connected services in combination with nondestructive testing to determine the layout of the conduit. Demolition equipment shall be selected to minimize damage to conduit. Damage to embedded conduits as a result of Contractor negligence shall be repaired by the Contractor at no cost to the Owner.

3. Protect mechanical ductwork from the intake of dust particles and odor.

4. Protect plumbing, mechanical equipment, and ductwork from damage. Safe removal of plumbing, mechanical equipment, and ductwork, when required, shall be the responsibility of the Contractor. All plumbing, mechanical equipment, and ductwork shall be reattached to the structure after completion of the repairs.

5. Maintain electrical, plumbing, and mechanical services in continuous operation except as approved by the Owner.

1.8 SAFETY

A. All Work shall be performed in accordance with the applicable provincial, local, state, and federal requirements for safety.

B. Maintain a copy of MSDS at the jobsite for all materials.

PART 2 – PRODUCTS

A. Select appropriate means and methods of concrete removal, cleaning of reinforcement, and preparation of the concrete substrate as defined in these specifications. Obtain acceptance from the Design Professional as to the type of equipment to be used. The following equipment or approved equivalent are permitted to be used.

1. Chipping hammers with a total weight not to exceed:
   a. 15 lb (6.8 kg) with sharp pointed tools for the removal of concrete from partial-depth repairs, beneath reinforcing bars and around repair edges.

2. Dry abrasive blast cleaning equipment capable of removing rust from the exposed steel reinforcement, and cleaning the surface of the exposed concrete substrate. Cleaning shall include the removal of damaged paste and aggregate.

3. Water-blasting equipment capable of delivering pressures of 5000 psi (34.5 MPa) to 10,000 psi (69 MPa) for concrete surface preparation.

4. Compressed air equipment capable of delivering compressed air free of oil for cleaning loose material from repair areas.

5. Adjustable depth concrete saw for saw cutting the edges of repair areas.

2.1 PRODUCTS AND MANUFACTURERS

A. Products and corresponding manufacturers cited in the sections that follow shall be the basis for pricing the Work. The Contractor must bid the specified products. The Contractor may request a substitution subject to review and acceptance by the Design Professional.

2.2 PROTECTIVE PRIMER/BONDING AGENTS

A. Epoxy-Modified, Cementitious Bonding and Anti-Corrosion Agent: Manufactured product that consists of water-insensitive epoxy adhesive, Portland cement, and water-based solution of corrosion-inhibiting chemicals that forms a protective film on steel reinforcement.
1. Products: Subject to compliance with requirements, provide one of the following:
   a. BASF Construction Chemicals - Building Systems; Emaco P124.
   b. Euclid Chemical Company (The), an RPM company; Duralprep A.C.
   c. Sika Corporation, Construction Product Division; Armatec 110 EpoCem.

2.3 PACKAGED REPAIR MATERIAL

A. Cementitious or Polymer-Modified Cementitious Proprietary Repair Material:

1. Packaged cementitious repair material shall have a minimum compressive strength of 5000 psi (34.5 MPa) at 28 days.
2. Packaged cementitious repair material shall contain aggregate gradation appropriate for the depth of concrete repair specified. For repairs greater than 1 in. (25.4 mm) in depth unless stated otherwise by the manufacturer, coarse aggregate shall be used. If coarse aggregate is to be added to a packaged repair mortar, the mixture ratio, gradation, and type must be in accordance with the manufacturer’s specifications, and the following: Aggregate shall comply with ASTM C33/C33M and the manufacturer’s requirements. Add only as permitted by the packaged repair mortar manufacturer.
3. Air-entraining admixtures shall conform to ASTM C260. Air entrainment shall conform to ACI 301 requirements for Exposure Class F3, very severe exposure, based on the coarse aggregate size, or evidence of equal freezing-and-thawing durability shall be submitted to the Design Professional, along with the material data submittal for review and acceptance.
4. Maximum Water-Soluble Chloride Content shall be 0.06% by weight of cement.
5. Maximum Shrinkage: 0.06% tested in accordance with ASTM C157.
6. Products: Subject to compliance with requirements, provide one of the following:
   a. BASF Construction Chemicals - Building Systems; MasterEmaco S 440.
   b. BASF Construction Chemicals - Building Systems; MasterEmaco N 425.
   c. Sika Corporation, Construction Product Division; Sikacrete-100 CI.

2.4 READY MIXED CONCRETE

A. Portland Cement: Comply with ASTM C150/C150M Type I/II, III

B. Supplementary Cementitious Materials

1. Fly Ash conforming to ASTM C618 may be used as a supplementary cementitious material. The maximum quantity of fly ash shall not exceed 25% of the total cementitious material by weight.
2. Silica Fume conforming to ASTM C1240 may be used as a supplementary cementitious material. The maximum quantity of silica fume shall not exceed 10% of the total cementitious material by weight.

C. Admixtures: Admixtures shall be used where specified. Admixtures shall be free from chloride ions.

1. Air-entraining admixture: Comply with ASTM C260/C260M and ACI 301 requirements for very severe freezing-and-thawing exposure Class F3 based on the coarse aggregate size, or evidence of adequate freezing-and-thawing durability of the mixture design shall be submitted to the Design Professional, along with the material data submittal for review and acceptance.
2. Water-Reducing admixtures: Water-reducing admixtures shall comply with ASTM C494/C494M Type A.
3. Retarding admixture: Retarding admixture shall conform to ASTM C494/C494M, Type B.
4. Non-Chloride accelerating admixtures shall conform to ASTM C494/C494M, Type C.
5. Water-Reducing and Retarding admixtures: Water-Reducing and retarding admixtures shall comply with ASTM C494/C494M Type D.
6. High-Range Water-Reducing admixtures: High-Range water-reducing admixtures shall comply with ASTM C494/C494M, Type F.
7. Water: Conform to ASTM C1602/C1602M. Concrete batch water shall be reduced for the addition of admixtures containing water in accordance with the manufacturer’s statements regarding free water in the admixtures.
8. Coarse Aggregate: Nominal maximum size and gradation appropriate for the dimensions of the repair area. Comply with ASTM C33/C33M.
9. Fine Aggregate: Comply with ASTM C33/C33M.

D. Concrete Mixture: Concrete mixture shall conform to the following:

1. Minimum Compressive Strength: 5000 psi (34.5 MPa)
2. Maximum Water-Cement Ratio: 0.40
3. Maximum Water-Soluble Chloride Content: 0.06 % by weight of cement
4. Air Content: 6.5 ± 1.5%
5. Nominal Maximum Aggregate Size: 0.75 in.
6. Minimum Cementitious Material Content: 611 lb/yd³
7. Silica Fume: 3.5 to 4% by weight of cement

2.5 STEEL REINFORCEMENT AND ACCESSORIES

A. Steel Reinforcing Bars and Accessories for replacement of corroded reinforcement and for new reinforcing: Reinforcing bars shall be ASTM A775/775M, Grade 60, epoxy-coated deformed bars.

