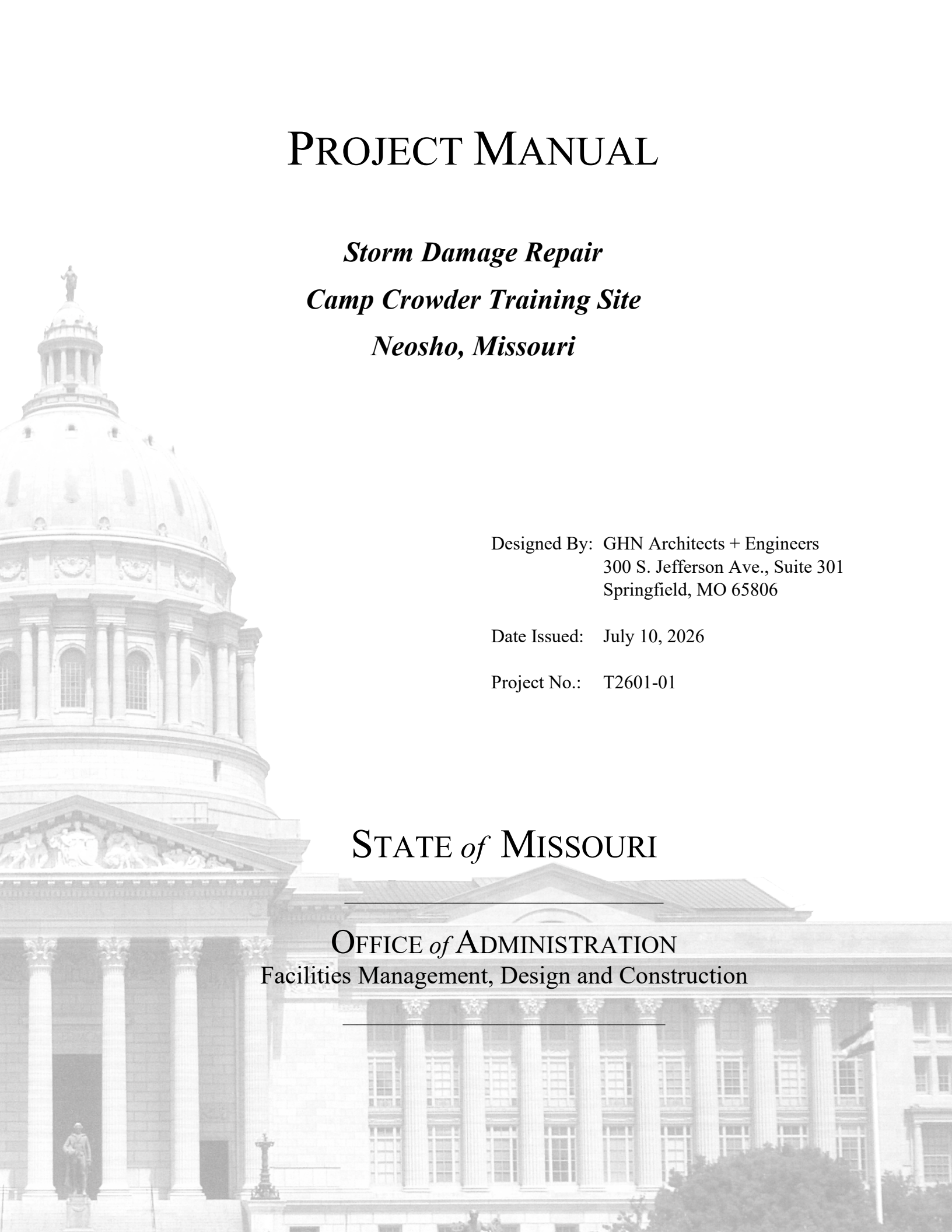




# PROJECT MANUAL

## *Storm Damage Repair Camp Crowder Training Site Neosho, Missouri*

Designed By: GHN Architects + Engineers  
300 S. Jefferson Ave., Suite 301  
Springfield, MO 65806

Date Issued: July 10, 2026

Project No.: T2601-01

STATE *of* MISSOURI

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OFFICE *of* ADMINISTRATION  
Facilities Management, Design and Construction

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**PROJECT NUMBER: T2601-01 STORM DAMAGE REPAIR, CAMP CROWDER TRAINING SITE, NEOSHO, MISSOURI – MULTIPLE ASSETS**

**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:**

**Architect**



James Wesley Bradford Baker  
A-2005001197

**Mechanical Engineer**



(Structural Specifications appear only on the S-Sheets)

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**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**

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

| <b><u>TITLE</u></b>                               | <b><u>SHEET #</u></b> | <b><u>DATE</u></b> |
|---------------------------------------------------|-----------------------|--------------------|
| Cover Sheet                                       | Sheet G-100           | 07/10/26           |
| General Info, Project Scope,<br>Building Location | Sheet G-200           | 07/10/26           |
| Site Element Repairs                              | Sheet C-100           | 07/10/26           |
| Demolition Information                            | Sheet C-101           | 07/10/26           |
| Typical Roofing Details                           | Sheet A-100           | 07/10/26           |
| Roof Plan & Elevations                            | Sheet A-101           | 07/10/26           |
| Observation Tower Elevations                      | Sheet A-102           | 07/10/26           |
| Floor Plan & Elevations                           | Sheet A-103           | 07/10/26           |
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| Elevations / Details BLDG 750                     | Sheet A-107           | 07/10/26           |
| Roof Plan & Elevations                            | Sheet A-108           | 07/10/26           |
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| General Notes and Plans | Sheet S-100 | 07/10/26 |
| HVAC Work               | Sheet M-100 | 07/10/26 |

**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. Storm Damage Repair  
Camp Crowder Training Site  
Neosho, Missouri  
**Project No.: T2601-01**

### 3.0 BIDS WILL BE RECEIVED:

- A. Until: 1:30 PM, August 25, 2026
- B. **Only electronic bids sent to [FMDCBids@oa.mo.gov](mailto:FMDCBids@oa.mo.gov) shall be accepted:** (See Instructions to Bidders for further detail)

### 4.0 DESCRIPTION:

- A. Scope: The project includes: 1. Remove and reinstall standing seam metal roofs on 9 buildings, 2. Demolish one building, 3. Disassemble one Solar PV array and use parts to repair three other arrays, 4. Provide one pre-engineered metal canopy with foundation, 5. Replace selected HVAC Unit Heaters, 6. Replace one overhead door, 7. Replace various windows and doors, 8. Other minor repairs as directed in drawings or as described in the Project Manual.
- 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.**

### 5.0 PRE-BID MEETING:

- A. Place/Time: 12:30 PM, August 11, 2026, at Camp Crowder Training Site, Classroom Building 1, 890 Ray A Carver, Neosho, MO.
- B. Access to State of Missouri property requires presentation of a photo ID by all persons.

### 6.0 HOW TO GET PLANS & SPECIFICATIONS:

- A. View Only Electronic bid sets are available at no cost or paper bid sets for a deposit of \$100.00 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. Project Manager: Jeremy Newton, email: [jeremy.l.newton.nfg@army.mil](mailto:jeremy.l.newton.nfg@army.mil)

### 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.
- C. This is a federally funded/assisted construction project that requires compliance by the awarded contractor with applicable federal laws and regulations. The bidder should review Section 007333, SUPPLEMENTARY GENERAL CONDITIONS FOR FEDERALLY FUNDED/ASSISTED CONSTRUCTION PROJECTS, which is made part of the solicitation and will be part of the resulting contract by reference.

## **SECTION 002113 – INSTRUCTIONS TO BIDDERS**

### **1.0 - SPECIAL NOTICE TO BIDDERS**

- A. If awarded a contract, the Bidder's employees, and the employees of all subcontractors, who perform the work on the project must adhere to requirements in Section 013513 – Site Security and Health Requirements as applicable per Agency.
- 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 one (1) party may be limited in accordance with available supply.
- B. For the convenience of contractors, subcontractors and suppliers, bidding documents are available on the Owner's website at <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 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 successful Bidder (contractor) to fulfill every detail of the requirements of the contract, nor accepted as a basis for any claims for extra compensation or time extension.
- B. Under no circumstances will Bidders give their plans and specifications to other Bidders. It is highly encouraged, but not required, that all Bidders be on the official planholders list to receive project updates including but not limited to any addenda that are issued during the bidding process.

### **4.0 - INTERPRETATIONS**

- A. No Bidder shall be entitled to rely on oral or written representations from any person as to the meaning of the plans and specifications or the acceptability of alternate products, materials, form or type of construction.
- B. Bidders shall make all requests for interpretations in writing and submit all requests to the Project Designer and Project Manager identified in Section 007300 – Supplementary Conditions with all necessary supporting documentation no less than five (5) working days before opening of bids. Responses to requests for interpretation will be issued via a written addendum and will be sent as promptly as is practicable to all official planholders and posted on the Owner's website. All such addenda shall become part of the bid and contract documents.
- C. Bidders shall make all requests for an "Acceptable Substitution" on the Section 006325 Substitution Request Form. The request shall be emailed to the Project Designer and Project Manager identified in Section 007300 – Supplementary Conditions no less than five (5) working days before opening of bids. Responses to requests for substitutions will be issued via a written addendum and will be sent as promptly as is practicable to all official planholders and posted on the Owner's website. All such addenda shall become part of the bid and contract documents.
- D. An "Acceptable Substitution" requested after the award of bid will only be approved if proven to the satisfaction of the Owner and the Designer 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 and all requests of this nature must be submitted in accordance with Article 3.1 of the General Conditions.

## **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 on the bid documents or the bid will be rejected for being non-responsive.
- B. Depending on the specific project requirements, **the following is a GENERIC list** of all possible bid forms that may be due with bid submittals. Bidders must verify each specific project's requirements in Section 004113 to ensure they have provided all the required documentation with their submission.

### **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 |

- C. The Bidder shall submit its bid on the forms provided by the Owner in the same file format (PDF) with each space fully and properly completed, typewritten or legibly printed, including all amounts required for alternate bids, unit prices, cost accounting data, etc. The Owner will reject bids that are not on the Owner's forms or that do not contain all requested information. All forms can be found on the Owner's website at <https://oa.mo.gov/facilities/bid-opportunities/bid-listing-electronic-plans> and shall be submitted with your bid to [FMDCBids@oa.mo.gov](mailto:FMDCBids@oa.mo.gov).
- D. All bids shall be submitted without additional terms and conditions, modifications, or reservations. The completed forms should not include interlineations, alterations, or erasures. Bids not in compliance with the requirements of this paragraph will be rejected as non-responsive.
- E. 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 in the bid documents in Section 004113. Failure of the Bidder to submit the duly authorized bid bond or 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 bid closing or if the Bidder, within ten (10) working days after notification of award, refuses or is unable to 1) execute the tendered contract, 2) provide an acceptable performance and payment bond, or 3) provide evidence of required insurance coverage.
- F. The bid bond 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.

## **6.0 - SIGNING OF BIDS**

- A. 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. If the Bidder is an entity organized in a state other than Missouri, the Bidder must provide a Certificate of Authority to do business in the State of Missouri.
- B. If the successful Bidder is doing business in the State of Missouri under a fictitious name, the Bidder 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.
- C. A bid from an individual shall be signed as noted on the Bid Form.
- D. 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.

- E. A bid from a limited liability company (LLC) shall be signed by a manager or a managing member of the LLC.
- F. A bid from a corporation shall have the correct corporate name thereon and the signature of an authorized officer of the corporation. Title of office held by the person signing for the corporation shall appear, along with typed name of said individual and the corporate license number shall be provided. In addition, for corporate proposals, the President or Vice-President listed per the current filing with the Missouri Secretary of State should sign as the Bidder. If the signatory is other than the corporate president or vice president, the bidder must provide satisfactory evidence that the signatory has the legal authority to bind the corporation.

#### **7.0 - RECEIVING BID SUBMITTALS**

- A. It is the Bidder's sole responsibility to ensure receipt of the bid submittals by Owner on or before the date and time specified in the Invitation for Bid or as modified via written addenda. Bids received after the date and time specified will not be considered by the Owner.
- B. All bids shall be received via email at [FMDCBids@oa.mo.gov](mailto:FMDCBids@oa.mo.gov) and bids received by the Owner through any other means, including hard copies, will not be considered, and will be discarded by the Owner unopened.

#### **8.0 - MODIFICATION AND WITHDRAWAL OF BIDS**

- A. Bidder may withdraw a bid at any time prior to the 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. Bidder may modify a bid until the scheduled closing time by sending a revised bid to [FMDCBids@oa.mo.gov](mailto:FMDCBids@oa.mo.gov) with a note in the subject line and body of the email that it is a revised bid. All revised bids must be submitted to [FMDCBids@oa.mo.gov](mailto:FMDCBids@oa.mo.gov), revised bids sent any other way will not be considered.

#### **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 limited to, contracts for the furnishing and installation of furniture, equipment, machinery, appliances and other apparatuses.
- C. The Owner will award a contract to the lowest, responsive, and responsible Bidder in accordance with Section 8.250, RSMo. No contract will be awarded to any Bidder who has had a contract with the Owner terminated within the preceding twelve months for material breach of contract or who has been suspended or debarred by the Owner.
- 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 lowest, responsive, responsible bidder.
- E. No award shall be considered binding upon the Owner until the written contract has been properly executed and the following documentation has been provided: 1) performance and payment bond consistent with Article 6.1 of the General Conditions; 2) proof of the required insurance coverage; 3) an executed Section 004541 - Affidavit of Work Authorization form; and 4) documentation evidence enrollment and participation in a federal work authorization program.
- F. Failure to execute and return the contract and associated documents within the prescribed period 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.
- G. 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.

- H. 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. 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.e-verify.gov/employers/enrolling-in-e-verify>. The contractor shall be responsible for ensuring that all subcontractors and suppliers associated with this contract enroll in E-Verify.
- I. The successful Bidder must be registered in MissouriBUYS powered by MOVERS at <https://missouribuyss.mo.gov/supplier-registration#> as an approved vendor prior to being issued a contract.

#### **10.0 - CONTRACT SECURITY**

- A. The successful Bidder shall furnish a performance/payment bond as set forth in General Conditions Article 6.1 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, manufacturer, or suppliers 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. 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 or if more than one subcontractor is listed for any category without designating the portion of work to be performed by each, 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:
  - 1. Working days are defined as all calendar days except Saturdays, Sundays and the following State of Missouri observed holidays: New Year's Day, Martin Luther King, Jr. Day, Lincoln Day, Washington's Birthday, Truman Day, Memorial Day, Juneteenth, Independence Day, Labor Day, Columbus Day, Veterans Day, Thanksgiving Day and Christmas Day.

#### **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 Bidder'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. 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 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 required to complete and submit the applicable portion of Section 004545 - Anti-Discrimination Against Israel Act Certification with its 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.

#### **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.
4. **“WBE”** means a Women’s Business Enterprise.
5. **“WOMEN’S BUSINESS ENTERPRISE”** has the same meaning as set forth in section 37.020, RSMo.
6. **“SDVE”** means a Service-Disabled Veterans Enterprise.
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 nonresponsive, and its bid shall be rejected.
2. The Bidder should submit with its bid all 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 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 Prime Bidder that qualifies as an SDVE shall receive a three-percentage 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 will become 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.

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.) 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 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 Equal Opportunity or by the Federal U.S. Small Business Administration directory.
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/MWBCertifiedFirms/>. The Bidder may determine the eligibility of a SDVE subcontractor or supplier by referring to the Office of Equal Opportunity online SDVE directory at <https://o eo.mo.gov/sdve-certification-program/> or the Federal U.S. Small Business Administration directory <https://veterans.certify.sba.gov/#search>.
3. Additional information, clarifications, or other information regarding the MBE/WBE/SDVE listings in the directories may be obtained by contacting 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 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 granted a waiver and will be considered 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;

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 in the 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 nonresponsive 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 the 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 in writing.
- 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.



# State of Missouri Construction Contract

THIS AGREEMENT is made (DATE) by and between:

## *Contractor Name and Address*

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

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

## **ARTICLE 1. STATEMENT OF WORK**

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

**Project Name:** Storm Damage Repair  
Camp Crowder Training Site  
Neosho, Missouri

**Project Number:** T2601-01

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 **150 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 \$1,000** per day for each and every day, Sunday and legal holidays excepted, during which the work remains incomplete and unfinished. Any sum which may be due the Owner for such damages shall be deducted and retained by the Owner from any balance which may be due the Contractor when said work shall have been finished and accepted. But such provisions shall not release the Bond of the Contractor from liability according to its terms. In case of failure to complete, the Owner will be under no obligation to show or prove any actual or specific loss or damage.

#### ARTICLE 4. CONTRACT SUM

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

Base Bid: \$

Accepted Alternates, if applicable to the Project and accepted by the Owner.

**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

**MISSOURI PREVAILING WAGE LAW (Sections 290.210 to 290.340, RSMo):** The Contractor shall pay not less than the specified hourly rate of wages, as set out in the wage order attached to and made part of the specifications for work under this contract, to all workers performing work under the contract, in accordance with sections 290.210 to 290.340, RSMo. The Contractor shall forfeit a penalty to the Owner of one hundred dollars per day (or portion of a day) for each worker that is paid less than the specified rates for any work done under the contract by the Contractor or by any subcontractor, in accordance with section 290.250, RSMo.

**DAVIS-BACON ACT:** If this Project is financed in whole or in part from Federal funds (as indicated in the Instructions to Bidders or other bid or contract documents for this Project), then this contract shall be subject to all applicable federal labor statutes, rules and regulations, including provisions of the Davis-Bacon Act, 40 U.S.C. §3141 et seq., and the "Federal Labor Standards Provisions," as further set forth in Section 007333 – Supplementary General Conditions for Federally Funded/Assisted Construction Projects, which is incorporated into the contract by reference. Where the Missouri Prevailing Wage Law and the Davis-Bacon Act require payment of different wages for work performed under this contract, the Contractor and all Subcontractors shall pay the greater of the wages required under either law, on a classification-by-classification basis.

#### 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

The following documents are hereby incorporated into this contract by reference (all division/section numbers and titles are as utilized in the Project Manual published by the Owner for this Project):

1. Division 0 – Procurement and Contracting Information, including, but not limited to:
  - a. Invitation for Bid (Section 001116)
  - b. Instructions to Bidders (Section 002113)
  - c. Supplementary Instructions to Bidders (if applicable) (Section 002213)
  - d. The following documents as completed and executed by the Contractor and accepted by the Owner, if applicable:
    - i. Bid Form (Section 004113)
    - ii. Unit Prices (Section 004322)
    - iii. Proposed Contractors Form (Section 004336)
    - iv. MBE, WBE, SDVE Compliance Evaluation Form(s) (Section 004337)
    - v. MBE, WBE, SDVE Eligibility Determination Form for Joint Ventures (Section 004338)
    - vi. MBE, WBE, SDVE Good Faith Effort (GFE) Determination Form (Section 004339)
    - vii. Missouri Service Disabled Veteran Business Form (Section 004340)
    - viii. Affidavit of Work Authorization (Section 004541)
  - e. Performance and Payment Bond, completed and executed by the Contractor and surety (Section 006113)
  - f. General Conditions (Section 007213)
  - g. Supplementary Conditions (Section 007300)
  - h. Supplementary General Conditions for Federally Funded/Assisted Construction Projects (Section 007333), if applicable
  - i. Wage Rate(s) (Section 007346)
2. Division 1 – General Requirements
3. All Drawings identified in the Project Manual
4. All Technical Specifications included in the Project Manual
5. Addenda, if applicable

## ARTICLE 8 – CERTIFICATION

By signing this contract, the Contractor hereby re-certifies compliance with all legal requirements set forth in Section 6.0, Bidder's Certifications of the Bid Form.

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

### APPROVED:

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Crystal Wessing, Interim Director  
Division of Facilities Management,  
Design and Construction

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Contractor's Authorized Signature

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.

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Corporate Secretary

**SECTION 006113 - PERFORMANCE AND PAYMENT BOND FORM**

KNOW ALL MEN BY THESE PRESENTS, THAT we \_\_\_\_\_

as principal, and \_\_\_\_\_

\_\_\_\_\_ as Surety, are held and firmly bound unto the

STATE OF MISSOURI. in the sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_ )

for payment whereof the Principal and Surety bind themselves, their heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

WHEREAS, the Principal has, by means of a written agreement dated the \_\_\_\_\_

day of \_\_\_\_\_, 20\_\_\_\_\_, enter into a contract with the State of Missouri for

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(Insert Project Title and Number)

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

AND, IT IS FURTHER specifically provided that any modifications which may hereinafter be made in the terms of the contract or in the work to be done under it or the giving by the Owner of any extension of the time for the performance of the contract or any other forbearance on the part of either the Owner or the Principal to the other, shall not in any way release the Principal and the Surety, or either or any of them, their heirs, executors, administrators and successors, from their liability hereunder, notice to the Surety of any such extension, modifications or forbearance being hereby waived.

IN WITNESS WHEREOF, the above bounden parties have executed the within instrument this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_.

**AS APPLICABLE:**

**AN INDIVIDUAL**

Name: \_\_\_\_\_

Signature: \_\_\_\_\_

**A PARTNERSHIP**

Name of Partner: \_\_\_\_\_

Signature of Partner: \_\_\_\_\_

Name of Partner: \_\_\_\_\_

Signature of Partner: \_\_\_\_\_

**CORPORATION**

Firm Name: \_\_\_\_\_

Signature of President: \_\_\_\_\_

**SURETY**

Surety Name: \_\_\_\_\_

Attorney-in-Fact: \_\_\_\_\_

Address of Attorney-in-Fact: \_\_\_\_\_

Telephone Number of Attorney-in-Fact: \_\_\_\_\_

Signature Attorney-in-Fact: \_\_\_\_\_

**NOTE:** Surety shall attach Power of Attorney



STATE OF MISSOURI  
OFFICE OF ADMINISTRATION  
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION  
**PRODUCT SUBSTITUTION REQUEST**

PROJECT NUMBER

PROJECT TITLE AND LOCATION

CHECK APPROPRIATE BOX

- ☐ **SUBSTITUTION PRIOR TO BID OPENING**  
(Minimum of (5) working days prior to receipt of Bids as per Article 4 – Instructions to Bidders)
- ☐ **SUBSTITUTION FOLLOWING AWARD**  
(Maximum of (20) working days from Notice to Proceed as per Article 3 – General Conditions)

FROM: BIDDER/CONTRACTOR (PRINT COMPANY NAME)

TO: ARCHITECT/ENGINEER (PRINT COMPANY NAME)

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

SPECIFIED PRODUCT OR SYSTEM

SPECIFICATION SECTION NO.

SUPPORTING DATA

- ☐ Product data for proposed substitution is attached (include description of product, standards, performance, and test data)
- ☐ Sample ☐ Sample will be sent, if requested

**QUALITY COMPARISON**

|              | SPECIFIED PRODUCT | SUBSTITUTION REQUEST |
|--------------|-------------------|----------------------|
| NAME, BRAND  |                   |                      |
| CATALOG NO.  |                   |                      |
| MANUFACTURER |                   |                      |
| VENDOR       |                   |                      |

**PREVIOUS INSTALLATIONS**

|          |                    |
|----------|--------------------|
| PROJECT  | ARCHITECT/ENGINEER |
| LOCATION | DATE INSTALLED     |

**SIGNIFICANT VARIATIONS FROM SPECIFIED PRODUCT**

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**REASON FOR SUBSTITUTION**

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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.

BIDDER/CONTRACTOR

DATE

**REVIEW AND ACTION**☐ Resubmit Substitution Request with the following additional information:

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☐ Substitution is accepted.☐ Substitution is accepted with the following comments:

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☐ Substitution is not accepted.

ARCHITECT/ENGINEER

DATE



STATE OF MISSOURI  
OFFICE OF ADMINISTRATION  
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION  
**FINAL RECEIPT OF PAYMENT AND RELEASE**

PROJECT NUMBER

KNOW ALL MEN BY THESE PRESENT THAT:                    hereinafter called "Subcontractor" who heretofore entered into an agreement with                    hereinafter called "Contractor", for the performance of work and/or furnishing of material for the construction of the project entitled

(PROJECT TITLE, PROJECT LOCATION, AND PROJECT NUMBER)

at

(ADDRESS OF PROJECT)

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

DOES HEREBY:

1. ACKNOWLEDGE that they have been **PAID IN FULL** all sums due for work and materials contracted or done by their Subcontractors, Material Vendors, Equipment and Fixture Suppliers, Agents and Employees, or otherwise in the performance of the Work called for by the aforesaid Contract and all modifications or extras or additions thereto, for the construction of said project or otherwise.
2. RELEASE and fully, finally, and forever discharge the Owner from any and all suits, actions, claims, and demands for payment for work performed or materials supplied by Subcontractor in accordance with the requirements of the above referenced Contract.
1. REPRESENT that all of their Employees, Subcontractors, Material Vendors, Equipment and Fixture Suppliers, and everyone else has been **paid in full** all sums due them, or any of them, in connection with performance of said Work, or anything done or omitted by them, or any of them in connection with the construction of said improvements, or otherwise.

DATED this                    day of                    , 20                    .

NAME OF SUBCONTRACTOR

BY (TYPED OR PRINTED NAME)

SIGNATURE

TITLE

ORIGINAL: FILE/Closeout Documents



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

**MBE/WBE/SDVE PROGRESS REPORT**

Remit with **ALL** Progress and Final Payments

(Please check appropriate box) ☐CONSULTANT ☐CONSTRUCTION

|                                                                    |                |
|--------------------------------------------------------------------|----------------|
| PAY APP NO.                                                        | PROJECT NUMBER |
| CHECK IF FINAL<br><input checked="" type="checkbox"/> <b>FINAL</b> | DATE           |

| PROJECT TITLE                                                                                                |                                                 |                                                                                              |                                                                                  |
|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| PROJECT LOCATION                                                                                             |                                                 |                                                                                              |                                                                                  |
| FIRM                                                                                                         |                                                 |                                                                                              |                                                                                  |
| ORIGINAL CONTRACT SUM (Same as Line Item 1. on Form A of Application for Payment)<br>\$                      |                                                 | TOTAL CONTRACT SUM TO DATE (Same as Line Item 3. on Form A of Application for Payment)<br>\$ |                                                                                  |
| THE TOTAL MBE/WBE/SDVE PARTICIPATION DOLLAR AMOUNT OF THIS PROJECT AS INDICATED IN THE ORIGINAL CONTRACT: \$ |                                                 |                                                                                              |                                                                                  |
| SELECT<br>MBE, WBE,<br>SDVE                                                                                  | ORIGINAL<br>CONTRACT<br>PARTICIPATION<br>AMOUNT | PARTICIPATION<br>AMOUNT<br>PAID-TO-DATE<br>(includes approved<br>contract changes)           | CONSULTANT/SUBCONSULTANT OR<br>CONTRACTOR/SUBCONTRACTOR/SUPPLIER<br>COMPANY NAME |
| <input type="checkbox"/> MBE<br><input type="checkbox"/> WBE<br><input type="checkbox"/> SDVE                | \$                                              | \$                                                                                           |                                                                                  |
| <input type="checkbox"/> MBE<br><input type="checkbox"/> WBE<br><input type="checkbox"/> SDVE                | \$                                              | \$                                                                                           |                                                                                  |
| <input type="checkbox"/> MBE<br><input type="checkbox"/> WBE<br><input type="checkbox"/> SDVE                | \$                                              | \$                                                                                           |                                                                                  |
| <input type="checkbox"/> MBE<br><input type="checkbox"/> WBE<br><input type="checkbox"/> SDVE                | \$                                              | \$                                                                                           |                                                                                  |
| <input type="checkbox"/> MBE<br><input type="checkbox"/> WBE<br><input type="checkbox"/> SDVE                | \$                                              | \$                                                                                           |                                                                                  |
| <input type="checkbox"/> MBE<br><input type="checkbox"/> WBE<br><input type="checkbox"/> SDVE                | \$                                              | \$                                                                                           |                                                                                  |

Revised 06/2023

## **INSTRUCTIONS FOR MBE/WBE/SDVE PROGRESS REPORT**

### **CONTRACTOR OR CONSULTANT TO FILL OUT AND REMIT WITH EACH PAY APPLICATION:**

The MBE/WBE/SDVE Progress Report for the project is issued with the contract comprising values reported in the consultant's Proposal or on the successful contractor's Section 004337 Compliance Evaluation Forms.

At Initial Pay Application fill in the following:

1. Pay App No. Start with 1.
2. Fill in the Project Number and Date.
3. Enter Project Title, Project Location, and Firm.
4. Fill in the "Original Contract Sum" and "Total Contract Sum To Date" (Reference applicable Line Items on Form A of Application for Payment).
5. Indicate the Total Participation Dollar Amount from the Original Contract.
6. Select MBE, WBE, or SDVE for each Consultant/Subconsultant or Contractor/Subcontractor/Supplier.
7. Enter the "Total Amount of Subcontract", "\$ Amount (Paid-To-Date)", and Company Name.

For all subsequent Pay Applications fill in the following:

1. Pay App No.
2. If Final Pay App, check box.
3. Fill in the Project Number and Date.
4. Enter Project Title, Project Location, and Firm
5. At each Pay App fill in the "Original Contract Sum" and "Total Contract Sum To Date" (reference applicable Line Items on Form A of Application for Payment).
6. Indicate the Total Participation Dollar Amount from the Original Contract.
7. Select MBE, WBE, or SDVE for each Consultant/Subconsultant or Contractor/Subcontractor/Supplier
8. Enter the "Total Amount of Subcontract", "\$ Amount (Paid-To-Date)", and Company Name.



