PROJECT MANUAL

Replace Sewer and Water Lines
MSHP Troop B HQ & Crime Lab
Macon, Missouri

Designed By: Klingner & Associates
907 East Ash
Columbia, MO 65201
(573) 355-5988

Date Issued: December 14, 2020

Project No.: R2002-01

STATE of MISSOURI

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

PROJECT NUMBER: R2002-01

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

John J. Neyens Engineer
PE-2012009233
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**The following documents may be found on MissouriBUYS at https://missouribuys.mo.gov/**

| 004000    | PROCUREMENT FORMS & SUPPLEMENTS                   |                 |
| 004113    | Bid Form                                          | *               |
| 004336    | Proposed Subcontractors Form                      | *               |
| 004337    | MBE/WBE/SDVE Compliance Evaluation Form           | *               |
| 004338    | MBE/WBE/SDVE Eligibility Determination Form       | *               |
| 004339    | MBE/WBE/SDVE Good Faith Effort (GFE) Determination Forms | *               |
| 004340    | SDVE Business Form                                | *               |
| 004541    | Affidavit of Work Authorization                   | *               |
| 004545    | Anti-Discrimination Against Israel Act Certification form | *               |

| 005000    | CONTRACTING FORMS AND SUPPLEMENTS                 |                 |
| 005213    | Construction Contract                             | 3               |
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| 007346    | Wage Rate                                         | 4               |

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SECTION 000115 – LIST OF DRAWINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.1 LIST OF DRAWINGS

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

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END OF SECTION 000115
SECTION 001116 - INVITATION FOR BID

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

2.0 PROJECT TITLE AND NUMBER:
A. Replace Sewer and Water Lines
   MSHP Troop B HQ & Crime Lab
   Macon, Missouri
   Project No.: R2002-01

3.0 BIDS WILL BE RECEIVED:
A. Until: 1:30 PM, Thursday, February 25, 2021
B. Only electronic bids on MissouriBUYS shall be accepted: https://missouribuys.mo.gov. Bidder must be registered to bid.

4.0 DESCRIPTION:
A. Scope: The project includes replacing portions of the sanitary sewer system and the domestic hot and cold water systems.
B. MBE/WBE/SDVE Goals: MBE 10%, WBE 10%, and SDVE 3%. NOTE: Only MBE/WBE firms certified by the State of Missouri Office of Equal Opportunity as of the date of bid opening, or SDVE(s) meeting the requirements of Section 34.074, RSMo and 1 CSR 30-5.010, can be used to satisfy the MBE/WBE/SDVE participation goals for this project.
C. **NOTE: Bidders are provided new Good Faith Effort (GFE) forms on MissouriBUYS.

5.0 PRE-BID MEETING:
A. Place/Time: 10:00 AM, Thursday, February 11, 2021, at 308 Pine Crest Drive, Macon, Missouri 63552.
B. Access to State of Missouri property requires presentation of a photo ID by all persons. Bidders must wear a mask to enter the facility.

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 $30.00 from American Document Solutions (ADS). MAKE CHECKS PAYABLE TO: American Document Solutions. Mail to: American Document Solutions, 1400 Forum Blvd., Suite 7A, Columbia, Missouri 65203. Phone 573-446-7768, Fax 573-355-5433, https://www.adsplanroom.net. NOTE: Prime contractors will be allowed a maximum of two bid sets at the deposit rate shown above. Other requesters will be allowed only one bid set at this rate. Additional bid sets or parts thereof may be obtained by any bidder at the cost of printing and shipping by request to American Document Solutions at the address shown above. Bidder must secure at least one bid set to become a planholder.
B. Refunds: Return plans and specifications in unmarked condition within 15 working days of bid opening to American Document Solutions, 1400 Forum Blvd., Suite 7A, Columbia, Missouri 65203. Phone 573-446-7768, Fax 573-355-5433. Deposits for plans not returned within 15 working days shall be forfeited.
C. Information for upcoming bids, including downloadable plans, specifications, Invitation for Bid, bid tabulation, award, addenda, and access to the ADS planholders list, is available on the Division of Facilities Management, Design and Construction’s web site: https://oa.mo.gov/facilities/bid-opportunities/bid-listing-electronic-plans.

7.0 POINT OF CONTACT:
A. Designer: Klingner & Associates, P.C., John Neyens, phone (573) 355-5988
B. Project Manager: Scott Zeller, phone (573) 751-2668

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

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

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

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

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

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

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

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

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

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

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

2.0 - BID DOCUMENTS

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

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

3.0 - BIDDERS' OBLIGATIONS

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

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

4.0 - INTERPRETATIONS

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

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

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

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

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

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

Bid Submittal – due before stated date and time of bid opening (see IFB):
- 004113 Bid Form (all pages are always required)
- 004322 Unit Prices Form
- 004336 Proposed Subcontractors Form
- 004337 MBE/WBE/SDVE Compliance Evaluation Form
- 004338 MBE/WBE/SDVE Eligibility Determination for Joint Ventures
- 004339 MBE/WBE/SDVE GFE Determination
- 004340 SDVE Business Form
- 004541 Affidavit of Work Authorization
- 004545 Anti-Discrimination Against Israel Act Certification form

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

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

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

6.0 - SIGNING OF BIDS

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

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

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

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

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

7.0 - RECEIVING BID SUBMITTALS

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

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

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

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

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

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

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

8.0 - MODIFICATION AND WITHDRAWAL OF BIDS

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

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

9.0 - AWARD OF CONTRACT

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

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

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

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

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

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

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

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

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

10.0 - CONTRACT SECURITY

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

11.0 - LIST OF SUBCONTRACTORS

A. If required by “Section 004113 – Bid Form,” each bidder must submit as part of their bid a list of subcontractors to be used in performing the work (Section 004336). The list must specify the name of the single designated subcontractor, for each category of work listed in “Section 004336 - Proposed Subcontractors Form.” If work within a category will be performed by more than one subcontractor, the bidder must provide the name of each subcontractor and specify the exact portion of the work to be done by each. Failure to list the Bidder’s firm, or a subcontractor for each category of work identified on the Bid Form or the listing of more than one subcontractor for any category without designating the portion of work to be performed by each shall be cause for rejection of the bid. If the bidder intends to perform any of the designated subcontract work with the use of his own employees, the bidder shall make that fact clear, by listing his own firm for the subject category. If any category of work is left vacant, the bid shall be rejected.
12.0 - WORKING DAYS

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 – ANTI-DISCRIMINATION AGAINST ISRAEL ACT CERTIFICATION:

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

15.0 - MBE/WBE/SDVE INSTRUCTIONS

A. Definitions:

1. “MBE” means a Minority Business Enterprise.

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

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


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


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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

E. Waiver of MBE/WBE/SDVE Participation:

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

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

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

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

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

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

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

https://apps1.mo.gov/MWBertifiedFirms/

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

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

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

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

Contractor Name and Address

hereinafter called the "Contractor,"

and the State of Missouri, hereinafter called the "Owner", represented by the Office of Administration, Division of Facilities Management, Design and Construction, on behalf of the Department of Public Safety, Missouri State Highway Patrol.

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:

Project Name: Replace Sewer and Water Lines
MSHP Troop B HQ & Crime Lab
Macon, Missouri

Project Number: R2002-01

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 performance time is 130 working days from the transmittal date of this agreement. The contract completion date is MONTH, DAY, YEAR. 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 $500.00 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:
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 1
3. Executed Construction Contract Form
4. The Drawings
5. The Technical Specifications
6. Addenda
7. Contractor's Proposal as accepted by the Owner

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

APPROVED:

________________________________________  ________________________________
Mark Hill, P.E., Director                                  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  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)

MO 300-1401 (05/18) FILE/Construction Contract

SECTION 005414 – AFFIDAVIT FOR AFFIRMATIVE ACTION  05/18  Page 1 of 1
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 ______________________________, 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:

SPECIFIED PRODUCT OR SYSTEM

SPECIFICATION SECTION NO.

SUPPORTING DATA

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

☐ Sample            ☐ Sample will be sent, if requested

QUALITY COMPARISON

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PREVIOUS INSTALLATIONS

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SIGNIFICANT VARIATIONS FROM SPECIFIED PRODUCT

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

- [ ] YES  
- [ ] NO

If YES, explain:

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### 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

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SECTION 006325 – SUBSTITUTION REQUEST

07/16
KNOW ALL MEN BY THESE PRESENTS 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
## 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

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<tr>
<th>PROJECT TITLE</th>
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| TOTAL CONTRACT AMOUNT | $ |

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

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<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>
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**ORIGINAL:** Attach to ALL Progress and Final Payments
STATE OF MISSOURI
OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION
AFFIDAVIT – COMPLIANCE WITH PREVAILING WAGE LAW

Before me, the undersigned Notary Public, in and for the County of

State of ___________________ personally came and appeared ______________________________

(NAME)

(POSITION) ____________________________ (NAME OF THE COMPANY) ______________________________

(a corporation) (a partnership) (a proprietorship) and after being duly sworn did deposite 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
ARTICLE:

   1.1. Definitions
   1.2. Drawings and Specifications
   1.3. Compliance with Laws, Permits, Regulations and Inspections
   1.4. Nondiscrimination in Employment
   1.5. Anti-Kickback
   1.6. Patents and Royalties
   1.7. Preference for American and Missouri Products and Services
   1.8. Communications
   1.9. Separate Contracts and Cooperation
   1.10. Assignment of Contract
   1.11. Indemnification
   1.12. Disputes and Disagreements

2. Owner/Designer Responsibilities

3. Contractor Responsibilities
   3.1. Acceptable Substitutions
   3.2. Submittals
   3.3. As-Built Drawings
   3.4. Guaranty and WARRANTIES
   3.5. Operation and Maintenance Manuals
   3.6. Other Contractor Responsibilities
   3.7. Subcontracts

4. Changes in the Work
   4.1. Changes in the Work
   4.2. Changes in Completion Time

5. Construction and Completion
   5.1. Construction Commencement
   5.2. Project Construction
   5.3. Project Completion
   5.4. Payments

6. Bond and Insurance

7. Termination or Suspension of Contract
   7.1. For Site Conditions
   7.2. For Cause
   7.3. For Convenience
SECTION 007213 - GENERAL CONDITIONS

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

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

ARTICLE 1 – GENERAL PROVISIONS

ARTICLE 1.1 - DEFINITIONS

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

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

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

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

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

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

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


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

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

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

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


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

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


ARTICLE 1.2 DRAWINGS AND SPECIFICATIONS

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

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 thereunder 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 such contract in favor of all persons, firms or corporations rendering such services or supplying such materials."

ARTICLE 1.11 - INDEMNIFICATION

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

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

ARTICLE 1.12 - DISPUTES AND DISAGREEMENTS

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

ARTICLE 2 -- OWNER/DESIGNER RESPONSIBILITIES

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

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

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

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

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

F. The Owner shall have the right to direct the Contractor to uncover any completed work.

1. If the Contractor fails to adequately notify the Construction Representative and/or Designer of an inspection as required by the Contract Documents, the Contractor shall, upon written request, uncover the work. The Contractor shall bear all costs associated with uncovering and again covering the work exposed.

2. If the Contractor is directed to uncover work, which was not otherwise required by the Contract Documents to be inspected, and the work is found to be defective in any respect, no compensation shall be allowed for this work. If, however, such work is found to meet the requirements of this contract, the actual cost of labor and material necessarily involved in the examination and replacement plus 10% shall be allowed the Contractor.

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

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

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

ARTICLE 3 -- CONTRACTOR RESPONSIBILITIES

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

ARTICLE 3.1 -- ACCEPTABLE SUBSTITUTIONS

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

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

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

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

E. When a material has been approved, no change in brand or make will be permitted unless:

1. Written verification is received from the manufacturer stating they cannot make delivery on the date previously agreed, or

2. Material delivered fails to comply with contract requirements.

ARTICLE 3.2 -- SUBMITTALS

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

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

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

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

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

D. The Designer shall check shop drawings and schedules with reasonable promptness and approve them only if they conform to the design concept of the project and comply with the information given in the contract documents. The approval shall not relieve the Contractor from the responsibility to comply with the drawings and specifications, unless the Contractor has called the Designer's attention to the deviation, in writing, at the time of submission and the Designer has knowingly approved thereof. An approval of any such modification will be given only under the following conditions:

1. It is in the best interest of the Owner
2. It does not increase the contract sum and/or completion time
3. It does not deviate from the design intent
4. It is without prejudice to any and all rights under the surety bond.

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

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

ARTICLE 3.3 – AS-BUILT DRAWINGS

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

ARTICLE 3.4 – GUARANTY AND WARRANTIES

A. General Guaranty

1. Neither the final certificate of payment nor any provision in the contract documents nor partial use or occupancy of the premises by the Owner shall constitute an acceptance of work not done in accordance with contract requirements.

2. The Contractor or surety shall remedy any defects in the work and pay for any damage to property resulting there from which shall appear within a period of one (1) year from the date of substantial completion unless a longer period is otherwise specified or a differing guaranty period has been established in the substantial completion certificate. The Owner will give notice of observed defects with reasonable promptness.

3. In case of default on the part of the Contractor in fulfilling this part of this contract, the Owner may correct the work or repair the damage and the cost and expense incurred in such event shall be paid by or recoverable from the Contractor or surety.

4. The work will be free from defects not inherent in the quality required or permitted, and that the Work will conform to the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The Contractor's guaranty excludes remedy for damage or defect caused by abuse, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear under normal usage. If required by the Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

B. Extended Warranty

Manufacturer's certificates of warranty shall be obtained for all major equipment. Warranty shall be obtained for at least one year. Where a longer
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 in envelopes, cross referenced and indexed with the manuals.

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

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

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

ARTICLE 3.6 – OTHER CONTRACTOR RESPONSIBILITIES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARTICLE 3.7 -- SUBCONTRACTS

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

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

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

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

ARTICLE 4 -- CHANGES IN THE WORK

4.1 CHANGES IN THE WORK

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARTICLE 4.2 – CHANGES IN COMPLETION TIME

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

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

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

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

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

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

2. Labor strikes or acts of God occur, OR

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

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

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

ARTICLE 5 - CONSTRUCTION AND COMPLETION

ARTICLE 5.1 – CONSTRUCTION COMMENCEMENT

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

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

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

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

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

ARTICLE 5.2 -- PROJECT CONSTRUCTION

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

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

ARTICLE 5.3 -- PROJECT COMPLETION

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

1. Once the Contractor has reached what they believe is Substantial Completion, the Contractor shall notify the Designer and the Construction Representative of the following:
   a. That work is essentially complete with the exception of certain listed work items. The list shall be referred to as the "Contractor's Punch."
   b. That all Operation and Maintenance Manuals have been assembled and submitted in accordance with Article 3.5A.
   c. That the Work is ready for inspection by the Designer and Construction Representative. The Owner shall be entitled to a minimum of ten working
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 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 cost 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 may be considered as required under the provisions of the specifications, Section 013300 and this contract may be substantial. Full payment will not be made until the tests have been made and the equipment and system is finally accepted. If the tests are not completed when scheduled, the Owner may deduct 150% of the value of the tests from the final payment.