1. Chairs, holding bars, slab spacers, and all accessories shall be epoxy-coated conforming to ASTM A775/A775M.
2. Epoxy Coating Repair Material: Repair damaged epoxy-coated areas with a repair material compatible with the coating as supplied by the epoxy resin manufacturer.
3. Fabrication: Comply with reference standards and general notes on the repair drawings.
4. Do not field-bend bars. All bars shall be shop fabricated. bends and hooks shall conform to bend standards noted in CRSI’s Manual of Standard Practice unless otherwise noted on

B. Epoxy-Coated Welded Wire Reinforcement shall conform to ASTM A884/A884M.

C. Plain-Steel Welded Wire Reinforcement shall conform to ASTM A1064/A1064M.

2.6 CURING MATERIALS

A. Curing Materials For Packaged Repair Material:

1. Moisture Retention Cover Cure with polyethylene film or plastic covered fabric, including burlap. Sheets shall comply with ASTM C171.
2. Wet Cure with Absorbent Cover meeting AASHTO M 182, Class 2, such as Burlap.
3. Comply with manufacturer’s written requirements regarding repair materials with special curing instructions where wet cure or curing compounds could be detrimental to the material performance.

B. Curing Materials for Ready Mixed Concrete:
1. Moisture Retention Cover: Cure with polyethylene film or plastic covered fabric, including burlap. Sheets shall comply with ASTM C171.
2. Wet cure with absorbent cover meeting AASHTO M 182, Class 2, such as burlap.

2.7 EPOXY CRACK-INJECTION MATERIALS

A. Epoxy Crack-Injection Adhesive: ASTM C 881, Type IV, free of VOCs.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. BASF Construction Chemicals - Building Systems.
   b. Dayton Superior Corporation.
   c. Euclid Chemical Company (The); an RPM company.
   d. Sika Corporation; Construction Product Division.
   e. Unitex.
   f. W. R. Meadows, Inc.

2. Capping Adhesive: Product manufactured for use with crack injection adhesive by same manufacturer.

2.8 HYDROPHILIC CRACK-INJECTION MATERIALS

A. Low Viscosity Hydrophilic Injection Material.

1. Products: Subject to compliance with requirements, provide one of the following or approved equivalent:
   a. AQUAFIN, Inc.; InjectProECO-SEAL.
   b. SealBoss Concrete Solutions; FlexGel Hydrophilic NSF LV Gel.
   c. Sika Corporation, Construction Product Division; SikaFix HH LV Gel.

2.9 EXPANSION JOINT SYSTEMS

A. Winged Multi-Chambered Seals.

1. Products: Subject to compliance with requirements, provide one of the following or approved equivalent:
   a. BALCO; CS – Winged Multi-Chambered Seal
   b. EMSEAL; Thermaflex TCR Series
   c. LymTal International, Inc.; Iso-Flex J Series

B. Below Grade Expansion Joints

1. Products: Subject to compliance with requirements, provide one of the following or approved equivalent:
   a. BALCO; BHFE-200
   b. EMSEAL; DSM System.
   c. LymTal International, Inc.; Iso-Flex HydroSeal Expansion Joint

C. Exterior Vertical Expansion Joints

1. Products: Subject to compliance with requirements, provide one of the following or approved equivalent:
   a. BALCO; BCSF-SL
   b. EMSEAL; DSM System.
   c. LymTal International, Inc.; Iso-Flex HydroSeal Expansion Joint
2.10 BELOW GRADE WATERPROOFING

A. Self Adhered Waterproofing Membrane.

1. Products: Subject to compliance with requirements, provide one of the following or approved equivalent:
   a. Polyguard 650 Membrane.
   b. TREMCO TREMproof 560.
   c. W. R. Meadows MEL-ROL.

2.11 MISCELLANEOUS MATERIALS

A. Formwork Materials: Form-facing materials shall be plywood or other material conforming to the requirements of ACI 301.

1. Form release agent compatible with subsequent applied finishes shall be used.

B. Doweling Bonding Material: Material for bonding reinforcement to the existing concrete:

1. Hilti HIT-HY 200 with SAFESET System or manufacturer recommended hole cleaning practice per ICC ESR-3187.
5. Hilti HIT-RE500V3 epoxy adhesive anchoring system per ICC ESR-3814 for slow cure applications.

C. Sacrificial Anodes: Anodes shall have 160g zinc weight.

1. Vector Corrosion Technologies – XP4
2. Sika Corporation – FerroGard-675
3. BASF – MasterProtect 8160CP.

PART 3 – EXECUTION

A. Notify the Design Professional at least 48 hours in advance of times when areas of deteriorated concrete will be located.

B. Locate areas of delamination using hammer sounding and/or chain-drag sounding in accordance with ASTM D4580, mark boundaries, and arrange for the Design Professional to inspect and approve the layout geometry. Layout geometry shall be performed in accordance with ICRI. 310.1R.

C. Extend margins of repair areas 4 inches beyond limits of sounded delaminations.

D. After concrete removal inspect perimeter of repair area. If delaminations are still present extend repair margins to ensure all delaminations have been removed.

E. Precautions: Protect pedestrians; motor vehicles; mechanical, electrical, and plumbing equipment; surrounding construction; project site; landscaping; and surrounding buildings from damage or injury resulting from concrete rehabilitation Work.
1. Neutralize and collect alkaline and acid wastes for proper disposal off-site in accordance with Local, State, and Federal regulations.
2. Dispose of runoff from wet operations in accordance with all local ordinances and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.
3. Comply with local noise ordinances during demolition operations.
4. Protect all new repair Work from vibration, dust, and any deleterious environmental effects during the Work. Provide adequate cure time for concrete repairs to allow for compressive and bond strength gain prior to performing demolition adjacent to the repairs.

3.1 FORMWORK AND SHORING

A. General:

1. Construct forms to sizes, shapes, lines, and dimensions to match existing adjacent surfaces and textures.
2. Provide for openings, offsets, moldings, chamfers, anchorages, inserts, and other required features.
3. Construct forms to accommodate installation of products by other trades.
4. Provide for easy removal of form without damage to the concrete and adjacent surfaces.
5. Apply an appropriate form release coating over surfaces of formwork prior to erecting in-place before each concrete placement. Form release agents shall not be applied to or come in contact with the concrete substrate or reinforcement at any time.
6. Provide ports through slabs where required to install repair materials at soffits and beams and to vent air during concrete placement.
7. Provide ports through the sides of forms where required to install repair materials. Remove and patch ports immediately after removal of forms.