STATE OF MISSOURI  
OFFICE OF ADMINISTRATION  
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION  
**AFFIDAVIT – COMPLIANCE WITH PREVAILING WAGE LAW**

PROJECT NUMBER

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

State of \_\_\_\_\_ personally came and appeared \_\_\_\_\_

(NAME)

of the \_\_\_\_\_

(POSITION)

(NAME OF THE COMPANY)

(a corporation) (a partnership) (a proprietorship) and after being duly sworn did depose and say that all provisions and requirements set out in Chapter 290, Sections 290.210 through and including 290.340, Missouri Revised Statutes, pertaining to the payment of wages to workmen employed on public works project have been fully satisfied and there has been no exception to the full and completed compliance with said provisions and requirements

and with Wage Determination No: \_\_\_\_\_ issued by the

Department of Labor and Industrial Relations, State of Missouri on the \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_

in carrying out the contract and working in connection with \_\_\_\_\_

(NAME OF PROJECT)

Located at \_\_\_\_\_ in \_\_\_\_\_ County

(NAME OF THE INSTITUTION)

Missouri, and completed on the \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_

SIGNATURE

**NOTARY INFORMATION**

NOTARY PUBLIC EMBOSSE OR  
BLACK INK RUBBER STAMP SEAL

STATE

COUNTY (OR CITY OF ST. LOUIS)

SUBSCRIBED AND SWORN BEFORE ME, THIS

DAY OF

YEAR

**USE RUBBER STAMP IN CLEAR AREA BELOW**

NOTARY PUBLIC SIGNATURE

MY COMMISSION  
EXPIRES

NOTARY PUBLIC NAME (TYPED OR PRINTED)

FILE: Closeout Documents

# GENERAL CONDITIONS

## INDEX

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## 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.
7. **"DIVISION"**: Shall mean the Division of Facilities Management, Design and Construction, State of Missouri.
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. Acting by and through the Office of Administration, Division of Facilities Management, Design and Construction.
11. **"PROJECT"**: Wherever the term "Project" is used, it shall mean the work required to be completed by the construction contract.
12. **"PROJECT MANUAL"**: The "Project Manual" shall consist of Introductory Information, Invitation for Bid, Instructions to Bidders, Bid Documents, Additional Information, Standard Forms, General Conditions, Supplemental General Conditions, General Requirements and Technical Specifications.
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"**: All supervision, labor, materials, tools, supplies, equipment, and any incidental operations and/or activities required by or reasonably inferable from the Contract Documents necessary to construct the Project and to produce the results intended by the Contract Documents 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.
15. **"WORKING DAYS"**: are all calendar days except Saturdays, Sundays and the following holidays: New Year's Day, Martin Luther King, Jr. Day, Lincoln Day, Washington's Birthday (observed), Truman Day, Memorial Day, Juneteenth, Independence Day, Labor Day, Columbus Day, Veterans Day (observed), Thanksgiving Day, Christmas Day.

## ARTICLE 1.2 DRAWINGS AND SPECIFICATIONS

- A. In case of discrepancy between drawings and specifications, specifications shall govern. Should discrepancies in architectural drawings, structural drawings and mechanical drawings occur, architectural drawings shall govern and, in case of conflict between structural and mechanical drawings, structural drawings shall govern.
- B. Specifications are separated into titled divisions for convenience of reference only and to facilitate letting of contracts and subcontracts. The Contractor is responsible for establishing the scope of work for subcontractors, which may cross titled divisions. Neither the Owner nor Designer will establish limits and jurisdiction of subcontracts.
- C. Figured dimensions take precedence over scaled measurements and details over smaller scale general drawings. In the event of conflict between any of the documents contained within the contract, the documents shall take precedence and be controlling in the following sequence: addenda, supplementary general conditions, general conditions, division 1 specifications, technical division specifications, drawings, bid form and instructions to bidders.
- D. Anything shown on drawings and not mentioned in these specifications or vice versa, as well as any incidental work which is obviously necessary to complete the project within the limits established by the drawings and specifications, although not shown on or described therein, shall be performed by the Contractor at no additional cost as a part of his contract.
- E. Upon encountering conditions differing materially from those indicated in the contract documents, the Contractor shall promptly notify the Designer and Construction Representative in writing before such conditions are disturbed. The Designer shall promptly investigate said conditions and report to the Owner, with a recommended course of action. If conditions do materially differ and cause an increase or decrease in contract cost or time required for completion of any portion of the work, a contract change will be initiated as outlined in Article 4 of these General Conditions.
- E. Only work included in the contract documents is authorized, and the Contractor shall do no work other than that described therein or in accordance with appropriately authorized and approved contract changes.

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

- A. Since the Owner is the State of Missouri, municipal or political subdivisions, zoning ordinances, construction codes (other than licensing of trades), and other like ordinances are not applicable to construction on Owner's property, and Contractor will not be required to submit drawings and specifications to any municipal or political subdivision, authority, obtain construction permits or any other licenses (other than licensing of trades) or permits from or submit to inspections by any municipality or political subdivision relating to the construction for this project. All permits or licenses required by municipality or political subdivision for operation on property not belonging to Owner shall be obtained by and paid for by Contractor. Each Contractor shall comply with all applicable laws, ordinances, rules and regulations that pertain to the work of this contract.
- B. Contractors, subcontractors and their employees engaged in the businesses of electrical, mechanical, plumbing, carpentry, sprinkler system work, and other construction related trades shall be licensed to perform such work by the municipal or political subdivision where the project is located, if such licensure is required by local code. Local codes shall dictate the level (master, journeyman, and apprentice) and the number, type and ratio of licensed tradesmen required for this project within the jurisdiction of such municipal or political subdivision.
- C. Equipment and controls manufacturers and their authorized service and installation technicians that do not maintain an office within the jurisdiction of the municipal or political subdivision but are a listed or specified contractor or subcontractor on this project are exempt from Paragraph 1.3 B above.
- D. The Contractor shall post a copy of the wage determination issued for the project and included as a part of the contract documents, in a prominent and easily accessible location at the site of construction for the duration of the project.
- E. Any contractor or subcontractor to such contractor at any tier signing a contract to work on this project shall provide a ten-hour Occupational Safety and Health Administration (OSHA) construction safety program for their on-site employees which includes a course in construction safety and health approved by OSHA or a similar program approved by the Department of Labor and Industrial Relations which is at least as stringent as an approved OSHA program. The contractor shall forfeit as a penalty to the public body on whose

behalf the contract is made or awarded, two thousand five hundred dollars plus one hundred dollars for each employee employed by the contractor or subcontractor, for each calendar day, or portion thereof, such employee is employed without the required training.

#### **ARTICLE 1.4 - NONDISCRIMINATION IN EMPLOYMENT**

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

1. Against recipients of service on the basis of race, color, religion, national origin, sex, disability or age.
2. Against any employee or applicant, for employment on the basis of race, color, religion, national origin, sex or otherwise qualified disability status.
3. Against any applicant for employment or employee on the basis of age, where such applicant or employee is between ages 40 and 70 and where such Contractor employs at least 20 persons.
4. Against any applicant for employment or employee on the basis of that person's status as a disabled or Vietnam-era veteran.

The Contractor and his Subcontractors will ensure 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 under this clause to any labor union with which they have bargaining or other agreements.

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

#### **ARTICLE 1.5 - ANTI-KICKBACK**

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

#### **ARTICLE 1.6 - PATENTS AND ROYALTIES**

- A. The Contractor shall hold and save the Owner and its officers, agents, servants, and employees harmless from liabilities of any nature or kind, including cost and expenses, for, or on account of, any patented or unpatented invention, process, article or appliance manufactured or used in the performance of this contract, including its use by the Owner, unless otherwise specifically stipulated in the contract documents.
- B. If the Contractor uses any design, device or materials covered by letters, patent or copyright, the Contractor shall provide for such use by suitable agreement with the Owner of such patented or copyrighted design, device or material. It is mutually agreed and understood, without exception, that the contract prices shall include all royalties or costs arising from the use of such design, device or materials, in any way involved in the work. The Contractor and/or his sureties shall indemnify and save harmless the Owner of the project from any and all claims for infringement by reason of the use of such patented or copyrighted design, device or materials or any trademark or copyright in connection with work agreed to be performed under this contract and shall indemnify the Owner for any cost, expense or damage it may be obliged to pay by reason of such infringement at any time during the prosecution of the work or after completion of the work.

## **ARTICLE 1.7 - PREFERENCE FOR AMERICAN AND MISSOURI PRODUCTS AND SERVICES**

- A. By virtue of statutory authority a preference will be given to Missouri labor and to products of mines, forests and quarries of the state of Missouri when they are found in marketable quantities in the state, and all such materials shall be of the best quality and suitable character that can be obtained at reasonable market prices, all as provided for in Section 8.280, Missouri Revised Statutes and Cumulative Supplements.
- B. Furthermore, pursuant to Section 34.076 Missouri Revised Statutes and Cumulative Supplements, a preference shall be given to those persons doing business as Missouri firms, corporations, or individuals, or which maintain Missouri offices or places of business, when the quality of performance promised is equal or better and the price quoted is the same or less. In addition, in order for a non-domiciliary bidder to be successful, his bid must be that same percentage lower than a domiciliary Missouri bidder's bid, as would be required for a Missouri bidder to successfully bid in the non-domiciliary state.
- C. In accordance with the Missouri Domestic Products Procurement Act Section 34.350 RSMo and Cumulative Supplements any manufactured goods or commodities used or supplied in the performance of this contract or any subcontract thereto shall be manufactured, assembled or produced in the United States, unless the specified products are not manufactured, assembled or produced in the United States in sufficient quantities to meet the agency's requirements or cannot be manufactured, assembled or produced in the United States within the necessary time in sufficient quantities to meet the contract requirements, or if obtaining the specified products manufactured, assembled or produced in the United States would increase the cost of this contract for purchase of the product by more than ten percent.

## **ARTICLE 1.8 - COMMUNICATIONS**

- A. All notices, requests, instructions, approvals, and claims must be in writing and shall be delivered to the Designer and copied to the Construction Representative for the project except as required by Article 1.12 Disputes and Disagreements, or as otherwise specified by the Owner in writing as stated in Section 012600. Any such notice shall be deemed to have been given as of the time of actual receipt.
- B. The Contractor shall attend on-site progress and coordination meetings, as scheduled by the Construction Representative, no less than once a month.

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

## **ARTICLE 1.9 - SEPARATE CONTRACTS AND COOPERATION**

- A. The Owner reserves the right to let other contracts in connection with this work. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work and shall properly connect and coordinate his work with theirs.
- B. The Contractor shall consult the drawings for all other contractors in connection with this work. Any work conflicting with the above shall be brought to the attention of the Owner's Representative before the work is performed. If the Contractor fails to do this, and constructs any work which interferes with the work of another contractor, the Contractor shall remove any part so conflicting and rebuild same, as directed by the Owner's Representative at no additional cost to the Owner.
- C. Each contractor shall be required to coordinate his work with other contractors so as to afford others reasonable opportunity for execution of their work. No contractor shall delay any other contractor by neglecting to perform contract work at the proper time. If any contractor causes delay to another, they shall be liable directly to that contractor for such delay in addition to any liquidated damages which might be due the Owner.
- D. Should the Contractor or project associated subcontractors refuse to cooperate with the instructions and reasonable requests of other Contractors or other subcontractors in the overall coordinating of the work, the Owner may take such appropriate action and issue directions, as required, to avoid unnecessary and unwarranted delays.
- E. Each Contractor shall be responsible for damage done to Owner's or other Contractor's property by him/her or workers in his employ through their fault or negligence.
- F. Should a Contractor sustain any damage through any act or omission of any other Contractor having a contract with the Owner, the Contractor so damaged shall have no claim or cause of action against the Owner for such damage, but shall have a claim or cause of action against the other Contractor to recover any and all damages sustained by reason of the acts or omissions of such Contractor. The phrase "acts or omissions" as used in this section shall be defined to include, but

not be limited to, any unreasonable delay on the part of any such contractors.

#### **ARTICLE 1.10 - ASSIGNMENT OF CONTRACT**

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

#### **ARTICLE 1.11 - INDEMNIFICATION**

- A. Contractor agrees to indemnify and save harmless Owner and its respective commissioners, officers, officials, agents, consultants and employees and Designer, their agents, servants and employees, from and against any and all liability for damage arising from injuries to persons or damage to property occasioned by any acts or omissions of Contractor, any subcontractors, agents, servants or employees, including any and all expense, legal or otherwise, which may be incurred by Owner or Designer, its agents, servants or employees, in defense of any claim, action or suit.
- B. The obligations of the Contractor under this paragraph shall not extend to the liability of the Designer, his agents or employees, arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, contract changes, design or specifications, or (2) giving of or the failure to give directions or instructions by the Designer, his agents or employees as required by this contract documents provided such giving or failure to give is the primary cause of the injury or damage.

#### **ARTICLE 1.12 - DISPUTES AND DISAGREEMENTS**

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

#### **ARTICLE 2 -- OWNER/DESIGNER RESPONSIBILITIES**

- A. The Owner shall give all orders and directions contemplated under this contract relative to the execution of the work. During progress of work the Owner will be represented at the project site by the Construction Representative and/or Designer, whose responsibilities are to see that this contract is properly fulfilled.
- B. The Owner shall at all times have access to the work whenever it is in preparation or progress. The Contractors shall provide proper facilities for such access and for inspection and supervision.
- C. All materials and workmanship used in the work shall be subject to the inspection of the Designer and Construction Representative, and any work which is deemed defective shall be removed, rebuilt or made good immediately upon notice. The cost of such correction shall be borne by the Contractor. Contractor shall not be entitled to an extension of the contract completion date in order to remedy defective work. All rejected materials shall be immediately removed from the site of the work.
- D. If the Contractor fails to proceed at once with the correction of rejected defective materials or workmanship, the Owner may, by separate contract or otherwise, have the defects remedied or rejected. Materials removed from the site and charge the cost of the same against any monies which may be due the Contractor, without prejudice to any other rights or remedies of the Owner.
- E. Failure or neglect on the part of Owner to observe faulty work, or work done which is not in accordance with the drawings and specifications shall not relieve the Contractor from responsibility for correcting such work without additional compensation.
- F. The Owner shall have the right to direct the Contractor to uncover any completed work.
  - 1. If the Contractor fails to adequately notify the Construction Representative and/or Designer of an inspection as required by the Contract Documents, the Contractor shall, upon written request, uncover the work. The Contractor shall bear all costs associated with uncovering and again covering the work exposed.
  - 2. If the Contractor is directed to uncover work, which was not otherwise required by the Contract Documents to be inspected, and the work is found to be defective in any respect, no compensation shall be allowed for this work. If, however, such work is found to meet

the requirements of this contract, the actual cost of labor and material necessarily involved in the examination and replacement plus 10% shall be allowed the Contractor.

- G. The Designer shall give all orders and directions contemplated under this contract relative to the scope of the work and shall give the initial interpretation of the contract documents.
- H. The Owner may file a written notice to the Contractor to dismiss immediately any subcontractors, project managers, superintendents, foremen, workers, watchmen or other employees whom the Owner may deem incompetent, careless or a hindrance to proper or timely execution of the work. The Contractor shall comply with such notice as promptly as practicable without detriment to the work or its progress.
- I. If in the Owner's judgment it becomes necessary at any time to accelerate work, when ordered by the Owner in writing, the Contractor shall redirect resources to such work items and execute such portions of the work as may be required to complete the work within the current approved contract schedule.

### **ARTICLE 3 -- CONTRACTOR RESPONSIBILITIES**

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

#### **ARTICLE 3.1 -- ACCEPTABLE SUBSTITUTIONS**

- A. The Contractor may request use of any article, device, product, material, fixture, form or type of construction which in the judgment of the Owner and Designer is equal in all respects to that named. Standard products of manufacturers other than those specified will be accepted when, prior to the ordering or use thereof, it is proven to the satisfaction of the Owner and Designer that they are equal in design, strength, durability, usefulness and convenience for the purpose intended.
- B. Any changes required in the details and dimensions indicated on the drawings for the substitution of products other than those specified shall be properly made at the expense of the Contractor requesting the substitution or change.
- C. The Contractor shall submit a request for such substitutions in writing to the Owner and Designer within twenty (20) working days after the date of

the "Notice to Proceed." Thereafter no consideration will be given to alternate forms of accomplishing the work. This Article does not preclude the Owner from exercising the provisions of Article 4 hereof.

- D. Any request for substitution by the Contractor shall be submitted in accordance with SECTION 002113 - INSTRUCTIONS TO BIDDERS.
- E. When a material has been approved, no change in brand or make will be permitted unless:
  - 1. Written verification is received from the manufacturer stating they cannot make delivery on the date previously agreed, or
  - 2. Material delivered fails to comply with contract requirements.

#### **ARTICLE 3.2 -- SUBMITTALS**

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

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

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

- B. All subcontractors' shop drawings and schedules shall be submitted by the Contractor and shall bear evidence that Contractor has received, reviewed, and approved them. Any shop drawings and schedules submitted without this evidence will be returned to the Contractor for resubmission.
- C. The Contractor shall include with the shop drawing, a letter indicating any and all deviations from the drawings and/or specifications. Failure to notify the Designer of such deviations will be grounds for subsequent rejection of the related work or materials. If, in the opinion of the Designer, the deviations are not acceptable, the Contractor will be required to furnish the item as specified and indicated on the drawings.
- D. The Designer shall check shop drawings and schedules with reasonable promptness and approve them only if they conform to the design concept of the project and comply with the information given in the contract documents. The approval shall not relieve the Contractor from the responsibility to comply with the drawings and specifications, unless the Contractor has called the Designer's attention to the deviation, in writing, at the time of

submission and the Designer has knowingly approved thereof. An approval of any such modification will be given only under the following conditions:

1. It is in the best interest of the Owner
  2. It does not increase the contract sum and/or completion time
  3. It does not deviate from the design intent
  4. It is without prejudice to any and all rights under the surety bond.
- E. No extension of time will be granted because of the Contractor's failure to submit shop drawings and schedules in ample time to allow for review, possible resubmission, and approval. Fabrication of work shall not commence until the Contractor has received approval. The Contractor shall furnish prints of approved shop drawings and schedules to all subcontractors whose work is in any way related to the work under this contract. Only prints bearing this approval will be allowed on the site of construction
- F. The Contractor shall maintain a complete file on-site of approved shop drawings available for use by the Construction Representative.

#### **ARTICLE 3.3 – AS-BUILT DRAWINGS**

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

#### **ARTICLE 3.4 – GUARANTY AND WARRANTIES**

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

2. The Contractor or surety shall remedy any defects in the work and pay for any damage to property resulting there from which shall appear within a period of one (1) year from the date of substantial completion unless a longer period is otherwise specified or a differing guaranty period has been established in the substantial completion certificate. The Owner will give notice of observed defects with reasonable promptness.
3. In case of default on the part of the Contractor in fulfilling this part of this contract, the Owner may correct the work or repair the damage and the cost and expense incurred in such event shall be paid by or recoverable from the Contractor or surety.
4. The work will be free from defects not inherent in the quality required or permitted, and that the Work will conform to the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The Contractor's guaranty excludes remedy for damage or defect caused by abuse, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear under normal usage. If required by the Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment

#### **B. Extended Warranty**

Manufacturer's certificates of warranty shall be obtained for all major equipment. Warranty shall be obtained for at least one year. Where a longer 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 plate data, shop drawings and air and water balance reports.
  4. Service Instructions: Provide the following information for all pieces of equipment.
    - a. Recommended spare parts including catalog number and name of local supplier or factory representative.
    - b. Belt sizes, types, and lengths.
    - c. Wiring diagrams.
  5. Manufacturer's Certificate of Warranty as described in Article 3.4.
  6. Prior to the final payment, furnish to the Designer three (4) copies of parts catalogs for each piece of equipment furnished by him/her on the project with the components identified by number for replacement ordering.
- B. Submission of operating instructions shall be done in the following manner.
1. Manuals shall be in quadruplicate, and all materials shall be bound into volumes of standard 8½" x 11" hard binders. Large drawings too bulky to be folded into 8½" x 11" shall be separately bound or folded and in envelopes, cross referenced and indexed with the manuals.
  2. The manuals shall identify project name, project number, and include the name and address of the Contractor, subcontractors and manufacturers who were involved with the activity described in that particular manual.
  3. Internally subdivide the binder contents with permanent page dividers, logically organized with tab titles clearly printed under reinforced laminated plastic tabs.
  4. Contents: Prepare a Table of Contents for each volume, with each product or system description identified.

#### **ARTICLE 3.6 – OTHER CONTRACTOR RESPONSIBILITIES**

- A. The Contractor shall keep on site, during progress of the work, a competent superintendent satisfactory to the Construction Representative. The superintendent shall represent the Contractor and all agreements made by the superintendent shall be binding. The superintendent shall

carefully study and compare all drawings, specifications and other instructions and shall promptly notify the Construction Representative and Designer, in writing, any error, inconsistency or omission which may be discovered. The superintendent shall coordinate all work on the project. Any change of the superintendent shall be approved by the Construction Representative.

- B. Contractor shall, at all times, enforce strict discipline and good order among his employees, and shall not employ on the work any unfit person or anyone not skilled in the work assigned to him/her.
- C. The Contractor shall supply sufficient labor, material, plant and equipment and pay when due any laborer, subcontractor or supplier for supplies furnished and otherwise prosecute the work with diligence to prevent work stoppage and ensure 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 subject to the following limits: (a) the percentage mark-up for the Contractor shall be limited to the Contractor's fee; (b) fifteen percent (15%) maximum for Work directly performed by employees of a subcontractor, or sub-subcontractor; (c) five percent (5%) maximum for the Work performed or passed through to the Owner by the Contractor; (d) five percent (5%) maximum subcontractor's mark-up for

Work performed by a sub-subcontractor and passed through to the Owner by the subcontractor and Contractor; and (e) in no case shall the total overhead and profit paid by the Owner on any Contract Changes exceed twenty-five percent (25%) 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 Contractor's payment and performance bonding, builder's risk insurance, and general liability insurance to their cost of work. The above listed bonding and insurance cost shall not exceed two percent (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(s) 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 the same as those for additive Contract Changes provided above.
- E. No claim for an addition to this contract sum shall be valid unless authorized as aforesaid in writing by the Owner. In the event that none of the foregoing methods are agreed upon, the Owner may order the Contractor to perform work on a time and material basis. The cost of such work shall be determined by the Contractor's actual labor and material cost to perform the work plus overhead and profit as outlined herein. The Designer and Construction Representative shall approve the Contractor's daily time and material invoices for the work involved.
- F. If the Contractor claims that any instructions involve extra cost under this contract, the Contractor shall give the Owner's Representative written notice thereof within a reasonable time after the receipt of such instructions, and in any event before proceeding to execute the work. No such claim shall be valid unless so made and authorized by the Owner, in writing.
- G. In an emergency affecting the safety of life or of the structure or of adjoining property, the Contractor, without special instruction or authorization from the Construction Representative, is hereby permitted to act at their discretion to prevent such threatened loss or injury. The Contractor shall submit a claim for compensation for such emergency work in writing to the Owner's Representative.

## ARTICLE 4.2 – CHANGES IN COMPLETION TIME

- A. Extension of the number of work days stipulated in the Contract for completion of the work with compensation may be made when:
1. The contractor documents that proposed Changes in the work, as provided in Article 4.1, extends construction activities critical to contract completion date, OR
  2. The Owner suspends all work for convenience of the Owner as provided in Article 7.3, OR
  3. An Owner caused delay extends construction activities critical to contract completion (except as provided elsewhere in these General Conditions). The Contractor is to review the work activities yet to begin and evaluate the possibility of rescheduling the work to minimize the overall project delay.
- B. Extension of the number of work days stipulated in the Contract for completion of the work without compensation may be made when:
1. Weather-related delays occur, subject to provisions for the inclusion of a specified number of "bad weather" days when provided for in Section 012100-Allowances, OR
  2. Labor strikes or acts of God occur, OR
  3. The work of the Contractor is delayed on account of conditions which were beyond the control of the Contractor, subcontractors or suppliers, and were not the result of their fault or negligence.
- C. No time extension or compensation will be provided for delays caused by or within the control of the Contractor, subcontractors or suppliers and for concurrent delays caused by the Owner.
- D. The Contractor shall notify the Owner promptly of any occurrence or conditions which in the Contractor's opinion results in a need for an extension of time. The notice shall be in writing and shall include all necessary supporting materials with details of any resultant costs and be submitted in time to permit full investigation and evaluation of the Contractor's claim. The Owner shall promptly acknowledge the Contractor's notice and, after recommendation from the Owner's Representative and/or Designer, shall provide a decision to the Contractor. Failure on the part of the Contractor to provide such notice and to detail the costs shall constitute a waiver by the Contractor of any claim. Requests for extensions of time shall be for working days only.

## **ARTICLE 5 - CONSTRUCTION AND COMPLETION**

### **ARTICLE 5.1 – CONSTRUCTION COMMENCEMENT**

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

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

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

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

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

### **ARTICLE 5.2 -- PROJECT CONSTRUCTION**

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

with the requirements outlined in Section 013200 – Schedules.

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

### **ARTICLE 5.3 -- PROJECT COMPLETION**

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

1. Once the Contractor has reached what they believe is Substantial Completion, the Contractor shall notify the Designer and the Construction Representative of the following:
  - a. That work is essentially complete with the exception of certain listed work items. The list shall be referred to as the "Contractor's Punch."
  - b. That all Operation and Maintenance Manuals have been assembled and submitted in accordance with Article 3.5A.
  - c. That the Work is ready for inspection by the Designer and Construction Representative. The Owner shall be entitled to a minimum of ten working days notice before the inspection shall be performed.
2. If the work is acceptable, the Owner shall issue a Certificate of Substantial Completion, which shall set forth the responsibilities of the Owner and the Contractor for utilities, security, maintenance, damage to the work and risk of loss. The Certificate shall also identify those remaining items of work to be performed by the Contractor. All such work items shall be complete within 30 working days of the date of the Certificate, unless the Certificate specifies a different time. If the Contractor shall be required to perform tests that must be delayed due to climatic conditions, it is understood that such tests and affected equipment will be identified on the Certificate and shall be accomplished by the Contractor at the earliest possible date. Performance of the tests may not be required before Substantial Completion can be issued. The date of the issuance of the Certificate of

Substantial Completion shall determine whether or not the work was completed within the contract time and whether or not Liquidated Damages are due.

3. If the work is not acceptable, and the Owner does not issue a Certificate of Substantial Completion, the Owner shall be entitled to charge the Contractor with the Designer's and Owner's costs of re-inspection, including time and travel.
- B. Partial Occupancy. Contractor agrees that the Owner shall be permitted to occupy and use any completed or partially completed portions of the Project, when such occupancy and use is in the Owner's best interest. Owner shall notify Contractor of its desire and intention to take Partial Occupancy as soon as possible but at least ten (10) working days before the Owner intends to occupy. If the Contractor believes that the portion of the work the Owner intends to occupy is not ready for occupancy, the Contractor shall notify the Owner immediately. The Designer shall inspect the work in accordance with the procedures above. If the Contractor claims increased cost of the project or delay in completion as a result of the occupancy, he shall notify the Owner immediately but in all cases before occupancy occurs.
- C. Final Completion. The Project is finally complete when the Certificate of Substantial Completion has been issued and all work items identified therein as incomplete have been completed, and when all administrative items required by the contract have been completed. Final Completion entitles the Contractor to payment of the outstanding balance of the contract amount including all change orders and retainage. Within five (5) working days of the date of the Certificate of Substantial Completion, the Contractor shall identify the cost to complete any outstanding items of work. The Designer shall review the Contractor's estimate and either approve it or provide an independent estimate for all such items. If the Contractor fails to complete the remaining items within the time specified in the Certificate, the Owner may terminate the contract and go to the surety for project completion in accordance with Article 7.2 or release the contract balance to the Contractor less 150% of the approved estimate to complete the outstanding items. Upon completion of the outstanding items, when a final 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, home addresses of all workers, 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 contract price, whichever is greater, with loss payable to Contractor and Owner as their respective interests may appear.

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

### C. Minimum Limits of Insurance

#### 1. General Liability

Contractor

|             |                                                                                              |
|-------------|----------------------------------------------------------------------------------------------|
| \$2,000,000 | combined single limit per occurrence for bodily injury, personal injury, and property damage |
|-------------|----------------------------------------------------------------------------------------------|

|             |                  |
|-------------|------------------|
| \$2,000,000 | annual aggregate |
|-------------|------------------|

#### 2. Automobile Liability

|             |                                                                            |
|-------------|----------------------------------------------------------------------------|
| \$2,000,000 | combined single limit per occurrence for bodily injury and property damage |
|-------------|----------------------------------------------------------------------------|

#### 3. Workers' Compensation and Employers Liability

Workers' Compensation limits as required by applicable State Statutes (generally unlimited) 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 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 their 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:**

MONG Project Manager /  
Construction Representative:

Jeremy Newton  
Missouri National Guard-CFMO Office  
6819A North Boundary Road  
Jefferson City, MO 65101  
Email: [jeremy.l.newton.nfg@army.mil](mailto:jeremy.l.newton.nfg@army.mil)

### **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 1 complete sets of drawings and specifications at no charge.
- B. The Owner will furnish the Contractor with approximately 1 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.

### **6.0 ENVIRONMENTAL MANAGEMENT SYSTEM (eMS):**

The Missouri Army National Guard (MOARNG) has implemented an Environmental Management System (eMS). One of the key components of the eMS is the establishment of an Environmental Policy that must be communicated to all persons working for or on behalf of the organization including all suppliers and contractors. This policy stresses commitment to compliance with accepted environmental practices, and meeting or exceeding applicable environmental requirements, legal and otherwise. This policy also stresses commitment to waste minimization, pollution prevention, and management of personnel, processes, real property, and materials in a manner to reduce environmental impacts. The policy is available upon request to all parties by contacting the Environmental Management Office at (573) 638-9514.

### **7.0 OFF-SITE BORROW & SPOIL DEPOSIT SITES FOR FEDERALLY FUNDED PROJECTS:**

All Federally funded projects which involve off-site borrow and/or off-site spoil deposit sites will require written certification that the site(s) are in compliance with the National Environmental Protection Act and all related applicable Federal and State laws and regulations. If the need for off-site borrow and/or spoil sites is stipulated in the Contract Documents, the following applies:

- A. The Contractor is required to use only the designated site described in the Contract Documents. If another off-site area is proposed by the Contractor, the Contractor must provide written certification to the Division of Facilities Management, Design and Construction Project Representative that the proposed borrow or spoil site has been cleared of environmental concerns in accordance with all applicable Federal and State laws and regulations. These include but are not limited to the following: Clean Water Act; the Endangered Species Act; the National Historic Preservation Act (NHPA) (The site must have Section 106 Clearance); the Farmland Protection Act; Resource Conservation and Recovery Act; Comprehensive Environmental Response; Compensation and Liability Act; and RSMo Chapter 194, Section 194.400, Unmarked Human Burial Sites. Certifications shall include clearance letters and other evidence of coordination with the appropriate regulatory agencies. The Missouri Historic Preservation Office, PO Box 176 Jefferson City, MO 65102, may be contacted to provide assistance

with the NHPA and cultural resource issues pertaining to the borrow and spoil site regulations. The Missouri State Historic Preservation Office can provide a list of qualified and certified archaeologists to assist in borrow and spoil site investigations.