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

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

b) An Affidavit of Compliance with Prevailing Wage Law, in the form as included in this contract specifications, properly executed by each subcontractor, and the Contractor
c) Certified copies of all payrolls
d) As-built drawings

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

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

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

ARTICLE 6 -- INSURANCE AND BONDS

ARTICLE 6.1 -- BOND

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

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

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

B. Minimum Scope and Extent of Coverage

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

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

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

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

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

C. Minimum Limits of Insurance

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

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

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

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

D. Deductibles and Self-Insured Retentions

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

E. Other Insurance Provisions and Requirements

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

1. General Liability

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

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

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

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

2. Automobile Insurance

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

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

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

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

3. Workers' Compensation/Employer's Liability

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

4. All Coverages

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

F. Insurer Qualifications and Acceptability

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

G. Verification of Insurance Coverage

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

ARTICLE 7 – SUSPENSION OR TERMINATION OF CONTRACT

ARTICLE 7.1 - FOR SITE CONDITIONS

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

ARTICLE 7.2 - FOR CAUSE

A. Termination or Suspension for Cause:

1. If the Contractor shall file for bankruptcy, or should make a general assignment for the benefit of the creditors, or if a receiver should be appointed on account of insolvency, or if the contractor should persistently or repeatedly refuse or fail to supply enough properly skilled workers or proper materials, or if the contractor should fail to make prompt payment to subcontractors or for material or labor, or persistently disregard laws, ordinances or the instructions of the Owner, or otherwise be guilty of a substantial violation of any provision of this contract, then the Owner may serve notice on the Contractor and the surety setting forth the violations and demanding compliance with this contract. Unless within ten (10) consecutive calendar days after serving such notice, such violations shall cease and satisfactory arrangements for correction be made, the Owner may suspend the Contractor's right to proceed with the work or terminate this contract.

2. In the event the Owner suspends Contractor's right to proceed with the work or terminates the contract, the Owner may demand that the Contractor's surety take over and complete the work on this contract, after the surety submits a written proposal to the Owner and receives written approval and upon the surety's failure or refusal to do so within ten (10) consecutive calendar days after demand therefore, the Owner may take over the work and prosecute the same to completion by bid or negotiated contract, or the Owner may elect to take possession of and utilize in completing the work such materials, supplies, appliances and plant as may be on the site of the work, and all subcontractors, if the Owner elects, shall be bound to perform their contracts.

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

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

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

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

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

ARTICLE 7.3 -- FOR CONVENIENCE

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

B. Upon receipt of notification, the Contractor shall:

1. Cease operations when directed.

2. Take actions to protect the work and any stored materials.

3. Place no further subcontracts or orders for material, supplies, services or facilities except as may be necessary to complete the portion of the Contract that has not been terminated. No claim for payment of materials or supplies ordered after the termination date shall be considered.

4. Terminate all existing subcontracts, rentals, material, and equipment orders.

5. Settle all outstanding liabilities arising from termination with subcontractors and suppliers.

6. Transfer title and deliver to the Owner, work in progress, completed work, supplies and other material produced or 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: John Neyens, P.E.
              Klingner and Associates, P.C.
              907 East Ash, Columbia, MO  65201
              Telephone: (573) 355-5988
              Email: jjn@klingner.com

   Construction Representative: Carl Haley
                                Division of Facilities Management, Design and Construction
                                709 Missouri Boulevard, Jefferson City, MO  65101
                                Telephone: (573) 526-0473
                                Email: Carl.Haley@oa.mo.gov

   Project Manager: Scott Zeller
                    Division of Facilities Management, Design and Construction
                    301 West High Street, Room 730
                    Jefferson City, Missouri  65102
                    Telephone: (573) 751-2668
                    Email: Scott.Zeller@oa.mo.gov

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

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

4.0 FURNISHING CONSTRUCTION DOCUMENTS:
   A. The Owner will furnish the Contractor with approximately 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 SAFETY REQUIREMENTS
   Contractor and subcontractors at any tier shall comply with RSMo 292.675 and Article 1.3, E, of Section 007213, General Conditions.
In accordance with Section 290.262 RSMo 2000, within thirty (30) days after a certified copy of this Annual Wage Order has been filed with the Secretary of State as indicated below, any person who may be affected by this Annual Wage Order may object by filing an objection in triplicate with the Labor and Industrial Relations Commission, P.O. Box 599, Jefferson City, MO 65102-0599. Such objections must set forth in writing the specific grounds of objection. Each objection shall certify that a copy has been furnished to the Division of Labor Standards, P.O. Box 449, Jefferson City, MO 65102-0449 pursuant to 8 CSR 20-5.010(1). A certified copy of the Annual Wage Order has been filed with the Secretary of State of Missouri.

Original Signed by
Taylor Burks, Director
Division of Labor Standards

Filed With Secretary of State: March 10, 2020

Last Date Objections May Be Filed: April 9, 2020

Prepared by Missouri Department of Labor and Industrial Relations
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*The Division of Labor Standards received less than 1,000 reportable hours for this occupational title.
Public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center.
**The Prevailing Hourly Rate includes any applicable fringe benefit amounts for each occupational title.
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 for this occupational title. Public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center.

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

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

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

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

HOLIDAYS

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

If any holiday falls on a Sunday, the following Monday shall be considered a holiday.
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 the replacement of portions of the sanitary sewer system and the domestic hot and cold water systems.

1. Project Location: Missouri State Highway Patrol Troop B Headquarters Building at 308 Pine Crest Drive, Macon, Missouri 63552.

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.


C. The Work consists of the replacement of portions of the sanitary sewer system and the domestic hot and cold water systems.

1. The Work includes:
   a. Replacement of existing water service
   b. Replacement of existing domestic cold and hot water piping and associated piping components such as valves, pipe hangers, and pipe insulation.
   c. Replacement of existing water heater and circulation pump.
   d. Replacement of portions of existing sanitary sewer system piping.
   e. Installation of an oil and grease interceptor.
   f. Replacement of sanitary sewer sump and pump.
   g. Various related work as required to facility plumbing system work including but not limited to: concrete removal and replacement, interior finish repairs, mechanical, and electrical work.

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

E. Asbestos containing building materials and lead based paint exists within the structure. Asbestos and lead based paint inspection reports have been prepared for the building and are located within this project manual. The Contractor is responsible for reviewing the reports and to either avoid disturbing the identified asbestos and lead-based paint or abate/remove the asbestos and lead based paint as required to complete proposed work in accordance with all applicable regulations. See Section 022000 Existing Conditions for additional information.
1.3 WORK SEQUENCE

A. Initial work sequencing shown on the Drawings.

B. The Work will be conducted in five phases.

1. Phase 1: Work in this phase generally consists of exterior work with limited interior work. Specific work items include but are not limited to the installation of a temporary storage unit, new underground water service, new water service entrance piping inside of the building, and the installation of a sanitary sewer interceptor for the garage trench drain.

2. Phase 2: Work in this phase generally consists of the installation of main hot water and cold water piping installation on the lower level of the facility. The existing hot water heater and sanitary sewer sump/pump will be replaced during this phase.

3. Phase 3: Work in this phase generally consists of the replacement of piping systems serving “Mens G3” and “Womens 10”.

4. Phase 4: Work in this phase generally consists of the replacement of piping systems serving “Toilet G21” and a service sink and lavatory above.

5. Phase 5: Work in this phase generally consists of all remaining piping installation and removal of existing piping.

1.4 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 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.

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

1.5 OCCUPANCY REQUIREMENTS

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

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 Change Orders for allowances.

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. 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.
PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALLOWANCES

A. Weather Allowance: Included within the completion period for this Project ten (10) “bad weather” days.

END OF SECTION 012100
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 013115 “Project Management Communications” for administrative requirements for communications.
   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 Change Order 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 Contractor 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 Change Order 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 Change Order Detailed Breakdown form. Subcontractors may use the appropriate Change Order 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 CHANGE ORDER PROCEDURES

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600
SECTION 013100 – COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Projects including, but not limited to, the following:
   1. Coordination Drawings.
   2. Administrative and supervisory personnel.
   3. Project meetings.

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

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

1.3 COORDINATION

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

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

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

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

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

1.4 SUBMITTALS

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

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

1.5 PROJECT MEETINGS

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

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

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

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

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

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

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

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.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100
PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Division 1, Section 013300 - Submittals

C. Division 1, Section 012600 – Contract Modification Procedures

1.2 SUMMARY

A. Project Management Communications: The Contractor shall use the Internet web based project
   management communications tool, E-Builder® ASP software, and protocols included in that
   software during this project. The use of project management communications as herein
   described does not replace or change any contractual responsibilities of the participants.
   1. Project management communications is available through E-Builder® as provided by "e-
      Builder®" in the form and manner required by the Owner.
   2. The project communications database is on-line and fully functional. User registration,
      electronic and computer equipment, and Internet connections are the responsibility of
      each project participant. The sharing of user accounts is prohibited.

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

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

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

E. Authorized Users: Access to the web site will be by individuals who are authorized users.
   1. Individuals shall complete the E-Builder New Company/User Request Form located at
      the following web site: https://oa.mo.gov/facilities/vendor-links/contractor-forms.
      Completed forms shall be emailed to the following email address: OA.FMDCE-
      BuilderSupport@oa.mo.gov.
   2. Authorized users will be contacted directly and assigned a temporary user password.
   3. Individuals shall be responsible for the proper use of their passwords and access to data
      as agents of the company in which they are employed.

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

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

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

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

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

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

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

6. Required Document Types:
   a. RFI, Request for Information.
   b. Submittals, including record numbering by drawing and specification section.
   c. Transmittals, including record of documents and materials delivered in hard copy.
   d. Meeting Minutes.
   e. Application for Payments (Draft or Pencil).
   f. Review Comments.
   g. Field Reports.
   h. Construction Photographs.
   i. Drawings.
   j. Supplemental Sketches.
   k. Schedules.
   l. Specifications.
   m. Request for Proposals
   n. Designer’s Supplemental Instructions
   o. Punch Lists
H. Record Keeping: Except for paper documents, which require original signatures and large
format documents (greater than 8½ x 11 inches), all other 8½ x 11 inches documents shall be
submitted by transmission in electronic form to the E-Builder® web site by licensed users.
   a. The Owner and his representatives, the Designer and his consultants, and the
      Contractor and his Sub Contractors and suppliers at every tier shall respond to
documents received in electronic form on the web site, and consider them as if
received in paper document form.
   b. The Owner and his representatives, the Designer and his consultants, and the
      Contractor and his Sub Contractors and suppliers at every tier reserves the right to
      and shall reply or respond by transmissions in electronic form on the web site to
documents actually received in paper document form.
   c. The Owner and his representatives, the Designer and his consultants, and the
      Contractor and his Sub Contractors and suppliers at every tier reserves the right to
      and shall copy any paper document into electronic form and make same available
      on the web site.

I. Minimum Equipment and Internet Connection: In addition to other requirements specified in
this Section, the Owner and his representatives, the Construction Manager and his
representatives, the Architect and his consultants, and the Contractor and his subcontractors
and suppliers at every tier required to have a user license(s) shall be responsible for the
following:
   1. Providing suitable computer systems for each licensed user at the users normal work
      location with high-speed Internet access, i.e. DSL, local cable company's Internet
      connection, or T1 connection.
   2. Each of the above referenced computer systems shall have the following minimum
      system and software requirements:
      a. Desktop configuration (Laptop configurations are similar and should be equal to or
         exceed desktop system.)
         1) Operating System: Windows XP or newer
         2) Internet Browser: Internet Explorer 6.01SP2+ (Recommend IE7.0+)
         3) Minimum Recommend Connection Speed: 256K or above
         4) Processor Speed: 1 Gigahertz and above
         5) RAM: 512 mb
         6) Operating system and software shall be properly licensed.
         7) Internet Explorer version 7 (current version is a free distribution for
download). This specification is not intended to restrict the host server or
client computers provided that industry standard HTTP clients may access
the published content.
         8) Adobe Acrobat Reader (current version is a free distribution for
download).
         9) Users should have the standard Microsoft Office Suite (current version must
be purchased) or the equivalent.

PART 2 - PRODUCTS (Not Applicable)
PART 3 - EXECUTION (Not Applicable.)

END OF SECTION 013115

1 The normal work location is the place where the user is assigned for more than one-half of his time working on this
project.
2 The minimum system herein will not be sufficient for many tasks and may not be able to process all documents
and files stored in the E-Builder® Documents area.
SECTION 013200 – SCHEDULES – 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.

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. When revisions are made, distribute to the same parties. 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
PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Division 1, Section 013115 “Project Management Communications” for administrative requirements for communications.

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 24”x36”.

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.

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>Test report</th>
<th>Field Quality Control Report</th>
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Notes:

(1) Coordination drawings and a key personnel names.
(2) Progress Schedule, Schedule of Submittals, and Schedule of Inspections and Tests
(3) Material safety data sheets, schedule of proposed shutdowns, personal information for security clearance check
(4) Pre-demolition photographs, asbestos and lead containing material remediation plan, landfill records for hazardous material.
(5) Sanitary sewer invert elevation summary.

END OF SECTION 013300
SECTION 013513.25 – SITE SECURITY AND HEALTH REQUIREMENTS

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.

I. Masks shall be worn when the minimum required social distancing (6 feet minimum) is not possible.

3.3 MSHP SECURITY CLEARANCE REQUIREMENTS

A. Contractor Background Screening Policy: As a normal business activity, the Missouri State Highway Patrol (MSHP) may contract with external companies to perform various duties for the Missouri State Highway Patrol. Any personnel working for a contractor, and who has access to criminal justice information is required to pass a background check prior to beginning work on the contract. A contractor’s proposed candidate may also be required to undergo a MSHP approved drug screening. This background check requirement will be included as part of all PAQs or solicitations for bids. The contract/PAQ award is contingent upon the proposed candidate background checks being completed.

B. This background check will include, but not be limited to, state of residency and national fingerprint-based record checks. If the proposed candidate lives outside the United States, the contractor will submit similar documentation from their respective country. Qualification to work on contract will be based upon the following criteria:

1. A felony conviction or guilty plea will be an automatic disapproval of the candidate.
2. Any conviction whether misdemeanor or felony, involving violence, crimes against children, and all sexual crimes regardless of timeframe will be an automatic disapproval of the candidate.

3. Candidates will be disqualified if it is confirmed there are outstanding arrest warrants for the candidate.

4. Any other misdemeanor convictions and guilty pleas may be considered for automatic disapproval. The State CSO (CJIS Security Officer) has final authority regarding if the nature or severity of the misdemeanor offense(s) does or does not warrant a disqualification.

C. For misdemeanors, consideration will be given to the relationship between the information obtained in the background check and the responsibilities of the position. Time and severity of crime may also be considered as factors in a disqualification. Candidates may submit a written request for waiver through their contracting company if they have been disapproved and wish to contest the decision. The request will need to explain the circumstances of the crime and justification for a waiver.

D. Contractors will be required to undergo a background check at a minimum once every five years. If there is a significant gap between contracts, candidates may be required to undergo a background check before working under a new contract.