B. Shoring: Provide shoring and bracing in accordance with the shoring and bracing drawings prior to performing work.

3.2 CONCRETE MIXING, CONVEYING, AND PLACEMENT

A. Mixing, conveying, and placement shall conform to the requirements of ACI 301, except as modified within these specifications.
B. Use placement methods suitable for each particular field situation.
C. Place repair materials within open time of any mortar scrub coat or bonding agent.
D. Mix and place packaged repair materials in accordance with the manufacturer’s written instructions.
E. Ready Mixed concrete shall be batched, mixed, and delivered in accordance with the requirements of ASTM C94/C94M.
F. Fully consolidate the concrete as required to encapsulate the reinforcement, fill all voids, and avoid honeycombing.
G. For proprietary packaged repair materials mix, convey, place and cure materials in strict accordance with manufacturers written instructions.

3.3 FINISHING AND CURING
A. **Finishing**: Finish concrete to match adjacent existing concrete surfaces.

B. **Curing**: Cure repairs for a minimum of 72 hours unless otherwise specified. Ready mixed concrete shall be cured for a minimum of 7 days. Packaged repair materials shall be cured no less than the time recommended by the manufacturer. Polymer-modified repair materials shall be wet-cured 24 to 48 hours.

1. Wet-cure all repair locations following placement and finishing.
2. Apply curing compound to the repair areas in accordance with the manufacturer’s written instructions and at the minimum rates and number of applications specified by ACI 301.
3. Remove curing compound prior to installation of coatings or finishes in accordance with the manufacturer’s specified procedures.
4. Apply curing/sealing compound to the repair areas in accordance with the manufacturer’s written instructions and at the minimum rates and number of applications specified by ACI 301.

C. **Formwork Removal**: Removal of formwork and shoring shall not occur until both of the following criteria have been met:

1. Repair material has cured for a minimum of 72 hours unless otherwise permitted by the Design Professional.
2. Repair material has attained a minimum compressive strength of 4000 psi (27.6 MPa) (or 75% of the specified compressive strength of the substrate concrete) as determined by testing of field-cured cylinder samples. Loading of the slab with design live loads shall not occur until the concrete has attained a minimum compressive strength of 5000 psi (34.5 MPa) (or 100% of the specified compressive strength of the substrate concrete) based on field-cured cylinder samples.

D. Grind the perimeter of all formed surfaces at the interface with the existing concrete to remove all loose material and provide a smooth transition from new to existing concrete.

1. Additional finishing shall be performed as required to match the existing concrete surface.

3.4 **EPOXY CRACK INJECTION**

A. Clean areas to receive capping adhesive of oil, dirt, and other substances that would interfere with bond, and clean cracks with oil-free compressed air or low-pressure water to remove loose particles. Coordinate application requirements with manufacturer.

B. Place injection ports as recommended by epoxy manufacturer, spacing no farther apart than thickness of member being injected. Seal injection ports in place with capping adhesive.

C. Seal cracks at exposed surfaces with a ribbon of capping adhesive at least 1/4 inch (6 mm) thick by 1 inch (25 mm) wider than crack.

D. Inject cracks wider than 0.003 inch (0.075 mm) to a depth of 8 inches (200 mm).

E. Inject epoxy adhesive, beginning at widest part of crack and working toward narrower parts. Inject adhesive into ports to refusal, capping adjacent ports when they extrude epoxy. Cap injected ports and inject through adjacent ports until crack is filled.

F. After epoxy adhesive has set, remove injection ports and grind surfaces smooth.
FIELD QUALITY CONTROL

A. Testing Agency: The Owner will engage the Design Professional or a Testing Agency under the direction of the Design Professional to inspect, sample, and test materials.

B. Steel Reinforcement: Provide 48 hour minimum notification to the Design Professional to arrange for inspection of forms, reinforcement, reinforcement placement, and embedded items prior to any concrete placement.

C. Concrete Placement: Provide 48 hour minimum notification to the Design Professional to arrange for inspection of concrete placement, finishing, and curing. Inspection, testing, and reports shall be in accordance with the requirements of ACI 301.

D. Packaged Repair Material Concrete: Sample and test according to the appropriate section of ASTM C387/C387M for standard setting materials and ASTM C928/C928M for rapid hardening materials.

1. Test slump of each sample used to mold cylinders in accordance with ASTM C143/C143M.
2. Tests air content of each sample used to mold cylinders in accordance with ASTM C231 or ASTM C173/C173M.
3. Test temperature of each sample used to mold cylinders in accordance with ASTM C1064/C1064M.
4. Mortar compression tests shall be performed in accordance with ASTM C109/C109M.
5. Concrete compression tests shall be made and tested in accordance with ASTM C31/C31M and ASTM C39/C39M, respectively.
6. Mold one set of four cylinders each day that concrete is placed. When more than 50 yd³ (38 m³) are placed per day, mold an additional set of four test cylinders for each 50 yd³ (38 m³) or fraction thereof placed. One set of two cylinders shall be tested at 7 days and one set at 28 days.

E. Ready Mixed Concrete:

1. Test slump of each sample used to mold cylinders in accordance with ASTM C143/C143M.
2. Test air content of each sample used to mold cylinders to slump in accordance with ASTM C231/C231M or ASTM C173/C173M.
3. Test temperature of each sample used to mold cylinders in accordance with ASTM C1064/C1064M.
4. Concrete compression tests shall be made and tested in accordance with ASTM C31/C31M and ASTM C39/C39M, respectively.
5. Mold one set of four cylinders each day that concrete is placed. When more than 50 yd³ (38 m³) yards are placed per day, mold an additional set of four test cylinders for each 50 yd³ (38 m³) or fraction thereof placed. One set of two cylinders shall be tested at 7 days and one set at 28 days.

F. Epoxy Injection

1. After completion of epoxy injection including epoxy set time, Contractor shall obtain two-inch diameter cores of concrete showing crack for filling of epoxy. If void is not adequately full, contractor to perform additional epoxy injection to ensure crack as full.
2. Perform 3 cores for first 100 l.f. of epoxy injection, and 1 core for every 100 l.f. of epoxy injection thereafter.
3. Epoxy injection work will be accepted if the core(s) exhibit epoxy penetration along a minimum of 80% of the core length, epoxy is bonded to the concrete, epoxy is cured and

STRUCTURAL CONCRETE REPAIRS 030130 – 12
does not exhibit adverse properties and, in the case of core compression tests, the core fails at or above the original member’s concrete design strength.
4. At the time of changing new epoxy containers, contractor shall deposit ¼ cubic inches of epoxy into a cup to verify proper mixing ratio and setting of epoxy material is taking place.
5. Repair core holes with proprietary packaged concrete repair material.

END OF SECTION 030130
SECTION 033713 - SHOTCRETE

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 SUMMARY

A. This section specifies shotcrete including labor, equipment, appliances and materials, and performing all operations for the following.