- B. If project conditions require off-site borrow or off-site deposit of spoils, the Contractor will be required to provide written certification to the Division of Facilities Management, Design and Construction Project Representative that the proposed borrow or spoil site has been cleared of environmental concerns in accordance with all applicable Federal and State laws and regulations. These include but are not limited to the following: Clean Water Act; the Endangered Species Act; the National Historic Preservation Act (NHPA) (The site must have Section 106 Clearance); the Farmland Protection Act; Resource Conservation and Recovery Act; Comprehensive Environmental Response; Compensation and Liability Act; and RSMo Chapter 194, Section 194.400, Unmarked Human Burial Sites. Certifications shall include clearance letters and other evidence of coordination with the appropriate regulatory agencies. The Missouri Historic Preservation Office, PO Box 176 Jefferson City, MO 65102, may be contacted to provide assistance with the NHPA and cultural resource issues pertaining to the borrow and spoil site regulations. The Missouri State Historic Preservation Office can provide a list of qualified and certified archaeologists to assist in borrow and spoil site investigations.
- C. The Owner recognizes that additional time (beyond what is allowed in the Construction Contract) may be required in order to secure the aforementioned certifications and approvals. Should more time be required, the Owner will consider approval of a no-cost time extension contract change. The Contractor will be required to provide documentation that substantiates the need for the time extension.

**SECTION 007333 – NATIONAL GUARD - SUPPLEMENTARY GENERAL CONDITIONS**  
**FOR FEDERALLY FUNDED/ASSISTED CONSTRUCTION PROJECTS**

**1.0 Notice of Federal Funding**

This project is being performed in whole or in part using federal funds. Therefore, all work or services performed by the Contractor and its subcontractors shall be subject to the terms and conditions set forth below in addition to all terms and conditions in the Construction Contract, General Conditions, and other contract documents. The concepts, rules, and guidelines set forth in 2 C.F.R. 200 describing allowable costs and administrative requirements apply.

**2.0 Definitions**

As used herein, “Federal Government” means the government of the United States of America. “Federal Agency” means an agency, entity, department or division of the Federal Government that is providing funding for this project. All other terms shall have the meanings established in the Construction Contract, General Conditions, and/or Project Manual, unless such definitions conflict with a definition provided in an applicable statute or regulation.

**3.0 Conflicting Terms or Conditions**

To the extent that any terms or conditions set forth herein conflict with the Construction Contract or its General Conditions, the more stringent of the two terms and conditions shall govern.

**4.0 No Obligation by Federal Government**

The Federal Government is not a party to this contract and is not subject to any obligations or liabilities to the non-Federal entity, Contractor, or any other party pertaining to any matter resulting from the contract.

**5.0 Compliance with Federal Laws, Regulations and Executive Orders**

The Contractor and its subcontractors and suppliers are required to comply with all applicable Federal laws, regulations, and executive orders, regardless of whether set forth herein. The Contractor shall assist and enable the State of Missouri in complying with any requirements imposed by the Federal Agency as a condition of funding.

**6.0 Compliance with Civil Rights Provisions**

The Contractor shall comply with all Federal statutes, executive orders, and regulations relating to nondiscrimination. These include, but are not limited to the following:

Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin;

Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex;

Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps;

The Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age;

Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing;

Title VII of the Civil Rights Act of 1964 (42 U.S.C. part 2000(e), which prohibits discrimination against employees on the basis of religion;

Any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and

The requirements of any other nondiscrimination statute(s) that may apply to the application.

## **7.0 Equal Employment Opportunity (41 C.F.R. 60-1.4(b)).**

During the performance of this contract, the Contractor agrees as follows:

- (1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:

Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

- (2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
- (3) The Contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicants or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the Contractor's legal duty to furnish information.
- (4) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor

union or workers' representatives of the Contractor's commitments under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The Contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (4) in every subcontract or purchase order. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: *Provided*, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: *Provided*, That if the applicant so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of contractors and sub-contractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

## **8.0 Prohibition of Segregated Facilities**

- (1) The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Employment Opportunity clause in this contract.
- (2) "Segregated facilities," as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes.
- (3) The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Employment Opportunity clause of this contract.

## **9.0 Copeland "Anti-Kickback" Act**

- (1) The Contractor shall comply with 18 U.S.C. § 874, 40 U.S.C. § 3145, and the requirements of 29 C.F.R. pt. 3 as may be applicable, which are incorporated by reference into this contract. The Contractor and subcontractors are prohibited from inducing, by any means, any person employed on the project to give up any part of the compensation to which the employee is entitled.

- (2) The Contractor or subcontractor shall insert in any subcontracts the clause above, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime Contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all of these contract clauses.
- (3) A breach of the contract clauses above may be grounds for termination of the contract, and for debarment as a Contractor and subcontractor as provided in 29 C.F.R. 5.12.

#### **10.0 Contract Work Hours and Safety Standards Act (40 U.S.C. 3701 to 3708, 29 C.F.R. 5.5)**

- (1) Overtime requirements. No Contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.
- (2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1) of this section the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this section, in the sum of \$27 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.
- (3) Withholding for unpaid wages and liquidated damages. The Owner shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the Contractor or subcontractor under any such contract or any other Federal contract with the same prime Contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime Contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this section.
- (4) Subcontracts. The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime Contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this section.

#### **11.0 Suspension and Debarment (Executive Orders 12549 and 12689, 2 C.F.R. pt. 180)**

- (1) A contract award (see 2 C.F.R. 180.220) must not be made to parties listed on the government-wide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 C.F.R. 180 that implement Executive Orders 12549 (3 C.F.R. pt. 1986 Comp., p. 189) and 12689 (3

C.F.R. pt. 1989 Comp., p. 235), “Debarment and Suspension.” SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.

- (2) The contractor is required to verify that none of the contractor’s principals (defined at 2 C.F.R. 180.995) or its affiliates (defined at 2 C.F.R. 180.905) are excluded (defined at 2 C.F.R. 180.940) or disqualified (defined at 2 C.F.R. 180.935).
- (3) The contractor must comply with 2 C.F.R. pt. 180, subpart C and the regulations of the granting Federal Agency regarding suspension and debarment and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into.
- (4) This certification is a material representation of fact relied upon by the Owner. If it is later determined that the Contractor did not comply with 2 C.F.R. pt. 180, subpart C in addition to remedies available to the Owner, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.
- (5) By submitting a bid, the bidder or proposer agrees to comply with the requirements of 2 C.F.R. pt. 180, subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

#### **12.0 Byrd Anti-Lobbying Amendment (31 U.S.C. § 1352)**

- (1) Contractors that apply or bid for an award exceeding \$100,000 agree to file the required certification (set forth below), in compliance with 31 U.S.C. § 1352 (as amended).
- (2) Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, officer or employee of Congress, or an employee of a Member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. § 1352.
- (3) Each tier shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the recipient who in turn will forward the certification(s) to the awarding agency.

#### **CERTIFICATION REGARDING LOBBYING**

The Bidder or Offeror certifies by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

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

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form–LLL, “Disclosure Form to Report Lobbying,” in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

### **13.0 Procurement of Recovered Materials**

The Contractor shall comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (42 U.S.C. § 6962). The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds \$10,000 or the value of the quantity acquired during the preceding fiscal year exceeded \$10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

Information about this requirement, along with the list of EPA designated items, is available at EPA’s Comprehensive Procurement Guidelines web site, <https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program>.

### **14.0 Fair Labor Standards Act**

All contracts and subcontracts that result from this solicitation incorporate by reference the provisions of 29 C.F.R. pt. 201, the Federal Fair Labor Standards Act (FLSA), with the same force and effect as if given in full text. The FLSA sets minimum wage, overtime pay, recordkeeping, and child labor standards for full and part-time workers. The Contractor has full responsibility to monitor compliance to the referenced statute or regulation. The Contractor must address any claims or disputes that arise from this requirement directly with the U.S. Department of Labor – Wage and Hour Division.

### **15.0 Access to Records and Reports**

The Contractor must maintain an acceptable cost accounting system. The Contractor agrees to provide the Owner, the Federal Agency and the Comptroller General of the United States or any of their duly authorized representatives access to any books, documents, papers and records of the Contractor which are directly pertinent to the specific contract for the purpose of making audit, examination, excerpts and transcriptions. The Contractor agrees to maintain all books, records and reports required under this contract for a period of not less than three years after final payment is made and all pending matters are closed.

## **16.0 Occupational Health and Safety Act**

All contracts and subcontracts that result from this solicitation incorporate by reference the requirements of 29 C.F.R. pt. 1910 with the same force and effect as if given in full text. The employer must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The employer retains full responsibility to monitor its compliance and their subcontractor's compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (20 C.F.R. pt. 1910). The employer must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of Labor – Occupational Safety and Health Administration.

## **17.0 Rights to Inventions**

Contracts or agreements that include the performance of experimental, developmental, or research work must provide for the rights of the Federal Government and the Owner in any resulting invention as established by 37 C.F.R. pt. 401, Rights to Inventions Made by Non-profit Organizations and Small Business Firms under Government Grants, Contracts, and Cooperative Agreements. This contract incorporates by reference the patent and inventions rights as specified within 37 C.F.R. 401.14. Contractor must include this requirement in all sub-tier contracts involving experimental, developmental, or research work.

## **18.0 Energy Conservation**

The Contractor agrees to comply with mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 U.S.C. § 6201 et seq.).

## **19.0 Clean Air Act and Federal Water Pollution Control Act**

- (1) If the amount of the Contract exceeds \$150,000, the Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq. and the Federal Water Pollution Control Act, as amended, 33 U.S.C. § 1251 et seq.
- (2) The Contractor agrees to report each violation to the Owner, and understands and agrees that the Owner will, in turn, report each violation as required to assure notification to the Federal Agency and the appropriate Environmental Protection Agency Regional Office.
- (3) The Contractor agrees to include these requirements in each subcontract exceeding \$150,000 financed in whole or in part with Federal assistance.

## **20.0 Contractor Employee Whistleblower Rights and Requirement to Inform Employees of Whistleblower Rights**

- (1) This contract and employees working on this contract will be subject to the whistleblower rights and remedies in the pilot program on contractor employee whistleblower protections established at 41 U.S.C. § 4712 by section 828 of the National Defense Authorization Act for Fiscal Year 2013 (Pub. L. 112-239) and FAR 3.908.

- (2) The Contractor shall inform its employees in writing, in the predominant language of the workforce, of employee whistleblower rights and protections under 41 U.S.C. § 4712, as described in section 3.908 of the Federal Acquisition Regulation.
- (3) The Contractor shall insert the substance of this clause, including this paragraph (c), in all subcontracts over the simplified acquisition threshold.

## **21.0 Veteran's Preference**

In the employment of labor (excluding executive, administrative, and supervisory positions), the Contractor and all sub-tier contractors must give preference to covered veterans as defined within Title 49 United States Code Section 47112. Covered veterans include Vietnam-era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns (as defined by 15 U.S.C. § 632) owned and controlled by disabled veterans. This preference only applies when there are covered veterans readily available and qualified to perform the work to which the employment relates.

## **22.0 Drug Free Workplace Act**

The Contractor shall provide a drug free workplace in accordance with the Drug Free Workplace Act of 1988, 41 U.S.C. Chapter 81, and all applicable regulations. The Contractor shall report any conviction of the Contractor's personnel under a criminal drug statute for violations occurring on the Contractor's premises or off the Contractor's premises while conducting official business. A report of a conviction shall be made to the state agency within five (5) working days after the conviction.

## **23.0 Access Requirements for Persons with Disabilities**

Contractor shall comply with 49 U.S.C. § 5301(d), stating Federal policy that the elderly and persons with disabilities have the same rights as other persons to use mass transportation services and facilities and that special efforts shall be made in planning and designing those services and facilities to implement that policy. Contractor shall also comply with all applicable requirements of Sec. 504 of the Rehabilitation Act (1973), as amended, 29 U.S.C. § 794, which prohibits discrimination on the basis of handicaps, and the Americans with Disabilities Act of 1990 (ADA), as amended, 42 U.S.C. § 12101 et seq., which requires that accessible facilities and services be made available to persons with disabilities, including any subsequent amendments thereto.

## **24.0 Seismic Safety**

The Contractor agrees to ensure that all work performed under this contract, including work performed by subcontractors, conforms to a building code standard that provides a level of seismic safety substantially equivalent to standards established by the National Earthquake Hazards Reduction Guidelines for Contract Provisions for Obligated Sponsors and Airport Improvement Program Projects Issued on June 19, 2018 Page 61 Program (NEHRP). Local building codes that model their code after the current version of the International Building Code (IBC) meet the NEHRP equivalency level for seismic safety.

## **25.0 Required Use of American Iron, Steel, Manufactured Products, and Construction Materials – Build America, Buy America (Pub. L. No. 117-58, §§ 70901-52)**

The Owner is the recipient of an award of Federal financial assistance from a program for infrastructure for this project. Pursuant to the Build America, Buy America Act of the Infrastructure Investment and Jobs Act

(“IIJA”), Pub. L. No. 117-58, none of the funds provided under the Federal award may be used unless the requirements of the domestic content procurement preference outlined below are met. Therefore, the Contractor shall ensure the following:

- (1) all iron and steel used in the project are produced in the United States--this means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States;
- (2) all manufactured products used in the project are produced in the United States—this means the manufactured product was manufactured in the United States; and the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 65 percent of the total cost of all components of the manufactured product, unless another standard for determining the minimum amount of domestic content of the manufactured product has been established under applicable law or regulation; and
- (3) all construction materials are manufactured in the United States—this means that all manufacturing processes for the construction material occurred in the United States.

The Buy America preference only applies to articles, materials, and supplies that are consumed in, incorporated into, or affixed to an infrastructure project. As such, it does not apply to tools, equipment, and supplies, such as temporary scaffolding, brought to the construction site and removed at or before the completion of the infrastructure project. Nor does a Buy America preference apply to equipment and furnishings, such as movable chairs, desks, and portable computer equipment, that are used at or within the finished infrastructure project, but are not an integral part of the structure or permanently affixed to the infrastructure project.

#### *Waivers*

When necessary, recipients of Federal financial assistance may apply for, and the awarding agency may grant, a waiver from the domestic content procurement preference.

When the Federal agency has made a determination that one of the following exceptions applies, the awarding official may waive the application of the domestic content procurement preference in any case in which the agency determines that:

- (1) applying the domestic content procurement preference would be inconsistent with the public interest;
- (2) the types of iron, steel, manufactured products, or construction materials are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality; or
- (3) the inclusion of iron, steel, manufactured products, or construction materials produced in the United States will increase the cost of the overall project by more than 25 percent. A request to waive the application of the domestic content procurement preference must be in writing. The agency will provide instructions on the format, contents, and supporting materials required for any waiver request. Waiver requests are subject to public comment periods of no less than 15 days and must be reviewed by the Made in America Office.

There may be instances where an award qualifies, in whole or in part, for an existing waiver described on the awarding agency web site.

If the Contractor determines that an application for a waiver is necessary or an existing waiver is applicable to this project, the Contractor shall timely notify the Owner. The Owner will make a determination if a waiver is applicable or if a waiver application is necessary. The Contractor shall not submit any waiver application or information directly to the Federal agency without prior approval by the Owner.

### *Definitions*

“Construction materials” includes an article, material, or supply—other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives—that is or consists primarily of: • non-ferrous metals; • plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); • glass (including optic glass); • lumber; or • drywall.

“Domestic content procurement preference” means all iron and steel used in the project are produced in the United States; the manufactured products used in the project are produced in the United States; or the construction materials used in the project are produced in the United States.

“Infrastructure” includes, at a minimum, the structures, facilities, and equipment for, in the United States, roads, highways, and bridges; public transportation; dams, ports, harbors, and other maritime facilities; intercity passenger and freight railroads; freight and intermodal facilities; airports; water systems, including drinking water and wastewater systems; electrical transmission facilities and systems; utilities; broadband infrastructure; and buildings and real property. Infrastructure includes facilities that generate, transport, and distribute energy.

“Project” means the construction, alteration, maintenance, or repair of infrastructure in the United States.

## **26.0 Prohibition on Certain Telecommunication and Video Surveillances Services or Equipment (Pub. L. 115-232, Section 889)**

Section 889(b) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019, Pub. L. No. 115-232, and 2 C.F.R. § 200.216 prohibit the head of a Federal executive agency and recipients or subrecipients of funds from such agencies from obligating or expending grant, cooperative agreement, loan, or loan guarantee funds on certain telecommunications products or from certain entities for national security reasons. Pursuant to such provisions, the Contractor understands and agrees that the Contractor and its subcontractors shall not obligate or expend loan or grant funds from the Federal Agency under this Contract to:

- (1) Procure or obtain;
- (2) Extend or renew a contract to procure or obtain; or
- (3) Enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in [Public Law 115–232](#), section 889, covered telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).

(i) For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).

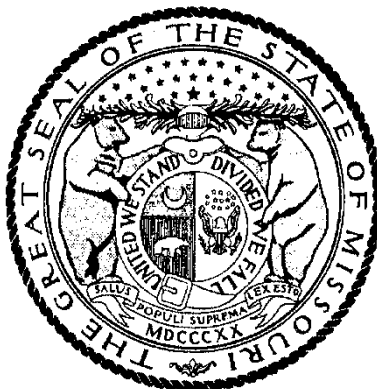
(ii) Telecommunications or video surveillance services provided by such entities or using such equipment.

(iii) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

# Missouri

## Division of Labor Standards

### WAGE AND HOUR SECTION



MIKE KEHOE, Governor

## Annual Wage Order No. 33

Section 073  
**NEWTON COUNTY**

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

Original Signed by

Logan Hobbs, Director  
Division of Labor Standards

Filed With Secretary of State: March 10, 2026

Last Date Objections May Be Filed: April 9, 2026

Prepared by Missouri Department of Labor and Industrial Relations

**NEWTON COUNTY**

| <b>OCCUPATIONAL TITLE</b>          | <b>**Prevailing Hourly Rate</b> |
|------------------------------------|---------------------------------|
| Asbestos Worker                    | \$25.92                         |
| Boilermaker                        | \$31.34*                        |
| Bricklayer - Stone Mason           | \$59.50                         |
| Carpenter                          | \$52.87                         |
| Lather                             |                                 |
| Linoleum Layers & Cutter           |                                 |
| Millwright                         |                                 |
| Pile Driver                        |                                 |
| Cement Mason                       | \$31.34*                        |
| Plasterer                          |                                 |
| Communication Technician           | \$31.34*                        |
| Electrician (Inside Wireman)       | \$52.34                         |
| Electrician (Outside Lineman)      | \$31.34*                        |
| Outside - Groundman                |                                 |
| Outside - Groundman Tree Trimmer   |                                 |
| Outside - Lineman Operator         |                                 |
| Outside - Lineman Tree Trimmer     |                                 |
| Elevator Constructor               | \$31.34*                        |
| Glazier                            | \$31.34*                        |
| Iron Worker                        | \$31.34*                        |
| Laborer                            | \$42.65                         |
| Laborer - First Semi-Skilled       |                                 |
| Laborer - General                  |                                 |
| Laborer - Second Semi-Skilled      |                                 |
| Laborer - Skilled                  |                                 |
| Mason                              | \$31.34*                        |
| Marble Finisher                    |                                 |
| Marble Mason                       |                                 |
| Terrazzo Finisher                  |                                 |
| Terrazzo Worker                    |                                 |
| Tile Finisher                      |                                 |
| Tile Setter                        |                                 |
| Operating Engineer                 | \$31.34*                        |
| Operating Engineer - Group I       |                                 |
| Operating Engineer - Group II      |                                 |
| Operating Engineer - Group III     |                                 |
| Operating Engineer - Group III - A |                                 |
| Operating Engineer - Group IV      |                                 |
| Operating Engineer - Group V       |                                 |
| Painter                            | \$31.34*                        |
| Plumber                            | \$31.34*                        |
| Pipe Fitter                        |                                 |
| Roofer/WaterProofer                | \$31.34*                        |
| Sheet Metal Worker                 | \$53.04                         |
| Sprinkler Fitter - Fire Protection | \$31.34*                        |
| Truck Driver                       | \$31.34*                        |
| Truck Control Service Driver       |                                 |
| Truck Driver, Teamsters Group I    |                                 |
| Truck Driver, Teamsters Group II   |                                 |
| Truck Driver, Teamsters Group III  |                                 |
| Truck Driver, Teamsters Group IV   |                                 |

\* The Division of Labor Standards received fewer than 1,000 reportable hours for this occupational title. The 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 as defined in RSMo Section 290.210.

**NEWTON COUNTY**

| <b>OCCUPATIONAL TITLE</b>                | <b>**Prevailing Hourly Rate</b> |
|------------------------------------------|---------------------------------|
| <b>Carpenter</b>                         | <b>\$31.34*</b>                 |
| <b>Millwright</b>                        |                                 |
| <b>Pile Driver</b>                       |                                 |
| <b>Electrician (Outside Lineman)</b>     | <b>\$31.34*</b>                 |
| <b>Outside - Groundman</b>               |                                 |
| <b>Outside - Groundman Tree Trimmer</b>  |                                 |
| <b>Outside - Lineman Operator</b>        |                                 |
| <b>Outside - Lineman Tree Trimmer</b>    |                                 |
| <b>Laborer</b>                           | <b>\$47.48</b>                  |
| <b>Laborer - General</b>                 |                                 |
| <b>Laborer - Skilled</b>                 |                                 |
| <b>Operating Engineer</b>                | <b>\$31.34*</b>                 |
| <b>Operating Engineer - Group I</b>      |                                 |
| <b>Operating Engineer - Group II</b>     |                                 |
| <b>Operating Engineer - Group III</b>    |                                 |
| <b>Operating Engineer - Group IV</b>     |                                 |
| <b>Truck Driver</b>                      | <b>\$31.34*</b>                 |
| <b>Truck Control Service Driver</b>      |                                 |
| <b>Truck Driver, Teamsters Group I</b>   |                                 |
| <b>Truck Driver, Teamsters Group II</b>  |                                 |
| <b>Truck Driver, Teamsters Group III</b> |                                 |
| <b>Truck Driver, Teamsters Group IV</b>  |                                 |

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 shown on the Building Construction Rate Sheet.

\*The Division of Labor Standards received fewer 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 and HOLIDAYS

## OVERTIME

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

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

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

## HOLIDAYS

January first;  
The last Monday in May;  
July fourth;  
The first Monday in September;  
November eleventh;  
The fourth Thursday in November; and  
December twenty-fifth;

If any holiday falls on a Sunday, the following Monday shall be considered a holiday.

## PART 1 - GENERAL

### 1.1 SUMMARY

#### A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Access to site.
4. Coordination with occupants.
5. Work restrictions.
6. Specification and drawing conventions.
7. Miscellaneous provisions.

### 1.2 PROJECT INFORMATION

#### A. Project Identification: Storm Damage Repairs – Multiple Assets, Camp Crowder Training Site, Neosho, MO.

#### B. Project No. T2601-01

1. Project Location: Camp Crowder Training Site, Neosho MO.

#### PROJECT ADDRESS.

Camp Crowder Training Site  
890 Ray A Carver Drive  
Neosho, MO 64850

#### C. Owner: State of Missouri, Missouri National Guard. 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

1. Owner's Representative: Jeremy Newton

#### D. Architect/Engineer: GHN Architects+Engineers, 300 S Jefferson Ave., Suite 301, Springfield, MO 65806.

### 1.3 WORK COVERED BY CONTRACT DOCUMENTS

#### A. The Work of Project is defined by the Contract Documents and consists of the following:

1. Remove and reinstall standing seam metal roofs on 9 buildings
2. Demolish one building
3. Disassemble one Solar PV array and use parts to repair three other arrays
4. Provide ne pre-engineered metal canopy with foundation

5. Replace selected HVAC Unit Heaters
6. Replace one overhead door
7. Replace various windows and doors
8. Other minor repairs as directed in drawings or as described in the Project Manual

B. Type of Contract.

1. Project will be constructed under a single prime contract.

#### 1.4 PHASED CONSTRUCTION

A. The project will be conducted in a single phase.

1. Contractor may propose and implement alternate phasing if approved by owner in writing.
2. Construction Schedule Working Days: **150 days**

B. Before commencing Work, submit a copy of Contractor's construction schedule showing the sequence, commencement and completion dates, and move-out and -in dates of Owner's personnel for all phases of the Work.

#### 1.5 ACCESS TO SITE

A. General: Contractor shall have limited use of Project site for construction operations as coordinated with the site facility manager. One or more primary staging areas may be required within the compound; these will be coordinated with the facility manager and may be in existing lay-down yards, storage lots, or parking areas to minimize disturbance to the site.

1. Driveways, Walkways and Entrances: In general, keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
  - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
  - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

B. Condition of Existing Roads and Buildings: Maintain portions of existing roads and buildings affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

#### 1.6 COORDINATION WITH OCCUPANTS

A. Full Owner Occupancy: Owner will occupy site and the affected building(s) during entire construction period. Cooperate with Owner during construction operations to

minimize conflicts and facilitate Owner usage. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.

B. Existing Utility Interruptions: Electrical.

1. Notify Owner not less than two days in advance of proposed utility interruptions.

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

## 1.7 OWNER-FURNISHED PRODUCTS

A. Refer to drawings Scope of Work Schedule for additional requirements. The Owner will furnish items indicated in Scope of Work Schedule, including all furnishings. The Work includes providing support systems to receive Owner's equipment, and mechanical and electrical connections.

1. The Owner will arrange for and deliver necessary shop drawings, product data, and samples to the Contractor.
2. The Owner will arrange and pay for delivery of Owner-furnished items according to the contractor's Construction Schedule.
3. The Contractor is responsible for receiving, unloading and handling Owner furnished items at the site.
4. Following delivery, the Contractor will inspect items delivered for damage. The Contractor shall not accept damaged items and shall notify the Owner of rejection of damaged items.
5. If Owner-furnished items are damaged, defective, or missing, the Owner will arrange for replacement.
6. The Owner will arrange for manufacturer's field services and for the delivery of manufacturer's warranties to the appropriate Contractor.
7. The Contractor shall designate delivery dates of Owner-furnished items in the Contractor's Construction Schedule.
8. The Contractor shall review shop drawings, product data and samples and return them to the Designer noting discrepancies or problems anticipated in use of the project.
9. The Contractor is responsible for protecting Owner-furnished items from damage, including damage from exposure to the elements. The Contractor shall repair or replace items damaged as a result of his operations.

## 1.8 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
  - 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
  - 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
  - 1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
  - 2. Abbreviations: Materials and products are identified by abbreviations scheduled on Drawings.
  - 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements governing allowances.

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

B. Types of allowances include the following:

1. Weather allowances.

C. Related Sections include the following:

1. Division 1 Section "Contract Modification Procedures" for procedures for submitting and handling Contract Changes for allowances.

1.3 WEATHER ALLOWANCE

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

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

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

D. There will be no modification to the time of contract performance due solely to the failure to deplete the "bad weather" day allowance.

E. Once this allowance is depleted, a no cost Contract Change time extension will be executed for "bad weather" days, as defined above, encountered during the remainder of the Project.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.1 SCHEDULE OF ALLOWANCES

A. Weather Allowance: Included within the completion period for this Project Thirty (30) "bad weather" days.

END OF SECTION

## 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 01 2100 "Allowances" for procedural requirements for handling and processing Allowances.
2. Division 1, Section 01 3115 "Project Management Communications" for administrative requirements for communications.
3. Division 0, Section 00 7213, Article 3.1 "Acceptable Substitutions" for administrative procedures for handling Requests for Substitutions made after Contract award.
4. Division 0, Section 00 7213, Article 4.0 "Changes in the Work" for Contract Change requirements.

### 1.3 REQUESTS FOR INFORMATION

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

B. Responses to RFI shall be issued within ten (10) working days of receipt of the Request from the Contractor unless the Designer determines that a longer time is necessary to provide an adequate response. If a longer time is determined necessary by the Designer, the Designer will, within five (5) working days of receipt of the request, notify the Contractor of the anticipated response time. If the 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 Contract Change for the work. Failure to give such written notice within ten (10) working days, shall waive the Contractor's right to seek additional time or cost under Article 4, "Changes in the Work" of the General Conditions.

#### 1.4 MINOR CHANGES IN THE WORK

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

#### 1.5 PROPOSAL REQUESTS

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

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

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

- a. A detailed breakdown of costs per Article 4.1 of the General Conditions.
- b. If requesting additional time per Article 4.2 of the General Conditions, include an updated Contractor's Construction Schedule that indicates the effect of the Change including, but not limited to, changes in activity duration, start and finish times, and activity relationship.

#### 1.6 CONTRACT CHANGE PROCEDURES

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

#### PART 2 - PRODUCTS (Not Used)

#### PART 3 - EXECUTION

##### 3.1 REFERENCED FORMS

A. The following forms can be found on our website at  
<https://www.oa.mo.gov/facilities/vendor-links/architectengineering-forms> or  
<https://www.oa.mo.gov/facilities/vendor-links/contractor-forms> :

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

END OF SECTION

## **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 013200, Section "Schedules" for preparing and submitting Contractor's Construction Schedule.
2. Articles 1.8.B and 1.8.C of Section 007213 "General Conditions" for coordinating meetings onsite.
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.

1. 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.

- a. 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.
- b. Coordinate installation of different components with other Contractors to ensure maximum accessibility for required maintenance, service, and repair.
- c. Make adequate provisions to accommodate items scheduled for later installation.

d. 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.

B. 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.

C. 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.

D. 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. Contractor shall provide a detailed Project Construction Schedule detailing the phases of work.