E. The CSO or their designee will maintain a list of contractors who have been approved to work at the MSHP.

F. If a candidate goes through a background check with one contractor and then goes to work at a different contractor, the candidate will not be required to undergo a separate background check unless the timeframe exceeds five-year limit.

G. The CSO for the MSHP has the right to approve or disapprove any candidate and has the right to revoke a candidate’s approval at any time.

H. The FBI CJIS Security Policy requires the MSHP to conduct background checks on all contractors needing MSHP access.

I. Contractors working on-site and/or need escorted access are required to provide name, date of birth and social security number to enable the MSHP to run a name based background check prior to their arrival on-site.

J. Contractors working on-site with unescorted access and/or need access to our network are required to submit fingerprints. Required fields for print cards are as follows:
   1. ORI: MOMHP0070
   2. OCA: CONTRACTOR
   3. Employer and Address: COMPANY NAME AND ADDRESS
   4. Reason Fingerprinted: CONTRACTOR

K. FBI CJIS Security Policy requires the Missouri State Highway Patrol to conduct background checks on all contractors needing Patrol access.

Please provide name of your company, mailing address, point of contact with email address and phone number. If possible, include a list of employee names submitting background checks for verification purposes.
Requirements are as follows:

1. **Fingerprint submission** - employees may go online to MACHS.MO.GOV, click on fingerprint portal to register. The SHP-984 MACHS Fingerprint Instruction Form Link is located at:
   https://www.mshp.dps.missouri.gov/MSHPWeb/PatrolDivisions/CRID/documents/SHP-984_MACHS_Fingerprint_Instruction_Form.pdf
   Payment of $33.25 is due at the time of service.
   Instructions for fingerprint submission(s) for applicants residing outside of Missouri may be found at:
   https://www.mshp.dps.missouri.gov/MSHPWeb/PatrolDivisions/CRID/crimRecChk.html
   Required fields for print cards or digital prints:
   ORI: MOMHP0070
   REGISTRATION NUMBER: 7965
   OCA DESIGNATION: CONTRACTOR
   AGENCY NAME: CJIS INFO SECURITY UNIT CONTRACTORS

2. **Security Awareness Test** - employees may go online at www.cjisonline.com to take the security awareness test. Please provide a designated employee including their email address and phone number, from your company to be assigned as the CJIS Online Administrator allowing them to oversee all employee certification tests and fingerprint submission profiles.

   
   **If the online Security Awareness Test is not an option, please contact:** securityaudit@mshp.dps.mo.gov or call 573-526-6153 x2658.

   Once fingerprints, security forms and security awareness tests have been completed, background results with yes/no approved access will be provided via encrypted email.

   Those needing the results may request them from the Security Audit Compliance Unit at securityaudit@mshp.dps.mo.gov and call 573-526-6153 x2658 for the encrypted password and for further questions or

   L. Once background checks are completed, results will be returned via encrypted email to the requestor. Processing time varies. Please contact the Security Audit and Compliance Unit for questions at 573-526-6153 x2658.

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 013513.25
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. Water service and distribution
2. Temporary electric power and light
3. Temporary heat
4. Sanitary facilities, including drinking water

C. Support facilities include, but are not limited to, the following:
1. Temporary roads and paving
2. Dewatering facilities and drains
3. Hoists and temporary elevator use
4. Temporary project signs
5. Waste disposal services
6. Construction aids and miscellaneous services and facilities

D. Security and protection facilities include, but are not limited to, the following:
1. Temporary fire protection
2. Barricades, warning signs, and lights
3. Environmental protection

1.3 QUALITY ASSURANCE

A. Regulations: Comply with industry standards and applicable laws and regulations including, but not limited to, the following:
1. Building code requirements
2. Health and safety regulations
3. 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”.

1.4 SUBMITTALS

A. The Contractor is responsible for supplying a temporary storage structure for the Owner’s use. Additional information on the storage structure is provided in the Drawings. Vendor data demonstrating compliance with specifications provided in the Drawings shall be submitted for Engineer approval prior to installation on-site.

1.5 PROJECT CONDITIONS

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

PART 2 - PRODUCTS

2.1 MATERIALS

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

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. Water Hoses: Provide ¾” (19mm), heavy-duty, abrasion-resistant, flexible rubber hoses 100’ (30m) long, with pressure rating greater than the maximum pressure of the water distribution system. Provide adjustable shutoff nozzles at hose discharge.

C. 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.

D. 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.

E. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered-glass enclosures where exposed to breakage. Provide exterior fixture where exposed to moisture.

F. 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.

G. Fire Extinguishers: Provide hand-carried, portable, UL-rated, Class A fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, Class ABC, dry-chemical extinguishers, or a combination of extinguishers of NFPA-recommended classes for the exposures.

1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

PART 3 - EXECUTION

3.1 INSTALLATION

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

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

3.2 TEMPORARY UTILITY INSTALLATION

A. Temporary Water Service: The Owner will provide water for construction purposes from the existing building system. All required temporary extensions shall be provided and removed by the Contractor. Connection points and methods of connection shall be designated and approved by the Construction Representative.

B. Temporary Electric Power Service: The Owner will provide electric power for construction lighting and power tools. Contractors using such services shall pay all costs of temporary services, circuits, outlet, extensions, etc.

C. Temporary Heating and Cooling: The normal heating and/or cooling system of the building shall be maintained in operation during the construction. Should the Contractor find it necessary to interrupt the normal HVAC service to spaces, which have not been vacated for construction, such interruptions shall be pre-scheduled with the Construction Representative.

D. 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. Shield toilets to ensure privacy.
2. Provide separate facilities for male and female personnel.
3. Provide toilet tissue materials for each facility.

E. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a health and sanitary condition. Dispose of drainage properly. Supply cleaning compounds appropriate for each condition.
1. Provide paper towels or similar disposable materials for each facility.
2. Provide covered waste containers for used material.

F. Drinking-Water Facilities: Provide drinking water facilities as required.

G. Provide earthen embankments and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of storm water from heavy rains.

3.3 SUPPORT FACILITIES INSTALLATION

A. 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 will be discussed at the Pre-Bid Meeting and the Pre-Construction Meeting.

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

C. Dewatering Facilities and Drains: For temporary drainage and dewatering facilities and operations not directly associated with construction activities included under individual Sections, comply with dewatering requirements of applicable Division 2 Sections. Where feasible, utilize the same facilities. Maintain the site, excavations, and construction free of water.

D. Temporary Lifts and Hoists: Provide facilities for hoisting materials and employees. Truck cranes and similar devices used for hoisting materials are considered “tools and equipment” and not temporary facilities.

E. Temporary Elevator Use: Not allowed.

F. Temporary Signs: Install signs where required 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. Temporary Signs: Prepare signs to provide directional information to construction personnel and visitors.

G. 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. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of the types needed to protect against reasonable predictable and controllable fire losses.

1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one (1) extinguisher on each floor at or near each usable stairwell.
2. Store combustible materials in containers in fire-safe locations.
3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, stairways, and other access routes for fighting fires.
4. Smoking is not allowed on the project site.
5. Provide supervision of welding operations, combustion-type temporary heating units, and similar sources of fire ignition.

C. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed, provide lighting including flashing red or amber lights.

1. Storage: Where materials and equipment must be stored and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.

D. 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.

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.

2. Remove temporary paving not intended for or acceptable for integration into permanent paving. Where the area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil in the area. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at the temporary entrances as required by the Engineer/Owner.

3. At Substantial Completion, clean and renovate permanent facilities used during the construction period including, but not limited to, the following:
   a. Replace air filters and clean inside of ductwork and housing.
   b. Replace significantly worn parts and parts subject to unusual operating conditions.
   c. Replace lamps burned out or noticeably dimmed by hours of use.

END OF SECTION 015000
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 once 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 of all areas disturbed by construction activity. 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. 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.

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


8. Vacuum clean carpet and similar soft surfaces removing debris and excess nap. Shampoo, if required.

9. 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
translucent materials. Polish mirrors and glass, taking care not to scratch surfaces.

10. Remove labels that are not permanent labels.

11. 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.

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

13. 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
PART 1 - GENERAL

1.1 SUMMARY

A. This section describes existing conditions at the site as they relate to asbestos containing building materials and lead-based paint and use of data resulting from those investigations.

1.2 ASBESTOS INSPECTION REPORT

A. General:
   1. An Asbestos Inspection Report has been prepared for the building by the engineer/architect selected by the Owner.

B. Use of Data:
   1. Information on the asbestos containing building materials previously identified at the site contained in the Asbestos Inspection Report, has been provided for bidder’s information and shall not be construed as a guarantee of the conditions.
   2. The Contractor should visit the site and shall be responsible for determining to his/her satisfaction, prior to bidding, the actual site conditions.
   3. The Asbestos Inspection Report, prepared by Klingner & Associates, P.C., is attached as Appendix 1 at the end of the project manual, solely for the Contractor’s information.
   4. Asbestos containing building materials exist within the structure. The Contractor shall be responsible for reviewing the report and either avoid disturbing the identified asbestos containing building materials or properly abate in accordance with all applicable regulations and replace with in-kind materials to facilitate proper construction.

1.3 LEAD-BASED PAINT INSPECTION REPORT

A. General:
   1. A Lead-Based Paint Inspection Report has been prepared for the building by the engineer/architect selected by the Owner.

B. Use of Data:
   1. Information on the lead-based paint previously identified at the site contained in the Lead-Based Paint Inspection Report, has been provided for bidder’s information and shall not be construed as a guarantee of the conditions.
   2. The Contractor should visit the site and shall be responsible for determining to his/her satisfaction, prior to bidding, the actual site conditions.
   3. The Lead-Based Paint Inspection Report, prepared by Farmer Environmental Services, LLC (subconsultant to Klingner & Associates, P.C.), is attached as Appendix 2 at the end of the project manual, solely for the Contractor’s information.
   4. Lead-based paint exists within the structure. The Contractor shall be responsible for reviewing the report and either avoid disturbing the identified lead-based paint or properly remove the paint in accordance with all applicable regulations and replace with in-kind materials to facilitate proper construction.

END OF SECTION 022000
SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY
   A. This Section includes the following:
       1. Removal/modification of various building systems and components to facilitate the replacement of portions of the building plumbing system.

1.2 SUBMITTALS
   A. Pre-demolition Photographs: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by selective demolition operations. Submit before Work begins.
   B. Asbestos Containing Material Remediation Plan: If necessary, provide plan of ACM removal and disposal
   C. Lead Based Paint Remediation Plan: If necessary, provide plan of lead-based paint removal and disposal.
   D. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.3 QUALITY ASSURANCE
   A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

1.4 DEFINITIONS
   A. Demolish: Completely remove and legally dispose of off-site.
   B. Recycle: Recovery of demolition waste for subsequent processing at a recycling facility.
   C. Salvage: Carefully detach and remove from existing construction, in a manner to prevent damage and deliver to Owner at a specified location. Include fasteners or brackets needed for reattachment elsewhere as applicable.

1.5 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.
      1. Provide not less than forty-eight (48) hours notice of activities that will affect operations of occupied portions of the building.
2. Maintain access to existing walkways, exits and other facilities used by occupants of occupied portions of the building.

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

C. Hazardous Materials: Hazardous materials (asbestos and lead-based paint) are present within the existing facility. Previously completed summary reports related to hazardous materials are included within this project manual.

D. Utility Service: Maintain existing utilities to remain in service and protect them against damage during selective demolition operations.
   1. Maintain fire-protection facilities in service during selective demolition operations.

1.6 WARRANTY

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

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

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

C. 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.

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.

B. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
   1. Arrange to shut off indicated utilities with utility companies.
   2. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
   3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.
3.3 PREPARATION
A. Coordinate and verify that utilities have been disconnected and capped as necessary.
B. Coordinate and verify that any asbestos, special waste or hazardous waste materials have been remediated in areas of demolition before proceeding.
C. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with other adjacent occupied and used facilities.
D. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

3.4 SELECTIVE DEMOLITION
A. General: Demolish and remove existing construction only to the extent required by new construction. Use methods required to complete the Work within limitations of governing regulations and as follows:
   1. 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.
   2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
   3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations and provide fire watch as required to maintain the safety of the remaining facility.
   4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
   5. Dispose of demolished items and materials promptly.
B. Existing Items to Remain: Protect construction to remain against damage and soiling during selective demolition.

3.5 DISPOSAL OF DEMOLISHED MATERIALS
A. General: Remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
B. Burning: Do not burn demolished materials.

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.
PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Dielectric fittings.
2. Mechanical sleeve seals.
3. Sleeves.
4. Escutcheons.
5. Grout.

1.2 DEFINITIONS

A. Finished Spaces: Spaces other than plumbing and electrical equipment rooms, furred spaces, pipe chases, unheated spaces immediately below roof, and spaces above ceilings, unexcavated spaces, crawlspace, and tunnels.

B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and plumbing equipment rooms.

C. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.

D. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in chases.

E. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.

1.3 QUALITY ASSURANCE

A. Standards: Any procedure, material or operation specified by reference to applicable standards or codes shall comply with the current or most recent edition. In conflicts between listed standards, the more stringent shall govern.

1. Applicable Standards:

B. Contractor shall obtain all necessary permits and arrange for all inspections required by State or Local authorities.

C. Materials must be new, in first class condition. Work must be done by trained, experienced, skilled journeyman (woman) under an approved full-time supervisor, with every possible precaution taken by contractor to assure safety of all persons of all categories.
PART 2 - PRODUCTS

2.1 DIELECTRIC FITTINGS

A. Description: Combination fitting of copper alloy and ferrous materials with threaded, solder-joint, plain, or weld-neck end connections that match piping system materials.

B. Insulating Material: Suitable for system fluid, pressure, and temperature.

C. Dielectric Unions: Factory-fabricated, union assembly, for 250-psig minimum working pressure at 180 deg F.

D. Dielectric Flanges: Factory-fabricated, companion-flange assembly, for 150- or 300-psig minimum working pressure as required to suit system pressures.

E. Dielectric Couplings: Galvanized-steel coupling with inert and noncorrosive, thermoplastic lining; threaded ends; and 300-psig minimum working pressure at 225 deg F.

F. Dielectric Nipples: Electroplated steel nipple with inert and noncorrosive, thermoplastic lining; plain, threaded, or grooved ends; and 300-psig minimum working pressure at 225 deg F.

2.2 MECHANICAL SLEEVE SEALS

A. Description: Modular sealing element unit, designed for field assembly, to fill annular space between pipe and sleeve.

B. Sealing Elements: EPDM or NBR interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.

C. Pressure Plates: Stainless steel. Include two for each sealing element.

D. Connecting Bolts and Nuts: Stainless steel of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.3 SLEEVES

A. Steel Pipe: ASTM A 53, Type E, Grade B, Schedule 40, galvanized, plain ends.

2.4 ESCUTCHEONS

A. Description: Manufactured wall and ceiling escutcheons and floor plates, with an ID to closely fit around pipe, tube, and insulation of insulated piping and an OD that completely covers opening.

B. One-Piece, Deep-Pattern Type: Deep-drawn, box-shaped brass with polished chrome-plated finish.

2.5 GROUT

A. Description: ASTM C 1107, Grade B, nonshrink and nonmetallic, dry hydraulic-cement grout.
2. Design Mix: 5000-psi, 28-day compressive strength.