   1. Soffit repairs.
   2. Column repairs.
   3. Wall repairs.

B. Related sections include the following.

   1. Division 3 Section “Concrete Restoration.”
   2. Division 7 Section “Joint Sealant.”

1.3 REFERENCE ORGANIZATIONS

A. ACI
   American Concrete Institute
   P. O. Box 9094
   Farmington Hills, Michigan 48333

B. ASTM
   American Society for Testing and Materials
   100 Bar Harbor Drive
   West Conshohocken, Pennsylvania 19428-2959

C. SSPC
   Steel Structures Painting Council
   4400 Fifth Avenue
   Pittsburgh, Pennsylvania 15213

1.4 REFERENCE STANDARDS

A. The following Reference Standards are referred to in this specification and declared to be a part of this Standard Specification:

   1. ACI Standards

      ACI 301-89 Specifications for Structural Concrete for Buildings, paragraph 5.7.1 and Chapter 9
2. ASTM Standards

A 185 Specifications for Wire Fabric, Plain, Welded Steel for Concrete Reinforcement
A 615 Specifications for Bars, Deformed and Plain, Billet-Steel, for Concrete Reinforcement
A 820 Specifications for Steel Fibers for Fiber Reinforced Concrete
C 31 Practice for Making and Curing Concrete Test Specimens in the Field
C 33 Specification for Concrete Aggregates
C 42 Test Methods for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
C 94 Specification for Ready-Mixed Concrete
C 109 Test Method for Compressive Strength of Hydraulic Cement Mortars
C 150 Specification for Portland Cement
C 171 Specification for Sheet Materials for Curing Concrete
C 309 Specification for Liquid Membrane-Forming Compounds for Curing Concrete
C 330 Specification for Lightweight Aggregates for Structural Concrete
C 595 Specification for Blended Hydraulic Cements
C 618 Specification for Fly Ash and Raw or Calcined Natural Pozzolan for use as a Mineral Admixture in Portland Cement Concrete
C 642 Test Method for Specific Gravity, Absorption, and Voids in Hardened Concrete
C 685 Specification for Concrete made by Volumetric Batching and Continuous Mixing
C 989 Specification for Ground Granulated Blast-Furnace Slag for use in Concrete and Mortars
C 1116 Specification for Fiber-Reinforced Concrete and Shotcrete
C 1140 Standard Practice for Preparing and Testing Specimens from Shotcrete Test Panels
C 1141 Standard Specification for Admixtures for Shotcrete

3. SSPC Standards

SP6 Surface Preparation Specification No. 6, Commercial Blast Cleaning

1.5 SUBMITTALS

A. Submit proposed mix characteristics including:

1. Proportions by weights or volumes
2. Strength
3. Water-cementitious materials ratio
4. Aggregate source and grading
5. Cement type and brand
6. Water source if other than potable
7. Proportions
8. Admixtures data sheets
9. Test results

B. Submit preconstruction test panel.
**QUALITY ASSURANCE**

**A. Preconstruction Testing:**

1. Prepare preconstruction test panels for examination by Engineer prior to job shotcrete placement. Preparation and testing shall comply with ASTM C 1140.

2. Produce test panels for each proposed mix proportion, each anticipated shooting orientation, and each proposed nozzleman. Mixes shall meet requirements of section 2.7-Proportioning. In half of the test panels provide reinforcement of the same size and spacing required for the work. Obtain six test specimens from each panel, three nonreinforced specimens and three with reinforcing steel.

3. Test the nonreinforced specimens for compliance with the specified physical properties in accordance with ASTM C 42.

4. Visually grade the reinforced specimens for compliance with specified core grade (Section 1.7-Shotcrete core grades).

5. Test admixtures for compatibility with cement in accordance with ASTM C 1141.

6. Unless otherwise specified, only nozzlemen with a test panel mean core grade less than or equal to 2.5 (section 1.7) shall be allowed to place job shotcrete. When the prequalification test panel is rejected, a second panel may be shot. When the nozzleman’s second mean core grade is greater than 2.5, the nozzleman shall not be permitted to shoot on the project.

**B. Construction Testing:**

1. Produce a material test panel for each mix and each work day or every 50 cubic yards placed, whichever is less. Test panel shall be kept moist and at 70 F± 10 F until moved to test laboratory. Obtain test specimens either from job site material test panel or from in-place shotcrete. Test specimens from test panels in compliance with ASTM C 1140.

2. Test specimens from in-place shotcrete in compliance with ASTM C 42.

3. Grade cores that include reinforcement in accordance with section 1.7-Shotcrete core grades.

4. The mean compressive strength of a set of three cores shall equal or exceed $0.85 f'_c$ with no individual core less than $0.75 f'_c$. The mean of a set of three cubes shall equal or exceed $f'_c$ with no individual cube less than $0.88 f'_c$.

**C. Shotcrete Testing Service:** Owner may engage a testing laboratory acceptable to Engineer to perform material evaluation tests if materials certifications are not available.

**D. Qualifications of Shotcrete Installers:** Before employment on the project, submit work experience resumes that indicate to the Engineer that each workmen listed below has done satisfactory work in similar capacities elsewhere for a sufficient period of time to be fully qualified to properly perform the work in accordance with the requirements of the related specifications.

1. Foremen shall have had at least 4 years experience on similar work.

2. Nozzlemen shall be qualified workmen, having had at least 2 years experience in similar work.

**SHOTCRETE CORE GRADES**
A. Grade 1: Shotcrete specimens are solid; there are no laminations, sandy areas or voids. Small air voids with a maximum diameter of 1/8 inch and maximum length of 1/4 inch are normal and acceptable. Sand pockets, or voids behind continuous reinforcing steel are unacceptable. The surface against the form or bond plane shall be sound, without a sandy texture or voids.

B. Grade 2: Shotcrete specimens shall have no more than two laminations or sandy areas with dimensions not to exceed 1/8 inch thick by 1 inch long. The height, width, and depth of voids shall not exceed 3/8 inch. Porous areas behind reinforcing steel shall not exceed 1/2 inch in any direction except along the length of the reinforcing steel. The surface against the form or bond plane shall be sound, without a sandy texture or voids.

C. Grade 3: Shotcrete specimens shall have no more than two laminations or sandy areas with dimensions exceeding 3/16 inch thick by 1-1/4 inch long, or one major void, sand pocket, or lamination containing loosely bonded sand not to exceed 5/8 inch thick and 1-1/4 inch in width. The surface against the form or bond plane may be sandy with voids containing overspray to a depth of 1/16 inch.

D. Grade 4: The core shall meet in general the requirements of Grade 3 cores, but may have two major flaws such as described for Grade 3 or may have one flaw with a maximum dimension of 1 inch (25 mm) perpendicular to the face of the core with a maximum width of 1-1/2 inch. The end of the core that was shot against the form may be sandy and with voids containing overspray to a depth of 1/8 inch.

E. Grade 5: A core that does not meet the criteria of core grades 1 through 4, by being of poorer quality, shall be classified as Grade 5.

F. Determination of grade shall be by computing the mean of a minimum of three test specimens.

G. A mean grade of 2 or less is acceptable unless otherwise specified. Individual shotcrete cores with a grade greater than 2 are unacceptable.

H. The above core grades are based on cores with a surface area of 50 inches\(^2\). For cores with greater or lesser area than 50 inches\(^2\), adjust allowable flaws relative to 50 inches\(^2\).