B. 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.

C. Key Personnel Names: Within fifteen (15) work days of starting construction operations, submit a list of key personnel assignments including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.

1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

## 1.5 PROJECT MEETINGS

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

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

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

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

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

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

2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration including requirements for the following:

- a. Contract Documents
- b. Options
- c. Related RFIs
- d. Related Contract Changes
- e. Purchases
- f. Deliveries
- g. Submittals
- h. Review of mockups
- i. Possible conflicts
- j. Compatibility problems
- k. Time schedules
- l. Weather limitations
- m. Manufacturer's written recommendations
- n. Warranty requirements
- o. Compatibility of materials
- p. Acceptability of substrates
- q. Temporary facilities and controls
- r. Space and access limitations
- s. Regulations of authorities having jurisdiction
- t. Testing and inspecting requirements
- u. Installation procedures
- v. Coordination with other Work

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

## **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 01 3300 - Submittals
- C. Division 1, Section 01 2600 – Contract Modification Procedures

### **1.2 SUMMARY**

- A. Project Management Communications: The Contractor shall use the Internet web based project management communications tool, Trimble Unity Connect (Formerly 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 Trimble Unity Connect (Formerly 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: Trimble Unity Connect (Formerly 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 Trimble Unity Connect (Formerly 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 Trimble Unity Connect (Formerly 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](mailto: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 Trimble Unity Connect (Formerly 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.

1. 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.

2. 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.

3. The Owner and his representatives, the Designer and his consultants, and the Contractor and his Sub Contractors and suppliers at every tier reserves the right to and shall copy any paper document into electronic form and make same available on the web site.

I. Minimum Equipment and Internet Connection: In addition to other requirements specified in this Section, the Owner and his representatives, the Construction Manager and his representatives, the Architect and his consultants, and the Contractor and his sub-contractors and suppliers at every tier required to have a user license(s) shall be responsible for the following:

1. Providing suitable computer systems for each licensed user at the users normal work location<sup>1</sup> with high-speed Internet access, i.e. DSL, local cable company's Internet connection, or T1 connection.

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<sup>1</sup> 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. Each of the above referenced computer systems shall have the following minimum system<sup>2</sup> 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

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<sup>2</sup> 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.

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

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

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

**3.2 CONSTRUCTION PROGRESS SCHEDULE – BAR CHART SCHEDULE**

A. Bar-Chart Schedule: The Contractor shall prepare a comprehensive, fully developed, horizontal bar chart-type Contractor's Construction Schedule. The Contractor for general construction shall prepare the Construction Schedule for the entire Project. The Schedule shall show the percentage of work to be completed at any time, anticipated monthly payments by Owner, as well as significant dates (such as completion of excavation, concrete foundation work, underground lines, superstructure, rough-ins, enclosure, hanging of fixtures, etc.) which shall serve as check points to determine compliance with the approved Schedule. The

Schedule shall also include an activity for the number of “bad” weather days specified in Section 012100 – Allowances.

1. The Contractor shall provide a separate time bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week.
  - a. If practical, use the same Schedule of Values breakdown for schedule time bars.
2. The Contractor shall provide a base activity time bar showing duration for each construction activity. Each bar is to indicate start and completion dates for the activity. The Contractor is to place a contrasting bar below each original schedule activity time for indicating actual progress and planned remaining duration for the activity.
3. The Contractor shall prepare the Schedule on a minimal number of separate sheets to readily show the data for the entire construction period.
4. Secure time commitments for performing critical elements of the Work from parties involved. Coordinate each element on schedule with other construction activities. Include minor elements involved in the overall sequence of the Work. Show each activity in proper sequence. Indicate graphically the sequences necessary for completion of related portions of the Work.
5. Coordinate the Contractor’s Construction Schedule with the Schedule of Values, list of subcontracts, Submittal Schedule, progress reports, payment requests, and other required schedules and reports.
6. Indicate the Intent to Award and the Contract Substantial Completion dates on the schedule.

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

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

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

1. Subcontract awards
2. Submittals
3. Purchases
4. Mockups
5. Fabrication

6. Sample testing
7. Deliveries
8. Installation
9. Testing
10. Adjusting
11. Curing
12. Startup and placement into final use and operation

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

1. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
  - a. Structural completion
  - b. Permanent space enclosure
  - c. Completion of mechanical installation
  - d. Completion of 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 01 3300 SUBMITTALS, the approved Construction Progress Schedule, list of subcontracts, Schedule of Values and the list of products.

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

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

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

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

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

### 3.4 SCHEDULE OF INSPECTIONS AND TESTS

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

B. Form: This schedule shall be in tabular form and shall include, but not be limited to, the following:

1. Specification Section number
2. Description of the test
3. Identification of applicable standards
4. Identification of test methods
5. Number of tests required
6. Time schedule or time span for tests
7. Entity responsible for performing tests
8. Requirements for taking samples
9. Unique characteristics of each service

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

END OF SECTION

## **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 01 3115 "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 36"x48".

## 1.5 PRODUCT DATA

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

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

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

- a. Manufacturer's printed recommendations
- b. Compliance with Trade Association standards
- c. Compliance with recognized Testing Agency standards
- d. Application of Testing Agency labels and seals
- e. Notation of dimensions verified by field measurement
- f. Notation of coordination requirements

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

## 1.6 SAMPLES

A. The Contractor shall comply with the General Conditions.

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

1. The Contractor shall mount or display samples in the manner to facilitate review of qualities indicated. Prepare samples to match the Designer's sample including the following:

- a. Specification Section number and reference
- b. Generic description of the Sample
- c. Sample source
- d. Product name or name of the Manufacturer
- e. Compliance with recognized standards
- f. Availability and delivery time

2. The Contractor shall submit samples for review of size, kind, color, pattern, and texture. Submit samples for a final check of these characteristics with other elements and a comparison of these characteristics between the final submittal and the actual component as delivered and installed.

- a. Where variation in color, pattern, texture, or other characteristic is inherent in the material or product represented, submit at least three (3) multiple units that show approximate limits of the variations.

- b. Refer to other Specification Sections for requirements for samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.
  - c. Refer to other Sections for samples to be returned to the Contractor for incorporation in the Work. Such samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of sample submittals.
  - d. Samples not incorporated into the Work, or otherwise designated as the Owner's property, are the property of the Contractor and shall be removed from the site prior to Substantial Completion.
- 3. Field samples are full-size examples erected onsite to illustrate finishes, coatings, or finish materials and to establish the Project standard.
  - a. The Contractor shall comply with submittal requirements to the fullest extent possible. The Contractor shall process transmittal forms to provide a record of activity.

## 1.7 QUALITY ASSURANCE DOCUMENTS

- A. The Contractor shall comply with the General Conditions, Article 3.2
- B. The Contractor shall submit quality control submittals including design data, certifications, manufacturer's instructions, manufacturer's field reports, and other quality-control submittals as required under other Sections of the Specifications.
- C. Certifications: Where other Sections of the Specifications require certification that a product, material, or installation complies with specified requirements, submit a notarized certification from the Manufacturer certifying compliance with specified requirements.
  - 1. Signature: Certification shall be signed by an officer of the Manufacturer or other individual authorized to contractually bind the Company.
- D. Inspection and Test Reports: The Contractor shall submit the required inspection and test reports from independent testing agencies as specified in this Section and in other Sections of the Contract Documents.
- E. Construction Photographs: The Contractor shall submit record construction photographs as specified in this Section and in other Sections of the Contract Documents.
  - 1. The Contractor shall submit two (2) sets of prints, black and white, glossy; 8"x10" size; mounted on 8½"x11" soft card stock with left edge binding margin for 3-hole punch.
  - 2. The Contractor shall identify each photograph with project name, location, number, date, time, and orientation.
  - 3. The Contractor shall submit progress photographs monthly unless specified otherwise. Photographs shall be taken one (1) week prior to submitting.
  - 4. The Contractor shall take four (4) site photographs from differing directions and a minimum of five (5) interior photographs indicating the relative progress of the Work.

## 1.8 OPERATING AND MAINTENANCE MANUALS AND WARRANTIES

A. The Contractor shall submit all required manufacturer's operating instructions, maintenance/service manuals, and warranties in accordance with the General Conditions, Article 3.5, and Supplementary Conditions along with this and other Sections of the Contract Documents.

## PART 2 - PRODUCTS (Not Applicable)

## PART 3 - EXECUTION

### 3.1 REQUIRED SUBMITTALS

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

| SPEC SECTION | TITLE                                            | CATEGORY                       |
|--------------|--------------------------------------------------|--------------------------------|
| 013100       | Coordination                                     | Construction Schedule          |
| 013100       | Coordination                                     | Schedule of Values             |
| 013200       | Schedules                                        | Construction Schedule          |
| 013200       | Schedules                                        | Schedule of Values             |
| 013200       | Schedules                                        | List of Subcontractors         |
| 013200       | Schedules                                        | Major Material Suppliers       |
| 014000       | Quality Requirements                             | Test Report                    |
| 014533       | Special Inspections and Procedures               | Test Report                    |
| 015000       | Construction Facilities and Temporary Controls   | Test Report                    |
| 015700       | Erosion Control/Storm Water Pollution Prevention | Test Report                    |
| 016000       | Product Requirements                             | Warranty                       |
| 017000       | Execution and Closeout Procedures                | As-Builts                      |
| 017000       | Execution and Closeout Procedures                | Product Data                   |
| 024100       | Site Demolition                                  | Construction Schedule          |
| 033000       | Cast In Place Concrete                           | Shop Drawings                  |
| 033000       | Cast In Place Concrete                           | Product Data                   |
| 033000       | Cast In Place Concrete                           | Test Report                    |
| 072400       | Exterior Insulation and Finish System Repair     | Shop Drawings                  |
| 072400       | Exterior Insulation and Finish System Repair     | Product Data                   |
| 074213       | Metal Roof & Wall Panels                         | Shop Drawings                  |
| 074213       | Metal Roof & Wall Panels                         | Product Data                   |
| 074213       | Metal Roof & Wall Panels                         | Warranty                       |
| 077123       | Gutters & Downspouts                             | Shop Drawings                  |
| 077123       | Gutters & Downspouts                             | Warranty                       |
| 079000       | Joint Sealers                                    | Sample                         |
| 079000       | Joint Sealers                                    | Operation / Maintenance Manual |
| 079000       | Joint Sealers                                    | Product Data                   |
| 081100       | Metal Doors & Frames                             | Shop Drawings                  |
| 081100       | Metal Doors & Frames                             | Product Data                   |
| 081100       | Metal Doors & Frames                             | Shop Drawings                  |
| 081100       | Metal Doors & Frames                             | Operation / Maintenance Manual |
| 081100       | Metal Doors & Frames                             | Product Data                   |

|         |                             |                                |
|---------|-----------------------------|--------------------------------|
| 083613  | Sectional Overhead Door     | Shop Drawings                  |
| 083613  | Sectional Overhead Door     | Product Data                   |
| 083613  | Sectional Overhead Door     | Operation / Maintenance Manual |
| 087000  | Hardware                    | Shop Drawings                  |
| 087000  | Hardware                    | Product Data                   |
| 087000  | Hardware                    | Operation / Maintenance Manual |
| 088000  | Glazing                     | Product Data                   |
| 088000  | Glazing                     | Test Report                    |
| 088000  | Glazing                     | Sample                         |
| 088819  | Impact Rated Glazing        | Product Data                   |
| 088819  | Impact Rated Glazing        | Test Report                    |
| 088819  | Impact Rated Glazing        | Sample                         |
| 099100  | Painting                    | Product Data                   |
| 101436  | Interior Signs              | Shop Drawings                  |
| 101436  | Interior Signs              | Product Data                   |
| 101436  | Interior Signs              | Sample                         |
| 122120  | Horizontal Blinds           | Product Data                   |
| 122120  | Horizontal Blinds           | Sample                         |
| 122120  | Horizontal Blinds           | Operation / Maintenance Manual |
| 133400  | Pre-Engineered Metal Canopy | Product Data                   |
| 133400  | Pre-Engineered Metal Canopy | Shop Drawings                  |
| 133400  | Pre-Engineered Metal Canopy | Certification                  |
| 133400  | Pre-Engineered Metal Canopy | Warranty                       |
| 235533  | Fuel-Fired Unit Heaters     | Shop Drawings                  |
| 235533  | Fuel-Fired Unit Heaters     | Operation / Maintenance Manual |
| 26 3100 | Photovoltaic System Repairs | Construction Schedule          |
| 26 3100 | Photovoltaic System Repairs | Product Data                   |
| 26 3100 | Photovoltaic System Repairs | Certification                  |
| 26 3100 | Photovoltaic System Repairs | Test Report                    |
| 26 3100 | Photovoltaic System Repairs | Warranty                       |

END OF SECTION

**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.
- B. Required fingerprinting for criminal background and warrants check. 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 the Construction Representative and appropriate facility representatives for the controlled entry of construction personnel, materials and equipment into the work areas.
- B. The Contractor shall establish regular working hours with the Project Manager and the facility. Normal working hours for this facility are 7:00 AM to 5:00 PM, Monday - Friday. Working hour changes or overtime are to be reported and approved 48 hours ahead of time. Emergency overtime is to be reported as soon as it is evident that overtime is needed.
- C. The Contractor shall provide the name and phone number of the individual who is in charge on site and who can be contacted in case of an emergency. This individual must furnish names and addresses of all construction personnel prior to starting work.

- D. All construction personnel shall visibly display issued identification cards. **This is a controlled access campus of a government military site and workers without valid identification will be turned away at the entrance gate.**

### 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, asphalts, 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 substance (including recreational drugs) while on the Facility premises.

### 3.3 DISRUPTION OF UTILITIES

- A. The Contractor shall give minimum (72) hours written notice to the Construction Representative and Facility Representative before disconnecting electric, gas, water, fire protection, or sewer service to any building.
- B. The contractor shall give minimum (72) hours written notice to the Construction Representative and Facility Representative before closing any access drives and shall make temporary access available if possible. Do not obstruct streets, walks, or parking.

### 3.4 REQUIRED FINGERPRINTING FOR CRIMINAL BACKGROUND AND WARRANTS CHECK

- A. All employees of the Contractor are required to submit fingerprints to the Missouri State Highway Patrol to enable the Office of Administration, Division of Facilities Management, Design and Construction (FMDC) to receive state and national criminal background checks on such employees. FMDC will also check with law enforcement to determine if any of the Contractor's employees has an outstanding warrant for his or her arrest. FMDC reserves the right to prohibit any employee of the Contractor from performing work in or on the premises of any facility owned, operated, or utilized by the State of Missouri for any reason.
- B. The Contractor shall ensure all of its employees submit fingerprints to the Missouri State Highway Patrol and pay for the cost of such background checks. The Contractor shall submit to FMDC a list of the names of the Contractor's employees who will be fingerprinted and a signed Missouri Applicant Fingerprint Privacy Notice, Applicant Privacy Rights and Privacy Act Statement for each employee. All employees of the Contractor approved by FMDC to work at a State facility must obtain a contractor ID badge from FMDC prior to beginning work on-site, unless the Director of FMDC, at the Director's discretion, waives the requirement for a contractor ID badge. The Contractor and its employees must comply with the process for background checks and contractor ID badges found on FMDC's website at: <https://oa.mo.gov/fmdc-contractor-id-badges>
- C. Pursuant to section 43.540, RSMo, FMDC participates in the Missouri Rap Back and National Rap Back programs as of August 28, 2018. This means that the Missouri State Highway Patrol, Central Records Repository, and the Federal Bureau of Investigation will retain the fingerprints submitted by each of the Contractor's employees, and those fingerprints will be searched against other fingerprints on file, including latent fingerprints. While retained, an employee's fingerprints may continue to be compared against other fingerprints submitted or retained by the Federal Bureau of Investigation, including latent fingerprints.

- D. As part of the Missouri and National Rap Back programs, FMDC will receive notification if a new arrest is reported for an employee whose fingerprints have been submitted for FMDC after August 28, 2018. If the employee is performing work on a State contract at the time of the arrest notification, FMDC will request and receive the employee's updated criminal history records. If the employee is no longer performing work on a State contract, FMDC will not obtain updated criminal records.
- E. Pursuant to section 43.540, RSMo, the Missouri State Highway Patrol will provide the results of the employee's background check directly to FMDC. FMDC may NOT release the results of a background check to the Contractor or provide the Contractor any information obtained from a background check, either verbally or in writing. FMDC will notify the Contractor only whether an employee is approved to work on State property.
- F. Each employee who submits fingerprints to the Missouri State Highway Patrol has a right to obtain a copy of the results of his or her background check. The employee may challenge the accuracy and completeness of the information contained in a background check report and obtain a determination from the Missouri State Highway Patrol and/or the FBI regarding the validity of such challenge prior to FMDC making a final decision about his or her eligibility to perform work under a State contract.
- G. The Contractor shall notify FMDC via email to [FMDCSecurity@oa.mo.gov](mailto:FMDCSecurity@oa.mo.gov) if an employee is terminated or resigns from employment with the Contractor. If the Contractor does not anticipate performing work on a State contract in the future, the Contractor may request that FMDC remove its employees from the Rap Back programs. However, if removed from the Rap Back programs, employees will be required to submit new fingerprints should the contractor be awarded another State contract.
- H. Upon award of a Contract, the Contractor should contact FMDC at [FMDCSecurity@oa.mo.gov](mailto:FMDCSecurity@oa.mo.gov) to determine if its employees need to provide a new background check. If a Contractor's employee has previously submitted a fingerprint background check to FMDC as part of the Missouri and National Rap Back programs, the employee may not need to submit another fingerprint search for a period of three to six years, depending upon the circumstances. The Contractor understands and agrees that FMDC may require more frequent background checks without providing any explanation to the Contractor. The fact that an additional background check is requested by FMDC does not indicate that the employee has a criminal record.

END OF SECTION

## 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 for quality-control services, including procedural requirements for accomplishing an airtight building enclosure that controls infiltration and exfiltration of air and infiltration of water.
- B. Quality-control services include inspections, tests, and related actions, including reports performed by Contractor, by independent agencies, and by governing authorities. They do not include contract enforcement activities performed by Architect.
- C. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with Contract Document requirements.
- D. Requirements of this Section relate to customized fabrication and installation procedures, not production of standard products.
  - 1. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
  - 2. Specified inspections, tests, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with Contract Document requirements.
  - 3. Requirements for Contractor to provide quality-control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

### 1.3 RESPONSIBILITIES

- A. Contractor Responsibilities: Unless otherwise indicated as the responsibility of another identified entity, Contractor shall provide inspections, tests, and other quality-control services specified elsewhere in the Contract Documents and required by authorities having jurisdiction. Costs for these services are included in the Contract Sum.
  - 1. Where individual Sections specifically indicate that certain inspections, tests, and other quality-control services are the Contractor's responsibility, the Contractor shall employ and pay a qualified independent testing agency to perform quality-control services. Costs for these services are included in the Contract Sum.
  - 2. Where individual Sections specifically indicate that certain inspections, tests, and other quality-control services are the Owner's responsibility, the Owner will employ and pay a qualified independent testing agency to perform those services.
    - a. Where the Owner has engaged a testing agency for testing and inspecting

- part of the Work, and the Contractor is also required to engage an entity for the same or related element, the Contractor shall not employ the entity engaged by the Owner, unless agreed to in writing by the Owner.
3. Undertaking requirements including coordinating between the trades, proper scheduling and sequencing of work, coordination of preconstruction meetings, cooperating with the Owner's third party inspector, accommodating and scheduling any related tests, and any related actions including reports performed by contractor, by independent agencies, and by governing authorities.
  4. Contractor shall ensure that the construction of the building enclosure is accomplished with a continuous air barrier to control air leakage into, or out of, the conditioned space and a weather barrier to control water infiltration beyond the primary weather plane.
  5. It is the Contractor's responsibility to ensure that each subcontractor is adequately and satisfactorily performing the quality assurance documentation, tests, and procedures required by each section.
- B. Retesting: The Contractor is responsible for retesting where results of inspections, tests, or other quality-control services prove unsatisfactory and indicate noncompliance with Contract Document requirements, regardless of whether the original test was Contractor's responsibility.
1. The cost of retesting construction, revised or replaced by the Contractor, is the Contractor's responsibility where required tests performed on original construction indicated noncompliance with Contract Document requirements.
- C. Associated Services: Cooperate with agencies performing required inspections, tests, and similar services, and provide reasonable auxiliary services as requested. Notify the agency sufficiently in advance of operations to permit assignment of personnel. Auxiliary services required include, but are not limited to, the following:
1. Provide access to the Work.
  2. Furnish incidental labor and facilities necessary to facilitate inspections and tests.
  3. Take adequate quantities of representative samples of materials that require testing or assist the agency in taking samples.
  4. Provide facilities for storage and curing of test samples.
  5. Deliver samples to testing laboratories.
  6. Provide the agency with a preliminary design mix proposed for use for materials mixes that require control by the testing agency.
  7. Provide security and protection of samples and test equipment at the Project Site.
- D. Duties of the Testing Agency: The independent agency engaged to perform inspections, sampling, and testing of materials and construction specified in individual Sections shall cooperate with the Architect and the Contractor in performance of the agency's duties. The testing agency shall provide qualified personnel to perform required inspections and tests.
1. The agency shall notify the Architect and the Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
  2. The agency is not authorized to release, revoke, alter, or enlarge requirements of the Contract Documents or approve or accept any portion of the Work.
  3. The agency shall not perform any duties of the Contractor.
- E. Coordination: Coordinate the sequence of activities to accommodate required services with a minimum of delay. Coordinate activities to avoid the necessity of

removing and replacing construction to accommodate inspections and tests.

1. The Contractor is responsible for scheduling times for inspections, tests, taking samples, and similar activities.

#### 1.4 SUBMITTALS

- A. Unless the Contractor is responsible for this service, the independent testing agency shall submit a certified written report, in duplicate, of each inspection, test, or similar service to the Architect. If the Contractor is responsible for the service, submit a certified written report, in duplicate, of each inspection, test, or similar service through the Contractor.
  1. Submit additional copies of each written report directly to the governing authority, when the authority so directs.
  2. Report Data: Written reports of each inspection, test, or similar service include, but are not limited to, the following:
    - a. Date of issue.
    - b. Project title and number.
    - c. Name, address, and telephone number of testing agency.
    - d. Dates and locations of samples and tests or inspections.
    - e. Names of individuals making the inspection or test.
    - f. Designation of the Work and test method.
    - g. Identification of product and Specification Section.
    - h. Complete inspection or test data.
    - i. Test results and an interpretation of test results.
    - j. Ambient conditions at the time of sample taking and testing.
    - k. Comments or professional opinion on whether inspected or tested Work complies with Contract Document requirements.
    - l. Name and signature of laboratory inspector.
    - m. Recommendations on retesting.

#### 1.5 QUALITY ASSURANCE

- A. Qualifications for Service Agencies: Engage inspection and testing service agencies, including independent testing laboratories, that are prequalified as complying with the American Council of Independent Laboratories' "Recommended Requirements for Independent Laboratory Qualification" and that specialize in the types of inspections and tests to be performed.
  1. Each independent inspection and testing agency engaged on the Project shall be authorized by authorities having jurisdiction to operate in the state where the Project is located.

#### PART 2 - PRODUCTS – NOT USED

#### PART 3 - EXECUTION

##### 3.1 REPAIR AND PROTECTION

- A. General: Upon completion of inspection, testing, sample taking and similar services, repair damaged construction and restore substrates and finishes. Comply with Contract Document requirements for 01 3100 "Coordination."

- B. Protect construction exposed by or for quality-control service activities, and protect repaired construction.
- C. Repair and protection is Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing, or similar services.

END OF SECTION

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY**

- A. This Section includes administrative and procedural requirements required for compliance with the International Building Code, Chapter 17, Structural Tests and Special Inspections.
  - 1. Exceptions: Portions of special inspections shall not be required where the fabricator is approved in accordance with building code requirements and agencies having jurisdiction.
- B. Structural testing and special inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve contractor of responsibility for compliance with other construction document requirements.
  - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
  - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and control procedures that facilitate compliance with the construction document requirements.
  - 3. Requirements for contractor to provide quality-assurance and control services required by architect, owner, or authorities having jurisdiction are not limited by provisions of this section.
- C. The Owner will engage one or more qualified special inspectors and / or testing agencies to conduct structural tests and special inspections specified in this section and related sections and as maybe specified in other divisions of these specifications.
- D. Related Sections include but are not limited to the following:
  - 1. 03 3000 CAST-IN-PLACE CONCRETE
  - 2. 31 0000 EARTHWORK

**1.3 DEFINITIONS**

- A. Approved Agency: An established and recognized agency regularly engaged in conducting tests or furnishing inspection services, when such agency has been approved by the building official.
- B. Approved Fabricator: An established and qualified person, firm or corporation approved by the building official pursuant to applicable building code requirements. Fabricator shall be registered and approved to perform work on the premises of the fabricator without special inspection as defined in the applicable building code. Approval shall be based upon review of fabricator's written procedural and quality control manuals and periodic auditing of fabrication practices by an approved special inspection agency. Fabricator shall submit certificate of compliance upon request.
- C. Construction Documents: Written, graphic and pictorial documents prepared or assembled for describing the design, location and physical characteristics of the elements of a project necessary for obtaining a building permit. Construction Documents include all supplemental instructions, sketches, addenda, and revisions to the drawings and specifications issued by the registered design professional beyond those issued for a building permit.
- D. Shop Drawings / Submittal Data: Written, graphic and pictorial documents prepared and / or assembled by the contractor based on the Construction Documents.
- E. Structural Observation: Visual observation of the structural system by a representative of the registered design professional's office for general conformance to the approved construction documents. Structural observations are not considered part of the structural tests and special inspections and do not replace inspections and testing by the testing agency or special inspector.
- F. Special Inspector: A qualified person who demonstrating competence, to the satisfaction of the code enforcement official and registered design professional in responsible charge, for inspection of the particular type of construction or operation requiring special inspection. The special inspector shall be a licensed professional engineer or engineering intern or a qualified representative from the testing agency.
- G. Special Inspection, Continuous: The full-time observation of work requiring special inspection by an approved special inspector who is present in the area where the work is being performed.
- H. Special Inspection, Periodic: The part-time or intermittent observation of work requiring special inspection by an approved special inspector who is present in the area where the work has been or is being performed and at the completion of the work.
- I. Testing Agency: A qualified materials testing laboratory under the responsible charge of a licensed professional engineer, approved by the code enforcement official and

the registered design professional in responsible charge, to measure, examine, test, calibrate, or otherwise determine the characteristics or performance of construction materials and verify confirmation with construction documents.

#### 1.4 QUALITY ASSURANCE

##### A. Testing Agency Qualifications:

1. Minimum qualifications of inspection and testing agencies and their personnel shall comply with ASTM E329-03 Standard Specification for Agencies in the Testing and / or Inspection of Materials Used in Construction.
  - a. Inspectors and individuals performing tests shall be certified for the work being performed as outlined in the appendix of the ASTM E329. Certification by organizations other than those listed must be submitted to the building official for consideration before proceeding with work.
2. In addition to these requirements, local jurisdiction may have additional requirements. It is the responsibility of the testing and inspection agencies to meet local requirements and comply with local procedures.

#### 1.5 CONFLICTING REQUIREMENTS, REPORTS, AND TEST RESULTS

- A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to the registered design professional in responsible charge for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to the registered design profession in responsible charge for a decision before proceeding.
- C. The special inspector's reports and testing agencies results shall have precedence over reports and test results provided by the contractor.
- D. Where a conflict exists between the construction documents and approved shop drawings / submittal data, the construction documents shall govern unless the shop drawings / submittal data are more restrictive. All conflicts shall be brought to the attention of the registered design professional in responsible charge.

#### 1.6 SUBMITTALS BY SPECIAL INSPECTOR AND / OR TESTING AGENCY

- A. Special inspectors shall keep and distribute records of inspections. The special inspector shall furnish inspection reports to the building official, and to the registered design professional in responsible charge, contractor, architect, and owner. Reports shall indicate that work inspected was done in conformance to approved construction documents. Discrepancies shall be brought to the immediate attention of the contractor for correction. If the discrepancies are not corrected, the discrepancies shall be brought to the attention of the building official and to the registered design professional in responsible charge prior to the completion of that phase of the work. A final report documenting required special inspections and correction of any discrepancies noted in the inspections shall be submitted at a point in time agreed upon by the permit applicant and the building official prior to the start of work.
1. Special inspection reports and test results shall include, but not be limited to, the following:
- a. Date of inspection.
  - b. Description of inspections or tests performed including location (reference grid lines, floors, elevations, etc.).
  - c. Statement noting that the work, material, and / or product conforms or does not conform to the construction document requirements.
    - (1) Name and signature of contractor's representative who was notified of work, material, and / or products that do not meet the construction document requirements.
  - d. Name and signature of special inspector and / or testing agency representative performing the work.
- B. Schedule of Non-Compliant Work: Each agent shall maintain a log of work that does not meet the requirements of the construction documents. Include reference to original inspection / test report and subsequent dates of re-inspection / retesting.
- C. Reports and tests shall be submitted within 1 week of inspection or test. Schedule of Non-Compliant Work shall be updated daily and submitted at monthly intervals.
- D. Final Report of Special Inspections. Submitted by each agent listed in the schedule of Structural Testing and Special Inspections.

## PART 2 - PRODUCTS (not used)

## PART 3 - EXECUTION

### 3.1 CONTRACTOR'S RESPONSIBILITY

- A. The contractor shall coordinate the inspection and testing services with the progress of the work. The contractor shall provide sufficient notice to allow proper scheduling of all personnel. The contractor shall provide safe access for performing inspection and on-site testing.