PART 3 - EXECUTION

3.1 PREPARATION

A. Quantities Required and Clarifications:

1. Contractor shall determine quantities required from drawings and job conditions except that where specifications call for specific quantities, these quantities shall also govern. If there is conflict between quantities called for on drawings and in specifications, greater quantity shall govern.
2. Where an item is specified by a manufacturer’s number, such number is for general information only, and shall be modified by any additional data, size, etc., which may be shown and/or specified. Where there is conflict between number and other data, it shall be contractor’s responsibility to request clarification from Engineer/Architect.

B. Cleaning:

1. Piping, equipment, devices, etc. shall be thoroughly cleaned before being offered for acceptance.
2. Labels, stickers, temporary protection, etc. shall be removed prior to substantial completion.

C. Permits, Fees, Enlargements, Extensions, Etc.:

1. Contractor shall secure and pay for all required licenses, permits and inspections.

D. Verification of Points of Connection:

1. Contractor shall be responsible for verifying all exposed, concealed, and buried points of connection as to locations, flow, size, type, depth, pressure, elevation, operating characteristics, etc., prior to beginning work including but not limited to the following:
   a. Water service and shut-offs.
   b. Sanitary sewer connections.
2. If contractor finds that any points of connection to existing facilities are incorrectly shown on plans or incorrectly specified, he (she) shall notify Engineer/Architect immediately and prior to beginning work.

3.2 PIPING SYSTEMS - COMMON REQUIREMENTS

A. Install piping according to the following requirements and Division 22 Sections specifying piping systems.

B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction
loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved.

C. Install piping in concealed locations, unless otherwise indicated and except in equipment rooms and service areas.

D. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

E. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.

F. Install piping to permit valve servicing.

G. Install piping at indicated slopes.

H. Install piping free of sags and bends.

I. Install fittings for changes in direction and branch connections.

J. Install piping to allow application of insulation.

K. Select system components with pressure rating equal to or greater than system operating pressure.

L. Install escutcheons for exposed penetrations of walls, ceilings, and floors.

M. Install sleeves for pipes passing through concrete and masonry walls, and concrete floor and roof slabs.

N. Aboveground and Underground, Exterior-Wall Pipe Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

1. Mechanical Sleeve Seal Installation: Select type and number of sealing elements required for pipe material and size. Position pipe in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

O. Fire-Barrier Penetrations: Maintain fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials.

P. Verify final equipment locations for roughing-in.

Q. Refer to equipment specifications in other Sections of these Specifications for roughing-in requirements.

3.3 EQUIPMENT INSTALLATION - COMMON REQUIREMENTS

A. Install equipment to allow maximum possible headroom unless specific mounting heights are not indicated.
B. Install equipment level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, unless otherwise indicated.

C. Install plumbing equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference to other installations. Extend grease fittings to accessible locations.

D. Install equipment to allow right of way for piping installed at required slope.

3.4 GROUTING

A. Mix and install grout for plumbing equipment base bearing surfaces, pump and other equipment base plates, and anchors.

B. Clean surfaces that will come into contact with grout.

C. Provide forms as required for placement of grout.

D. Avoid air entrapment during placement of grout.

E. Place grout, completely filling equipment bases.

F. Place grout on concrete bases and provide smooth bearing surface for equipment.

G. Place grout around anchors.

H. Cure placed grout.

3.5 EXCAVATION

A. Depth of bury of cover over exterior underground construction shall not be less than the following, unless otherwise noted or required.

1. Sewers: 4'-0”
2. Water pipes: 4'-0”.

B. Contractor shall do excavation required to install his (her) work, including pockets as required for fittings, etc., and after same are in place and tested and approved, he (she) shall replace drives, curbs and remove surplus earth and debris from the premises.

C. No trenches shall be filled until work has been inspected and approved by Engineer/Architect.

END OF SECTION 220500
PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Thermometers.
   2. Gages.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

PART 2 - PRODUCTS

2.1 METAL-CASE, LIQUID-IN-GLASS THERMOMETERS

A. Case: Die-cast aluminum or brass, 7 inches long.

B. Tube: Red or blue reading, organic-liquid filled, with magnifying lens.

C. Tube Background: Satin-faced, nonreflective aluminum with permanently etched scale markings.

D. Window: Glass.

E. Connector: Adjustable type, 180 degrees in vertical plane.

F. Stem: Copper-plated steel, aluminum, or brass for thermowell installation and of length to suit installation.

G. Accuracy: Plus or minus 1 percent of range or plus or minus 1 scale division to maximum of 1.5 percent of range.

2.2 THERMOWELLS

A. Manufacturers: Same as manufacturer of thermometer being used.

B. Description: Pressure-tight, socket-type metal fitting made for insertion into piping and of type, diameter, and length required to hold thermometer.

2.3 PRESSURE GAGES

A. Direct-Mounting, Dial-Type Pressure Gages: Indicating-dial type complying with ASME B40.100.
1. Case: Liquid-filled type, drawn steel or cast aluminum 4-1/2-inch diameter.
2. Pressure-Element Assembly: Bourdon tube, unless otherwise indicated.
3. Pressure Connection: Brass, NPS 1/4, bottom-outlet type unless back-outlet type is indicated.
4. Movement: Mechanical, with link to pressure element and connection to pointer.
6. Pointer: Red or other dark-color metal.
7. Window: Glass.
9. Accuracy: Grade B, plus or minus 2 percent of middle half scale.
10. Range for Fluids under Pressure: Two times operating pressure.

B. Pressure-Gage Fittings:

1. Valves: NPS 1/4 brass or stainless-steel needle type.
2. Snubbers: ASME B40.5, NPS 1/4 brass bushing with corrosion-resistant, porous-metal disc of material suitable for system fluid and working pressure.

PART 3 - EXECUTION

3.1 THERMOMETER APPLICATIONS

A. Install thermometer in the outlet of each domestic, hot-water storage tank.

B. Install thermometer in each hot water circulation loop.

C. Provide the following temperature ranges for thermometers:

1. Domestic Hot Water: 30 to 180 deg F, with 2-degree scale divisions.

3.2 GAGE APPLICATIONS

A. Install pressure gages at the domestic water service entrance and at the discharge of each pressure-reducing valve.

3.3 INSTALLATIONS

A. Install direct-mounting thermometers and adjust vertical and tilted positions.

B. Install thermowells with socket extending a minimum of 2 inches into fluid and in vertical position in piping tees where thermometers are indicated.

C. Install direct-mounting pressure gages in piping tees with pressure gage located on pipe at most readable position.

D. Install needle-valve and snubber fitting in piping for each pressure gage.

E. Install thermometers and gages adjacent to machines and equipment to allow service and maintenance for thermometers, gages, machines, and equipment.

F. Adjust faces of thermometers and gages to proper angle for best visibility.
SECTION 220523 - GENERAL DUTY VALVES FOR PLUMBING PIPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Bronze ball valves.
2. Bronze swing check valves.

1.2 SUBMITTALS

A. Product Data: For each type of valve indicated.

1.3 QUALITY ASSURANCE

A. ASME Compliance: ASME B16.10 and ASME B16.34 for ferrous valve dimensions and design criteria.

B. NSF Compliance: NSF 61 for valve materials for potable-water service.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR VALVES

A. Refer to valve schedule articles for applications of valves.

B. Valve Pressure and Temperature Ratings: Not less than indicated and as required for system pressures and temperatures.

C. Valve Sizes: Same as upstream piping unless otherwise indicated.

D. Valve Actuator Types:

1. Handlever: For quarter-turn valves NPS 6 and smaller.

E. Valves in Insulated Piping: With 2-inch stem extensions and the following features:

1. Ball Valves: With extended operating handle of non-thermal-conductive material, and protective sleeve that allows operation of valve without breaking the vapor seal or disturbing insulation.

F. Valve-End Connections:

1. Flanged: With flanges according to ASME B16.1 for iron valves.
2. Solder Joint: With sockets according to ASME B16.18.
3. Threaded: With threads according to ASME B1.20.1.
2.2 BRONZE BALL VALVES

A. Two-Piece, Full-Port, Lead-Free, Bronze Ball Valves with Bronze Trim: Lead-Free

1. Description:

   b. SWP Rating: 150 psig.
   c. CWP Rating: 400 psig minimum.
   d. Body Design: Two piece.
   e. Body Material: Bronze.
   f. Ends: Threaded or Soldered.
   g. Seats: PTFE or TFE.
   h. Stem: Bronze.
   i. Ball: Chrome-plated brass.
   j. Port: Full.

2.3 BRONZE SWING CHECK VALVES

A. Class 125, Bronze Swing Check Valves with Bronze Disc:

1. Description:

   a. Standard: MSS SP-80, Type 3.
   b. CWP Rating: 200 psig.
   c. Body Design: Horizontal flow.
   e. Ends: Threaded or Soldered.
   f. Disc: Bronze.

PART 3 - EXECUTION

3.1 VALVE INSTALLATION

A. Install valves with unions or flanges at each piece of equipment arranged to allow service, maintenance, and equipment removal without system shutdown.

B. Locate valves for easy access and provide separate support where necessary.

C. Install valves in horizontal piping with stem at or above center of pipe.

D. Install valves in position to allow full stem movement.

3.2 GENERAL REQUIREMENTS FOR VALVE APPLICATIONS

A. If valves with specified SWP classes or CWP ratings are not available, the same types of valves with higher SWP class or CWP ratings may be substituted.

B. Select valves with the following end connections:
1. For Copper Tubing, NPS 4 and Smaller: Threaded ends except where solder-joint valve-end option is indicated in valve schedules below.

3.3 DOMESTIC, HOT- AND COLD-WATER VALVE SCHEDULE

A. Pipe NPS 4 and Smaller:

1. Bronze and Brass Valves: May be provided with solder-joint ends instead of threaded ends.

2. Ball Valves: Two piece, full port, brass or bronze with brass trim.

3. Bronze Swing Check Valves: Class 125, bronze disc.

END OF SECTION 220523
PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Pipe labels.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

PART 2 - PRODUCTS

2.1 PIPE LABELS

A. General Requirements for Manufactured Pipe Labels: Preprinted, color-coded, with lettering indicating service, and showing flow direction.

B. Self-Adhesive Pipe Labels: Printed plastic with contact-type, permanent-adhesive backing.

C. Pipe Label Contents: Include identification of piping service using same designations or abbreviations as used on Drawings and an arrow indicating flow direction.
   1. Flow-Direction Arrows: Integral with piping system service lettering to accommodate both directions or as separate unit on each pipe label to indicate flow direction.
   2. Lettering Size: At least 1-1/2 inches high.

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean piping and equipment surfaces of substances that could impair bond of identification devices, including dirt, oil, grease, release agents, and incompatible primers, paints, and encapsulants.

3.2 PIPE LABEL INSTALLATION

A. Locate pipe labels where piping is exposed or above accessible ceilings in finished spaces; machine rooms; accessible maintenance spaces such as shafts, tunnels, and plenums; and exterior exposed locations as follows:
   1. Near each valve and control device.
   2. Near each branch connection, excluding short takeoffs for fixtures and terminal units. Where flow pattern is not obvious, mark each pipe at branch.
   3. Near penetrations through walls, floors, ceilings, and inaccessible enclosures.
   4. At access doors, manholes, and similar access points that permit view of concealed piping.
5. Near major equipment items and other points of origination and termination.
6. Spaced at maximum intervals of 50 feet along each run. Reduce intervals to 25 feet in areas of congested piping and equipment.

B. Pipe Label Color Schedule:
   1. Domestic Water Piping:
      a. Background Color: Green.
   2. Sanitary Waste:
      b. Letter Color: Black.

END OF SECTION 220553
SECTION 220700 - PLUMBING INSULATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Insulation Materials:
      a. Flexible elastomeric.
   2. Adhesives.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

1.3 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: Insulation and related materials shall have fire-test-response characteristics indicated, as determined by testing identical products per ASTM E 84, by a testing and inspecting agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and adhesive, mastic, tapes, and cement material containers, with appropriate markings of applicable testing and inspecting agency.
   1. Insulation Installed Indoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.
   2. Insulation Installed Outdoors: Flame-spread index of 75 or less, and smoke-developed index of 150 or less.

PART 2 - PRODUCTS

2.1 INSULATION MATERIALS

A. Products shall not contain asbestos, lead, mercury, or mercury compounds.

B. Products that come in contact with stainless steel shall have a leachable chloride content of less than 50 ppm when tested according to ASTM C 871.

C. Insulation materials for use on austenitic stainless steel shall be qualified as acceptable according to ASTM C 795.

D. Foam insulation materials shall not use CFC or HCFC blowing agents in the manufacturing process.

E. Flexible Elastomeric: White, closed-cell, sponge- or expanded-rubber materials. Comply with ASTM C 534, Type I for tubular materials and Type II for sheet materials.
2.2 ADHESIVES

A. Materials shall be compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated, unless otherwise indicated.

B. Flexible Elastomeric: Comply with MIL-A-24179A, Type II, Class I.

PART 3 - EXECUTION

3.1 PREPARATION

A. Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.

3.2 GENERAL INSTALLATION REQUIREMENTS

A. Install insulation materials, accessories, and finishes with smooth, straight, and even surfaces; free of voids throughout the length of equipment and piping including fittings, valves, and specialties.

B. Install insulation materials, forms, vapor barriers or retarders, jackets, and thicknesses required for each item of equipment and pipe system as specified in insulation system schedules.

C. Install accessories compatible with insulation materials and suitable for the service. Install accessories that do not corrode, soften, or otherwise attack insulation or jacket in either wet or dry state.

D. Install insulation with longitudinal seams at top and bottom of horizontal runs.

E. Install multiple layers of insulation with longitudinal and end seams staggered.

F. Do not weld brackets, clips, or other attachment devices to piping, fittings, and specialties.

G. Keep insulation materials dry during application and finishing.

H. Install insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by insulation material manufacturer.

I. Install insulation with least number of joints practical.

J. Apply adhesives, mastics, and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses.

K. Cut insulation in a manner to avoid compressing insulation more than 75 percent of its nominal thickness.

L. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.

M. For above ambient services, do not install insulation to the following:
   1. Vibration-control devices.
   2. Testing agency labels and stamps.
3. Nameplates and data plates.
5. Handholes.
6. Cleanouts.

3.3 PENETRATIONS

A. Insulation Installation at Underground Exterior Wall Penetrations: Terminate insulation flush with sleeve seal. Seal terminations with flashing sealant.

B. Insulation Installation at Aboveground Exterior Wall Penetrations: Install insulation continuously through wall penetrations.
   1. Seal penetrations with flashing sealant.
   2. For applications requiring only indoor insulation, terminate insulation inside wall surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.
   3. Extend jacket of outdoor insulation outside wall flashing and overlap wall flashing at least 2 inches.
   4. Seal jacket to wall flashing with flashing sealant.

C. Insulation Installation at Interior Wall and Partition Penetrations (That Are Not Fire Rated): Install insulation continuously through walls and partitions.

D. Insulation Installation at Fire-Rated Wall and Partition Penetrations: Install insulation continuously through penetrations while maintaining fire rating of walls and partitions.