1.8 EVALUATION OF IN-PLACE SHOTCRETE

A. Remove and replace shotcrete that is delaminated, exhibits laminations, voids, or sand pockets exceeding the limits for the specified grade or shotcrete. Remove and replace shotcrete that does not comply with the specified material properties.

B. Repair core holes in accordance with Chapter 9 of ACI 301. Do not fill core holes by shooting.

1.9 ACCEPTANCE

A. Shotcrete work that meets applicable requirements will be accepted.

B. Shotcrete work that has previously failed to meet one or more requirements, but which has been repaired to bring it into compliance, will be accepted.

C. Shotcrete work that fails to meet one or more requirements and which cannot be brought into compliance shall be removed and replaced. Modifications may be required.
1.10 DELIVERY, STORAGE, AND HANDLING

A. General: Store cement with adequate provisions for the prevention of absorption of moisture. It shall be stored in a manner that will permit easy access for inspection and identification of each shipment.

PART 2 - PRODUCTS

2.1 CEMENT

A. Portland Cement: ASTM C 150, Type I.

2.2 AGGREGATE

A. Normal Weight Aggregate: ASTM C 33. Aggregate not meeting ASTM C 33 may be used provided preconstruction tests demonstrate the shotcrete can meet specified requirements.

2.3 WATER

A. Clean and Potable.

B. Mixing water for shotcrete shall meet requirements of ASTM C 94.

C. Water shall be free of elements that cause stains when used.

2.4 ADMIXTURE

A. Water-reducing: ASTM C 1141.

B. Retarding: ASTM C 1141.

C. Accelerating: ASTM C 1141.


E. Fly ash and natural pozzolans: ASTM C 618.

F. Silica fume: ASTM C 1240.

2.5 CURING MATERIALS

A. Curing materials that cause stains shall not be used.

B. Sheet materials: ASTM C 171.

C. Curing compounds: ASTM C 309. Apply twice the coverage (double the application rate) recommended by manufacturers.

2.6 PROPORTIONING AND DESIGN OF SHOTCRETE MIX

A. Shotcrete mix proportions using normal weight aggregate shall produce the following 28-day material property:
1. $f'_c$: ASTM C 42; ASTM C 1140.
2. Air content: ASTM C 173 or C 231.

B. General: Shotcrete shall be composed of portland cement, Silica fume, fine aggregate and water so proportioned as to produce a concrete suitable for pneumatic application with a minimum 28-day compressive strength of 5,000 psi.

C. Shotcrete shall be proportioned with a minimum of 1 part cementitious to 4 parts fine aggregate based on dry loose volume.

D. Cementitious material shall include 4% silica fume by weight of cement.

E. Submit product data to Engineer for approval.

F. Provide all equipment necessary to control the actual amounts of all materials entering into the concrete. Submit to Engineer for approval the types of equipment and methods used for measuring materials.

2.7 PREBAGGED MATERIALS

A. Are allowable with predampening.

2.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle materials to prevent contamination, segregation, corrosion or damage. Store liquid admixtures in order to prevent evaporation and freezing.

2.9 CONCRETE MIXING

A. Job Site Mixing: Mix the shotcrete by machine, then pass through a sieve to remove all large particles before placing in hopper of the cement gun. Do not permit the mixture to become damp. Discharge each batch entirely before recharging. Clean the mixer to remove all adherent materials from the mixing vanes and from the drum at regular intervals.

B. Do not add water, in any amount, to the mix before it enters the cement gun. Control quantities of water using a valve at the nozzle of the gun. Adjust the water content as required for proper placement. Do not exceed four gallons of water per sack of cement, including the water contained in the aggregate.

C. Do not remix or temper the concrete. Discard mixed material that has stood 45 minutes without being used. Do not reuse rebound materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that surfaces are acceptable and are ready to receive work.

B. Verify that forms are to line and grade, braced against vibration, and constructed to permit escape of air and rebound.

C. Verify that placement and clearance around reinforcement permits complete encasement.
D. Verify that surfaces to receive shotcrete have been properly prepared according to the Contract Documents.

3.2 BATCHING AND MIXING

A. Weight batching shall comply with the accuracy specified in ASTM C 94.

B. Volume batching shall comply with the accuracy specified in ASTM C 685. Volume batching shall be verified once a week by a weight batching check.

C. Use batching and mixing equipment capable of proportioning and mixing the required materials.

D. Shoot dry-mix shotcrete material within 45 minutes after batching or predampening. This requirement does not include dry, prebagged material unless prebagged material is predampened.

E. Shoot wet-mix shotcrete material within 90 minutes after batching.

3.3 SURFACE PREPARATION

A. Concrete, Masonry, and Shotcrete: When bonding is required, remove all deteriorated, loose, unsound material or contaminants that may inhibit bonding. Chip areas to be repaired to remove offsets causing abrupt changes in thickness. Taper edges to eliminate square shoulders at the perimeter of a cavity. Surface shall be saturated surface dry immediately prior to shooting. Except as specified herein prepare surfaces in accordance with specification section 030130.

B. Structural/Reinforcement: The surface shall be free of deleterious materials that inhibit bonding. For new construction, reinforcement laps shall be separated with a clearance of at least three times the diameter of largest aggregate. Reinforcement shall be secured to prevent movement. Prepare and coat reinforcement in accordance with specification section 030130.

C. Contractor shall embed all anodes with patch material prior to installation of shotcrete material.

D. Rock: Remove loose material, mud, or other foreign material that will prevent bonding. Clean surface. Prewet surface immediately prior to shooting.

E. Forms: Use form-release coating material on removable forms. Secure forms to minimize the effects of vibration. Construct forms to allow escape of placement air and rebond.

3.4 APPLICATION

A. Placement Techniques: Provide a platform that permits nozzleman unobstructed access to the receiving surface.

   1. Place shotcrete first in corners, recesses, and other areas where rebond or overspray cannot escape easily.

   2. Remove rebound and overspray from previously prepared surfaces prior to shotcrete placement.

   3. Place shotcrete with nozzle held approximately perpendicular to the receiving surface. In corners, direct nozzle at approximately 45 deg angle or bisect the corner angle. Apply shotcrete so sags or sloughing do not occur. Discontinue shooting or shield the nozzle stream if wind causes separation of ingredients during shooting.
4. Do not reuse rebound or overspray.
5. Remove laitance from shotcrete surfaces to receive additional shotcrete layers. Surface preparation after final set shall comply with section 3.3.2.
6. Do not apply shotcrete on surfaces with standing water or running water.
7. Remove hardened overspray and rebound from adjacent surfaces, including exposed reinforcement.

B. Encasement of Reinforcement: Place shotcrete to completely encase reinforcing steel. Encase reinforcement by shooting with sufficient velocity and plasticity so material flows around and behind the reinforcement. Front face of reinforcement shall remain clean during encasement.

1. Place shotcrete to provide the cover over reinforcement required by ACI 301.
2. Minimum slump of wet-mix shotcrete is 1 inch.