- B. The contractor shall submit schedules to the owner, registered design professionals and testing and inspecting agencies. Schedules will note milestones and durations of time for materials requiring structural tests and special inspections.
- C. Each contractor responsible for the construction of a seismic-force-resisting system, designated seismic system, or component listed in the quality assurance plan shall submit a written contractor's statement of responsibility to the building official and to the owner prior to the commencement of work on the system or component. The contractor's statement of responsibility shall contain the following:
  - 1. Acknowledgment of awareness of the special requirements contained in the quality assurance plan.
  - 2. Acknowledgment that control will be exercised to obtain conformance with the construction documents approved by the building official.
  - 3. Procedures for exercising control within the contractor's organization, the method and frequency of reporting and the distribution of the reports.
  - 4. Identification and qualifications of the person(s) exercising such control and their position(s) in the organization.
- D. Each contractor responsible for the construction of a main wind force-resisting system or a wind-resisting component listed in the quality assurance plan shall submit a written statement of responsibility to the building official and the owner prior to the commencement of work on the system or component. The contractor's statement of responsibility shall contain the following:
  - 1. Acknowledgment of awareness of the special requirements contained in the quality assurance plan.
  - 2. Acknowledgment that control will be exercised to obtain conformance with the construction documents approved by the building official.
  - 3. Procedures for exercising control within the contractor's organization, the method and frequency of reporting and the distribution of the reports.
  - 4. Identification and qualifications of the person(s) exercising such control and their position(s) in the organization.
- E. The contractor shall repair and / or replace work that does not meet the requirements of the construction documents.
  - 1. Contractor shall engage an engineer / architect to prepare repair and / or replacement procedures.
  - 2. Engineer / architect shall be registered in the state in which the project is located. Engineer shall be acceptable to the registered design professional in responsible charge, code enforcement official, and owner.
  - 3. Procedures shall be submitted for review and acceptance by the registered design professional in responsible charge, code enforcement official, and owner before proceeding with corrective action.
- F. The contractor shall be responsible for costs of:

1. Re-testing and re-inspection of materials, work, and / or products that do not meet the requirements of the construction documents and shop drawings / submittal data.
2. Review of proposed repair and / or replacement procedures by the registered design professional in responsible charge and the inspectors and testing agencies.
3. Repair or replacement of work that does not meet the requirements of the construction documents.

### 3.2 STRUCTURAL OBSERVATIONS

- A. Structural observations may be made periodically as determined by the registered design professional in responsible charge.

### 3.3 TESTING AND INSPECTION

- A. Testing and inspection shall be in accordance with the Schedule of Special Inspections.
- B. Reference related specifications for the minimum level of inspections and testing. Provide additional inspections and testing as necessary to determine compliance with the construction drawings.

## PART 4 - SCHEDULES AND FORMS

### 4.1 SCHEDULE OF SPECIAL INSPECTIONS

- A. Refer to Section 01 4533.10 - Statement of Special Inspections.
- B. Refer to drawings Scope of Work Schedule for Owner's designated testing agency responsible for special inspections.

### 4.2 FINAL REPORT OF SPECIAL INSPECTIONS

- A. Final report of special inspections shall be submitted by Owner's designated testing agency on forms and in format acceptable to Owner.

END OF SECTION

## STATEMENT OF SPECIAL INSPECTIONS 01 4533.10

Project: *Storm Damage Repairs – Multiple Assets T2601-01*

Location: *Camp Crowder Training Site 890 Ray A Carver Drive Neosho, MO*

Owner: *Missouri Army National Guard*

Design Professional in Responsible Charge: *James Brad Baker, Architect*

This *Statement of Special Inspections* is submitted as a condition for permit issuance in accordance with the Special Inspection and Structural Testing requirements of the Building Code. It includes a schedule of Special Inspection services applicable to this project as well as the name of the Special Inspection Coordinator and the identity of other approved agencies to be retained for conducting these inspections and tests. This *Statement of Special Inspections* encompass the following disciplines:

☒ Structural

☐ Mechanical/Electrical/Plumbing

☐ Architectural

☐ Other: Soil Compaction

The Special Inspection Coordinator shall keep records of all inspections and shall furnish inspection reports to the Building Official and the Registered Design Professional in Responsible Charge. Discovered discrepancies shall be brought to the immediate attention of the Contractor for correction. If such discrepancies are not corrected, the discrepancies shall be brought to the attention of the Building Official and the Registered Design Professional in Responsible Charge. The Special Inspection program does not relieve the Contractor of his or her responsibilities.

Interim reports shall be submitted to the Building Official and the Registered Design Professional in Responsible Charge.

A *Final Report of Special Inspections* documenting completion of all required Special Inspections, testing and correction of any discrepancies noted in the inspections shall be submitted prior to issuance of a Certificate of Use and Occupancy.

Job site safety and means and methods of construction are solely the responsibility of the Contractor.

Interim Report *Present reports at end of construction*

Frequency:

Prepared by:

or ☐ per attached schedule.

*James Brad Baker*

(type or print name)

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

*Design Professional Seal*

## **Schedule of Inspection and Testing Agencies**

---

This Statement of Special Inspections / Quality Assurance Plan includes the following building systems:

- |                                                            |                                                          |
|------------------------------------------------------------|----------------------------------------------------------|
| <input checked="" type="checkbox"/> Soils and Foundations  | <input type="checkbox"/> Spray Fire Resistant Material   |
| <input checked="" type="checkbox"/> Cast-in-Place Concrete | <input type="checkbox"/> Wood Construction               |
| <input checked="" type="checkbox"/> Precast Concrete       | <input type="checkbox"/> Exterior Insulation and Finish  |
| System                                                     |                                                          |
| <input type="checkbox"/> Masonry                           | <input type="checkbox"/> Mechanical & Electrical Systems |
| <input checked="" type="checkbox"/> Structural Steel       | <input type="checkbox"/> Architectural Systems           |
| <input type="checkbox"/> Cold-Formed Steel Framing         | <input type="checkbox"/> Special Cases                   |

| Special Inspection Agencies       | Firm | Address, Telephone, e-mail |
|-----------------------------------|------|----------------------------|
| 1. Special Inspection Coordinator |      |                            |
| 2. Inspector                      |      |                            |
| 3. Inspector                      |      |                            |
| 4. Testing Agency                 |      |                            |
| 5. Testing Agency                 |      |                            |
| 6. Other                          |      |                            |

Note: The inspectors and testing agencies shall be engaged by the Owner or the Owner's Agent, and not by the Contractor or Subcontractor whose work is to be inspected or tested. Any conflict of interest must be disclosed to the Building Official, prior to commencing work.

## Soils and Foundations

| Item                          | Scope                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Shallow Foundations        | <p><i>Inspect soils below footings for adequate bearing capacity and consistency with geotechnical report.</i></p> <p><i>Inspect removal of all unsuitable material and preparation of subgrade prior to placement of controlled fill.</i></p> <p><i>Ensure that subgrade is prepared as necessary to reduce potential settlement and potential vertical movement to one inch or less.</i></p> |
| 2. Controlled Structural Fill | <p><i>Perform sieve tests and Proctor tests of each source of fill material as required.</i></p> <p><i>Inspect placement, lift thickness and compaction of controlled fill.</i></p> <p><i>Test density of each lift of fill by nuclear methods (ASTM D2922)</i></p> <p><i>Verify extent and slope of fill placement.</i></p>                                                                   |
| 3. Deep Foundations           | <p><i>Not Applicable.</i></p>                                                                                                                                                                                                                                                                                                                                                                  |
| 4. Load Testing               | <p><i>Not Applicable.</i></p>                                                                                                                                                                                                                                                                                                                                                                  |

|           |                        |
|-----------|------------------------|
| 4. Other: | <i>Not Applicable.</i> |
|-----------|------------------------|

## Cast-in-Place Concrete

| Item                                | Scope                                                                                                                                                                                                                                                                                |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Mix Design                       | <i>Review concrete batch tickets and verify compliance with approved mix design. Verify that no water is added to concrete at the site.</i>                                                                                                                                          |
| 2. Material Certification           | <i>Confirm compliance with Project Manual.</i>                                                                                                                                                                                                                                       |
| 3. Reinforcement Installation       | <i>Inspect size, spacing, cover, positioning and grade of reinforcing steel. Verify that reinforcing bars are free of form oil or other deleterious materials. Inspect bar laps and mechanical splices. Verify that bars are adequately tied and supported on chairs or holsters</i> |
| 4. Post-Tensioning Operations       | <i>Not applicable.</i>                                                                                                                                                                                                                                                               |
| 5. Welding of Reinforcing           | <i>Not applicable.</i>                                                                                                                                                                                                                                                               |
| 6. Anchor Rods                      | <i>Inspect size, positioning and embedment of anchor rods. Inspect concrete placement and consolidation around anchors.</i>                                                                                                                                                          |
| 7. Concrete Placement               | <i>Inspect placement of concrete. Verify that concrete conveyance and depositing avoids segregation or contamination. Verify that concrete is properly consolidated.</i>                                                                                                             |
| 8. Sampling and Testing of Concrete | <i>Test concrete compressive strength (ASTM C31 &amp; C39), slump (ASTM C143), air-content (ASTM C231 or C173) and temperature (ASTM C1064).</i>                                                                                                                                     |
| 9. Curing and Protection            | <i>Inspect curing, cold weather protection and hot weather protection procedures.</i>                                                                                                                                                                                                |
| 10. Other:                          |                                                                                                                                                                                                                                                                                      |

## Structural Steel

| Item                                                                                                         | Scope                                                                                                                                                                                                                                                                                                   |
|--------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Fabricator Certification/<br>Quality Control Procedures<br><br><input type="checkbox"/> Fabricator Exempt | <i>(Not required when Fabricator is IAS AC472 Certified).</i>                                                                                                                                                                                                                                           |
| 2. Material Certification                                                                                    | <i>Review certified mill test reports and identification markings on wide-flange shapes, high-strength bolts, nuts and welding electrodes</i>                                                                                                                                                           |
| 3. Open Web Steel Joists                                                                                     | <i>Not Applicable.</i>                                                                                                                                                                                                                                                                                  |
| 4. Bolting                                                                                                   | <i>Inspect installation and tightening of high-strength bolts. Verify that splines have separated from tension control bolts. Verify proper tightening sequence. Continuous inspection of bolts in slip-critical connections. Confirm proper pre-tensioning of bolts for Seismic Design Category D.</i> |
| 5. Welding                                                                                                   | <i>Not Applicable.</i>                                                                                                                                                                                                                                                                                  |
| 6. Shear Connectors                                                                                          | <i>Not Applicable.</i>                                                                                                                                                                                                                                                                                  |
| 7. Structural Details                                                                                        | <i>Inspect steel frame for compliance with erection drawings, including bracing, member configuration and connection details.</i>                                                                                                                                                                       |
| 8. Metal Deck                                                                                                | <i>Not Applicable.</i>                                                                                                                                                                                                                                                                                  |
| 9. Other:                                                                                                    |                                                                                                                                                                                                                                                                                                         |

## Mechanical & Electrical Systems

| Item                         | Scope                 |
|------------------------------|-----------------------|
| 1. Mechanical, HVAC & Piping | <i>Not Applicable</i> |
| 2. Other:                    |                       |
|                              |                       |
|                              |                       |

## Architectural Systems

| Item                   | Scope                 |
|------------------------|-----------------------|
| 1. Suspended Ceilings  | <i>Not Applicable</i> |
| 2. Architectural Walls | <i>Not Applicable</i> |
| 3. Other:              |                       |
|                        |                       |

END OF SECTION

## 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. Ventilation
5. Sanitary facilities, including drinking water
6. Storm and sanitary sewer

C. Support facilities include, but are not limited to, the following:

1. Field offices and storage sheds
2. Dewatering facilities and drains
3. Temporary enclosures
4. Temporary project identification signs and bulletin boards
5. Waste disposal services
6. Rodent and pest control
7. Construction aids and miscellaneous services and facilities

D. Security and protection facilities include, but are not limited to, to following:

1. Temporary fire protection
2. Barricades, warning signs, and lights
3. Sidewalk bridge or enclosure fence for the site
4. Environmental protection

### 1.3 SUBMITTALS

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

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

## 1.4 QUALITY ASSURANCE

A. Regulations: Comply with industry standards and applicable laws and regulations including, but not limited to, the following:

1. Building code requirements
2. Health and safety regulations
3. Utility company regulations
4. Police, fire department, and rescue squad rules
5. Environmental protection regulations

B. Standards: Comply with NFPA 241 "Standard for Safeguarding Construction, Alterations, and Demolition Operations". ANSI A10 Series standards for "Safety Requirements for Construction and Demolition", and NECA Electrical Design Library "Temporary Electrical Facilities".

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

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

## 1.5 PROJECT CONDITIONS

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

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

## PART 2 - PRODUCTS

### 2.1 MATERIALS

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

B. Lumber and Plywood:

1. For signs and directory boards, provide exterior-type, Grade B-B high-density concrete form overlay plywood of sized and thicknesses indicated.
2. For fences and vision barriers, provide minimum 3/9" (9.5mm) thick exterior plywood.
3. For safety barriers, sidewalk bridges, and similar uses, provide minimum 5/8" (16mm) thick exterior plywood.

C. Gypsum wallboard: Provide gypsum wallboard on interior walls of temporary offices.

D. Roofing Materials: Provide UL Class A standard-weight asphalt shingles or UL Class C mineral-surfaced roll roofing on roofs of job-built temporary office, shops, and shed.

E. Paint: Comply with requirements of Division 9 Section 'painting'.

1. For job-built temporary offices, shops, sheds, fences, and other exposed lumber and plywood, provide exterior-grade acrylic emulsion over exterior primer.
2. For sign panels and applying graphics, provide exterior-grade alkyd gloss enamel over exterior primer.
3. For interior walls of temporary offices, provide two (2) quarts interior latex-flat wall paint.

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

G. Water: Provide potable water approved by local health authorities.

H. Open-Mesh Fencing: Provide 0.120" (3mm) thick, galvanized 2" (50mm) chainlink fabric fencing 6' (2m) high with galvanized barbed-wire top strand and galvanized steel pipe posts, 1½" (38mm) ID for line posts and 2½" (64mm) ID for corner posts.

## 2.2 EQUIPMENT

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

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

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

H. 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.

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

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

## PART 3 - EXECUTION

### 3.1 INSTALLATION

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

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

### 3.2 TEMPORARY UTILITY INSTALLATION

A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where company provides only part of the service, provide the

remainder with matching, compatible materials and equipment. Comply with company recommendations.

1. Arrange with company and existing users for a time when service can be interrupted, if necessary, to make connections for temporary services.
2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.
3. Obtain easements to bring temporary utilities to the site where the Owner's easements cannot be used for that purpose.
4. Use Charges: Cost or use charges for temporary facilities are not chargeable to the Owner or Designer. Neither the Owner nor Designer will accept cost or use charges as a basis of claims for Contract Change.

B. Temporary 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.

C. Temporary Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload-protected disconnects, automatic ground-fault interrupters, and main distribution switch gear.

1. Install electric power service underground, except where overhead service must be used.
2. Power Distribution System: Install wiring overhead and rise vertically where least exposed to damage. Where permitted, wiring circuits not exceeding 125V, AC 20ampere rating, and lighting circuits may be nonmetallic sheathed cable where overhead and exposed for surveillance.

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

1. Install and operate temporary lighting that will fulfill security and protection requirements without operating the entire system. Provide temporary lighting that will provide adequate illumination for construction operations and traffic conditions.

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

1. Heating Facilities: Except where the Owner authorizes use of the permanent system, provide vented, self-contained, LP gas or fuel-oil heaters with individual space thermostatic control.
2. Use of gasoline-burning space heaters, open flame, or salamander heating units is prohibited.

F. Temporary Toilets: Use of the Owner's existing toilet facilities will be permitted, so long as facilities are cleaned and maintained in a condition acceptable to the Owner. All construction personnel will be allowed access only to those specific facilities designed by the Construction Representative. At substantial completion, restore these facilities to the condition prevalent at the time of initial use. Contractor may install his own temporary toilets if desired.

G. 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.
3. Provide safety showers, eyewash fountains, and similar facilities for convenience, safety, and sanitation of personnel.

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

I. 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. General: Locate field offices, storage sheds, and other temporary construction and support facilities for easy access.

1. Maintain support facilities until near Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.

B. Field Offices: Contractors Option to Provide insulated, weathertight temporary offices of sufficient size to accommodate required office personnel at the Project site. Keep the office clean and orderly for use for small progress meetings.

C. Storage facilities: Contractor to install temporary storage Connex containers on-site as needed - sized, furnished, and equipped to accommodate materials and equipment involved, including temporary utility service.

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

E. 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.

F. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities.

1. Where heat is needed and the permanent building enclosure is not complete, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and materials drying or curing requirements to avoid dangerous conditions and effects.
2. Install tarpaulins securely with incombustible wood framing and other materials. Close openings of 25SqFt (2.3SqM) or less with plywood or similar materials.
3. Close openings through floor or roof decks and horizontal surfaces with load-bearing, wood-framed construction.
4. Where temporary wood or plywood enclosure exceeds 100SqFt (9.2SqM) in area, use UL-labeled, fire-retardant-treated material for framing and main sheathing.

G. 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.

H. Project Identification and Temporary Signs: Prepare project identification and other signs of size indicated. Install signs where indicated to inform the public and persons seeking entrance to the Project. Support on posts or framing of preservative-treated wood or steel. Do not permit installation of unauthorized signs.

1. Project Identification Signs: Engage an experienced sign painter to apply graphics. Comply with details indicated.
2. Temporary Signs: Prepare signs to provide directional information to construction personnel and visitors.

I. Temporary Exterior Lighting: Install exterior yard and sign lights so signs are visible when Work is being performed.

J. 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.

K. Rodent Pest Control: Before deep foundation work has been completed, retain a local exterminator or pest control company to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests. Employ this service to perform extermination and control procedures at regular intervals so the Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using environmentally safe materials.

### 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: Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of the types needed to protect against reasonable predictable and controllable fire losses. Comply with NFPA 10 "Standard for Portable Fire Extinguishers" and NFPA 241 "Standard for Safeguarding Construction, Alterations, and Demolition Operations".

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

C. Permanent Fire Protection: At the earliest feasible date in each area of the Project complete installation of the permanent fire-protection facility including connected services and place into operation and use. Instruct key personnel on use of facilities.

D. 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.

E. Enclosure Fence: Before excavation begins, install an enclosure fence with lockable entrance gates. Enclose the entire site or the portion determined sufficient to accommodate construction operations. Install in a manner that will prevent people, dogs, and other animals from easily entering the site, except by the entrance gates.

1. Provide open-mesh, chainlink fencing with posts set in a compacted mixture of gravel and earth.

F. Security Enclosure and Lockup: Install substantial temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.

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

G. 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 governing authority.

3. At Substantial Completion, clean and renovate permanent facilities used during the construction period including, but not limited to, the following:

- a. Replace significantly worn parts and parts subject to unusual operating conditions.
- b. Replace lamps burned out or noticeably dimmed by hours of use.
- c. Replace air filters and clean inside of ductwork and housing.

END OF SECTION

**PART 1 - GENERAL**

**1.1 SECTION INCLUDES**

- A. Installation of temporary water pollution control measures to prevent discharge of pollutants such as chemicals, fuels, lubricants, bitumen, raw sewage, or other harmful material from the project.
- B. Other related documents.

**1.2 GENERAL**

- A. The Contractor shall manage his operations to control water pollution in accordance with this specification and applicable State regulations. Construction of permanent drainage facilities and other contract work, contributing to control of erosion, shall be scheduled at the earliest practicable time.
- B. The Contractor shall furnish, install, maintain, and remove temporary erosion control measures. The Contractor shall prevent silt or polluted storm water discharge from the site.
- C. The Owner's Representative may require installation of additional erosion control facilities, by the Contractor, if in the sole opinion of the Owner's Representative, the Contractor's efforts are inadequate.

**1.3 DEFINITIONS**

- A. General Permit: The General Permit for storm water discharges associated with construction activity (Land Disturbance General Permit No. MO-R100038) issued to FMDC as a blanket permit by the Missouri Department of Natural Resources, Water Pollution Program.
- B. Storm Water Pollution Prevention Plan (SWPPP): A plan required by the General Permit that includes site map(s), an identification of construction/contractor activities that could cause pollutants in the storm water, and a description of measures or practices to control these pollutants.
- C. Best Management Practice (BMP): Any program, technology, process, siting criteria, operating method, measure, or device that controls, prevents, removes, or reduces pollution.

- D. Temporary Berm: A temporary ridge of compacted soil, with or without a shallow ditch, constructed at the top of slopes or transverse to the centerline of a slope. The berm diverts storm runoff to temporary outlets to discharge water with minimal erosion.
- E. Temporary Slope Drain: A temporary facility used to carry water down a slope.
- F. Ditch Check: An obstruction placed at frequent intervals across ditches, creating small ponds to cause sediment to settle and be contained.
- G. Sediment Basin: An excavated or dammed storage area to trap and store sediment and prevent the discharge of silt.
- H. Temporary Seeding and Mulching: Placement of a quick ground cover to reduce erosion in areas expected to be re-disturbed.
- I. Straw Bales: Standard agricultural bales used to filter the flow of water, trap, deposit sediment, and/or divert water.
- J. Silt Fence: A geotextile barrier fence to contain sediment by removing suspended particles from water passing through the fence.
- K. Compost Filter Sock: A mesh tube filled with composted material used to control sediment through settling and filtration.
- L. Temporary Pipe: Conduit utilized to carry water under haul roads, silt fences, etc., and prevent equipment from direct contact with water when crossing an active or intermittent stream.
- M. Sediment Removal: Removal of accumulated sediment to restore the efficiency of sediment control features.

#### 1. SUBMITTALS

- a. The Contractor shall review the Storm Water Pollution Prevention Plan (SWPPP) provided by the Designer, make appropriate field corrections to the document, and submit final corrected copies of the SWPPP to the Owner and facility.

### 1.4 RELATED SECTIONS

- A. Section 31 00 00 – Earthwork

## PART 2 - PRODUCTS

Storm Damage Repair Camp Crowder  
T2601-01 (GHN 25.048)

EROSION CONTROL/STORM  
WATER POLLUTION PREVENTION  
01 5700-2

## 2.1 MATERIALS

- A. Temporary slope drains: Stone, concrete or asphalt gutters, half-round pipe, metal pipe, plastic pipe or flexible rubber pipe.
- B. Ditch Checks:
  - 1. Rock ditch checks: 2" to 3" clean gravel or limestone.
  - 2. Straw bale ditch checks: Rectangular wheat straw bales in good condition. Other foliage may be substituted for straw in accordance with MoDOT 802.2.1.
  - 3. Silt fence ditch checks: Geotextile meeting the requirements of this specification.
  - 4. Compost filter sock: Mesh tube meeting the requirements of this specification.
- C. Riprap for Temporary Erosion Control: Type 1 Rock Blanket conforming to MoDOT 611.32.
- D. Pipe: Corrugated metal (16 Ga.) or ADS N12 Corrugated Plastic.
- E. Compost Filter Sock: filler material (filter media) shall be weed free and derived from a well-decomposed source of organic matter. The compost shall be produced using an aerobic composting process meeting CFR 503 regulations including time and temperature data. The compost shall be free of any refuse, contaminants, or other materials toxic to plant growth. Test methods for the items below should follow US Composting Council test Methods for the Examination of Composting and Compost guidelines for laboratory procedures:
  - 1. PH – 5.0-8.0 in accordance with TMECC 04.11-A, "Electrometric pH Determinations for Compost"
  - 2. Particle Size – 99% passing a 2 in (50mm) sieve and a maximum of 40% passing a 3/8 in (9.5 mm) sieve, in accordance with TMECC 02.02-B, "Sample Sieving for Aggregate Size Classification". (*Note – In the field, product commonly is between ½ in (12.5 mm) and 2 in (50 mm) particle size.*)
  - 3. Moisture content of less than 60% in accordance with standardized test methods for moisture determination.
  - 4. Material shall be relatively free (<1% by dry weight) of inert or foreign man made materials.
  - 5. A sample shall be submitted to the Engineer for approval prior to being used and must comply with all local, state, and federal regulations.
- F. Temporary Seeding:
  - 1. December 1 to March 1: 50 lbs oats/acre.

2. March 1 to December 1: 50 lbs cereal rye or wheat.
3. Mulch shall be wheat straw.

G. Wire Supported and Self Supporting Silt Fence:

1. Geotextile Fabric
  - a. Fibers used in geotextiles shall consist of longchain synthetic polymers, composed of at least 85 percent by weight polyolefins, polyesters, or polyamides. They shall be formed into a network such that the filaments or yarns retain dimensional stability relative to each other, including selvages.
  - b. The geotextile shall be free of any treatment or coating which might adversely alter its physical properties after installation.
  - c. Geotextile shall be furnished in 36" width rolls.
  - d. Geotextile rolls shall be furnished with suitable wrapping for protection against moisture and extended ultraviolet exposure.
  - e. Each roll shall be labeled or tagged to provide product identification sufficient for inventory.
  - f. Rolls shall be stored in a manner, which protects them from the elements.
  - g. Geotextile shall conform to the following:

**TABLE 1**  
**PHYSICAL REQUIREMENTS<sup>1</sup> FOR**  
**TEMPORARY SILT FENCE GEOTEXTILES**

| <u>Property</u>                        | <u>Test Method</u>  | <u>Wire Fence<br/>Supported<br/>Requirements</u> | <u>Self<br/>Supported<br/>Requirements</u> |
|----------------------------------------|---------------------|--------------------------------------------------|--------------------------------------------|
| Tensile Strength, Lbs.                 | ASTM D4632          | 90 Minimum <sup>2</sup>                          | 90 Minimum <sup>2</sup>                    |
| Elongation at 50%<br>Minimum           |                     |                                                  |                                            |
| Tensile Strength (45<br>Lbs.)          | ASTM D4632          | N/A                                              | 50 Maximum                                 |
| Filtering Efficiency, %                | VTM-51 <sup>3</sup> | 75                                               | 75                                         |
| Flow Rate gal/ft/min                   | VTM-51 <sup>3</sup> | 0.3                                              | 0.3                                        |
| Ultraviolet Degradation<br>at 500 hrs. | ASTM D4355          | Minimum 70%<br>Strength Retained                 | Minimum 70%<br>Strength Retained           |

Notes: 1. All numerical values represent minimum average roll value.

- A. When tested in any principal direction.
  - B. Virginia DOT test method.
- 2. Posts: Wood, steel or synthetic posts may be used. Posts shall have a minimum length of 36" plus embedment depth (24" min.). Posts shall have sufficient strength to resist damage during installation and to support applied loads.
  - 3. Support Fence: Wire or other support fence shall be at least 24" high and strong enough to support applied loads.
  - 4. Prefabricated Fence: Prefabricated fence systems may be used provided they meet all of the above material requirements.

## 2.2 CERTIFICATION AND SAMPLING:

- A. The Contractor shall furnish a manufacturer's certification, stating the material conforms to the requirements of these specifications.
- B. The certification shall include, or have attached, typical results of tests for the specified properties, representative of the materials supplied.
- C. The Owner's Representative reserves the right to sample and test any material offered for use.

## PART 3 - EXECUTION

### 3.1 GENERAL REQUIREMENTS

- A. The Owner's Representative may limit the surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow, or fill operations.
- B. The Owner's Representative may direct the Contractor to provide immediate permanent or temporary pollution control measures to prevent contamination of adjacent streams, other watercourses, lakes, ponds, or other areas of water impoundment. Work may involve the construction of temporary berms, dikes, dams, sediment basins, slope drains, use of temporary mulches, seeding or other control devices or methods to control erosion.
- C. The Contractor shall incorporate permanent erosion control features at the earliest practicable time.

- D. The Contractor at no additional cost to the Owner shall provide temporary pollution control measures needed to control erosion during normal construction practices.
- E. Contractor shall designate trained and knowledgeable personnel to coordinate all SWPPP activities, and identify these personnel to the Owner's Representative during construction.
- F. The SWPPP is a living document. As the conditions of the site changes, the SWPPP should be updated by the Contractor.
- G. The SWPPP is subject to random inspection by the Owner. The SWPPP should be kept up to date by the Contractor and available for inspection at any time.
- H. If Contractor determines that any BMP should need modification, the changes shall be dated and documented, and all necessary field changes performed.

### 3.2 LIMITATION OF AREA DISTURBED:

- A. The Contractor's operations shall be scheduled to install permanent erosion control features immediately after clearing and grubbing, and grading.
- B. The surface area of erodible earth material exposed at one time by clearing and grubbing, excavating, fill, or borrow shall not exceed 200,000 square feet without written approval of the Owner's Representative.
- C. The Owner's Representative may limit the area of clearing and grubbing, excavation, borrow, and embankment operations commensurate with the Contractor's capability and progress in completing the finish grading, mulching, seeding, and other such permanent pollution control measures current.
- D. The Contractor shall respond to seasonal variations. If required by weather, temporary erosion control measures shall be taken immediately.

### 3.3 RIVERS, STREAMS, AND IMPOUNDMENTS:

- A. Construction operations in rivers, streams, and impoundments shall be restricted to areas, which must be entered for the construction of temporary or permanent structures.

- B. Rivers, streams, and impoundments shall be promptly cleared of falsework, piling, debris, or other obstructions as soon as practical.
- C. Frequent fording of live streams with construction equipment will not be permitted.
- D. Temporary bridges or other structures shall be used when the Contractor's operations include cycling of equipment across streams, rivers, or impoundments.
- E. Mechanized equipment shall not be operated in flowing streams except as required to construct channel changes and temporary or permanent structures.

#### 3.4 BORROW AND WASTE AREAS

- A. Material pits other than commercially operated sources and material spoil areas shall be subject to pollution control measures of this specification. An offsite location does not relieve the Contractor of his contractual obligation to prevent the introduction of silt or other pollutants into receiving waterways.

#### 3.5 CONFLICT WITH FEDERAL, STATE OR LOCAL LAWS, RULES OR REGULATIONS

- A. In case of conflict between these requirements and pollution control laws, rules, or regulations or other Federal, State or local agencies, the more restrictive laws, rules, or regulations shall apply.

#### 3.6 TEMPORARY BERMS

- A. Temporary berms shall be constructed at the top of newly constructed slopes and / or transverse to grade to divert runoff and prevent erosion until permanent controls are installed and / or slopes are stabilized. Two types of temporary berms will be utilized under conditions listed below:
  - 1. Type "A" Berm: At the end of each day's operations on embankments.
  - 2. Type "B" Berm: At shut down of embankment operations for the winter season or discontinuation of work at the direction of, or with concurrence of the Owner's Representative.
- B. Interceptor berms transverse to centerline may be used when temporary berms are installed on grades in excess of 1 percent and at locations where water is to be carried down the fill slope by temporary or permanent slope drains.