E. Insulation Installation at Floor Penetrations:
   1. Pipe: Install insulation continuously through floor penetrations.
   2. Seal penetrations through fire-rated assemblies. Comply with requirements of fire-resistant joint sealers.

3.4 FLEXIBLE ELASTOMERIC INSULATION INSTALLATION

A. Seal longitudinal seams and end joints with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

B. Insulation Installation on Pipe Flanges:
   1. Install pipe insulation to outer diameter of pipe flange.
   2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.
   3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with cut sections of sheet insulation of same thickness as pipe insulation.
   4. Secure insulation to flanges and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

C. Insulation Installation on Pipe Fittings and Elbows:
   1. Install mitered sections of pipe insulation.
   2. Secure insulation materials and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

D. Insulation Installation on Valves and Pipe Specialties:
1. Install preformed valve covers manufactured of same material as pipe insulation when available.
2. When preformed valve covers are not available, install cut sections of pipe and sheet insulation to valve body. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
3. Install insulation to flanges as specified for flange insulation application.
4. Secure insulation to valves and specialties and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

3.5 PIPING INSULATION SCHEDULE, GENERAL

A. Items Not Insulated: Unless otherwise indicated, do not install insulation on the following:
   1. Drainage piping located in crawl spaces.
   2. Underground piping.
   3. Chrome-plated pipes and fittings unless there is a potential for personnel injury.

3.6 INDOOR PIPING INSULATION SCHEDULE

A. Domestic Hot and Recirculated Hot Water: Insulation shall be:
   1. Flexible Elastomeric: 1 inch thick.

B. Domestic Cold Water (Potable): Insulation shall be:
   1. Flexible Elastomeric: 1/2 inch thick.

C. Exposed Sanitary Drains, Domestic Water, Domestic Hot Water, and Stops for Plumbing Fixtures for People with Disabilities: Insulation shall be:
   1. Flexible Elastomeric: 1 inch thick.

END OF SECTION 220700
SECTION 221113 - FACILITY WATER DISTRIBUTION PIPING

PART 1 - GENERAL

1.1 SUMMARY
   A. This Section includes water-distribution piping and related components outside the building for water service.

1.2 DEFINITIONS
   A. PVC: Polyvinyl chloride plastic.

1.3 SUBMITTALS
   A. Product Data: For each type of product indicated.
   B. Pressure Testing Results

1.4 QUALITY ASSURANCE
   A. Regulatory Requirements:
      1. Comply with requirements of utility company supplying water.
   B. Piping materials shall bear label, stamp, or other markings of specified testing agency.
   C. NSF Compliance:
      1. Comply with NSF 14 for plastic potable-water-service piping.
      2. Comply with NSF 61 for materials for water-service piping and specialties for domestic water.

1.5 PROJECT CONDITIONS
   A. Interruption of Existing Water-Distribution Service: Do not interrupt service to facilities occupied by Owner or others unless permitted under the following conditions:
      1. Notify Engineer and Owner no fewer than five days in advance of proposed interruption of service.
      2. Do not proceed with interruption of water-distribution service without Owner's written permission.

1.6 COORDINATION
   A. Coordinate connection to water main with utility company.
PART 2 - PRODUCTS

2.1 PVC PIPE AND FITTINGS

A. PVC, Schedule 40 Pipe: ASTM D 1785.

1. PVC, Schedule 40 Socket Fittings: ASTM D 2466.

PART 3 - EXECUTION

3.1 PIPING INSTALLATION

A. Install PVC pipe according to ASTM D 2774 and ASTM F 1668.

B. Solvent cement joints shall be made in a two-step process with primer conforming to ASTM F 656 and solvent cement conforming to ASTM D 2564.

C. Bury piping with depth of cover over top at least 36 inches, with top at least 12 inches below level of maximum frost penetration, and according to the following:

1. Under Driveways: With at least 36 inches cover over top.

D. Extend water-service piping and connect to water-supply source and building-water-piping systems at outside face of building wall in locations and pipe sizes indicated.

1. Terminate water-service piping at building wall until building-water-piping systems are installed. Terminate piping with caps, plugs, or flanges as required for piping material. Make connections to building-water-piping systems when those systems are installed.

3.2 CONNECTIONS

A. Connect water-distribution piping to existing water main.

B. Connect water-distribution piping to interior piping.

3.3 FIELD QUALITY CONTROL

A. Piping Tests: Conduct piping tests before joints are covered. Fill pipeline 24 hours before testing and apply test pressure to stabilize system. Use only potable water.

B. Hydrostatic Tests: Test at not less than one-and-one-half times working pressure for two hours.

C. Prepare reports of testing activities.

3.4 IDENTIFICATION

A. Install continuous underground detectable warning tape during backfilling of trench for underground water-distribution piping. Locate below finished grade, directly over piping.
3.5 CLEANING

A. Clean and disinfect water-distribution piping as follows:

1. Purge new water-distribution piping systems and parts of existing systems that have been altered, extended, or repaired before use.
2. Use purging and disinfecting procedure prescribed by authorities having jurisdiction or, if method is not prescribed by authorities having jurisdiction, use procedure described in AWWA C651 or do as follows:
   a. Fill system or part of system with water/chlorine solution containing at least 50 ppm of chlorine; isolate and allow to stand for 24 hours.
   b. After standing time, flush system with clean, potable water until no chlorine remains in water coming from system.

B. Prepare reports of purging and disinfecting activities.

END OF SECTION 221113
SECTION 221116 - DOMESTIC WATER PIPING

PART 1 - GENERAL

1.1 SUMMARY
A. Section Includes:
   1. Under-building slab and aboveground domestic water pipes, tubes, fittings, and specialties inside the building.
   2. Flexible connectors.

1.2 SUBMITTALS
A. Product Data: For each type of product indicated.
B. Pressure Testing Results

1.3 QUALITY ASSURANCE
A. Piping materials shall bear label, stamp, or other markings of specified testing agency.
B. Comply with NSF 61 for potable domestic water piping and components.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS
A. Comply with requirements in "Piping Schedule" Article for applications of pipe, tube, fitting materials, and joining methods for specific services, service locations, and pipe sizes.

2.2 COPPER TUBE AND FITTINGS
A. Hard Copper Tube: ASTM B 88, Type L water tube, drawn temper.
   4. Copper Unions: MSS SP-123, cast-copper-alloy, hexagonal-stock body, with ball-and-socket, metal-to-metal seating surfaces, and solder-joint or threaded ends.

2.3 PIPING JOINING MATERIALS
A. Pipe-Flange Gasket Materials: AWWA C110, rubber, flat face, 1/8 inch thick or ASME B16.21, nonmetallic and asbestos free, unless otherwise indicated; full-face or ring type unless otherwise indicated.
B. Metal, Pipe-Flange Bolts and Nuts: ASME B18.2.1, carbon steel unless otherwise indicated.

C. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.

D. Brazing Filler Metals: AWS A5.8/A5.8M, BCuP Series, copper-phosphorus alloys for general-duty brazing unless otherwise indicated.

2.4 FLEXIBLE CONNECTORS

A. Bronze-Hose Flexible Connectors: Corrugated-bronze tubing with bronze wire-braid covering and ends brazed to inner tubing.
   2. End Connections NPS 2 and Smaller: Threaded copper pipe or plain-end copper tube.
   3. End Connections NPS 2-1/2 and Larger: Flanged copper alloy.

PART 3 - EXECUTION

3.1 PIPING INSTALLATION

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of domestic water piping. Indicated locations and arrangements are used to size pipe and calculate friction loss, expansion, and other design considerations. Install piping as indicated unless deviations to layout are approved.

B. Install shutoff valve immediately upstream of each dielectric fitting.

C. Install domestic water piping level and plumb.

D. Install piping concealed from view and protected from physical contact by building occupants unless otherwise indicated and except in equipment rooms and service areas.

E. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

F. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal, and coordinate with other services occupying that space.

G. Install piping adjacent to equipment and specialties to allow service and maintenance.

H. Install piping to permit valve servicing.

I. Install nipples, unions, special fittings, and valves with pressure ratings the same as or higher than system pressure rating used in applications below unless otherwise indicated.

J. Install piping free of sags and bends.

K. Install fittings for changes in direction and branch connections.
L. Install unions in copper tubing at final connection to each piece of equipment, machine, and specialty.

3.2 JOINT CONSTRUCTION

A. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
B. Remove scale, slag, dirt, and debris from inside and outside of pipes, tubes, and fittings before assembly.
C. Brazed Joints: Join copper tube and fittings according to CDA's "Copper Tube Handbook," "Brazed Joints" Chapter.
D. Soldered Joints: Apply ASTM B 813, water-flushable flux to end of tube. Join copper tube and fittings according to ASTM B 828 or CDA's "Copper Tube Handbook."

E. Flanged Joints: Select appropriate asbestos-free, nonmetallic gasket material in size, type, and thickness suitable for domestic water service. Join flanges with gasket and bolts according to ASME B31.9.

3.3 VALVE INSTALLATION

A. General-Duty Valves: Comply with requirements in Division 22 Section "General-Duty Valves for Plumbing Piping" for valve installations.
B. Install shutoff valve close to water main on each branch and riser serving plumbing fixtures or equipment, on each water supply to equipment, and on each water supply to plumbing fixtures that do not have supply stops. Use ball or gate valves for piping NPS 4 and smaller.
C. Install drain valves for equipment at base of each water riser, at low points in horizontal piping, and where required to drain water piping.
   1. Hose-End Drain Valves: At low points in water mains, risers, and branches.
D. Install balancing valve in each hot-water circulation return branch.

3.4 CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.
B. Install piping adjacent to equipment and machines to allow service and maintenance

3.5 FIELD QUALITY CONTROL

A. Perform tests and inspections.
B. Piping Inspections:
   1. Do not enclose, cover, or put piping into operation until it has been inspected and tested.
   2. During installation, notify Engineer/Architect at least one day before inspection must be made. Perform tests specified below in presence of Engineer/Architect:
a. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.

b. Final Inspection: Arrange final inspection for Engineer/Architect to observe tests specified below and to ensure compliance with requirements.

3. Reinspection: If Engineer/Architect finds that piping will not pass tests or inspections, make required corrections and arrange for reinspection.

4. Reports: Prepare inspection reports and have them signed by Engineer/Architect.

C. Piping Tests:

1. Fill domestic water piping. Check components to determine that they are not air bound and that piping is full of water.

2. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit a separate report for each test, complete with diagram of portion of piping tested.

3. Leave new, altered, extended, or replaced domestic water piping uncovered and unconcealed until it has been tested and approved. Expose work that was covered or concealed before it was tested.

4. Cap and subject piping to static water pressure of 50 psig above operating pressure, without exceeding pressure rating of piping system materials. Isolate test source and allow to stand for four hours. Leaks and loss in test pressure constitute defects that must be repaired.

5. Repair leaks and defects with new materials and retest piping or portion thereof until satisfactory results are obtained.

6. Prepare reports for tests and for corrective action required.

D. Domestic water piping will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

3.6 ADJUSTING

A. Perform the following adjustments before operation:

1. Adjust balancing valves in hot-water-circulation return piping to provide adequate flow.

   a. Manually adjust ball-type balancing valves in hot-water-circulation return piping to provide flow of hot water in each branch.

3.7 CLEANING

A. Clean and disinfect potable domestic water piping as follows:

1. Purge new piping and parts of existing piping that have been altered, extended, or repaired before using.

2. Use purging and disinfecting procedures prescribed by authorities having jurisdiction; if methods are not prescribed, use procedures described in either AWWA C651 or AWWA C652 or follow procedures described below:

   a. Flush piping system with clean, potable water until dirty water does not appear at outlets.

   b. Fill and isolate system according to either of the following:
1) Fill system or part thereof with water/chlorine solution with at least 50 ppm of chlorine. Isolate with valves and allow to stand for 24 hours.
2) Fill system or part thereof with water/chlorine solution with at least 200 ppm of chlorine. Isolate and allow to stand for three hours.

c. Flush system with clean, potable water until no chlorine is in water coming from system after the standing time.

B. Prepare and submit reports of purging and disinfecting activities.

C. Clean interior of domestic water piping system. Remove dirt and debris as work progresses.

3.8 PIPING SCHEDULE

A. Transition and special fittings with pressure ratings at least equal to piping rating may be used in applications below unless otherwise indicated.

B. Flanges and unions may be used for aboveground piping joints unless otherwise indicated.

C. Aboveground domestic water piping, shall be:

1. Hard copper tube, ASTM B 88, Type L, cast or wrought copper solder-joint fittings; and soldered joints.

3.9 VALVE SCHEDULE

A. Drawings indicate valve types to be used. Where specific valve types are not indicated, the following requirements apply:

2. Throttling Duty: Use ball valves for piping NPS 4 and smaller.

B. Use check valves to maintain correct direction of domestic water flow to and from equipment.

END OF SECTION 221116
SECTION 221119 - DOMESTIC WATER PIPING SPECIALTIES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following domestic water piping specialties:

1. Temperature-actuated water mixing valves.
2. Strainers.
3. Drain valves.
5. Balancing Valves

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

1.3 PERFORMANCE REQUIREMENTS

A. Minimum Working Pressure for Domestic Water Piping Specialties: 125 psig, unless otherwise indicated.

1.4 QUALITY ASSURANCE

A. NSF Compliance:

2. Comply with NSF 61, "Drinking Water System Components - Health Effects; Sections 1 through 9."

PART 2 - PRODUCTS

2.1 TEMPERATURE-ACTUATED WATER MIXING VALVES

A. Point-of-use thermostatic, Water Mixing Valves:

1. Compliant with ASSE 1070-2015
2. Minimum Flow: 0.25 GPM
3. Hot water inlet temperature 120F-180F
4. Cold water inlet temperature 33F-80F
5. Temperature Adjustment range 95F-120F
6. Cold water bypass
2.2 STRAINERS FOR DOMESTIC WATER PIPING

A. Y-Pattern Strainers:
1. Pressure Rating: 125 psig minimum, unless otherwise indicated.
2. Body: Bronze for NPS 2 and smaller; cast iron with interior lining complying with AWWA C550 or FDA-approved, epoxy coating and for NPS 2-1/2 and larger.
3. End Connections: Threaded for NPS 2 and smaller; flanged for NPS 2-1/2 and larger.
4. Screen: Stainless steel with round perforations, unless otherwise indicated.
5. Perforation Size:
   a. Strainers NPS 2 and Smaller: 0.033 inch.
   b. Strainers NPS 2-1/2 to NPS 4: 0.062 inch.
   c. Strainers NPS 5 and Larger: 0.125 inch.

2.3 DRAIN VALVES

A. Ball-Valve-Type, Hose-End Drain Valves:
2. Pressure Rating: 400-psig minimum CWP.
4. Body: Copper alloy.
5. Ball: Chrome-plated brass.
8. Inlet: Threaded or solder joint.

2.4 WATER HAMMER ARRESTERs

A. Water Hammer Arresters:
1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
3. Type: Metal bellows or Copper tube with piston.
4. Size: ASSE 1010, Sizes AA and A through F or PDI-WH 201, Sizes A through F.