C. Fill corners first. Hold the nozzle approximately three feet from the work (except in confined control). If the flow of material at the nozzle is not uniform and slugs, sand spots, or wet sloughs result, direct the nozzle away from the work until the faulty conditions are corrected. Replace such defects as the work progresses.

D. Suspend shotcreting if:

1. Air velocity separates the cement from the sand at the nozzle.
2. Temperature approaches freezing and the newly placed shotcrete cannot be protected.

E. Apply shotcrete in one or more layers to such total thickness to restore the area to the original lines of the adjoining surface.

F. The time interval between successive layers in overhanging work must be sufficient to allow initial but not final set to develop. At the time the initial set is developing, clean the surface to remove the thin film of laitance in order to provide a perfect bond with succeeding applications.

3.5 FORMS

A. General: Construct forms to sizes, shapes, lines and dimensions shown, and to obtain accurate alignment, location and grades shown. Provide for recesses and chamfers required in work.

B. Adequately brace forms to insure against excessive vibration. Build forms to permit the escape of air and rebound and to facilitate the placing of shotcrete.

3.6 PLACING REINFORCEMENT

A. General: Install reinforcing bars where required by Engineer. Lap with existing adjoining pieces, and secure all laps together with tie wires.

3.7 WATER PRESSURE

A. General: The water pressure at the discharge nozzle should be sufficiently greater than the operating air pressure to assure the water is intimately mixed with the other materials. If the line water pressure is inadequate, introduce a water pump or pressurized tank into the line.

3.8 FINISHING
A. Finish exposed surfaces of shotcrete to match adjacent surfaces. Finish shall be subject to acceptance by Owners Representative.

B. Broom or roughen the surface of freshly placed shotcrete after shotcrete has reached initial set when subsequent layers are to be applied.

3.9 CURING

A. Immediately after finishing, cure shotcrete continuously by maintaining in a moist condition for seven days or until specified strength is attained or until succeeding shotcrete layers are placed.

B. Cure by one of the following methods:

1. Ponding or continuous sprinkling.
2. Covering with an absorptive mat or sand that is kept continuously wet.
3. Covering with impervious sheet material.
4. Curing compounds.

C. Natural curing shall be permitted if ambient relative humidity is maintained above 95 percent.

3.10 HOT WEATHER SHOTCRETING

A. Do not place shotcrete when material temperature is above 90 F for wet mix; 100 F for dry mix. Lower temperature of reinforcement and receiving surfaces below 100 F prior to shooting.

3.11 COLD WEATHER SHOTCRETING

A. Shooting may proceed when ambient temperature is 40 F and rising. 50 F for latex-modified shotcrete. Shooting shall discontinue when ambient temperature is 40 F and falling unless protective measures are taken to protect shotcrete. Shotcrete material temperature, when shot, shall not be less than 50 F or more than 90 F. Shotcrete shall not be placed against frozen surfaces. Applicable procedures used for cold weather concreting may be used for cold weather shotcreting.

3.12 PROTECTION

A. Protect surfaces not intended for shotcrete placement against deposit of rebound and overspray or impact from nozzle stream.

B. Remove rebound and hardened overspray from final shotcrete surfaces and from areas not intended for shotcrete placement.

3.13 TOLERANCES

A. Tolerances of shotcrete shall comply as specified.

3.14 FIELD QUALITY CONTROL

A. Nozzleman responsibilities include:

1. Ensure all surfaces to be shot are clean and free of laitance or loose material, using air and air-and-water blast from the nozzle as required.
2. Ensure the operating air pressure is uniform and provides proper nozzle velocity for good compaction.
3. Regulate the water content so the mix will be plastic enough to give good compaction and a low percentage of rebound, but stiff enough not to sag.
4. Hold the nozzle at the proper distance and as nearly normal to the surface as the type work will permit, to secure maximum compaction with minimum rebound.
5. Follow a sequence routine that will fill corners with sound shotcrete and encase reinforcement without porous material behind the steel, using the maximum practicable layer thickness.
6. Determine necessary operating procedures for placement in close quarters, extended distances, or around unusual obstructions where placement velocities and mix consistency must be adjusted.
7. Direct the crew when to start and stop the flow of material, and stop the work when material is not arriving uniformly at the nozzle.
8. Ensure sand or slough pockets are cut out for replacement.
9. Bring the shotcrete to finished lines in a neat and workmanlike manner.

B. Gunman shall operate the special pneumatic mixer and direct the work of the mixer crew. Utilizing his experience, he shall maintain proper pressure on the cement gun to insure the necessary nozzle velocity. He shall further see that the material fed to the nozzle is uniform.

3.15 CONCRETE SURFACE REPAIRS

A. Because of the importance of workmanship affecting the quality of the shotcrete, provide continual inspection during placing operations. Cut out any imperfections discovered and replace with sound material.

3.16 QUALITY CONTROL TESTING DURING CONSTRUCTION

A. General: The Owner may employ a testing laboratory to perform material evaluation tests and to submit test reports.

B. Testing Services: The designated testing laboratory shall perform the following sampling and testing for quality control.

C. A sample of shotcrete shall be taken each day shotcrete is produced. Obtain a sample by filling a Contractor-provided 18" x 18" x 5-1/2" deep wooden sample box with shotcrete. Fill the sample box by placing the box vertically and shooting shotcrete horizontally into the box. Field cure the sample of shotcrete in the same manner as the repair shotcrete, except soak the test specimens in water a minimum of 40 hours prior to testing. The testing laboratory shall obtain three (3), 3 inch diameter shotcrete core samples from samples selected by the Engineer. Compression test one core at 7 days and two cores at 28 days. Contractor shall safely store all shotcrete samples at the site until the completion of the Work.

END OF SECTION 033713
PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes traffic coatings for the following applications:

1. Vehicular traffic-bearing waterproofing system for designated parking levels of garage.

2. Base Bid Traffic Membrane Areas: Refer to highlighted areas on garage plans. The Owner anticipates that there will be multiple phases of application for this work, and the Contractor will coordinate the final phasing and temporary measures with the Owner.

1.2 SUBMITTALS

A. Product Data: For each product indicated.

B. Shop Drawings: Show extent of each traffic coating. Include details for treating substrate joints and cracks, flashings, deck penetrations, and other termination conditions.

C. Samples for Initial Selection: For each type of finish indicated.

D. Samples for Verification: For each type of traffic coating required, prepared on rigid backing and of same thickness and material indicated for the Work.

E. Qualification data.

F. Material test reports.

G. Material certificates.

H. Maintenance data.

I. Warranty (Labor and Material, Five years).

1.3 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of traffic coatings required for this Project.

B. Source Limitations:

1. Obtain traffic coatings from a single manufacturer.

2. Obtain primary traffic coating materials, including primers, from traffic coating manufacturer. Obtain secondary materials including aggregates, sheet flashings, joint
sealants, and substrate repair materials of type and from source recommended in writing by primary material manufacturer.