C. Construction Requirements:

1. Type A Berms shall be constructed to the approximate dimensions indicated on the drawings. Berms shall be machine compacted with a minimum of one pass over the entire width with a bulldozer tread, grader wheel, or other approved method.
2. Type "B" Berms shall be constructed to the approximate dimensions indicated on the drawings. These berms shall be machine compacted with a minimum of three passes over the entire width with a bulldozer tread, grader wheel, or other approved method.
3. Type "A" and Type "B" Berms must drain to a compacted outlet at a slope drain. The top width of these berms may be wider and the side slopes flatter on transverse berms to allow equipment to pass over these berms with a minimal disruption.

### 3.7 TEMPORARY SLOPE DRAINS

A. General:

1. Temporary slope drains are required to concentrate water flowing down a slope prior to installation of permanent facilities. Slope drains shall be placed at approximately 500-foot intervals or as directed by the Owner's Representative.

B. General Requirements

1. The Contractor shall install a temporary silt fence in locations shown on the drawings, around inlets that accept flow carrying silt, and other locations necessary to prevent the discharge of silt from the site.
2. Installation shall conform to the drawing detail.
3. Fence construction shall be adequate to handle the stress from hydraulic and sediment loading.

C. Construction Requirements:

1. Temporary slope drains shall be anchored to prevent disruption by the force of the water flowing in the drain.
2. The inlet end shall be constructed to channel water into the drain.
3. The outlet ends of these temporary slope drains shall have some means of dissipating the energy of this water to reduce erosion downstream.
4. Unless otherwise directed by the Owner's Representative, temporary slope drains shall be removed when no longer necessary and the site restored to match the surroundings.

### 3.8 DITCH CHECKS

A. General:

1. Rock ditch checks may be used on ditches with grades of 4 percent or less.
2. Straw bale ditch checks may be used on all ditches.
  - a. The silt fence fabric may be eliminated for grades of 2 percent or less.
3. Silt fence ditch check may be used on all ditches.
4. A straw bale ditch check or a silt fence ditch check may be used in lieu of a sediment basin for drainage areas less than two acres. The basin shall have a volume of 1,815 CF per acre of contributing drainage area.

B. Construction Requirements:

1. Construct rock ditch checks in accordance with the drawing detail.
  - a. Achieve complete coverage of the ditch or swale and insure the center of the check is lower than the edges.
2. Construct straw bale ditch checks in accordance with the drawing detail.
3. Construct silt fence ditch checks in accordance with the drawing detail.

C. Maintenance:

1. Inspect ditch checks for sediment accumulation after each rainfall.
2. Sediment shall be removed when it reaches one-half of the original height.
  - a. Regular inspections shall insure that the center of a rock check is lower than the edges. Correct erosion caused by high flows around the edges of the check immediately.

### 3.9 SEDIMENT BASIN

A. General

1. Sediment basins are used for drainage areas of two (2) to five (5) acres or for a roadway ditch exceeding 1,000 consecutive feet in length. Break larger drainage areas or longer ditches into smaller areas.

B. Construction Requirements:

1. The area where a sediment basin is to be constructed shall be cleared of vegetation.
2. Construct the inlets of sediment basins with a wide cross-section and a minimum grade to prevent turbulence and allow deposition of soil particles.
  - a. The minimum depth is 2'; the maximum depth is 6'.
  - b. The minimum width is 5'; the maximum width is 20'.
  - c. The minimum length is 25'; the maximum length is 200'.
  - d. The minimum volume shall be 1,815 CF per acre of drainage area.
3. Sediment basins shall remain in service until all disturbed areas draining into the structure have been stabilized.

4. When use of sediment basin is discontinued, backfill all excavations and compact fill. Fill material shall be removed and the existing ground restored to the original or plan grade.
5. Maintenance
6. When the depth of sediment reaches 1/3 of the depth of structure in any part of the pool, all accumulation shall be removed.
7. Removed sediment shall be disposed of in locations that the sediment will not erode into the construction areas or into natural waterways. The same holds true for excavated material removed during construction of the sediment basin.

### 3.10 TEMPORARY SEEDING AND MULCHING

#### A. General

1. This item is applicable to all projects.
2. Seeding and/or mulching shall be a continuous operation on all cut slopes, fill slopes, and borrow pits during the construction process. All disturbed areas shall be seeded and mulched within five (5) working days after the last construction activity in all locations where necessary to eliminate erosion.

#### B. Construction Requirements:

1. Permanent seeding and mulching following temporary seeding will be performed during the favorable seeding seasons only.
2. Temporary seeding mixtures and planting season:
  - a. December 1 to March 1: 50 lbs. oat grain per acre
  - b. March 1 to December 1: 50 lbs. (cereal rye or wheat) per acre
3. Temporary mulch, fertilizer, and lime for seeding:
  - a. Fertilizer and mulch for temporary seed mixtures shall be applied in accordance with Section 02921.
  - b. Fertilizer shall be applied at the rate specified for permanent seeding.
  - c. Lime will not be required for temporary seeding.

### 3.11 STRAW BALES

#### A. General

1. Install at the bottom of embankment slopes less than 10' high to divert runoff from sheet flow and intercept some of the sediment in the sheet flow.
2. Install as ditch checks in small ditches and drainage areas.
3. Install on the lower side of cleared areas to catch sediment from sheet flow.

B. Construction Requirements:

1. Bales of straw shall be utilized to control erosion, trap sediment, and divert runoff.
2. Bales must be adequately braced from behind.

3.12 SILT FENCE

A. General

1. Install along the toe of fills over 10' in height, along the right-of-way line, parallel to streams or around an inlet to prevent sediment from entering the pipe system.

B. General Requirements:

1. The Contractor shall install a temporary silt fence in locations shown on the drawings, around inlets that accept flows containing silt, and other locations necessary to prevent the discharge of silt from the site.
2. Installation shall conform to the detail at the end of this section.
3. Fence construction shall be adequate to handle the stress from hydraulic and sediment loading.

C. Installation

1. Geotextile at the bottom of the fence shall be buried as indicated on the detail.
2. The trench shall be backfilled and the soil compacted over the geotextile. The geotextile shall be spliced together as indicated on the detail.
3. Post Installation
  - a. Post spacing shall not exceed 8' for wire support fence installation or 5' for self supported installations.
  - b. Posts shall be driven a minimum of 24" into the ground. Where rock is encountered, posts shall be installed in a manner approved by the Owner's Representative.
  - c. Closer spacing, greater embedment depth and/or wider posts shall be used in low areas, soft, or swampy ground to ensure adequate resistance to applied loads.
4. When support fence is used, the mesh shall be fastened securely to the upstream side of the post.
  - a. The mesh shall extend into the trench a minimum of 2" and extend a maximum of 36" above the original ground surface.
5. When self-supported fence is used, the geotextile shall be securely fastened to fence posts.
6. Maintenance
  - a. The Contractor shall maintain the integrity of silt fences as long as they are necessary to contain sediment runoff.

- b. The Contractor shall inspect all temporary silt fences immediately after each rainfall and at least daily, during prolonged rainfall.
  - c. The Contractor shall immediately correct deficiencies.
  - d. The Contractor shall make a daily review of the location of silt fences in areas where construction activities have changed the natural contour and drainage runoff to ensure that the silt fences are properly located for effectiveness.
  - e. Where a single fence is not adequate to handle the volume of silt or flows are not completely intercepted, additional silt fences shall be installed.
- 7. The Contractor shall remove and dispose of sediment deposits when the deposit approaches one-half the height of the fence.
  - 8. The silt fence shall remain in place until the upstream surface is stabilized. Upon removal, the Contractor shall remove the silt fence, dispose of excess silt, and restore the disturbed area in accordance with Section 02921.

### 3.13 TEMPORARY PIPE

#### A. General:

- 1. The Contractor shall install temporary pipes and fill at locations, to be crossed by the Contractor's equipment, which carry a concentrated flow during rain events.

#### B. Construction Requirements:

- 1. All temporary pipes shall be installed in the same manner as permanent pipe is installed on the project to assure that the water does not cause erosion around the pipe.
- 2. Material to backfill the pipe should be placed in 6" lifts and mechanically compacted. Compaction testing will not be required.

### 3.14 COMPOST FILTER SOCK

#### A. General

- 1. Compost filter socks should be installed parallel to the base of the slope or other disturbed area. In extreme conditions (i.e., 2:1 slopes), a second compost filter sock shall be constructed at the top of the slope.
- 2. Stakes shall be installed through the middle of the compost filter on 10 ft (3m) centers, using 2 in (50 mm) by 2 in (50 mm) by 3 ft (1 m) wooden stakes. In the event staking is not possible, i.e., when compost filter socks are used on pavement, heave concrete blocks shall be used behind the compost filter socks to help stabilize during rainfall/runoff events.
- 3. Staking depth for sand and silt loam soils shall be 12 in (300mm) and 8 in (200mm) for clay soils.

4. Loose compost may be backfilled along the upslope side of the compost filter sock, filling the seam between the soil surface and the device, improving filtration and sediment retention.
5. If the compost filter sock is to be left as a permanent filter or part of the natural landscape, it may be seeded at time of installation for establishment of permanent vegetation. The engineer will specify seed requirements.
6. Compost filter socks are not to be used in perennial, ephemeral, or intermittent streams.

### 3.15 SEDIMENT REMOVAL

#### A. General

1. Sediment deposits shall be removed when:
  - a. The deposits reach approximately one-half the height of a ditch check, straw bale barrier or silt fence.
  - b. The sediments have reduced the ponded volume of sediment basins to one-third of the original volume.
  - c. Requested by the Owner's Representative.
- B. Sediment removed from erosion control features shall be deposited in a location where it will not erode into construction areas or watercourses.

END OF SECTION

PART 1 - GENERAL

1.1 STANDARDS AND REGULATIONS

- A. General Applicability of Standards: As indicated in the Contract Documents, and except to the extent more explicit or more stringent requirements are written directly into the Contract Documents, applicable standards of the construction industry have the same force and effect (and are made a part of the Contract Documents by reference) as if copied directly into the Contract Documents, or as if published copies were bound herewith. Immediately refer discrepancies to Architect for resolution of overlapping and conflicting requirements which result from the application of several different industry standards to the same unit of work.
  - 1. Referenced standards (referenced directly in the Contract Documents or by governing regulation) have precedence over non-referenced standards which are recognized in the industry for applicability to the work.
  - 2. Non-referenced standards are hereby defined, except as otherwise limited in the Contract Documents, to have direct applicability to the work as recognized in the building construction industry, and will be so enforced for the performance of the work.
- B. Publication Dates: Except as otherwise indicated, where compliance with an industry standard is required, comply with the standard in effect as of the date of the Contract Documents.

1.2 GOVERNING REGULATION/AUTHORITIES

- A. General: Contact governing authorities directly for necessary information and decisions having a bearing on the performance of the Work.
- B. Classification: Refer to G002 Sheet Index & Code Summary.

1.3 WARRANTIES (GUARANTIES)

- A. Categories of warranties required for the Work include the following. Refer to sections of Divisions 2 through 33 for requirements of specified warranties.
  - 1. Special project warranty issued by Contractor and, where required, countersigned by Installer or other recognized entity involved in performance of the work.
  - 2. Specified product warranty issued by a manufacturer or fabricator, for compliance with requirements in Contract Documents.
  - 3. Coincidental product warranty available on a product incorporated into the Work, by virtue of manufacturer's publication of warranty without regard for application requirements (non-specified warranty).
- B. Warranty Obligations: Requirements for correction of the Work shall be as required in the General Conditions. The obligations of the Contractor for correction of defective Work and fulfilling terms of warranties survives Final Completion of the project. The obligations of the Contractor shall be as required by the Contract Documents and shall not be limited by the availability or terms of manufacturer's warranty. Restore or remove and replace warranted Work to its originally specified condition, at such time during warranty as it does not comply with or fulfill terms of warranty. Restore or

remove and replace other Work which has been damaged by failure of warranted Work, or which must be removed and replaced to gain access to warranted Work. Except as otherwise indicated or required by governing regulations, warranties do not cover consequential damages to other than Work of the Contract, (e.g. building contents). Cost of restoration or removal and replacement is Contractor's obligation, without regard to whether Owner has already benefited from use of failing Work.

- C. Reinstatement of Warranty: Upon restoration or removal and replacement of warranted Work which has failed, reinstate the warranty by issuing newly executed form, for at least the remaining period of time of the original warranty, but for not less than half of the original warranty period.
- D. Owner's Recourse: Warranties and warranty periods do not diminish implied warranties, and do not deprive Owner of actions, rights and remedies otherwise available under law for Contractor's failure to fulfill requirements of the Contract Documents. Owner reserves the right to reject coincidental product warranties considered to be conflicting with or detracting from requirements of the Contract Documents.

#### 1.4 DRAWINGS AND SPECIFICATIONS

- A. Omissions from the drawings or specifications or the misdescription of details of Work which are manifestly necessary to carry out the intent of the Contract Documents, or which are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details of the Work, and the Work shall be performed as if fully and correctly set forth and described in the Contract Documents. Obligations of the Contractor to review the Contract Documents, to report discrepancies, and to request clarification are described in the General Conditions and Supplementary Conditions.

#### 1.5 DELIVERY, STORAGE AND HANDLING

- A. General: Receive, store and handle products, materials and equipment in a manner which will prevent loss, deterioration and damage. Schedule deliveries to minimize long term storage at project site. Deliver manufactured materials in original unopened packages bearing the name of the manufacturer, and as applicable, testing agency label and with complete manufacturer's instructions for installation of material according to approved test report.

#### PART 2 - PRODUCTS -- Not Applicable

#### PART 3 - EXECUTION

##### 3.1 PREPARATION FOR INSTALLATION

- A. Prior to starting installation of each major component of the Work, hold a pre-installation conference, attended by each entity involved or affected by planned installation. Include technical representatives of product manufacturer(s) and others recognized as expert or otherwise capable of influencing the success of the installation. Review significant aspects of requirements for the Work.
- B. Coordinate the Work of other trades as required to make provisions for proper installation of specified Work. Verify that the specified Work may be installed in accordance with all pertinent codes and regulation, the original design, and the accepted submittals.

- C. Examine Work in place on which specified Work is in any way dependent. Inspect substrate and conditions for installation, make field measurement to verify or supplement dimensions indicated. Report (in writing) unsatisfactory conditions. Correct unsatisfactory conditions before proceeding. Inspect each product immediately before installation, and do not install damaged or defective products, materials or equipment.
- D. Whenever possible fabricator shall make field measurements prior to preparation of shop drawings and fabrication to ensure proper fitting of specified Work. Otherwise, make allowances for field fitting and indicate actual field measurements on shop drawings.

### 3.2 INSTALLATION, GENERAL REQUIREMENTS

- A. Comply with applicable fire rated assemblies, governing regulations, and latest manufacturer's instructions and recommendations to extent printed information is more detailed or stringent than requirements contained directly in Contract Documents. Report discrepancies to Architect requesting clarification before proceeding with Work.
- B. For installation of specified Work use only personnel who are skilled in the Work required, completely familiar with the manufacturer's recommended methods of installation, and thoroughly familiar with the requirements for the specified Work.
- C. Install Work during time and under conditions which will ensure best possible results, coordinated with required inspections and testing.
- D. Anchor Work securely in place, properly located by measured line and level, organized for best possible uniformity, visual effect, operational efficiency, durability, and similar benefit to Owner's use. Isolate non-compatible materials from contact, sufficiently to prevent deterioration.
- E. Install individual units of Work at industry recognized mounting heights, if not otherwise indicated; refer uncertainties to Architect before proceeding.
- F. Where indicated or needed for operation and maintenance, provide permanent nameplates on equipment, located in inconspicuous places, and containing suitable information and operation data. Do not remove fire classification labels or paint or otherwise cause to be unreadable.

### 3.3 CORRECTION OF DEFECTIVE WORK

- A. Restore all defective or damaged Work to initial or specified condition. Defective or damaged items or components which cannot be repaired or restored to initial or specified condition shall be removed and replaced at no additional cost to Owner. Refer to related requirements in General Conditions.

### 3.4 TESTING AND INSPECTION

- A. Make all necessary arrangements for and coordinate specified Work with required inspections and tests by governing authority or independent testing agency.
- B. Make all necessary arrangements for and secure all required inspections and all required approvals from all regulatory agencies having jurisdiction.

### 3.5 CLEANING AND PROTECTION

- A. General: Clean each element of Work at time of installation. Provide sufficient maintenance and protection during construction to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION

**PART 1 - GENERAL****1.1 GENERAL**

- A. The provisions of this section apply primarily to closeout of actual physical work, not to administrative matters such as final payment and change over of insurance. Closeout requirements relate to both Final Completion and Substantial Completion of Work, and apply to individual portions of completed Work as well as the total Work. Specific requirements in other sections have precedence over general requirements of this section.
- B. After Substantial Completion, continue to diligently prosecute all remaining Work in an organized, efficient manner until completion.

**1.2 PROCEDURES AT SUBSTANTIAL COMPLETION**

- A. Prerequisites: Comply with General and Supplementary Conditions and Division 1 General Requirements and complete the following before requesting Architect's inspection of the Work, or designated portion, for Substantial Completion.
  - 1. Submit executed warranties, workmanship bonds, maintenance agreements, inspection certificates and similar required documentation for specific units of Work, enabling Owner's unrestricted occupancy and use.
  - 2. Submit record documentation, maintenance manuals, tools, spare parts, extra materials, keys, and similar operational items.
  - 3. Test all equipment and systems demonstrating to Architect they are correctly installed and operating properly. Submit written record of the tests and results.
  - 4. Complete instruction of Owner's operating personnel, and startup of systems.
  - 5. Complete final cleaning, and remove temporary facilities and tools.
- B. Inspection Procedures: Upon receipt of Contractor's request, including Contractor's initial punch list, Architect will either proceed with inspection or advise Contractor of prerequisites not fulfilled. Following initial inspection, Architect will either prepare Certificate of Substantial Completion, or advise Contractor of Work which must be performed prior to issuance of certificate; and repeat inspection when requested and assured that Work has been substantially completed. Results of completed inspection will form the "punch list" for final inspection.

**1.3 PROCEDURES AT FINAL ACCEPTANCE**

- A. Re-inspection Procedure: Upon receipt of Contractor's notice that Work has been completed, including punch list items resulting from earlier inspections, and accepting incomplete items delayed because of acceptable circumstances, Architect will re-inspect Work. Upon completion of re-inspection, Architect will either recommend final acceptance and final payment, or advise Contractor of Work not completed or obligations not fulfilled as required for final acceptance. If necessary, procedure will be repeated.

**1.4 RECORD DOCUMENTATION**

- A. Record Drawings: Maintain a complete set of prints of Contract Documents and shop drawings for "as-built" record mark up purposes throughout the Contract Time. Mark

up contract documents during course of the Work to show changes and actual installation conditions, sufficient to form a complete record for Owner's purposes. Give particular attention to Work that will be concealed and difficult to measure and record at a later date, and Work that may require servicing or replacement during life of Project. Require entities marking prints to sign and date each notation. Bind prints into manageable sets, with durable paper covers, appropriately labeled.

- B. Maintenance Manuals: Provide flash drive containing required maintenance manuals, properly identified and indexed per the specification section. Include operating and maintenance instructions extended to cover emergencies, spare parts, warranties, inspection procedures, diagrams, safety, security, and similar appropriate data for each system or equipment item.

## 1.5 GENERAL CLOSEOUT REQUIREMENTS

- A. Operator Instructions: Require each Installer of systems requiring continued operation/maintenance by Owner's operating personnel, to provide on location instruction to Owner's personnel, sufficient to ensure safe, secure, efficient, non-failing utilization and operation of systems. As a minimum, provide instructions for the following categories of Work.
  - 1. Mechanical/electrical/electronic systems (not limited to Work of Divisions 22, 23 and 26).
  - 2. Floor and wall covering finishes.
  - 3. Paint materials and color codes.
  - 4. Roofing, flashing, joint sealers.
- B. Final Cleaning: At closeout time, clean or re-clean entire Work to normal level for "first class" maintenance/cleaning of building projects of similar nature. Remove non-permanent protection and labels, clean exposed finishes, touch-up minor finish damage, clean or replace filters of mechanical systems, remove debris and broom clean non-occupied spaces, sanitize plumbing/food service facilities, clean light fixtures, sweep and wash paved areas, police yards and grounds, and perform similar clean up operations needed to produce a "clean" condition as judged by the Architect.

PART 2 - NOT APPLICABLE

PART 3 - NOT APPLICABLE

END OF SECTION

## 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 impeding drainage or traffic, and providing the required protection of materials.
2. Do not allow the accumulation of scrap, debris, waste material, and other items not required for construction of this Work.
3. At least twice each month, and more often if necessary, completely remove all scrap, debris, and waste material from the jobsite.
4. Provide adequate storage for all items awaiting removal from the jobsite, observing all requirements for fire protection and protection of the ecology.

B. Site

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

C. Structures

1. Daily, inspect the structures and pick up all scrap, debris, and waste material. Remove all such items to the place designated for their storage.
2. Weekly, sweep all interior spaces clean. "Clean" for the purposes of this paragraph, shall be interpreted as meaning free from dust and other material capable of being removed by use of reasonable effort and handheld broom.
3. In preparation for installation of succeeding materials, clean the structures or pertinent portions thereof to the degree of cleanliness recommended by the manufacturer of the succeeding material, using all equipment and materials required to achieve the required cleanliness.
4. Following the installation of finish floor materials, clean the finish floor daily while work is being performed in the space in which finish materials have been installed. "Clean" for the purposes of this subparagraph, shall be interpreted as meaning free from all foreign material which, in the opinion of the Construction Representative, may be injurious to the finish of the finish floor material.

### 3.2 FINAL CLEANING

- A. General: Provide final cleaning operations when indicated. Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit of Work to the condition expected from a commercial building cleaning and maintenance program. Comply with manufacturer's instructions.
- B. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for the entire Project or a portion of the Project.
1. Clean the Project Site, yard and grounds, in areas disturbed by construction activities including landscape development areas, of rubbish, waste material, litter, and foreign substances.
  2. Sweep paved areas broom clean. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
  3. Remove petrochemical spills, stains, and other foreign deposits.
  4. Remove tools, construction equipment, machinery, and surplus material from the site.
  5. 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.
  7. Broom clean concrete floors in unoccupied 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 transparent 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. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
  13. Clean plumbing fixtures to a sanitary condition free of stains, including stains resulting from water exposure.
  14. Clean exposed surfaces of diffusers, registers, and grills.
  15. Clean ducts, blowers, and coils if units were operated without filters during construction
  16. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs and defective and noisy starters in fluorescent and mercury vapor fixtures.
  17. 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

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

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

### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for the following:
1. Salvaging nonhazardous demolition and construction waste.
  2. Recycling nonhazardous demolition and construction waste.
  3. Disposing of nonhazardous demolition and construction waste.
- B. Related Sections include the following:
1. Division 01 Section "Temporary Facilities and Controls" for environmental-protection measures during construction, and location of waste containers at Project site.

### 1.3 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction repair operations.
- B. Demolition Waste: Building and site improvement materials and other solid waste resulting from construction repair operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

### 1.4 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with hauling and disposal regulations of federal, state, and local authorities having jurisdiction.
- B. Waste Management Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to waste management including, but not limited to, the following:
1. Review and discuss waste management plan including responsibilities of Waste Management Coordinator.

2. Review requirements for documenting quantities of each type of waste and its disposition.
3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
5. Review waste management requirements for each trade.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.1 DISPOSAL OF WASTE

A. General: The contractor shall make all reasonable efforts to recycle and recover Construction and Demolition (C&D) waste from this project. Records shall be maintained to document the quantity of waste generated, the quantity of waste diverted through sale, reuse, or recycling, and the quantity of waste disposed of by landfill or incineration.

1. All records must be provided to the project manager upon project completion.

B. Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

C. Burning: Do not burn waste materials.

D. Disposal: Transport waste materials off Owner's property and legally dispose of them.

END OF SECTION

PART 1 - GENERAL

1.1 SCOPE

- A. Provide site demolition work, complete, including removal and disposal of demolished materials and connecting to existing utilities.

1.2 RELATED WORK SPECIFIED IN OTHER SECTIONS

- A. Earthwork; Section 31 000.

1.3 SUBMITTALS

- A. Prior to starting work, submit a demolition schedule indicating proposed methods and operations of demolition. Include in the schedule, coordination for shut-off, capping and continuation of utility services as required. Provide a detailed sequence of demolition and removal work to ensure the uninterrupted progress of the Owner's operations.
- B. Identify utility and service lines and capping locations on As-Builts.

1.4 JOB CONDITIONS

- A. Condition of Structures: Conditions existing at the time of inspection for bidding purposes will be maintained by the Owner insofar as practicable. However, variations within the structure may occur by Owner's removal and salvage operations prior to the start of the demolition work.
- B. Partial Removal: Items of salvable value to the Contractor may be removed from the site as the work progresses. Salvaged items must be transported from the site as they are removed. Storage or sale of removed items on the site will not be permitted.
- C. Explosives: The use of explosives will not be permitted. Do not bring explosives to the site or use any explosives without the written consent of authorities having jurisdiction.
- D. Conduct demolition operations and the removal of debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.
- E. Protection: Ensure the safe passage of persons around the area of demolition. Conduct operations to prevent injury to adjacent buildings, structures, other facilities, and persons.
- F. Damages: Promptly repair damages caused to adjacent facilities by demolition operations at no cost to the Owner.

- G. Utility Services: Maintain existing utilities, indicated to remain, keep in service, and protect against damage during demolition operations. Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to the governing authorities.

## PART 2 - PRODUCTS - Not Applicable

## PART 3 - EXECUTION

### 3.1 DEMOLITION

- A. Pollution Controls: Use water sprinkling, temporary enclosures, and other suitable methods to limit the amount of dust and dirt rising and scattering in the air to the lowest practical level. Comply with governing regulations pertaining to environmental protection.
- B. Execute work in orderly and careful manner, with due consideration for neighbors and the public.
- C. Concrete and Paving Removal: Saw cut joints between material to be removed and material to remain to full depth.
- D. Hand-excavate trench 12 inches wide and 16 inches deep along concrete or paving to be removed. Cut roots encountered with saw, axe, or pruner. Do not cut roots with excavating equipment. Remove roots under concrete and paving to be replaced down to 12 inches below finished grade.
- E. Filling Voids: Filling is provided under Section 31 0000.
- F. Conduct demolition operations and the removal of debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.
- G. Protection: Ensure the safe passage of persons around the area of demolition. Conduct operations to prevent injury to adjacent buildings, structures, other facilities, and persons.
- H. Damages: Promptly repair damages caused to adjacent facilities by demolition operations at no cost to the Owner.

### 3.2 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Remove from the site, debris, rubbish, and other materials resulting from demolition operations. Burning of removed materials from demolished structures will not be permitted on the site.
- B. Removal: Transport materials removed from demolition and dispose of off the site.

END OF SECTION

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY**

- A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:
  - 1. Footings.

**1.3 DEFINITIONS**

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

**1.4 ACTION SUBMITTALS**

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
  - 1. Indicate amounts of mixing water to be withheld for later addition at Project site.
- C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

**1.5 INFORMATIONAL SUBMITTALS**

- A. Material Certificates: For each of the following, signed by manufacturers:
  - 1. Cementitious materials.
  - 2. Admixtures.
  - 3. Form materials and form-release agents.

4. Steel reinforcement and accessories.
  5. Curing compounds.
- B. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:
1. Aggregates. Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity.
- C. Field quality-control reports.

## 1.6 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.
- B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- C. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.
- D. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
1. ACI 301, "Specifications for Structural Concrete," Sections 1 through 5.
  2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
- E. Preinstallation Conference: Conduct conference at Project site.
1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:
    - a. Contractor's superintendent.
    - b. Independent testing agency responsible for concrete design mixtures.
    - c. Ready-mix concrete manufacturer.
    - d. Concrete subcontractor.
    - e. Special concrete finish subcontractor.
  2. Review special inspection and testing and inspecting agency procedures for field quality control, concrete finishes and finishing, cold- and hot-weather concreting procedures, curing procedures, construction contraction and isolation joints, and joint-filler strips, semirigid joint fillers, forms and form removal limitations, [vapor-

retarder installation, anchor rod and anchorage device installation tolerances, steel reinforcement installation, floor and slab flatness and levelness measurement, concrete repair procedures, and concrete protection.

## 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

## PART 2 - PRODUCTS

### 2.1 FORM-FACING MATERIALS

- A. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
- B. Forms for Cylindrical Columns, Pedestals, and Supports: Metal, glass-fiber-reinforced plastic, paper, or fiber tubes that will produce surfaces with gradual or abrupt irregularities not exceeding specified formwork surface class. Provide units with sufficient wall thickness to resist plastic concrete loads without detrimental deformation.
- C. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
  - 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- D. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
  - 1. Furnish units that will leave no corrodible metal closer than 1 inch (25 mm) to the plane of exposed concrete surface.
  - 2. Furnish ties that, when removed, will leave holes no larger than 1 inch (25 mm) in diameter in concrete surface.
  - 3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

### 2.2 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.
- B. Low-Alloy-Steel Reinforcing Bars: ASTM A 706/A 706M, deformed.
- C. Plain-Steel Wire: ASTM A 82/A 82M, as drawn.

- D. Deformed-Steel Wire: ASTM A 496/A 496M.
- E. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, plain, fabricated from as-drawn steel wire into flat sheets.
- F. Deformed-Steel Welded Wire Reinforcement: ASTM A 497/A 497M, flat sheet.

## 2.3 REINFORCEMENT ACCESSORIES

- A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), plain-steel bars, cut true to length with ends square and free of burrs.
- B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
  - 1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.
  - 2. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.
  - 3. For zinc-coated reinforcement, use galvanized wire or dielectric-polymer-coated wire bar supports.