2.5 BALANCING VALVES

A. Memory Stop Balancing Valves:
1. Pressure Rating: 400-psig minimum CWP.
2. Type: Y-pattern globe valve with two readout ports and memory setting indicator.
3. Size: NPS 2 or smaller.
4. Body: Copper alloy.
5. Seats and Seals: Replaceable.
6. End Connections: Solder joint or threaded.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install Y-pattern strainers for water on supply side of each control valve, water pressure-reducing valve, solenoid valve, and pump.

B. Install hot water mixing valves at all lavatories.

C. Install water hammer arresters in water piping according to PDI-WH 201.

3.2 ADJUSTING

A. Set field-adjustable temperature set points temperature-actuated water mixing valves to 100F.

B. Adjust balancing valves to provide flow rate indicated on Drawings.

END OF SECTION 221119
SECTION 221123 - DOMESTIC WATER PUMPS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes pumps for domestic hot-water circulation:

1.2 SUBMITTALS

A. Product Data: For each type and size of domestic water pump specified. Include certified performance curves with operating points plotted on curves; and rated capacities of selected models, furnished specialties, and accessories.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to the Architect/Engineer, and marked for intended use.

B. UL Compliance: Comply with UL 778 for motor-operated water pumps.

PART 2 - PRODUCTS

2.1 CLOSE-COUPLED, IN-LINE, SEALLESS CENTRIFUGAL PUMPS

A. Description: Factory-assembled and -tested, single-stage, close-coupled, in-line, sealless centrifugal pumps as defined in HI 5.1-5.6.

1. Pump and Motor Assembly: Hermetically sealed, replaceable-cartridge-type unit with motor and impeller on common shaft and designed for installation with pump and motor shaft mounted horizontally.
2. Casing: Bronze, with threaded companion-flange connections.
3. Impeller: Corrosion-resistant material.
4. Motor: Single speed, unless otherwise indicated.

2.2 CONTROLS

A. Thermostats: Electric; adjustable for control of hot-water circulation pump.

1. Type: Water-immersion sensor, for installation in hot-water circulation piping.
2. Range: 65 to 200 deg F.
3. Operation of Pump: On or off.
4. Transformer: Provide if required.
5. Settings: Start pump at 110 deg F and stop pump at 120 deg F.
PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with HI 1.4.

B. Install pumps with access for periodic maintenance including removal of motors, impellers, couplings, and accessories.

C. Install in-line, sealless centrifugal pumps with motor and pump shafts horizontal.

D. Install immersion-type thermostats in hot-water return piping.

E. Piping installation requirements are specified in other Division 22 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

F. Install piping adjacent to pumps to allow service and maintenance.

G. Connect domestic water piping to pumps. Install suction and discharge piping equal to or greater than size of pump nozzles.
   1. Install shutoff valve and strainer on suction side of pumps, and check valve on discharge side of pumps. Install valves same size as connected piping.
   2. Install pressure gages at suction and discharge of pumps. Install at integral pressure-gage tappings where provided or install pressure-gage connectors in suction and discharge piping around pumps.

H. Make electrical connections according to National Electrical Code Requirements

I. Connect thermostats to pumps that they control.

END OF SECTION 221123
PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following soil and waste, sanitary drainage and vent piping inside the building:
   1. Pipe, tube, and fittings.
   2. Special pipe fittings.

1.2 PERFORMANCE REQUIREMENTS

A. Components and installation shall be capable of withstanding the following minimum working pressure, unless otherwise indicated:

1.3 QUALITY ASSURANCE

A. Piping materials shall bear label, stamp, or other markings of specified testing agency.


PART 2 - PRODUCTS

2.1 PIPING MATERIALS

A. Solid-Wall PVC Pipe: ASTM D 2665, solid-wall drain, waste, and vent.
   1. PVC Socket Fittings: ASTM D 2665, socket type, made to ASTM D 3311, drain, waste, and vent patterns.

PART 3 - EXECUTION

3.1 PIPING INSTALLATION

A. Install cleanouts at grade and extend to where building sanitary drains connect to building sanitary sewers.

B. Make changes in direction for soil and waste drainage and vent piping using appropriate branches, bends, and long-sweep bends. Sanitary tees and short-sweep 1/4 bends may be used on vertical stacks if change in direction of flow is from horizontal to vertical. Use long-turn, double Y-branch and 1/8-bend fittings if 2 fixtures are installed back to back or side by side with common drain pipe. Straight tees, elbows, and crosses may be used on vent lines. Do not
change direction of flow more than 90 degrees. Use proper size of standard increasers and reducers if pipes of different sizes are connected. Reducing size of drainage piping in direction of flow is prohibited.

C. Lay buried building drainage piping beginning at low point of each system. Install true to grades and alignment indicated, with unbroken continuity of invert. Place hub ends of piping upstream. Install required gaskets according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements. Maintain swab in piping and pull past each joint as completed.

D. Install soil and waste drainage and vent piping at the following minimum slopes, unless otherwise required by code or indicated:

1. Building Sanitary Drain: 2 percent downward in direction of flow for piping NPS 3 and smaller; 1 percent downward in direction of flow for piping NPS 4 and larger.
2. Horizontal Sanitary Drainage Piping: 2 percent downward in direction of flow.
3. Vent Piping: 1 percent down toward vertical fixture vent or toward vent stack.

E. Sleeves are not required for cast-iron soil piping passing through concrete slabs-on-grade if slab is without membrane waterproofing.

F. Install PVC soil and waste drainage and vent piping according to ASTM D 2665.

G. Install underground PVC soil and waste drainage piping according to ASTM D 2321.

H. Do not enclose, cover, or put piping into operation until it is approved by the Architect/Engineer.

3.2 JOINT CONSTRUCTION

A. PVC Nonpressure Piping Joints: Join piping according to ASTM D 2665.

3.3 HANGER AND SUPPORT INSTALLATION

A. Install hangers for PVC piping with the following maximum horizontal spacing and minimum rod diameters:

1. NPS 1-1/2 and NPS 2: 48 inches with 3/8-inch rod.
2. NPS 3: 48 inches with 1/2-inch rod.
3. NPS 4 and NPS 5: 48 inches with 5/8-inch rod.
4. NPS 6: 48 inches with 3/4-inch rod.

B. Install supports for vertical PVC piping every 48 inches.

C. Support piping and tubing not listed above according to MSS SP-69 and manufacturer's written instructions.

3.4 CONNECTIONS

A. Connect soil and waste piping to exterior sanitary sewerage piping. Use transition fitting to join dissimilar piping materials.

B. Connect drainage and vent piping to the following:
1. Plumbing Fixtures: Connect drainage piping in sizes indicated, but not smaller than required by plumbing code.
2. Plumbing Fixtures and Equipment: Connect atmospheric vent piping in sizes indicated, but not smaller than required by plumbing code.
3. Plumbing Specialties: Connect drainage and vent piping in sizes indicated, but not smaller than required by plumbing code.

3.5 CLEANING

A. Clean interior of piping. Remove dirt and debris as work progresses.

B. Protect drains during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction work.

C. Place plugs in ends of uncompleted piping at end of day and when work stops.

3.6 PROTECTION

A. Exposed PVC Piping: Protect plumbing vents exposed to sunlight with two coats of water-based latex paint.

END OF SECTION 221316
SECTION 221323 - SANITARY WASTE INTERCEPTORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1.2 SUMMARY

A. This Section includes the following types of interceptors outside the building:
   1. Oil interceptors.

1.3 DEFINITIONS

A. FRP: Fiberglass-reinforced plastic.
B. HDPE: High-density polyethylene plastic.
C. PE: Polyethylene plastic.
D. PP: Polypropylene plastic.

1.4 SUBMITTALS

A. Product Data: For each type of plastic interceptor indicated. Include materials of fabrication, dimensions, rated capacities, retention capacities, operating characteristics, size and location of each pipe connection, furnished specialties, and accessories.

PART 2 - PRODUCTS

2.1 OIL INTERCEPTORS

A. Oil Interceptors: Plastic body (FRP, PE, or HDPE); with removable sediment bucket or strainer, baffles, vents, and flow-control fitting on inlet.
   1. Inlet, Outlet, Vent, and Waste-Oil Outlet Piping Connections: Hub, hubless, or threaded, unless otherwise indicated.
   2. Accessway Extension Collar:
      a. 24-inch riser.
      b. Cover: Cast iron, AASHTO M306 Traffic load rated. 24 inch- diameter cover with 0.25” gasket. Two closed pickholes. Bolted. ASTM A48 CL35B.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install interceptors per manufacturer’s written directions.
B. Install interceptor inlets and outlets at elevations indicated.
C. Set tops of manhole frames and covers flush with finished surface in pavements.
D. Set plastic interceptors level and plumb.

3.2 CONNECTIONS
A. Drawings indicate general arrangement of piping, fittings, and specialties.
B. Make piping connections between interceptors and piping systems.

END OF SECTION 221323
SECTION 221329 - SANITARY SEWERAGE PUMPS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following sewage pumps and accessories for sanitary drainage piping systems in buildings:
   1. Packaged, submersible sewage pump units.

1.2 SUBMITTALS

A. Product Data: For each type and size of sewage pump specified. Include certified performance curves with operating points plotted on curves; and rated capacities of selected models, furnished specialties, and accessories.

B. Operation and Maintenance Data.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

PART 2 - PRODUCTS

2.1 PACKAGED, SUBMERSIBLE SEWAGE PUMP UNITS

A. Nonclog Units: Factory-assembled and -tested, simplex, single-stage, centrifugal, end-suction, automatic-operation, direct-connected sewage pumps complying with UL 778 and with HI 1.1-1.2 and HI 1.3 for submersible, nonclog sewage pumps.

   1. Impeller: Corrosion resistant materials; statically and dynamically balanced, nonclog design, and capable of handling 2-inch- diameter solids.
   2. Motor: Hermetically sealed, capacitor-start type; with built-in overload protection; and three-conductor, waterproof power cable of length required and with grounding plug and cable-sealing assembly for connection at pump.
   3. Control: Manufacturer's standard panel for control and operation of one pump.
      a. Hand-Off-Auto Switch
      b. Alarm horn
   4. Controls: Automatic, with mechanical- or mercury-float switches.
      a. Pump-on float
      b. Pump-off float
      c. High level alarm float
   5. Basin: Watertight and of sized for one pump with multiple inlet pipe connections and gastight cover with vent and pump discharge connections.
PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine roughing-in for plumbing piping to verify actual locations of sanitary drainage and vent piping connections before sewage pump installation.

3.2 INSTALLATION

A. Install sewage pumps according to applicable requirements in HI 1.4 and all manufacturer written instructions.

B. Install pumps and arrange to provide access for maintenance including removal of motors, impellers, couplings, and accessories.

C. Set submersible sewage pumps on basin floors. Make direct connections to sanitary drainage piping.

D. Install sewage pump basins and connect to drainage and vent piping. Brace interior of basins according to manufacturer's written instructions to prevent distortion or collapse during concrete placement. Set basin cover and fasten to basin top flange. Install cover so top surface is flush with finished floor.

E. Support piping so weight of piping is not supported by pumps.

3.3 CONNECTIONS

A. Install piping adjacent to sewage pumps to allow service and maintenance.

B. Connect sanitary drainage and vent piping to pumps. Install discharge piping equal to or greater than size of pump discharge piping. Install vent piping equal to or greater than size of pump basin vent connection.
   1. Install check and shutoff valves on discharge piping from each pump. Install unions on pumps having threaded pipe connections. Install valves same size as connected piping.

C. Make electrical connections in accordance with the National Electrical Code.

END OF SECTION 221329
PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following fuel-fired water heaters:
   1. Commercial, atmospheric, storage, gas water heaters.
   2. Water heater accessories.

1.2 SUBMITTALS

A. Product Data: For each type and size of water heater indicated. Include rated capacities, operating characteristics, furnished specialties, and accessories.

B. Operation and maintenance data.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to Architect/Engineer having jurisdiction, and marked for intended use.

B. ASME Compliance: Where ASME-code construction is indicated, fabricate and label commercial water heater storage tanks to comply with ASME Boiler and Pressure Vessel Code: Section VIII, Division 1.

C. Comply with NSF 61, "Drinking Water System Components - Health Effects; Sections 1 through 9" for all components that will be in contact with potable water.

PART 2 - PRODUCTS

2.1 COMMERCIAL, GAS WATER HEATERS


   a. Tappings: Factory fabricated of materials compatible with tank. Attach tappings to tank before testing.
      1) NPS 2 and Smaller: Threaded ends according to ASME B1.20.1.
      2) NPS 2-1/2 and Larger: Flanged ends according to ASME B16.5 for steel and stainless-steel flanges, and according to ASME B16.24 for copper and copper-alloy flanges.
   b. Interior Finish: Comply with NSF 61 barrier materials for potable-water tank linings, including extending finish into and through tank fittings and outlets.

2. Factory-Installed, Storage-Tank Appurtenances:
   a. Anode Rod: Replaceable magnesium.
   b. Dip Tube: Provide unless cold-water inlet is near bottom of tank.
   c. Drain Valve: Corrosion-resistant metal complying with ASSE 1005.
d. Insulation: Comply with ASHRAE/IESNA 90.1. Surround entire storage tank except connections and controls.
e. Jacket: Steel with enameled finish.
f. Burner: For use with atmospheric water heaters and for natural-gas fuel.
g. Automatic Ignition: ANSI Z21.20, electric, automatic, gas-ignition system.
h. Temperature Control: Adjustable thermostat.
i. Safety Controls: Automatic, high-temperature-limit and low-water cutoff devices or systems.
j. Combination Temperature and Pressure Relief Valves: ANSI Z21.22/CSA 4.4. Include one or more relief valves with total relieving capacity at least as great as heat input, and include pressure setting less than water heater working-pressure rating. Select one relief valve with sensing element that extends into storage tank.

3. Special Requirements: NSF 5 construction.

2.2 WATER HEATER ACCESSORIES

B. Gas Pressure Regulators: ANSI Z21.18, appliance type. Include pressure rating, capacity, and pressure differential required between gas supply and water heater.
C. Gas Automatic Valves: ANSI Z21.21, appliance, electrically operated, on-off automatic valve.
D. Compression Tank: Steel, pressure-rated tank constructed with welded joints and factory-installed, butyl-rubber diaphragm. Provide with air-charging valve and pre-charge to minimum system-operating pressure at tank. Interior finish to comply with NSF 61 barrier materials for potable-water tank linings.
E. Seismic Restraint Straps: Heavy gauge, galvanized steel strapping designed for water heater restraint.
F. Piping-Type Heat Traps: Field-fabricated piping arrangement according to ASHRAE/IESNA 90.1 or ASHRAE 90.2.

PART 3 - EXECUTION

3.1 WATER HEATER INSTALLATION

A. Install commercial water heaters on concrete bases.
   1. Exception: Omit concrete bases for commercial water heaters if installation on stand, bracket, suspended platform, or direct on floor is indicated.
B. Install water heaters level and plumb, according to layout drawings, original design, and referenced standards. Maintain manufacturer's recommended clearances. Arrange units so controls and devices needing service are accessible.
C. Install gas water heaters according to NFPA 54.
   1. Install gas shutoff valves on gas supplies to gas water heaters without shutoff valves.
2. Install gas pressure regulators on gas supplies to gas water heaters without gas pressure regulators if gas pressure regulators are required to reduce gas pressure at burner.
3. Install automatic gas valves on gas supplies to gas water heaters, if required for operation of safety control.