C. Fire-Test-Response Characteristics: Provide traffic coating materials with the fire-test-response characteristics as determined by testing identical products per test method below for deck type and slopes indicated by an independent testing and inspecting agency that is acceptable to authorities having jurisdiction.

1. Class ‘A’ vehicular deck coating in accordance with ASTM E108/UL 790.

D. Mockups: Apply mockups to set quality standards for materials and execution.

1. Engineer will select one representative surface for the traffic coating mockup. Apply deck coating to at least 5 sq. ft. to demonstrate surface preparation, joint and crack treatment, thickness, texture, color, and standard of workmanship.
2. Remove and reapply mockups until they are approved by Engineer.
3. Approved mockup may become part of the completed Work if undisturbed at time of Substantial Completion.

1.4 WARRANTY

A. Special Warranty: Manufacturer's Joint and Several Warranty, in which traffic coating manufacturer and licensed applicator agrees to repair or replace traffic coatings that deteriorate during the specified warranty period. Warranty does not include deterioration or failure of traffic coating due to unusual weather phenomena, failure of prepared and treated substrate, formation of new substrate cracks exceeding 1/16 inch (1.6 mm) in width, fire, vandalism, or abuse by snowplow, maintenance equipment, and truck traffic.

1. Deterioration of traffic coatings includes the following:

a. Adhesive or cohesive failures.
b. Abrasion or tearing failures.
c. Surface crazing or spalling.
d. Intrusion of water, oils, gasoline, grease, salt, deicer chemicals, or acids into deck substrate.

2. Warranty Period: Labor and Material, Five (5) years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Traffic Coatings: Complying with ASTM C 957.

B. VOC Content: Provide traffic coatings and pavement marking paints, for use inside the weatherproofing system, with VOC content of 150 g/L when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
C. Material Compatibility: Provide primers; base, intermediate, and topcoats; and miscellaneous materials that are compatible with one another and with substrate under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

2.2 TRAFFIC COATING SYSTEM

A. Available Products: Subject to compliance with requirements, products that shall be incorporated into the Work include the following:

B. Basis of Design: Sikadur-22 Lo-Mod Traffic System with Sikalastic 720 base. Intent is to match existing system.

C. Primer: Manufacturer's standard factory-formulated primer recommended for substrate and conditions indicated.

1. Material: Epoxy primer, as designated by manufacturer for substrate conditions. Revise descriptions of component coats in first three paragraphs below if 100 percent solids formulations are required.

D. Base/Detail Coats: Multi-component, fast cure, low odor, aromatic liquid urethane elastomeric coating.

E. Intermediate and Top Coats: Multi-component, fast cure, low odor, aliphatic liquid urethane elastomeric coating.

F. Component Coat Thicknesses: As recommended by manufacturer for substrate and service conditions indicated, but not less than the following (measured excluding aggregate):


2. Intermediate Coat(s): Minimum 32 mils dft for first wearing coat (all drive lanes and exit areas) intermediate coat.


G. Aggregate: Uniformly graded, washed silica sand, 12/20 mesh, for all traffic coating areas, all of particle sizes, shape, and minimum hardness recommended in writing by traffic coating manufacturer.

1. Spreading Rate: As recommended by manufacturer for substrate, location and service conditions indicated. In general, broadcast all aggregate to refusal/rejection.

2. Color: Match existing.

2.3 MISCELLANEOUS MATERIALS

A. Joint Sealants: As specified in Division 07, Section 079200 "Joint Sealants."
B. Adhesive: Contact adhesive recommended in writing by traffic coating manufacturer.

C. Reinforcing Strip: Fiberglass mesh recommended in writing by traffic coating manufacturer at all precast double-tee construction joints in designated traffic membrane areas.

2.4 PAVEMENT MARKINGS

A. Pavement-Marking Paint: Alkyd-resin type, lead and chromate free, ready mixed, complying with AASHTO M 248, complying with FS TT-P-1952 and MPI standards.


2. The contractor shall coordinate restriping of traffic membraned parking levels with the owner. Field verify all parking stalls, drive lanes, no parking zones, accessible parking pavement markings layout and colors with the owner.

B. VOC Content: Pavement-marking paints shall have a VOC content of 150 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements and for other conditions affecting performance of traffic coatings.

1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance.

2. Verify compatibility with and suitability of substrates.

3. Begin coating application only after minimum concrete curing and drying period recommended by traffic coating manufacturer has passed, after unsatisfactory conditions have been corrected, and after surfaces are dry – following all concrete slab repairs.

4. Verify that substrates are visibly dry and free of moisture.

   a. Test for moisture vapor transmission by plastic sheet method according to ASTM D 4263.

5. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Clean and prepare substrates according to ASTM C 1127 and manufacturer's written recommendations to produce clean, dust-free, dry substrate for traffic coating application. Ensure that all structural repairs to the slabs are completed and cured for the deck coating application.
B. Mask adjoining surfaces not receiving traffic coatings, deck drains, and other deck substrate penetrations to prevent spillage, leaking, and migration of coatings.

C. Concrete Substrates: Mechanically abrade concrete surfaces by shotblasting, following all repairs, to a uniform profile according to ICRI CSP 3 – 4 and ASTM D 4259. Do not acid etch.
   1. Remove grease, oil, paints, and other penetrating contaminants from concrete.
   2. Remove concrete fins, ridges, and other projections.
   3. Remove laitance, glaze, efflorescence, curing compounds, concrete hardeners, form-release agents, and other incompatible materials that might affect coating adhesion.
   4. Remove remaining loose material to provide a sound surface, and clean surfaces according to ASTM D 4258.
   5. Complete all structural concrete repairs prior to application of deck coating.

3.3 TERMINATIONS AND PENETRATIONS

A. Prepare vertical and horizontal surfaces at terminations and penetrations through traffic coatings and at expansion joints, drains, and sleeves according to ASTM C 1127 and manufacturer's written recommendations. Coordinate with expansion joint manufacturer’s representative.

B. Provide sealant cants at penetrations and at reinforced and non-reinforced, deck-to-wall butt joints.

C. Terminate edges of deck-to-deck expansion joints and pour strips with preparatory base-coat strip.

D. Install sheet flashings at deck-to-wall expansion and dynamic joints, and bond to deck and wall substrates according to manufacturer's written recommendations.

3.4 JOINT AND CRACK TREATMENT

A. Prepare, treat, rout, and fill joints and cracks in substrates according to ASTM C 1127 and manufacturer's written recommendations. Before coating surfaces, remove dust and dirt from joints and cracks according to ASTM D 4258.

3.5 TRAFFIC COATING APPLICATION

A. Apply traffic coating material according to ASTM C 1127 and manufacturer's written recommendations.
   1. Verify that wet film thickness of each component coat complies with requirements.
   2. Apply base/detail coats over slab crack repairs, and in drain and pour strip areas at thicker millage (> 30 mils dft) to ensure minimal crack reflection, and positive drainage to the existing parking level slab drains. Notify Engineer of adverse drainage conditions that may inhibit positive sheet flow to the existing drains prior to application.