## 2.4 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
  - 1. Portland Cement: ASTM C 150, Type I/II. Supplement with the following:
    - a. Fly Ash: ASTM C 618, Class F or C.
    - b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.
- B. Silica Fume: ASTM C 1240, amorphous silica.
- C. Normal-Weight Aggregates: ASTM C 33 coarse aggregate or better, graded. Provide aggregates from a single source.
  - 1. Maximum Coarse-Aggregate Size: 3/4 inch nominal, typical. 3/8" nominal at elevated slabs on metal deck.
  - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- D. Water: ASTM C 94/C 94M and potable.

## 2.5 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C 260.
- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
  - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
  - 2. Retarding Admixture: ASTM C 494/C 494M, Type B.
  - 3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
  - 4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
  - 5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
  - 6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

## 2.6 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) when dry.
- C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- D. Water: Potable.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.
- F. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, nondissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering.
- G. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, 18 to 25 percent solids, nondissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering.
- H. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

## 2.7 RELATED MATERIALS

- A. Bonding Agent: ASTM C 1059/C 1059M, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

- B. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:
  - 1. Types I and II, non-load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

## 2.8 REPAIR MATERIALS

- A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch (3.2 mm) and that can be feathered at edges to match adjacent floor elevations.
  - 1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
  - 2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
  - 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3.2 to 6 mm) or coarse sand as recommended by underlayment manufacturer.
  - 4. Compressive Strength: Not less than 4100 psi (29 MPa) at 28 days when tested according to ASTM C 109/C 109M.
- B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch (6.4 mm) and that can be filled in over a scarified surface to match adjacent floor elevations.
  - 1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
  - 2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
  - 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3.2 to 6 mm) or coarse sand as recommended by topping manufacturer.
  - 4. Compressive Strength: Not less than 5000 psi (34.5 MPa) at 28 days when tested according to ASTM C 109/C 109M.

## 2.9 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
  - 1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
- B. Admixtures: Use admixtures according to manufacturer's written instructions.
  - 1. Use water-reducing, high-range water-reducing, or plasticizing admixture in concrete, as required, for placement and workability.
  - 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.
4. Use corrosion-inhibiting admixture in concrete mixtures where indicated.

## 2.10 CONCRETE MIXTURES FOR BUILDING ELEMENTS

- A. Footings: Refer to drawings.

## 2.11 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

## 2.12 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.
  1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.
- B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.
  1. For mixer capacity of 1 cu. yd. (0.76 cu. m) or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
  2. For mixer capacity larger than 1 cu. yd. (0.76 cu. m), increase mixing time by 15 seconds for each additional 1 cu. yd. (0.76 cu. m).
  3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixture time, quantity, and amount of water added. Record approximate location of final deposit in structure.

## PART 3 - EXECUTION

### 3.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

- C. Construct forms tight enough to prevent loss of concrete mortar.
- D. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
  - 1. Install keyways, reglets, recesses, and the like, for easy removal.
  - 2. Do not use rust-stained steel form-facing material.
- E. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- F. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- G. Chamfer exterior corners and edges of permanently exposed concrete.
- H. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- I. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- J. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- K. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

### 3.2 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
  - 1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."
  - 2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.

3. Install dovetail anchor slots in concrete structures as indicated.

### 3.3 REMOVING AND REUSING FORMS

- A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations and curing and protection operations need to be maintained.
- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

### 3.4 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
  1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
  1. Weld reinforcing bars according to AWS D1.4/D 1.4M, where indicated.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

### 3.5 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.
- C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.
  - 1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
  - 1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
  - 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
  - 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches (150 mm) into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
  - 1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
  - 2. Maintain reinforcement in position on chairs during concrete placement.
  - 3. Screed slab surfaces with a straightedge and strike off to correct elevations.
  - 4. Slope surfaces uniformly to drains where required.
  - 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
- F. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
  - 1. When average high and low temperature is expected to fall below 40 deg F (4.4 deg C) for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
  - 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
  - 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

G. Hot-Weather Placement: Comply with ACI 301 and as follows:

1. Maintain concrete temperature below 90 deg F (32 deg C) at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

### 3.6 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.
- D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
- E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
  1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
    - a. Water.
    - b. Continuous water-fog spray.
    - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.
  2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
    - a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.

- b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
  - c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.
- 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
  - a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.
- 4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

### 3.7 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
- B. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
  - 1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch (0.25 mm) wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
  - 2. After concrete has cured at least 14 days, correct high areas by grinding.
  - 3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
  - 4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
  - 5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch (6 mm) to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.

6. Repair defective areas, except random cracks and single holes 1 inch (25 mm) or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch (19-mm) clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
  7. Repair random cracks and single holes 1 inch (25 mm) or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- C. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.
- D. Repair materials and installation not specified above may be used, subject to Architect's approval.

### 3.8 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage a special inspector to perform field tests and inspections and prepare test reports.
- B. Inspections:
1. Steel reinforcement placement.
  2. Steel reinforcement welding.
  3. Headed bolts and studs.
  4. Verification of use of required design mixture.
  5. Concrete placement, including conveying and depositing.
  6. Curing procedures and maintenance of curing temperature.
  7. Verification of concrete strength before removal of shores and forms from beams and slabs.
- C. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd. (4 cu. m), but less than 25 cu. yd. (19 cu. m), plus one set for each additional 50 cu. yd. (38 cu. m) or fraction thereof.
  2. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. (76 cu. m) or fraction thereof of each concrete mixture placed each day.
    - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.

3. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
4. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
5. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F (4.4 deg C) and below and when 80 deg F (27 deg C) and above, and one test for each composite sample.
6. Unit Weight: ASTM C 567, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
7. Compression Test Specimens: ASTM C 31/C 31M.
  - a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
  - b. Cast and field cure two sets of two standard cylinder specimens for each composite sample.
8. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
  - a. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.
  - b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
9. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
10. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi (3.4 MPa).
11. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
12. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
13. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.

14. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
15. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

END OF SECTION

## PART 1 - GENERAL

### 1.1 SCOPE

- A. Provide all labor, materials, equipment, and supervision required to repair, clean, and repaint the exterior Exterior Insulation and Finish System (EIFS) on the existing concrete masonry unit (CMU) building in coordination with the gutter and downspout replacement work described under related sections.
- B. Field conditions governing the extent of damage are not fully defined. Contractor shall carefully examine all EIFS surfaces prior to commencing work and include in the bid all repair work reasonably inferable from field observation.

### 1.2 RELATED SECTIONS

- A. Gutter and Downspout Replacement: Work under this contract includes removal and replacement of existing gutters and downspouts. Coordinate EIFS patching at former downspout strap and bracket attachment locations with the gutter subcontractor so that patching is performed after all obsolete attachments are removed and before final coating.

### 1.3 QUALIFICATIONS AND QUALITY ASSURANCE

- A. Contractor shall be able to furnish qualifications demonstrating a minimum of five years' experience with EIFS repair and recoating work on buildings of similar type and scope.
- B. Applicators shall be trained and, where required by the EIFS manufacturer, certified in the application of the specified patching and coating systems.
- C. All repair materials shall be products of a single EIFS manufacturer or an EIFS-compatible system approved in writing by the original EIFS manufacturer. Where the original manufacturer cannot be identified, the Contractor shall propose a compatible system and obtain Architect approval prior to ordering materials.
- D. Work shall conform to applicable requirements of ASTM C926 (application of Portland cement-based plaster), ASTM E2568 (specification for PB exterior insulation and finish systems), and the EIFS manufacturer's current written instructions.

### 1.4 SUBMITTALS

- A. Pre-Construction: Before commencing work, submit a brief written work plan describing the sequence of operations, the names and product data sheets for all proposed repair materials, primer, and coating products, and a sample panel schedule identifying the location of mock-up patches.

- B. Material Data: Submit manufacturer's product data sheets and Safety Data Sheets (SDS) for all patching compounds, base coats, primers, and finish coat materials.
- C. Color and Texture Samples: Submit drawdown or spray-out samples of the proposed finish coat color and texture on 12-inch-square hardboard panels for Architect approval prior to ordering finish coat materials.
- D. Closeout: Upon completion, submit a written summary of all repair locations (description and approximate area), products used, and lot numbers of finish coat materials applied.

## 1.5 HEALTH AND SAFETY

- A. General: Contractor is solely responsible for the safety of its employees, subcontractors, and the public. Comply with all applicable OSHA regulations and local ordinances.
- B. Dust and Debris: EIFS grinding, cutting, and surface preparation generates fine particulate. Provide dust containment and respiratory protection as required. Do not allow EIFS debris or wash water to enter storm drains.
- C. Chemical Hazards: Review SDS for all cleaning agents, primers, and coatings. Provide appropriate personal protective equipment. Ensure adequate ventilation when working with solvent-based products.
- D. Fall Protection: Provide compliant fall protection for all elevated work. Scaffold or aerial lift selection and erection is the Contractor's responsibility.

## PART 2 - PRODUCTS

### 2.1 EIFS PATCHING MATERIALS

- A. Base Coat Patching Compound: Polymer-modified cementitious or acrylic-based base coat compatible with the existing EIFS system, formulated for patching repairs. Products shall be specifically listed by the manufacturer for use as a repair base coat over existing cured EIFS.
- B. Mesh Reinforcement: Alkali-resistant (AR) fiberglass mesh, minimum 4.0 oz/sq yd, compatible with the base coat compound, for use in all crack and gouge repairs per manufacturer's requirements.
- C. Primer: Acrylic primer recommended by the finish coat manufacturer for application over repaired and cleaned EIFS surfaces prior to finish coat. Apply to the entire building exterior, not only repaired areas.

### 2.2 CLEANING MATERIALS

- A. Low-Pressure Detergent Wash Solution: Biodegradable, non-ionic detergent suitable for EIFS surfaces. Do not use acid-based, solvent-based, or abrasive cleaners

unless specifically approved in writing by the EIFS manufacturer for the specific condition being addressed.

- B. Mold and Mildew Treatment: Dilute sodium hypochlorite (bleach) solution or proprietary biocidal cleaner approved by the EIFS manufacturer, for use on areas exhibiting biological growth prior to general washing.

## 2.3 FINISH COAT

- A. Acrylic Finish Coat: 100% acrylic-based EIFS finish coat, color and texture to match existing or as selected by Architect. Product shall be formulated for direct application over EIFS base coat and shall be breathable (water vapor permeable). Acceptable manufacturers include Sto Corp., Parex (Integral), Dryvit Systems, and approved equivalents.
- B. Color Selection: Color(s) to be selected by Architect from manufacturer's standard palette. Contractor shall prepare and submit color/texture samples as specified under Submittals before ordering finish coat.

## PART 3 - EXECUTION

### 3.1 EXISTING CONDITIONS

- A. Pre-Construction Survey: Before beginning work, survey the entire building exterior and document all areas of EIFS damage, including cracks, gouges, impact damage, delamination, moisture staining, biological growth, and areas affected by gutter and downspout attachments. Provide a written and photographic record to the Architect.
- B. Probing: Sound all EIFS surfaces by tapping. Delaminated or hollow areas shall be marked and reported to the Architect for direction before repair commences. Repair of large hollow areas beyond the scope of the patching work described herein shall be treated as additional work if directed by the Architect.
- C. Weather Conditions: Do not apply patching materials, primer, or finish coat when ambient or surface temperatures are below 40°F or above 95°F, or when precipitation is forecast within 24 hours of application.

### 3.2 CRACK REPAIR

- A. Preparation: Route hairline and narrow cracks (less than 1/16 inch wide) with a grinder or rotary tool to create a clean, uniform groove with a minimum width of 1/4 inch and minimum depth of 1/4 inch. Remove all loose or friable material. Blow clean with compressed air.
- B. Wide Cracks: Cracks 1/16 inch wide or greater shall be inspected for underlying substrate movement. Report significant structural cracking to the Architect before proceeding.

- C. Patching: Apply base coat patching compound in the groove and over the surrounding area per manufacturer's instructions. Embed AR fiberglass mesh, lapping a minimum of 2-1/2 inches beyond the crack on each side. Apply a second coat of base coat to cover the mesh completely and feather into the surrounding surface. Allow to cure fully before applying finish coat.
- D. Texture Matching: Match the texture of the surrounding EIFS finish coat as closely as possible using the same tools and techniques (spray, trowel, or sponge float) as the existing finish. When repair area texture cannot be satisfactorily matched, extend the finish coat application to the nearest natural break line (corner, control joint, or edge) to minimize visible transition.

### 3.3 GOUGE AND SURFACE DAMAGE REPAIR

- A. Preparation: Remove all loose, cracked, or undermined EIFS material from gouged areas back to a sound, firmly adhered substrate. Cut edges of the repair area to be perpendicular to the face of the EIFS.
- B. Patching: Build up damaged areas with base coat patching compound in lifts not exceeding 3/8 inch per coat. Embed AR fiberglass mesh in the first coat and lap mesh a minimum of 2-1/2 inches beyond the edges of the repair area. Allow each coat to cure before applying the next. Finish flush with the surrounding surface.
- C. Finish: Apply primer and finish coat over repaired areas after patching is complete and cured. Extend finish coat to natural break lines to achieve uniform appearance.

### 3.4 FORMER DOWNSPOUT BRACKET AND ATTACHMENT PATCH REPAIR

- A. Coordination: Do not begin patching at former downspout locations until the gutter and downspout replacement contractor has removed all obsolete straps, brackets, anchors, and fasteners and has confirmed that all penetrations and attachment points are ready for patching.
- B. Fastener Removal and Substrate Preparation: Verify that all screws, anchors, straps, and standoffs have been completely removed. If fastener heads are recessed below the EIFS surface, confirm with the Architect whether they may remain or must be extracted. Treat any exposed metal fasteners remaining in the substrate with rust-inhibitive primer before patching.
- C. Hole and Recess Patching: Fill all holes, recesses, and surface irregularities left by downspout attachments with base coat patching compound. For penetrations into the CMU substrate, pack with an appropriate non-shrink patching mortar or caulking as needed before applying EIFS base coat repair. Embed AR fiberglass mesh where the repair area exceeds 2 inches in diameter.
- D. Strap Attachment Patterns: Areas where downspout straps were spaced along the wall face may leave a pattern of small holes or surface disturbances. Patch each location individually. Where the pattern of repairs is extensive, extend the primed and

finish-coated area to the nearest break lines as directed by the Architect to achieve a uniform finished appearance.

### 3.5 CLEANING

- A. Sequence: Perform all EIFS patching and base coat repair work before cleaning. Cleaning and priming shall precede application of finish coat.
- B. Biological Growth Pre-Treatment: Where mold, mildew, algae, or other biological growth is present, apply biocidal cleaner per manufacturer's instructions. Allow prescribed dwell time. Rinse thoroughly with clean water before general washing.
- C. General Wash: Wash the entire building EIFS exterior using a low-pressure washer (maximum 400 psi at the nozzle) with appropriate diluted detergent solution. Rinse thoroughly with clean water. Do not use pressure exceeding the EIFS manufacturer's recommendation. Work from the top down to prevent re-soiling.
- D. Inspection After Cleaning: After cleaning and drying, inspect the EIFS surface for any remaining staining, damage not previously identified, or areas of poor adhesion. Report findings to the Architect.
- E. Priming: Apply primer to the entire cleaned building exterior per manufacturer's written instructions. Ensure all repaired areas are fully cured and all surfaces are clean and dry before priming.

### 3.6 FINISH COAT APPLICATION

- A. Mock-Up: Before coating the building, apply finish coat material to a minimum 4-foot by 4-foot area designated by the Architect. Allow to cure and obtain Architect approval of color and texture before proceeding.
- B. Application: Apply finish coat over the entire primed EIFS building exterior per manufacturer's written instructions at the manufacturer's recommended spread rate. Apply in a continuous operation from break line to break line to avoid lap marks. Do not apply finish coat during direct sunlight on hot surfaces or in wind conditions that cause premature drying.
- C. Coverage: Apply finish coat material at a uniform rate to achieve complete hiding of the primer and a texture consistent with the approved mock-up. Do not thin material beyond the manufacturer's stated maximum.
- D. Protection: Protect adjacent surfaces, windows, doors, and non-EIFS materials from overspray and contamination. Remove masking and protection materials promptly after application.

### 3.7 CLEANING AND CLOSEOUT

- A. Remove all equipment, tools, scaffolding, and debris from the site upon completion. Remove paint or compound drips from non-EIFS surfaces. Leave the building exterior in a clean, uniform condition.
- B. Perform a final inspection with the Architect upon completion. Correct any areas of non-uniform texture, color variation, or incomplete coverage as directed before final acceptance.

END OF SECTION

PART 1 - GENERAL

1.1 SCOPE:

- A. For repair of existing buildings, provide pre-engineered metal building roof panel and/or wall panel systems as indicated in the scoping drawings and this specification, including any required engineering certifications for the attachment and uplift requirements. Provide trim, flashing, penetration and roof curb flashing and waterproofing, and other accessories, complete.
- B. Roof Panel Replacement:
  - 1. Complete roof replacement for buildings 41/49, 405B, 748, 753, 755, 802, 803, 960, 961, and any other roof/panel replacement if indicated in the drawings.
  - 2. Gutters, downspouts, and miscellaneous trim for the same buildings for a complete and finished system
  - 3. Snow/Ice Guards for the same buildings
- C. Exterior Wall Panel Replacement:
  - 1. Complete wall panel replacement for building 802 and any other wall panel replacement if indicated in the drawings.
  - 2. Trim and corners for the same building(s) and customary trim around all windows, doors, and existing wall penetrations for a complete and finished system.
- D. Existing Conditions
  - 1. The manufacturers of the existing buildings are not all known and are not all the same. Shop drawings from the original construction are not available. Therefore, the requirements of section are intended to apply to the installation of new panel systems over existing buildings of unknown origin and construction. The Contractor is responsible for making his own determination as to the attachment types and conditions required for a complete installation and include contingencies for customary coordination reasonably assumed for this building type.

1.2 RELATED WORK SPECIFIED IN OTHER SECTIONS:

- A. Pre-Engineered Metal Canopy, Section 13 3400

1.3 QUALITY ASSURANCE:

- A. The design and construction of the Pre-Engineered Building components must conform strictly to these specifications.
- B. Panels and trim shall be designed and provided by a manufacturer who is regularly engaged in the fabrication of pre-engineered metal building structures. All materials shall be new, unused and free from defect.

- C. The following standards and criteria (of most recent issue) shall be used where applicable in the structural design of the building covered by this specification.
  - 1. "Recommended Design Practices Manual", Metal Building Manufacturers Association.
  - 2. "Steel Construction Manual", American Institute of Steel Construction.
  - 3. "Cold Formed Steel Design Manual", American Iron and Steel Institute.
  - 4. "Aluminum Construction Manual", The Aluminum Association.
  - 5. "Code for Welding in Building Construction", American Welding Society.
- D. Building Code: The 2018 International Building Code (IBC) shall be followed in every respect except where more stringent requirements are established herein.
- E. The following criteria shall be applicable in other phases of the design:
  - 1. Structural Steel Painting Council - Standards.
  - 2. Federal, Military and Commercial Standards.
  - 3. ASTM Standards.
  - 4. Ratings by: Underwriters' Laboratories, Inc.,
  - 5. Factory Mutual
- F. Design Loads: Shall be as indicated on Structural sheets and the 2018 International Building Code (IBC).

#### 1.4 SUBMITTALS:

- A. Certification:
  - 1. All bidders must include with their shop drawings and submittals a letter from the metal building manufacturer certifying that the materials and installation proposed will be furnished to meet or exceed all design load criteria and that all structural design will be in strict conformance with that prescribed in the MBMA "Design Practices Manual: of recent issue, or as otherwise specified.
- B. Shop Drawings: Submit detailed shop drawings showing complete layout of all connections, penetration types, jointing, accessories, panel materials, and miscellaneous items. Structural attachment and uplift information shall be sealed by a structural engineer licensed to practice in the State of Missouri.

#### 1.5 QUALITY ASSURANCE:

- A. Manufacturer's Qualifications:
  - 1. Manufacturer regularly engaged, for past 10 years, in manufacture of metal building systems of similar type to that specified.
  - 2. Accredited based on IAS Accreditation Criteria AC472 and requirements in International Building Code (IBC), Chapter 17.
- B. Installer's Qualifications:
  - 1. Installer regularly engaged, for past 5 years, in installation of metal building systems of similar type to that specified.
  - 2. Employ persons trained for installation of metal building systems.

- C. Certificate of design and manufacturing conformance:

1. Metal building components manufacturer shall submit written certification prepared and signed by a Professional Engineer, registered to practice in Missouri verifying that roofing and wall panel system modifications (including panels, clips, and support system components) meet indicated specifications, loading requirements and applicable codes of authorities having jurisdiction.
  - a. Manufacturer's engineer shall not be required to certify or analyze the structural capacity of any existing building, only the proposed attachment scheme for replacement panels.
2. Refer to Submittals article of this specification section.

D. Material Testing:

1. In addition to material certifications of structural steel, metal building system manufacturer shall provide, upon request at time of order, evidence of compliance with specifications through testing.

## 1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Storage and Handling Requirements:
  1. Store and handle materials in accordance with manufacturer's instructions.
  2. Keep materials in manufacturer's original, unopened containers and packaging until installation.
  3. Do not store materials directly on ground.
  4. Store materials on flat, level surface, raised above ground with adequate support to prevent sagging.
  5. Protect materials and finish during storage, handling and installation to prevent damage.

## 1.7 WARRANTY

- A. Metal building system manufacturer shall provide a written weathertightness warranty for a maximum of 25 years against leaks in standing seam roof panels, arising out of or caused by ordinary wear and tear under normal weather and atmospheric conditions.
  1. Warranty shall be signed by both the metal roof system manufacturer and the metal roof system installer.
  2. Notify Architect prior to bidding of any warranty stipulations associated with attaching to existing buildings or existing buildings from different manufacturers. Exclusions must be acknowledged by the architect by addendum.

## 1.8 WORK IN OCCUPIED AND OPERATING FACILITIES:

- B. The buildings on which work is performed under this contract are occupied and/or in active operation by the Owner throughout the construction period. The Contractor shall conduct all Work so as to minimize disruption to building occupants and ongoing operations. The following requirements apply to all work performed under this Section:

1. Schedule and sequence panel removal and installation operations to limit the duration of any open roof or wall area. No area of building envelope shall remain open, unprotected, or without temporary weatherproofing at the end of each work day, regardless of weather forecast.
2. Coordinate the construction schedule with the Owner's Representative a minimum of five (5) working days in advance of commencing work on each building. Provide the Owner's Representative with written notice of the planned sequence and duration of panel removal for each building.
3. Protect building contents, equipment, processes, and finishes from water infiltration, debris, and contamination during all phases of demolition, temporary protection, and new panel installation. Provide interior protection (drop cloths, polyethylene sheeting, or equivalent) over equipment and sensitive areas directly below work zones.
4. Limit the extent of simultaneously open roof and wall areas to the minimum necessary for efficient panel installation. Do not remove panels from more than one building elevation or roof section at a time unless temporary weather protection compliant with Article 3.2 of this specification is fully in place.
5. Should a weather event (rain, snow, wind) be forecast during the period when any portion of the building envelope is open or only temporarily protected, the Contractor shall take immediate action to secure temporary protection prior to the weather event. The Contractor bears full responsibility for any water damage, equipment damage, or business interruption resulting from failure to adequately protect the building.
6. Maintain emergency contact information for the Owner's Representative and a 24-hour emergency contact throughout the construction period. The Contractor shall be reachable and able to respond to weather emergencies at any hour.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS:

#### A. Equivalent components by the following manufacturers are acceptable:

1. Butler Manufacturing
2. Liberty Building Systems
3. American Building Systems
4. Star Building Systems
5. Alliance
6. Ceco Building Systems
7. MBCI
8. Pac-clad
9. United Structures of America
10. Varco-Pruden

### 2.2 ROOF COVERING AND SUPPORTS: The roof panels and attachment scheme shall carry an Underwriters' Laboratories Construction (Uplift) classification of not less than Class 90.

#### A. Roof Panels:

1. Prefinished, clip mounted, painted standing seam metal roof similar to Varco Pruden SSR, 24" wide. The exposed metal roof covering shall be 24 gage (minimum) of such configuration to provide the specified load carrying capabilities and deflection requirements of this specification. Roof panels shall be of "standing-seam interlocking" design and secured to the purlins with a concealed structural fastening system. The concealed system shall provide minimal through penetration of the exposed roofing surface and allow the roof covering to move independently of any differential thermal movement by the structural framing system. Except at the concealed fastener, there shall be no thermal contact of the roof panels with the supporting purlin. The standing seams shall have a factory-applied, non-hardening sealant, and the seams shall be continuously locked or crimped together by mechanical means during erection. Roof panels with lap-type side (longitudinal) joints and exposed structural fasteners shall not be considered acceptable.
  2. Roof panels shall be fastened to the purlins with a concealed clip of backing device of steel having a protective metallic coating. Through penetration of the roofing surface by exposed fasteners shall occur only at terminal locations of the roof panels. Such fasteners shall be zinc aluminum coated (ZAC) cast head, long life shroud with neoprene washer.
  3. Deflection of the roof panel shall not exceed  $L/180$  of its span when supporting the applicable vertical live loads previously described.
  4. Provide any extra attachment rails or clips if required by the conditions of the original building for the panel system indicated.
- B. Guarantee: Durability of the roof panels due to rupture, structural failure of perforation shall be guaranteed for a period of 20 years by the building manufacturer. A specimen copy of the document must accompany the bid, clearly stating the conditions under which the guarantee is valid.
- C. Roof Jacks and Curbs:
1. Existing roof curbs or jacks are an integral component of the roofing system for certain buildings. Coordination with these existing conditions must be provided by the roofing manufacturer in conjunction with field documentation from the general contractor or roofer. Color and finish to match roofing system. Repair insulation at curbs, metal flashing, crickets, and similar conditions as required for new panel integration.
  2. (If present in the design) Openings, 8 inches or smaller, may be flashed and sealed to the roof panel by jacks, providing complete structural support and weather tightness is maintained. Material shall be either of metal with a protective metallic coating or of a plastic alloy with an acrylic film laminated to the exterior surface.
  3. (If present in the design) Openings, larger than 8 inches, round or square, shall be framed with a welded metal base fabricated from .07-inch (minimum) thick aluminum or 16-gage (minimum) galvanized steel. The base and its appurtenance shall be supported by the roof purlins and header framing. The base shall have a minimum projection of 8 inches above the weather surface of the roof and the configuration of the flanges shall match the roof panel. The

flange-to panel joint shall be sealed with a non-hardening sealant and fastened in such a manner to provide complete support and weather tightness.

## 2.3 WALL COVERING:

### A. Wall Panels: (If present in the design)

1. Exterior Wall Panels: standard ribbed panels, similar to Varco Pruden Panel Rib Wall. Minimum 26 gage pre-finished, painted steel in manufacturer's standard color to be selected by Architect. Panels to side lap at least one full major rib and be continuous length from sill to eave.
  - a. 36" wide panel, 1 – 3/16" deep ribs, 12" o.c..
  - b. Installed with stainless steel capped self-drilling color-matched fasteners.
  - c. Color to be selected from manufacturers standard colors by Architect.
2. Accessories: Provide sill, jamb, head, corner, closures and panel caps per manufacturer's standard and details indicated, in pre-finished color as selected by Architect.
3. Provide any extra attachment rails or clips if required by the conditions of the original building for the panel system indicated.

### B. Guarantee:

1. The exterior color (baked-on or laminated) finish for the wall and roof panels shall be guaranteed by the building manufacturer for twenty (20) years against blistering, peeling, cracking, flaking, checking and chipping. Excessive color change and chalking shall be guaranteed for twenty (20) years. Color change shall not exceed 5 N.B.S. units (per ASTM D-2244.64T) and chalking shall not be less than a rating of 8 per ASTM D-659.
2. A specimen copy of the guarantee must accompany the bid, clearly stating the conditions under which the guarantee is valid.

## 2.4 BUILDING INSULATION REPAIR:

- A. If damaged by panel removal, repair existing building insulation as required with similar products encountered in the field. Full replacement of existing insulation is not proposed, nor is providing insulation where none is present in existing buildings. Any unforeseen conditions beyond minor insulation repair shall be addressed by separate instrument if encountered during the construction process. Insulation access will only be from the exterior for certain buildings, and many facilities may remain in continuous operation by the Owner during construction.

## 2.5 FALL PROTECTION

- A. The Contractor is responsible for providing suitable fall protection as required for replacement of roof panels on buildings where access is only provided on the exterior. There will be no access from the interior on many buildings, and many facilities may remain in continuous operation by the Owner during construction.

## 2.6 TRIM AND ACCESSORIES:

- A. Provide all necessary trim, components, and accessories for a complete and finished installation of the metal panel systems.
- B. Snow and Ice guards: Design basis is Sno Gem 1" Clamp-On Standard Model Sno Barricade Bar System or submitted equal. Install per manufacturer's standards. Sno Gem®, Inc., 4800 Metalmaster Way, McHenry, IL 60050, (888) 766-4367, [www.snogem.com](http://www.snogem.com), S-5 ColorGard Snow Retention System for snow and ice.
- C. Gutters and downspouts: Gutters shall be 24 gage, prefinished with baked on Kynar finish.
- D. General Contractor shall provide new splash blocks at all downspout locations unless an existing underground drain connection is available. Reuse underground drain connections wherever present.
- E. Soffits: Keep existing unchanged.

## PART 3 - EXECUTION

### 3.1 DEMOLITION OF EXISTING PANELS:

- A. General: Demolition of existing roof and wall panels shall be performed in a controlled, sequential manner that protects the building structure, contents, building systems, and occupants at all times. Provide temporary weather protection per Article 3.2 of this Section concurrently with panel removal operations.
- B. Sequencing:
  - 1. Remove existing panels in sections small enough to allow immediate installation of temporary weather protection and, where possible, immediately followed by new panel installation. Coordinate the demolition sequence with the panel installation sequence so that the period of temporary protection is minimized.
  - 2. Do not remove panels from more than one roof section or building face simultaneously unless full temporary weather protection is in place on all exposed areas. Do not leave any open or unprotected roof or wall area overnight or during unattended periods.
- C. Existing Panels and Materials:
  - 1. Removed panels, insulation, fasteners, and associated trim shall become the property of the Contractor and shall be removed from the site and disposed of properly. Do not allow accumulation of demolition debris on the roof deck, in gutters, or adjacent to the building. Debris accumulation that impairs drainage or creates additional loading on the structure is not permitted.
  - 2. If existing panels are found to contain hazardous materials (including but not limited to asbestos-containing materials or lead paint), immediately stop work in the affected area, notify the Owner's Representative and the Architect, and do not proceed until the Owner has arranged for testing, abatement, and clearance per applicable regulations.