D. Install combination temperature and pressure relief valves in top portion of storage tanks. Use relief valves with sensing elements that extend into tanks. Extend commercial, water-heater, relief-valve outlet, with drain piping same as domestic water piping in continuous downward pitch, and discharge by positive air gap onto closest floor drain.

E. Install water heater drain piping as indirect waste to spill by positive air gap into open drains or over floor drains. Install hose-end drain valves at low points in water piping for water heaters that do not have tank drains.

F. Install thermometer on outlet piping of water heaters.

G. Install piping-type heat traps on inlet and outlet piping of water heater storage tanks without integral or fitting-type heat traps.

H. Install seismic restraint strap at top and bottom of water heater and anchor to the wall.

I. Fill water heaters with water.

3.2 CONNECTIONS

A. Install piping adjacent to water heaters to allow service and maintenance. Arrange piping for easy removal of water heaters.

B. Make electrical connections according to the National Electrical Code.

END OF SECTION 223400
PART 1 - GENERAL

1.1 SUMMARY

A. Trench, backfill, compact, as specified herein, and as needed for installation of underground utilities associated with the work.

1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

B. Use equipment adequate in size, capacity, and numbers to accomplish the work in a timely manner.

C. Perform Field Quality Controls Testing as specified herein.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. Standard Trench Excavation: All materials encountered during trench excavation, except rock and over-excavation.

1. Suitable Backfill Material:

   a. Manufactured and non-manufactured open-graded (clean) or dense-graded (clean) processed aggregate, clean sand, or coarse-grained natural soils (clean) with little or no fines as further defined in the following table:
### Trenching and Backfill

<table>
<thead>
<tr>
<th>TYPE</th>
<th>SOIL GROUP SYMBOL ASTM D 2487</th>
<th>DESCRIPTION</th>
<th>PERCENTAGE PASSING SIEVE SIZES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 1/2 IN</td>
</tr>
<tr>
<td>COARSE-GRAINED SOILS, CLEAN</td>
<td>GW</td>
<td>WELL-GRADED GRAVELS AND GRAVEL-SAND MIXTURES; LITTLE OR NO FINES</td>
<td>&lt;50% OF &quot;COARSE FRACTION&quot;</td>
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<tr>
<td></td>
<td>GP</td>
<td>POORLY-GRADED GRAVELS AND GRAVEL-SAND MIXTURES; LITTLE OR NO FINES</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>SW</td>
<td>WELL-GRADED SANDS AND GRAVELLY SANDS; LITTLE OR NO FINES</td>
<td>&gt;50% OF &quot;COARSE FRACTION&quot;</td>
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<tr>
<td></td>
<td>SP</td>
<td>POORLY-GRADED SANDS AND GRAVELLY SANDS; LITTLE OR NO FINES</td>
<td></td>
</tr>
<tr>
<td>COARSE-GRAINED SOILS, BORDERLINE CLEAN TO WITH FINES</td>
<td>e.g. GW-GC, SP-SC</td>
<td>SAND AND GRAVEL THAT ARE BORDERLINE BETWEEN CLEAN AND WITH FINES</td>
<td>100%</td>
</tr>
</tbody>
</table>

b. Natural coarse-grained soils with fines as further defined in the following table:

<table>
<thead>
<tr>
<th>TYPE</th>
<th>SOIL GROUP SYMBOL ASTM D 2487</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>GM</td>
<td>SILTY GRAVEL, GRAVEL-SAND-SILT MIXTURES</td>
<td></td>
</tr>
<tr>
<td>GC</td>
<td>CLAYEY GRAVEL, GRAVEL-SAND-CLAY MIXTURES</td>
<td></td>
</tr>
<tr>
<td>SM</td>
<td>SILTY SANDS, SAND-SILT MIXTURES</td>
<td></td>
</tr>
<tr>
<td>SC</td>
<td>CLAYEY SANDS, SAND-CLAY MIXTURES</td>
<td></td>
</tr>
</tbody>
</table>

2. Unsuitable Backfill Material: Includes, but is not limited to, the following materials:

a. Soils not classified as suitable backfill material
b. Individual stones or concrete chunks larger than 6 inches and averaging more than one per each cubic foot of soil.
c. Frozen materials.
d. Stumps, logs, branches, and brush.
e. Trash, metal, or construction waste.
f. Soil in clumps or clods larger than 6 inches, and without sufficient fine materials to fill voids during placement.
g. Environmentally contaminated soils.
h. Materials removed as rock excavation or over-excavation.
B. Bedding Materials:

1. Crushed stone aggregate materials complying with the following gradation:

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<th>PERCENT PASSING</th>
</tr>
</thead>
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</tr>
<tr>
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<td>25 TO 60</td>
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<td>No. 4</td>
<td>0 TO 10</td>
</tr>
<tr>
<td>No. 8</td>
<td>0 TO 5</td>
</tr>
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</table>

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 FINISH ELEVATIONS AND LINES

A. Finish grading shall be worked to match existing grades. Rocks and other debris unearthed during finish grading operations shall be removed from immediate construction area and disposed of off-site.

B. The Contractor shall provide field engineering services as required but not limited to:

1. Establish and maintain lines and levels.
2. Structural design of shores, forms, and similar items as part of his/her means and methods of construction.

3.3 PROCEDURES

A. Utilities:

1. No attempt is made to indicate or show accurate location of all underground utilities in the line of, or crossing the proposed work.
2. The determination of the exact location of all existing facilities, and all other pipes, services and structures, and their proper protection, support and maintenance during all construction operations, is the expressed responsibility of the Contractor in the performance of his contract. Contractors are advised to secure any additional information, relative to the underground utility lines, by consulting with proper private and public officials, under whose jurisdiction the maintenance and operation of the utility lines lie, and/or by field investigations at his own expense.
3. Wherever underground utilities are disturbed or damaged as a result of the construction work proposed herein and such utilities can be replaced at their original locations and grades with all costs in connection with such replacement work to be borne by the Contractor and no separate or extra payment will be made therefore.
B. Protection of persons and property:
   1. Furnish, install and maintain barricades, warning lights, and/or warning tape at open holes and depressions or other potential hazards occurring as part of this Work.
   2. Operate warning lights during hours from dusk to dawn each day and as otherwise required.
   3. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, washout, and other hazards created by operations under this Section.

C. Dewatering:
   1. Remove all water, including rain water, encountered during trench and substructure work to an approved location by pumps, drains, and other approved methods.
   2. Keep excavations and site construction area free from water.

3.4 EXCAVATING
A. Perform excavating within the limits of the Work to the lines, grades, and elevations indicated and specified herein.
B. Surplus materials:
   1. Dispose of unsatisfactory excavated materials, and surplus excavated material.
C. Excavate and backfill in a manner and sequence that will provide proper drainage at all times.

3.5 PIPE BEDDING
A. Place bedding material in the bottom of the trench in lifts no greater than 6 inches thick. Consolidate and moderately compact bedding material.
B. Shape bedding material to evenly support pipe at the proper line and grade, with full contact under the bottom of the pipe. Excavate for pipe bells.
C. Install pipe and system components.
D. Place, consolidate, and moderately compact additional bedding material adjacent to the pipe to a depth equal to 1/6 the outside diameter of the pipe.

3.6 HAUNCH SUPPORT
A. Granular Material:
   1. Place aggregate material in lifts no greater than 6 inches thick.
   2. Consolidate and moderately compact by slicing with a shovel or using other approved techniques.
B. Suitable Backfill Material:
1. Place in lifts no greater than 6 inches thick.
2. For suitable backfill materials, compact to at least 90% of Standard Proctor Density. Obtain required compaction within a soil moisture range of optimum moisture of -2% to 4% above optimum moisture content.

3.7 FILLING AND BACKFILLING

A. Backfill excavations as promptly as progress of the Work permits, but not until:
   1. Acceptance of construction below finish grade.
   2. Shoring and bracing are removed, and voids have been backfilled with satisfactory materials.
   3. Trash and debris have been removed.

B. Placing and compacting:
   1. Place backfill materials in layers not more than 8" in loose depth.
   2. Before compacting, moisten or aerate each layer as necessary to provide the optimum moisture content.
   3. Compact each layer to required percentage of maximum density for the area.
   4. Do not place backfill or fill material on surfaces that are muddy, frozen, or containing frost or ice.
   5. Hydraulic compaction (flooding with water) is not allowed unless authorized by the Engineer.
   6. Place backfill and fill materials evenly adjacent to structures, to required elevations.
   7. Take care to prevent wedging action of backfill against structures by carrying the material uniformly around the structures to approximately the same elevation in each lift.

3.8 COMPACTING

A. Control soil compaction during construction to provide the minimum percentage of density specified for each area as determined according to Standard Proctor Density (ASTM D 698).

B. Provide not less than the following maximum density of soil material compacted at optimum moisture content for the actual density of each layer of soil material in place.
   1. Backfill under buildings or structures @ 98% of maximum density (compact to at least 80% relative density for clean aggregates).
   2. Backfill under pavements and walks @ 95% of maximum density (compact to at least 80% relative density for clean aggregates).
   3. All other backfill @ 90% of maximum density (compact to at least 65% relative density for clean aggregates).

3.9 FIELD QUALITY CONTROL

A. Trench compaction testing is the Contractor’s responsibility and they shall provide testing of trench backfill material using the services of an independent testing laboratory approved by the Engineer.

B. Soil Testing:
1. Cohesive Soils:
   a. Determine moisture-density relationships by ASTM D 698 (Standard Proctor). Perform at least one test for each type of cohesive soil used.
   b. Determine in-place density and moisture content. Use ASTM D 1556 (sand-cone method) and ASTM D 2216 (laboratory moisture content), or use ASTM D 6938 (nuclear methods for density and moisture content).

2. Cohesionless Soils:
   a. Determine maximum and minimum index density and calculate relative density using ASTM D 4253 and ASTM D 4254.
   b. For clean aggregate granular bedding material and backfill, determine gradation according to ASTM C 136.

C. Field Testing:
   1. Testing Frequency and Locations: Perform testing of the final trench backfill, beginning at a depth of 2 feet above the top of the pipe, as follows:
      a. For each 2 vertical feet of consolidated fill, provide tests at a maximum horizontal spacing of 200 feet and at all street crossings.
      b. Additional testing may be required by the Engineer in the event of non-compliance or if conditions change.

   2. Test Failure and Retesting: Rework, recompact, and retest as necessary until specified compaction and moisture content is achieved in all areas of the trench. In the event of failed tests, the Engineer may require retesting as deemed necessary.

3.10 MAINTENANCE

A. Protection of newly trenched areas:
   1. Repair and reestablish grades in settled, eroded, and rutted areas to the specified tolerances.

B. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify the surface, reshape, and compact to the required density prior to further construction.

END OF SECTION 312333
APPENDIX 1

Asbestos Inspection Report

MO State Highway Patrol Troop B Headquarters
308 Pine Crest Drive
Macon, Missouri

June 19, 2020

Prepared for:

STATE OF MISSOURI

730 Truman Building
301 W. High St. PO Box 809
Jefferson City, MO  65102

Prepared by:

KLINGNER & ASSOCIATES, P.C.

616 N. 24th Street
Quincy, IL

Project No. 20-5007
# TABLE OF Contents

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EXHIBITS:

EXHIBIT A – ASBESTOS SAMPLE RESULTS SUMMARY
EXHIBIT B – PHOTOGRAPHS
EXHIBIT C – SAMPLE LOCATION MAP
EXHIBIT D – LABORATORY REPORT
EXHIBIT E – ASBESTOS LOCATION MAP
EXHIBIT F – MISSOURI ASBESTOS INSPECTOR LICENSE
1.0 INTRODUCTION

The asbestos inspection was requested by the State of Missouri. The purpose of the inspection was to determine if asbestos containing building materials are currently located in the structure located at 308 Pine Crest Drive in Macon, MO.

2.0 SITE DESCRIPTION

Property Address: 308 Pine Crest Drive, Macon, MO

The building inspected in the Missouri State Highway Patrol Troop B Headquarters and Crime Lab. The building contains two (2) floors consisting of a main floor with offices and a radio room, and a lower level with evidence rooms and a firing range.

The inspection included sampling visible suspect asbestos containing building materials located on the interior of the structure. Inspection of the exterior of the structure was not conducted.

3.0 ASBESTOS INSPECTION

3.1 Introduction

Asbestos is a naturally occurring mineral. There are essentially 6 types of asbestos minerals, only 3 of which were used commercially. These are: 1) Chrysotile - the most commonly used type of asbestos and accounts for approximately 95% of the asbestos found in buildings in the United States, 2) Amosite - the second most likely type to be found in buildings, and 3) Crocidolite - was used in high temperature insulation applications.

All materials containing greater than 1% asbestos are considered to be ACM (asbestos containing material) in the State of Missouri by the Missouri Department of Natural Resources and the Occupational Safety and Health Administration (OSHA).

3.2 Regulations

The primary federal regulations include:
- ASHARA (Asbestos School Hazard Abatement Reauthorization Act), which applies to both public and commercial buildings;
• OSHA - 29 CFR 1926.1101 (Occupational Safety and Health Administration's), which applies to employees of employers in the workforce;
• NESHAP - 40 CFR 61 (National Emission Standards for Hazardous Air Pollutants), which applies to exposure or potential exposure to the general public (NESHAP includes public, commercial, and some residential buildings being demolished or renovated).

Certain types of asbestos are regulated differently under NESHAP regulations. Specifically, regulated ACM is: 1) friable ACM; 2) Category I nonfriable ACM that is in poor condition or has become friable; 3) Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting or abrading, or 4) Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder in the course of demolition or renovation operations. Category I nonfriable ACM consists of any asbestos-containing packing, gasket, resilient floor covering, or asphalt roofing product that contains more than 1 percent asbestos as determined using Polarized Light Microscopy (PLM) analysis. Category II nonfriable ACM consists of any material except for Category I nonfriable ACM that contains more than one percent asbestos as determined using PLM and that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

3.3 Inspection Results

Micah Holtschlag, Licensed Asbestos Inspector – Missouri license number 71181206MOIR12123 (see Exhibit F – Missouri Asbestos Inspector License) of Klingner & Associates, P.C. performed an asbestos inspection on the structure located at 308 Pine Crest Drive in Macon, MO on May 28, 2020. The inspection included a visual assessment for possible asbestos containing building materials (ACBM) in the structure. Demolition to access suspect materials behind walls, above fixed ceilings, or in chase ways was not conducted. Samples were collected from observed suspect materials. Samples were shipped under chain of custody to EMSL Analytical, Inc. in Hillside, Illinois. EPA Method 600/R-93/116 for Polarized Light Microscopy (PLM) was used to determine the presence or absence of asbestos and the percentage content in each sample collected. Documentation of the inspection is included in the Exhibits as follows:

• Exhibit A – Asbestos Sample Results Summary
• Exhibit B – Photographs
• Exhibit C – Sample Location Map
• Exhibit D – Laboratory Report
• Exhibit E – Asbestos Location Map
• Exhibit F – Missouri Asbestos Inspector License

During the inspection, thirty (30) homogeneous areas were identified and ninety (90) samples were collected. Samples were collected from floor tile, floor tile mastic, ceiling tile, sheet vinyl, sheet vinyl mastic, pipe fitting insulation, cloth insulation wrap, floor base, floor base mastic, wall...
plaster (skim and base coats), stair tread, stair tread mastic and carpet mastic. Analytical results indicated three (3) homogeneous areas contained greater than 1% asbestos. A summary of the identified asbestos containing materials is included in the table below and in Exhibit A. Photographs of the materials are included as Exhibit B. Maps showing the location of the asbestos containing materials are included in Exhibit E.