B. Apply traffic coatings to prepared wall terminations and vertical surfaces to height indicated and omit aggregate on vertical surfaces.
C. Cure traffic coatings according to manufacturer’s written recommendations. Prevent contamination and damage during application and curing stages.

D. Coordinate traffic coating applications with Owner’s Representative and Capitol Maintenance.

3.6 PROTECTING AND CLEANING

A. Protect all traffic coatings from damage and wear during remainder of construction period.

B. Clean spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 071800
SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract.

1.2 SUMMARY
A. This Section includes joint sealants for the following applications:
   1. Exterior joints in the following horizontal and vertical surfaces:
      b. Sealing of cracks prior to repair of traffic coating system.
   2. Field verify all existing substrate conditions.

1.3 PERFORMANCE REQUIREMENTS
A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals.

1.4 SUBMITTALS
A. Product Data: For each joint-sealant product indicated.
B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
C. Samples for Verification: For each type and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- (13-mm-) wide joints formed between two 6-inch- (150-mm-) long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
D. Product Certificates: For each type of joint sealant and accessory, signed by product manufacturer.
E. Qualification Data: For Installer.
F. Pre-Construction Field Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on preconstruction testing specified in "Quality Assurance" Article.
G. Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:
   1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
   2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

H. Field Test Report Log: For each elastomeric sealant application.

I. Product Test Reports: Based on comprehensive testing of product formulations performed by a qualified testing agency, indicating that sealants comply with requirements.

J. Warranties: Special warranties specified in this Section.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized Installer who is approved or licensed for installation of elastomeric sealants required for this Project.

B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.

C. Product Testing: Obtain test results for "Product Test Reports" Paragraph in "Submittals" Article from a qualified testing agency based on testing current sealant formulations within a 36-month period preceding the Notice to Proceed with the Work.

   1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated, as documented according to ASTM E 548.
   2. Test elastomeric joint sealants for compliance with requirements specified by reference to ASTM C 920, and where applicable, to other standard test methods.

D. Pre-Construction Field-Adhesion Testing: Before installing elastomeric sealants, field test their adhesion to Project joint substrates as follows:

   1. Locate test joints where indicated on Project or, if not indicated, as directed by Engineer.
   2. Conduct field tests for each application indicated below:
      a. Each type of elastomeric sealant and joint substrate indicated.
      b. Each type of non-elastomeric sealant and joint substrate indicated.

   3. Notify Engineer seven days in advance of dates and times when test joints will be erected.
   4. Arrange for tests to take place with joint-sealant manufacturer's technical representative present.


         1) For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
5. Report whether sealant in joint connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.

6. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

E. Mockups: Install sealant in existing joint locations acceptable to Owner’s Representative, incorporating sealant joints, as follows, to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution:

1. Existing joint mockup locations.

F. Pre-Installation Conference: Conduct conference at Project site.

1.6 PROJECT CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F (5 deg C).
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.7 WARRANTY

A. Special Manufacturer's Warranty: Manufacturer's standard form in which elastomeric sealant manufacturer agrees to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: One (1) years from date of Substantial Completion.

B. Special warranties specified in this Article exclude deterioration or failure of joint sealants from the following:

1. Movement of the structure resulting in stresses on the elastomeric sealant exceeding elastomeric sealant manufacturer's written specifications for sealant elongation and compression caused by structural settlement or errors attributable to design or construction.
2. Disintegration of joint substrates from natural causes exceeding design specifications.
3. Mechanical damage caused by individuals, tools, or other outside agents.
4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.
PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

2.2 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.

B. Colors of Exposed Joint Sealants: As selected by Engineer from manufacturer's full range. Provide mock-up approval of all vertical joints on building.

2.3 ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

B. Stain-Test-Response Characteristics: Where elastomeric sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

C. Urethane, NS, 50/50, T: Single-component, nonsag, plus 50 percent and minus 50 percent movement capability, traffic-use, urethane joint sealant; ASTM C 920, Type S, Grade NS, Class 50/50, Uses T.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work for construction and contraction joints in new cast-in-place concrete include, but are not limited to, the following:
   a. Sika Corporation U.S.; Sikaflex 15LM.
   b. Tremco; Dymonic 100
   c. Dow Corning; NS Parking Structure Sealant
   d. Submitted and Approved Equal

2.4 JOINT-SEALANT BACKING

A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.5 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Non-porous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Non-staining, non-absorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

2. Clean porous joint substrate surfaces by grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
a. Concrete; Cast-in-place and Precast.

3. Remove laitance and efflorescence from concrete and masonry surfaces.

B. Joint Priming: Prime joint substrates, where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer’s written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Non-sag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not
discolor sealants or adjacent surfaces.
3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise
indicated.
   a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

3.4 FIELD QUALITY CONTROL

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

1. Extent of Testing: Test completed elastomeric sealant joints in presence of owners
   representative or inspector as follows:
   a. Perform 10 tests for the first 1000 feet (300 m) of joint length for each type of
      elastomeric sealant and joint substrate.
   b. Perform 1 test for each 1000 feet (300 m) of joint length thereafter or 1 test per each
      floor per elevation.

2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand
   Pull Tab in Appendix X1 in ASTM C 1193, as appropriate for type of joint-sealant
   application indicated.
   a. For joints with dissimilar substrates, verify adhesion to each substrate separately; do
      this by extending cut along one side, verifying adhesion to opposite side. Repeat
      procedure for opposite side.

3. Inspect joints for complete fill, for absence of voids, and for joint configuration complying
   with specified requirements. Record results in a field-adhesion-test log.
4. Inspect tested joints and report on the following:
   a. Whether sealants in joints connected to pulled-out portion failed to adhere to joint
      substrates or tore cohesively. Include data on pull distance used to test each type of
      product and joint substrate. Compare these results to determine if adhesion passes
      sealant manufacturer's field-adhesion hand-pull test criteria.
   b. Whether sealants filled joint cavities and are free of voids.
   c. Whether sealant dimensions and configurations comply with specified requirements.

5. Record test results in a field-adhesion-test log. Include dates when sealants were installed,
   names of persons who installed sealants, test dates, test locations, whether joints were
   primed, adhesion results and percent elongations, sealant fill, sealant configuration, and
   sealant dimensions.
6. Repair sealants pulled from test area by applying new sealants following same procedures
   used originally to seal joints. Ensure that original sealant surfaces are clean and that new
   sealant contacts original sealant.

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

C. The Owner may employ the services of an independent testing laboratory to observe tests.

3.5 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces.

1. Joint Locations:
   a. Isolation and contraction joints in cast-in-place concrete slabs.
   b. Other joints as indicated on Drawings.

2. Joint Sealant: Urethane NS, 50/50, T.
3. Joint-Sealant Color: As selected by Owner.

3.6 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.7 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION 079200