TABLE 1 – ASBESTOS CONTAINING BUILDING MATERIALS

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Location</th>
<th>Percent &amp; Type</th>
<th>Sample Description</th>
<th>Category I, II, or Friable</th>
<th>Condition (Good, Fair, or Poor)</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Lower Level &amp; Main Floor</td>
<td>2% Chrysotile</td>
<td>9&quot;X9&quot; Floor Tile</td>
<td>Category I</td>
<td>Good</td>
<td>2,080 Square Feet</td>
</tr>
<tr>
<td>9</td>
<td>Lower Level &amp; Main Floor</td>
<td>5% Chrysotile</td>
<td>Mastic for 8</td>
<td>Category I</td>
<td>Good</td>
<td>2,080 Square Feet</td>
</tr>
<tr>
<td>13</td>
<td>Main Floor</td>
<td>3% Chrysotile</td>
<td>Mastic for 12</td>
<td>Category I</td>
<td>Good</td>
<td>1,040 Square Feet</td>
</tr>
</tbody>
</table>

3.4 Recommendations

If the materials listed in the table above are going to be disturbed during renovation activities, they should be removed by a Missouri licensed asbestos abatement contractor.
4.0 CERTIFICATION

I, Micah Holtschlag, certify that this asbestos inspection was performed in compliance with Missouri Rules and Regulations and the National Emission Standards for Hazardous Air Pollutants for asbestos. In general, three (3) samples were collected from each identified suspect asbestos containing building material (unless specifically excluded as described in Section 3.3 – Inspection Results).

_________________________  June 18, 2020
Micah Holtschlag
Missouri Asbestos Inspector License # 7118120619MOIR12123
### ASBESTOS SAMPLE RESULTS SUMMARY

For: Missouri State Highway Patrol  
Site Identification: Toop B Headquarters  
Macon, MO

**Inspection Date:** 5/29/2020  
Klingner & Associates, P.C. Project Number 20-5007

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Location</th>
<th>Category I, Category II, or Friable</th>
<th>Condition (Good, Fair, or Poor)</th>
<th>Quantity</th>
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<tbody>
<tr>
<td></td>
<td>ASBESTOS</td>
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</tr>
<tr>
<td></td>
<td>Percent, Type</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Main Level
- **Location:** 12"X12" Floor Tile (Tan Streaked)  
- **Category I:** Good  
- **Condition:** NA  
- **Quantity:** 2,080 Square Feet

#### Main Floor
- **Location:** Floor Base (Tan)  
- **Category I:** Good  
- **Condition:** NA  
- **Quantity:** 2,080 Square Feet

#### Lower Level & Main Floor
- **Location:** 9"X9" Floor Tile (White w/ Gray Streaks)  
- **Category I:** Good  
- **Condition:** NA  
- **Quantity:** 1,040 Square Feet

#### Lower Level
- **Location:** 13"X12" Floor Tile (White w/ Tan Streaks)  
- **Category I:** Good  
- **Condition:** NA  
- **Quantity:** NA

#### Evidence Room
- **Location:** 2'X4' Ceiling Tile (White, Large Fissure)  
- **Category I:** Good  
- **Condition:** NA  
- **Quantity:** NA

#### Interior Walls
- **Location:** Wall Plaster (Skim Coat)  
- **Category I:** Good  
- **Condition:** NA  
- **Quantity:** NA

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Location</th>
<th>Category I, Category II, or Friable</th>
<th>Condition (Good, Fair, or Poor)</th>
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<tr>
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<td>ASBESTOS</td>
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</tr>
<tr>
<td></td>
<td>Percent, Type</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Main Floor
- **Location:** Mastic for 12  
- **Category I:** Good  
- **Condition:** NA  
- **Quantity:** 1,040 Square Feet

#### Piping throughout building
- **Location:** Cloth Wrap Over Fiberglass Pipe Insulation  
- **Category I:** NA  
- **Condition:** NA  
- **Quantity:** NA

#### Main Floor Wall Plaster (Skim Coat)
- **Location:** Mastic for 14  
- **Category I:** NA  
- **Condition:** NA  
- **Quantity:** NA

#### Main Level Wall Plaster (Base Coat)
- **Location:** 2'X4' Ceiling Tile (White, Large Fissure)  
- **Category I:** NA  
- **Condition:** NA  
- **Quantity:** NA

#### Main Floor Floor Base (White)
- **Location:** Mastic for 19  
- **Category I:** NA  
- **Condition:** NA  
- **Quantity:** NA

#### Interior Walls Main Floor
- **Location:** Wall Plaster (Base Coat)  
- **Category I:** NA  
- **Condition:** NA  
- **Quantity:** NA

#### Main Floor, Original Building Hallways
- **Location:** Sheet Vinyl (Tan, Pebble Pattern)  
- **Category I:** NA  
- **Condition:** NA  
- **Quantity:** NA

#### Main Floor, Original Building Hallways
- **Location:** Mastic for 19  
- **Category I:** NA  
- **Condition:** NA  
- **Quantity:** NA

#### Main Floor
- **Location:** Floor Base (White)  
- **Category I:** NA  
- **Condition:** NA  
- **Quantity:** NA

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Location</th>
<th>Category I, Category II, or Friable</th>
<th>Condition (Good, Fair, or Poor)</th>
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<tr>
<td></td>
<td>Percent, Type</td>
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## ASBESTOS SAMPLE RESULTS SUMMARY

For: Missouri State Highway Patrol  
Site Identification: Toop B Headquarters  
Macon, MO  
Inspection Date: 5/28/2020  
Klingner & Associates, P.C. Project Number 20-5007

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<th>Sample Description</th>
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<th>Condition (Good, Fair, or Poor)</th>
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<td>Main Floor</td>
<td>ND</td>
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<td>Mastic for 21</td>
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<td>NA</td>
<td>NA</td>
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<td>22B</td>
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Notes:  
ND = None Detected  
PS = Positive Stop, Sample Not Analyzed  
NA = Not Applicable
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Date: May 28, 2020
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<td>2 A-C</td>
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<td>3 A-C</td>
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Client Sample #: 32-C

Total # of Samples: 90

Relinquished (Client): 

Received (Client): 

Comments/Special Instructions:
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<td>Wall Plaster (skim)</td>
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*Comments/Special Instructions: No Samples for 23 A-C & 24 A-C*
### Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

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<tr>
<th>Sample</th>
<th>Description</th>
<th>Appearance</th>
<th>% Fibrous</th>
<th>% Non-Fibrous (Other)</th>
<th>Asbestos Type</th>
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<td>10% Non-fibrous (Other)</td>
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<td>CEILING TILE</td>
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<td>30% Perlite</td>
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<td>60% Cellulose</td>
<td>30% Perlite</td>
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<td>CEILING TILE</td>
<td>Tan/White Fibrous</td>
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# Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

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<th>% Fibrous</th>
<th>% Non-Fibrous</th>
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## Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

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<td>Asbestos % Type</td>
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# Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

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<th>% Non-Fibrous</th>
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EMSL maintains liability limited to cost of analysis. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 “Interim Method”), but augmented with procedures outlined in the 1993 (“final”) version of the method. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. All samples received in acceptable condition unless otherwise noted. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. EMSL recommends gravimetric reduction for all non-friable organically bound materials prior to analysis. Estimation of uncertainty is available on request.

Initial report from: 06/05/2020 18:45:59

EMSL Order: 262003961
Customer ID: KLIN50
Customer PO:
Project ID:

Analyst(s)

Christine Stouffer (20)
Kristen Berglund (57)
Lisa Odeshoo (7)

James Hahn, Laboratory Manager
or Other Approved Signatory

Samples analyzed by EMSL Analytical, Inc. Hillside, IL NVLAP Lab Code 200399-0
Exhibit E

ASBESTOS LOCATION MAP
ASBESTOS CONTAINING FLOOR TILE & MASTIC (2,080 SQUARE FEET TOTAL)

ASBESTOS CONTAINING FLOOR TILE MASTIC (FLOOR TILE IS NEGATIVE) (1,040 SQUARE FEET TOTAL)

CARPET OVER
EXHIBIT F

MISSOURI ASBESTOS INSPECTOR LICENSE
February 26, 2020

Micah Holtschlag
621 Monroe St
Quincy, IL 62301

RE: Missouri Asbestos Occupation Certification Card

Enclosed is your certification card for Asbestos Inspector, as issued by the Asbestos Unit of the Missouri Department of Natural Resources' Air Pollution Control Program.

Missouri Certification Number: 7118120619MOIR12123
Course Training Date: December 06, 2019
Missouri Certification Approval Date: February 27, 2020
Missouri Certification Expiration Date: December 06, 2020

Note:
- All Missouri-certified asbestos personnel must comply with the following statutes and regulations:
  - Sections 643.225 to 643.250, RSMo;
  - 10 CSR 10-6.241 Asbestos Projects-Registration, Abatement, Notification, Inspection, Demolition, and Performance Requirements; and
  - 10 CSR 10-6.250 Asbestos Projects-Certification, Accreditation and Business Exemption Requirements.
- To keep your occupation certification up-to-date, you must complete an annual refresher course and submit a renewal application each year.
- In order to be eligible to renew your certification, you must successfully complete a refresher course with a Missouri-accredited training provider within 12 months of the expiration date of your current training certificate. If you exceed this grace period, you will be required to retake a Missouri-accredited initial course in order to be eligible for Missouri certification.

To obtain a copy of the certification renewal application, or review regulations and requirements, please visit our website at http://dnr.mo.gov/env/apcp/asbestos/index.htm.

If you have any questions please call the Air Pollution Control Program at 573-751-4817.

AIR POLLUTION CONTROL PROGRAM

Director of Air Pollution Control Program
June 10, 2020

LEAD-BASED PAINT INSPECTION REPORT

Lance Schuette
Klingner & Associates
616 N. 24th Street
Quincy, IL 62301

Re: Macon County, MO
Highway Patrol Building

Dear Mr. Schuette:

On May 28, 2020, Mark Ramsey, of Farmer Environmental Services, LLC, performed a lead-based paint inspection Missouri Highway Patrol Building located at 308 Pine Crest Drive in Macon, MO. The lead inspection was not a full surface by surface investigation. The scope of work called for sufficient testing to provide general information regarding lead-based paint on the various painted surfaces in the building. Sampling was requested to determine if upcoming renovation activities may impact or disturb lead-based paint.

Mr. Ramsey is a Missouri licensed Lead Risk Assessor. A Niton XLp Analyzer (X-Ray Fluorescence) was used for testing purposes. XRF testing is a non-destructive testing method. The analyzer provides a positive or negative reading (as well as a concentration). The criterion for lead-based paint when using an XRF Analyzer is one milligram per square centimeter (1.0 mg/cm²). Testing included painted surfaces such as walls, floors, door components, window components, and various other painted surfaces. A total of 71 painted surfaces were tested.

Testing found the following surface to be above the criterion of 1.0 mg/cm²:

- 4" x 4" Ceramic Wall Tile in an Intact Condition
  The 4" x 4" ceramic wall tile was identified in Men's Bathroom G3, Storage Room G9, Toilet 7, Women's Bathroom 10, and Men's Bathroom 17.

The common theme in the building was the presence of lead in connection with the 4" x 4" ceramic wall tile. Regardless of the locations listed above, all 4" x 4" ceramic wall tile in the building should be treated as if the tile is lead based. Unless disturbed by renovation/demolition, the 4" x 4" ceramic wall tile would not be considered a lead hazard while it remains in an intact condition.
Testing results did show concentrations of lead at less than 1.0 mg/cm². Painted surfaces with concentrations under the criterion referenced above are deemed lead containing paint. Lead can still be present in paint which is not classified as "lead based". This would occur when the paint has a lower amount of lead than the EPA regulates. If lead is present in the paint, lead dust can be released when the paint deteriorates, or is disturbed during remodeling, renovation, sanding, or some maintenance work that breaks the surfaces of the paint. Activities that impact lead containing paint should be performed in accordance with the OSHA lead standard for the construction industry.

Sheets listing the XRF test locations can be found on the pages following this summary. Certifications are located at the end of this report. If there are any questions, or additional information is needed, please contact us at 618-656-6988.

Respectfully Submitted,

Mark Ramsey (Inspector)
Farmer Environmental Services, LLC
Missouri License #070816-300001731

Mike Burke (prepared by)
Farmer Environmental Services, LLC
XRF – Lead Based Paint Inspection Key:

Column 1: The room, room number, or best description possible for the test shot

Column 2: Direction for surfaces such as walls, etc.

Column 3: The description of the surface (Wall, Door, Door Frame, etc.)

Column 4: The substrate of the surface
W = Wood M = Metal P = Plaster, CB = Concrete Block, C = Concrete, D = Drywall, etc.

Column 5: The condition of the surface: I = Intact or D = Deteriorated

Column 6: The XRF Reading
Any reading 1.0 or greater is considered to be Lead-Based Paint (LBP)

Column 7: Pos = Positive for LBP. The row will also be highlighted in yellow
Neg = Negative for LBP

Column 8: Any additional notes found during testing
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STATE OF MISSOURI
DEPARTMENT OF HEALTH AND SENIOR SERVICES

LEAD OCCUPATION LICENSE REGISTRATION

Issued to:

Mark A. Ramsey

The person, firm or corporation whose name appears on this certificate has fulfilled the requirements for licensure as set forth in the Missouri Revised Statutes 701.300-701.338, as long as not suspended or revoked, and is hereby authorized to engage in the activity listed below.

Lead Risk Assessor
Category of License

Issuance Date: 8/16/2019
Expiration Date: 8/16/2021
License Number: 070816-300001731

Randall W. Williams, MD, FACOG
Director
Department of Health and Senior Services

Lead Licensing Program, PO Box 570, Jefferson City, MO 65102
Mark Ramsey

108 Emerald Hills Drive, Edwardsville, IL 62025

has attended

8 contact hours of training and successfully passed an examination

Examination Date: 4/24/2019

Certificate 

CEET 325 - 4/24/2019 - 118425

CEUs: 0.8

Certificate expiration is 3 years from examination date for Illinois Dept of Public Health

Center for Environmental Education and Training, 13545 Lafayette, St. Louis, MO 63104

(314) 977-8256 - slu.edu/test/9753.xml

This training course has been accredited by the Illinois Department of Public Health, and by the Missouri Department of Health & Senior Services

Director, Center for Environmental Education and Training

Christopher C. King PhD