- D. Existing Structure: Inspect exposed purlins, girts, base angles, and structural framing revealed by panel removal. Report any deterioration, corrosion, section loss, or damage to the Architect before proceeding with new panel installation. Do not install new panels over damaged structural members without written direction from the Architect.
- E. Interior Protection During Demolition: Prior to removing any panels, install interior protection below the work area consisting of polyethylene sheeting or equivalent, sized to catch all debris and water. Provide protective coverings over equipment, machinery, electrical panels, and other Owner property directly below demolition areas. Maintain this protection until new panels are fully installed and weather-tight.

### 3.2 TEMPORARY WEATHER PROTECTION:

- F. General: The Contractor shall provide, maintain, and remove temporary weather protection systems sufficient to keep the interior of each building dry and protected against wind, rain, snow, and debris at all times when existing panels have been removed and new permanent panels are not yet fully installed and sealed. Temporary protection is required from the start of demolition until final panel installation is complete and all joints, laps, and flashings are permanently sealed.
- G. Materials and Methods:
  - 1. Temporary weather protection shall be heavy-duty polyethylene sheeting (minimum 6-mil), reinforced tarps, or other materials capable of withstanding anticipated wind and precipitation loads. Materials shall be securely anchored to prevent displacement by wind.
  - 2. Laps and edges of temporary protection materials shall overlap a minimum of 12 inches and be secured with battens, tape rated for exterior use, or equivalent fastening. Temporary protection at eaves and rakes shall extend a minimum of 12 inches past the structural framing to direct water away from the building interior.
  - 3. Temporary wall protection at open wall sections shall be secured to prevent billowing and shall close the full height and width of the wall opening. Openings at existing doors and windows shall remain accessible and functional for building occupants unless otherwise agreed with the Owner's Representative.
- H. Maintenance and Monitoring:
  - 1. Inspect all temporary protection at the beginning and end of each work day and after any wind event or precipitation. Repair or replace damaged or displaced protection immediately.
  - 2. The Contractor shall monitor weather forecasts daily. If precipitation, high winds (sustained winds exceeding 25 mph or gusts exceeding 35 mph), or severe weather is forecast within 24 hours, the Contractor shall not remove additional panels unless all previously exposed areas are fully temporarily protected and new panel installation can be completed before the weather event begins.
- I. Responsibility: The Contractor is solely responsible for the adequacy of all temporary weather protection. Any damage to the building structure, contents, equipment,

finishes, or Owner's operations resulting from inadequate or failed temporary protection shall be repaired or replaced by the Contractor at no cost to the Owner. The Owner's weathertightness warranty under Article 1.7 of this specification does not commence until the new permanent panel system is fully installed, sealed, and accepted.

### 3.3 ERECTION:

- J. Erection of metal building, accessories and insulation shall be by an experienced erector authorized by the manufacturer as trained and qualified to erect that manufacturer's product. The manufacturer shall inspect the Work and certify its correctness.

END OF SECTION

## PART 1 - GENERAL

### 1.1 SCOPE

- A. Provide all sheet metal work, complete, including flashing and counterflashing (except metal flashing in conjunction with roofing), and installation of flashing at mechanical and plumbing work penetrations.

### 1.2 RELATED WORK SPECIFIED IN OTHER SECTIONS

- A. Sealants; Section 07 9000.

### 1.3 SHOP DRAWINGS

- A. Prior to fabrication, submit shop drawings for each typical sheet metal item indicating materials, gauges, jointing, and fastening.

### 1.4 JOB CONDITIONS

- A. Coordinate work of this section with interfacing and adjoining work for proper sequencing of each installation. Ensure best possible weather resistance and durability of the work and protection of materials and finishes.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Sheet Metal:
  - 1. Steel Sheets: ASTM A 526, hot-dip galvanized in compliance with ASTM A 525, mill phosphatized.
  - 2. Soft Temper Sheet Metal: Lead sheet, Fed. Spec. QQ-L-201, Grade B, formed from common desilvered pig lead, complying with ASTM B 29, 4 lb. per sq. ft.
  - 3. Prefinished Steel Sheets: 24 ga. galv. steel sheets factory pre-finished with 70% Kynar coating, color as selected; Vincent ColorKlad, Peterson Pac-Clad, or approved equal.
  - 4. Aluminum Sheets: ASTM B 209, alloy 3003, temper #14, AA-C22A41 clear anodized.
  - 5. Extruded Aluminum: Manufacturer's standard extrusion size and profiles indicated, 6063-T52 AA-C22A41 clear anodized finish, .08" minimum thickness for primary legs of extrusions.
- B. Nails, Screws, and Rivets: Same metal as flashing/sheet metal or other noncorrosive metal as recommended by sheet metal manufacturer. Match finish of exposed heads with materials being fastened.

- C. Solder for Steel and Lead: ASTM B 32, 50% tin and 50% lead, used with rosin flux.
- D. Solder for Stainless Steel: ASTM B 32, 60% tin and 40% lead, used with acid-chloride type flux, except use rosin flux over tinned surfaces.
- E. Roofing Cement: Fed. Spec. SS-C-153, Type I, Class A (summer grade) or Class B (winter grade) as applicable.
- F. Bitumastic Coating: Fed. Spec. TT-C-494, MIL-C-18480, or SSPC - Paint 12, cold applied solvent type bitumastic coating for application in dry film thickness of 15 mils per coat.
- G. Metal Accessories: Sheet metal clips, cleats, straps, anchoring devices and similar accessory units as required for installation of work, matching or compatible with material being installed, noncorrosive, size and gage required for performance.
- H. Sealants: As specified in Section 07 9000.
- I. Epoxy Seam Sealer: 2-part noncorrosive metal seam cementing compound, recommended by manufacturer for non-moving joints including riveted joints.
- J. Paper Slip Sheet: 5-lb. rosin-sized building paper.
- K. Polyethylene Underlayment: 6 mil carbonated (black) polyethylene film.

## 2.2 FABRICATION

- A. Fabricate metal flashings, counter-flashings, trim and similar items to comply with the profiles and sizes indicated. Fabricate to comply with "SMACNA" Architectural Sheet Metal Manual", metal manufacturer's recommendations, and recognized industry practices. fabricate for waterproof and weather-resistant performance; with expansion provisions for running work, sufficient to permanently prevent leakage, damage or deterioration of the work. Form work to fit substrates. Comply with material manufacturer's instructions and recommendations. Form exposed sheet metal work without excessive oil-canning, buckling and tool marks, true to line and levels as indicated, with exposed edges folded back to form hems. Fabricate work of the following metals:
  - 1. Flashing, Counterflashing, and Trim: 24 gage galvanized steel.
  - 2. Gutters & Downspouts: See Section 07 7123 Gutters & Downspouts.
  - 3. Soft Temper Flashing: Lead, at drains, vents, and where indicated and where required to conform to the contour of roofing components and accessories.
- B. Seams: Fabricate non-moving seams in sheet metal with flat-lock seams. For metal other than aluminum, tin edges to be seamed, form seams, and solder. Form aluminum seams with epoxy seam sealer; rivet joints for additional strength where required.

- C. Expansion Provisions: Where lapped or bayonet-type expansion provisions cannot be used, or would not be sufficiently water/weatherproof, form expansion joints of intermeshing hooked flanges, not less than 1" deep, filled with mastic sealant (concealed within joints).
- D. Aluminum Extrusions Units: Fabricate extruded aluminum running units with formed or extruded aluminum joint covers, for installation behind main members. Fabricate mitered and welded corner units.
- E. Separate dissimilar metals from each other by painting each metal surface in area of contact with a heavy application of bitumastic coating, or by other permanent separation as recommended by manufacturers of dissimilar metals.

## PART 3 - EXECUTION

### 3.1 INSPECTION

- A. Examine substrates and conditions under which metal flashing and trim will be installed. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. SMACNA Details: Except as otherwise indicated or specified, comply with applicable recommendations and details of "Architectural Sheet Metal Manual" by SMACNA.
- B. Manufacturer's Recommendations: Except as otherwise indicated or specified, comply with recommendations and instructions of manufacturer of sheet metal being installed.
- C. Anchor units of work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints and seams which will be permanently watertight and weatherproof.
- D. Underlayment: Where aluminum is to be installed directly on cementitious or wood substrates, install a course of paper slip sheet and a course of polyethylene underlayment.
- E. Bed flanges of work in a thick coat of bituminous roofing cement where required for waterproof performance.
- F. Retainers: Where shown, provide saw cuts for securing edges of flashings to other work. Insert flashings into retainers. Seal flashing in reglet with sealant. Provide wedges of lead or other compatible metal, spaced 2' o.c., and drive well into retainer so as to be completely covered by sealant.

- G.       Roofing Cement Edges: Where indicated, seal edges of metal flashings to substrates with roofing cement; install bed or bead of cement in manner which will maintain a watertight seal.
- H.       Lead Flashing: Cut and shape lead sheets in place with minimum of 1" lapped joints, and form bends and folds to provide corners and intersections as shown. Shave or wire-brush joint areas immediately before sealing joints. Comply with recommendations of Lead Industries Association for fabrication and installation. Solder joints solidly after covering with powdered rosin and tack-soldering sheets in place. Do not permit workmen to step directly on lead sheets in place, or to place or move equipment over surfaces. Protect surfaces temporarily with fiberboard insulation boards during installation of permanent covering work and adjoining work.

### 3.3 CLEAN-UP

- A. After completion of work, clean roofing cement, sealant and bituminous paint from flashing, floors, and all surfaces so defaced. Remove all excess materials and scraps from the job and leave all surfaces neat and clean.

END OF SECTION

## PART 1 - GENERAL

### 1.1 SCOPE

- A. Includes But Not Limited To
  - 1. Furnish and install metal (steel) fascia as described in Contract Documents.
- B. Product Supplied But Not Installed Under This Section
  - 1. Drip edge
- C. Related Sections
  - 1. Section 07 6000 – Installation of drip edge
  - 2. Section 13 3400 – Pre-Engineered Metal Canopy

### 1.2 REFERENCES

- A. American Society For Testing And Materials
  - 1. ASTM A 361-85 (1990), "Specification for Steel Sheet, Zinc-Coated (Galvanized) by Hot-Dip Process for Roofing and Siding"

### 1.3 WARRANTY

- A. Manufacturer's written 20 year guarantee for finish.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Fascia and drip edge shall be of same material.
- B. Steel
  - 1. Minimum 24 ga steel, hot-dipped galvanized to meet requirements of ASTM A 361, 1.25 oz/sq ft and complete with accessories recommended by Manufacturer for proper installation.
  - 2. Fastening Devices - Galvanized steel screws.

### 2.2 APPROVED MANUFACTURERS

- A. AEP/Span, Dallas, TX or San Diego, CA
- B. Atas Aluminum Products, Allentown, PA
- C. Firestone Metal Products, Minneapolis, MN
- D. Berridge Manufacturing Co, Houston, TX

- E. MM Systems Corp, Tucker, GA
- F. Peterson Aluminum Corp, Elk Grove, IL
- G. Reynolds Metals Company, Richmond, VA
- H. Vincent Metals Corporation, Minneapolis, MN

## 2.3 FINISHES

- A. Face coating polyvinylidene Fluoride (PVF<sub>2</sub>) Resin-base finish (Kynar 500 or Hylar 5000) for coil coating components containing 70% minimum PVF<sub>2</sub> in resin portion of formula. Thermo cured two coat system consisting of corrosion inhibiting epoxy or acrylic latex primer and top coat factory applied over properly pretreated metal.
- B. Reverse side coating thermo cured system consisting of corrosion inhibiting epoxy or acrylic latex primer applied over properly pretreated metal.
- C. Color as selected by Architect from Manufacturer's standard colors.

## 2.4 FABRICATION

- A. Fascia may either be shop-fabricated using metal from specified manufacturers, or a factory-fabricated standard system from a specified manufacturer.

# PART 3 - EXECUTION

## 3.1 INSTALLATION

- A. Conceal fasteners except where details might require a minimum number to be exposed. Paint heads of exposed fasteners to match background.
- B. Install with slip joints at each end. Screw to substrate through pre-drilled, over-size holes.
- C. Isolate from dissimilar metals not part of fascia system to prevent electrolytic action.
- D. Repair buckling or bowing due to improper installation at no cost to Owner.

## 3.2 FIELD QUALITY CONTROL

- A. Inspections
  - 1. Architect will inspect fascia system for compliance with Contract Documents. Remove and replace Sections not in compliance.

END OF SECTION

**PART 1 – GENERAL**

**1.1 SUMMARY**

**A. Includes But Not Limited To**

1. Furnish and install gutters and downspouts as described in Contract Documents. Gutters and downspouts may be included as part of pre-engineered metal building system.

**1.2 REFERENCES**

**A. Sheet Metal & Air Conditioning Contractors National Association, Inc.**

1. SMACNA Architectural Sheet Metal Manual, 7th edition 2012.

**PART 2 – PRODUCTS**

**2.1 MATERIALS**

**A. Aluminum**

1. Downspouts: Rectangular and corrugated, 0.024 inch aluminum including necessary elbows.
2. Gutters - 0.032 inch aluminum
3. Drip Edge - 0.032 inch aluminum
4. Brackets: 22 ga galvanized steel or 26 ga double-hemmed minimum.
5. Finish
  - a. Pre-finished in color as selected by Architect from Manufacturer's standard colors.

**B. Screws, Bolts, Nails, & Accessory Fasteners - Of strength and type consistent with function.**

**C. Downspouts, gutters, hangers, fasteners, and accessories shall be compatible material.**

**2.2 FABRICATION**

**A. Field fabricate using seamless gutter & downspout machines or fabricate in shop.**

**B. Cross-sectional configuration of gutter shall be Style F, of SMACNA Architectural Manual.**

**C. Form accurately to details.**

**D. Profiles, bends, and intersections shall be even and true to line.**

## PART 3 – EXECUTION

### 3.1 PREPARATION

- A. Before starting work, verify governing dimensions at building. Inspect for conditions which would prevent installation of first-class system. Do not install over improper conditions.

### 3.2 INSTALLATION

- A. Install in accordance with SMACNA Manual.
- B. Insulate work to prevent electrolytic action.
- C. Furnish and install outlet tubes and gutter ends where required. Furnish and install expansion joints in runs exceeding 50 feet and in runs which are restrained at both ends.
- D. Lap joints in gutter one inch, apply sealant in lap, and rivet 1 inch on center. Lap joints in downspouts at least 1-1/2 inches in direction of water flow.

### 3.3 CLEANING

- A. Leave metals clean and free of defects, stains, and damaged finish.

END OF SECTION

## PART 1 - GENERAL

### 1.1 SCOPE

- A. Completely close with caulking compound or sealant all joints, including joints around frames of doors, windows, or other openings in exterior walls, flooring joints, joints at penetrations of walls, decks, and floors by piping and other services and equipment, joints between items of equipment and other construction, and other joints indicated or specified to be caulked or sealed.

### 1.2 RELATED WORK SPECIFIED IN OTHER SECTIONS

- A. Caulking and sealing of door and window frames if addressed in their respective spec sections.

### 1.3 QUALITY ASSURANCE

- A. Obtain elastomeric materials only from manufacturer who will, if required, send a qualified technical representative to project site, for the purpose of advising the Installer of proper procedures and precautions for the use of the material.

### 1.4 SUBMITTALS

- A. Manufacturer's Data: Submit manufacturer's specifications, recommendations, and installation instructions for each type of sealant, caulking compound and miscellaneous materials. Include letter of certification, or certified test laboratory reports indicating that each material complies with the requirements and is intended for the applications indicated. Transmit a copy of recommendations and instructions to the Installer.

### 1.5 JOB CONDITIONS

- A. Examine joint surfaces, backing, and anchorage of units forming sealant rabbet. Do not proceed with work until unsatisfactory conditions have been corrected.
- B. Do not proceed with installations of sealants under adverse weather conditions, or when temperatures are above or below manufacturer's recommended limitations for installation. Proceed with the work only when forecasted weather conditions are favorable for proper cure and development of high early bond strength.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Acrylic Latex Caulk: Tremco "Tremsil 200", Pecora Corp. "AC-20+silicone", Bostik "Tub and Tile", or acceptable equal.

- B. Sealant: Two component polyurethane sealant conforming to F.S. TT-S-227, Class A, Type I (self-leveling) unless Type II (non-sag) is recommended by the manufacturer for the application indicated. BASF Masterseal NP 2, Pecora Urexpam "NR-200 or Dynatrol II", Tremco "Dymeric 240 or THC-901", Toch Brothers "Polytok Sealant PG", or acceptable equal. Standard color(s) as selected by the Architect from industry available colors.
- C. Sealant; Contractor's option: One component polyurethane sealant conforming to Fed. Spec. TT-S-230, Class A, Type II (non-sag). BASF Masterseal NP 1, Bostik "Chem-Calk 900", Pecora "Dynatrol 1-XL", Tremco "Dymonic", or acceptable equal. Use two component polyurethane sealant specified above where Type I (self-leveling) is required. Standard color(s) as selected by the Architect from industry available colors.
- D. Sealant; Contractor's option: Multi-component, low-modulus, pigmentable silicone sealant conforming to Fed. Spec. TT-S-230, Class A, Type II (non-sag); Dow Corning 695 or acceptable equal. Use two component polyurethane sealant specified above where Type I (self-leveling) is required. Standard color(s) as selected by the Architect from industry available colors.
- E. Sealant: One component silicone sealant conforming to F.S. TT-S-1543, Class A
- F. Miscellaneous Materials:
1. Joint Cleaner: Type of joint cleaning compound recommended by the sealant or caulking compound manufacturer for the joint surfaces to be cleaned.
  2. Joint Primer/Sealer: Type recommended by the sealant manufacturer for the joint surfaces to be primed or sealed.
  3. Bond Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer, to be applied to sealant-contact surfaces where bond to the substrate or joint filler must be avoided for proper performance of sealant. Provide self-adhesive tape wherever applicable.
  4. Sealant Backer Rod: Compressible rod stock polyethylene foam, polyethylene jacketed polyurethane foam, butyl rubber foam, neoprene foam or other flexible, permanent, durable non-absorptive material as recommended for compatibility with sealant by the sealant manufacturer. Provide size and shape of rod which will control the joint depth for sealant placement, break bond of sealant at bottom of joint, form optimum shape of sealant bead on back side, and provide a highly compressible backer to minimize the possibility of sealant extrusion when joint is compressed.

## PART 3 - EXECUTION

### 3.1 JOINT TYPES AND USAGES: Caulking and sealant usage is specified below

- A. Caulking: Interior (non-working) joints between dissimilar materials, except joints with ceramic tile, metal, glass, or aluminum.

- B. Sealants: Working joints, air and water tight joints including exterior joints and interior joints with aluminum, metal, glass, or ceramic tile. Use clear silicone sealant for joints at glass or mirrors. Use mildew resistant silicone sealant at ceramic tile work, showers, tubs, sinks, and plumbing fixtures.

### 3.2 JOINT SURFACE PREPARATION

- A. Clean joint surfaces immediately before installation of sealant or caulking compound. Remove dirt, insecure coatings, moisture, and other substances which would interfere with bond of sealant or caulking compound.
- B. For elastomeric sealants, do not proceed with installation of sealant over joint surfaces which have been painted, lacquered, waterproofed or treated with water repellent or other treatment or coating. Remove coating or treatment from joint surfaces before installing sealant.
- C. Etch concrete and masonry joint surfaces to remove excess alkalinity. Etch with 5% solution of muriatic acid; neutralize with dilute ammonia solution, rinse thoroughly with water and allow to dry before sealant installation.
- D. Roughen joint surfaces on vitreous coated and similar non-porous materials, wherever sealant manufacturer's data indicates lower bond strength than for porous surfaces. Rub with fine abrasive cloth or wool to produce a dull sheen.

### 3.3 INSTALLATION

- A. Comply with sealant manufacturer's printed instructions, except where more stringent requirements are indicated or specified and except where manufacturer's technical representative directs otherwise, subject to Architect's approval.
- B. Prime or seal the joint surfaces wherever shown or recommended by the sealant manufacturer. Do not allow primer/sealer to spill or migrate onto adjoining surfaces.
- C. Install sealant backer rod for liquid elastomeric sealants, except where shown to be omitted or recommended to be omitted by sealant manufacturer for the application shown.
- D. Install bond breaker tape wherever shown and wherever required by manufacturer's recommendations to ensure that elastomeric sealants will perform properly.
- E. Employ only proven installation techniques, which will ensure that sealants will be deposited in uniform, continuous ribbons without gaps or air pockets, with complete "wetting" of the joint bond surfaces equally on opposite sides. Except as otherwise indicated, fill sealant rabbet to a slightly concave surface, slightly below adjoining surfaces. Where horizontal joints are between a horizontal surface and a vertical surface, fill joint to form a slight cove, so that joint will not trap moisture and dirt.

- F. Install sealants to depths as shown or, if not shown, as recommended by the sealant manufacturer but within the following general limitations, measured at the center (thin) section of the bead.
  - 1. For normal moving joints sealed with elastomeric sealants, but not subject to traffic, fill joints to a depth equal to 50% of joint width, but neither more than 1/2" deep nor less than 1/4" deep.
  - 2. For joints sealed with non-elastomeric sealants and caulking compounds, fill joints to a depth in the range of 75% to 125% of joint width.
- G. Do not allow sealants or compounds to overflow or spill onto adjoining surfaces. Use masking tape or other precautionary devices to prevent staining of adjoining surfaces, by either the primer/sealer or the sealant/caulking compound.
- H. Do not overheat hot applied sealants.
- I. Remove excess and spillage of compounds promptly as the work progresses. Clean the adjoining surfaces by whatever means may be necessary to eliminate evidence of spillage, without damage to the adjoining surfaces or finishes.

#### 3.4 CURE AND PROTECTION

- A. Cure sealants and caulking compounds in compliance with manufacturer's instructions and recommendations, to obtain high early bond strength, internal cohesive strength, and surface durability.

END OF SECTION

## **PART 1 - GENERAL**

### **1.1 SCOPE**

- A. Provide all doors and metal frames and related items required to complete the work. Openings requiring labeled construction are indicated on the keyed notes on sheet 43.1

### **1.2 RELATED WORK SPECIFIED IN OTHER SECTIONS**

- A. Furnishing of Finish Hardware; Section 08 7000.
- B. Finish Painting; Section 09 9100.

### **1.3 QUALITY ASSURANCE**

- A. Provide metal frames manufactured by a single firm; Mesker, Steelcraft, Republic Doors and Frames, Ceko Door, Curries, or approved equal.

### **1.4 SUBMITTALS**

- A. Manufacturer's Data: Submit copy of manufacturer's technical data and installation instructions. Transmit a copy of installation instructions to Installer.
- B. Shop Drawings: Prior to fabrication of any work, submit shop drawings indicating gage of metals, details of construction, profile of moldings, connections to other work, fastenings and anchors.

### **1.5 PRODUCT DELIVERY, STORAGE AND HANDLING**

- A. Deliver, handle, and store all metal doors and frames in a manner to prevent damage and deterioration.
- B. Provide packaging such as cardboard or other containers, separators, banding, spreaders, and paper wrappings as required to completely protect all metal doors and frames during transportation and storage.
- C. Store doors upright, in a protected dry area, at least 1" off ground and with at least 1/4" air space between individual pieces. Protect all primed and hardware surfaces as required.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. Steel Sheet:
  - 1. Doors (Level 2): 18 gage cold rolled (16 gage at exterior doors), stretcher leveled; free of scale, pitting or other surface defects. At exterior locations provide door face sheets with minimum 0.10 oz./sq. ft. zinc coating.

2. Frames (Level 3): 14 gage (exterior) hot rolled, pickled and oiled, or cold rolled as specified above. At exterior locations provide frames with minimum 0.10 oz./sq. ft. zinc coating.
- B. Hollow Core: Continuously reinforced with a full core of resin- impregnated kraft fiber honeycomb with 1" nested, hexagonal-shaped cells, or provide solid slab of expanded polystyrene at exterior doors. Bond core to inside of both face sheets.
- C. Hollow Metal Welded Frames: Steelcraft, CDF Distributors, Tru-Door, Assa-Abloy, Mesker, Republic Door, Curries, or approved equal.
- D. Primer: Manufacturer's standard rust inhibitive primer.
- E. Anchors, Fasteners, Accessories: Manufacturer's standard, hot-dipped galvanized at exterior.
- F. Channel Fillers: Flush Steel channel fillers for top channel of exterior doors.

## 2.2 FABRICATION

- A. General Requirements: Comply with Steel Door Institute Standard 100-85 for Grade II, Model 3, except as otherwise specified herein.
  1. Fabricate steel frames rigid, neat in appearance and free from defects, warp, or buckle. Provide clean cut, straight and true molded members, well formed and aligned miters, dressed and ground smooth, and where applicable, concealed fasteners. Reinforce at corners as required to prevent sagging. Accurately form metal to required sizes and profiles, including astragals.
  2. Fit, assemble, and weld units at factory or shop.
- B. Doors: Flush construction of sizes and designs as indicated.
- C. Frames: Combination stop and frame channel section, rabbeted for doors, of type and styles indicated.
  1. Anchors/Fasteners: Supply the proper fastenings and/or anchors to secure frames in each type of structural framing indicated.
  2. Silencers/Mutes: Drill stops to receive a minimum of 3 silencers on strike jamb on single swing frames and 2 on heads of double swing frames.

## 2.3 HARDWARE

- A. Preparation: Prepare hollow metal units to receive mortised and concealed finished hardware, including cutouts, reinforcing, drilling and tapping, in accordance with final Finish Hardware Schedule and templates provided by the hardware supplier. Reinforce hollow metal units to receive surface-applied hardware. Drilling and tapping for surface-applied hardware will be done on the job site.
- B. Location of Hardware: Locate finish hardware as indicated in final shop drawings and/or in compliance with NBHA publication "Recommended Location for Builder's Hardware".

## 2.4 FINISH

- A. Dress tool marks and surface imperfections to smooth surfaces and remove irregularities. Chemically treat and clean frames. Apply manufacturer's standard baked-on rust inhibitive primer.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install hollow metal units and accessories in compliance with final shop drawings, manufacturer's instructions, and as specified below.
- B. Set frames accurately in position, plumb and aligned, and securely anchor to adjacent construction.
- C. Erect fire doors and frames in compliance with NFPA 80 and certification agency's requirements.
- D. Clearances: Provide clearances of not more than 1/8" at jambs and heads and not more than 3/4" from floor or 3/16" from thresholds.
- E. Hardware: Install hardware, adjust as required to provide smooth and proper operation with secure latching or locking.
- F. Insulate all metal door frames in metal framed walls.

### 3.2 PRIME COAT TOUCH-UP

- A. Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touch-up with compatible air-drying primer.

END OF SECTION

## **PART 1 - GENERAL**

### **1.1 RELATED DOCUMENTS**

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

### **1.2 SUMMARY**

- A. This Section includes the following types of sectional overhead doors:
  - 1. Doors with steel-framed steel panels.
  - 2. Tracks configured for the following lift types:
    - a. Standard.

### **1.3 DEFINITIONS**

- A. Operation Cycle: One complete cycle of a door begins with the door in the closed position. The door is then moved to the open position and back to the closed position.

### **1.4 PERFORMANCE REQUIREMENTS**

- A. Structural Performance: Provide sectional overhead doors capable of withstanding the effects of gravity loads and the following loads and stresses without evidencing permanent deformation of door components:
  - 1. Wind Load: Uniform pressure (velocity pressure) of 20 lbf/sq. ft. (960 Pa), acting inward and outward.
- B. Operation-Cycle Requirements: Design sectional overhead door components and operator to operate for not less than 10,000 cycles.

### **1.5 SUBMITTALS**

- A. Product Data: For each type and size of sectional overhead door and accessory. Include details of construction relative to materials, dimensions of individual components, profiles, and finishes. Provide roughing-in diagrams, operating instructions, and maintenance information. Include the following:
  - 1. Setting drawings, templates, and installation instructions for built-in or embedded anchor devices.
  - 2. Summary of forces and loads on walls and jambs.

- B. Shop Drawings: Submit shop drawings or manufacturer's standard data sheets with door selections and details identified.

## 1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer who is an authorized representative of the sectional overhead door manufacturer for both installation and maintenance of units required for this Project.
- B. Manufacturer Qualifications: Engage a firm experienced in manufacturing sectional overhead doors similar to those indicated for this Project and with a record of successful in-service performance.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. 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:
- B. Manufacturer: Subject to compliance with requirements, provide products by one of the following:
  - 1. Overhead Door Corporation.
  - 2. Haas Door Co.
  - 3. Raynor Garage Doors.
  - 4. Wayne-Dalton Corp.

### 2.2 STEEL SECTIONS

- A. Construct door sections from galvanized, structural-quality carbon-steel sheets complying with ASTM A 653(ASTM A 653M), commercial quality, with a minimum yield strength of 33,000 psi (225 MPa) and a minimum G60 (Z180) zinc coating.
  - 1. Steel Sheet Thickness: 0.064 inch(1.6 mm).
  - 2. Exterior Section Face: Flat.
- B. Fabricate door panels from a single sheet to provide sections not more than 24 inches (600 mm) high and nominally 2 inches (50 mm) deep. Roll horizontal meeting edges to a continuous, interlocking, keyed, rabbeted, shiplap, or tongue-in-groove weathertight seal, with a reinforcing flange return.
- C. Enclose open section with not less than 0.064-inch (1.6-mm) galvanized steel channel end stiles welded in place. Provide not less than 0.064-inch (1.6-mm) galvanized intermediate stiles, cut to door section profile, spaced at not more than 48 inches (1200 mm) o.c., and welded in place.

- D. Reinforce sections with continuous horizontal and diagonal reinforcement, as required to stiffen door and for wind loading. Provide galvanized steel bars, struts, trusses or strip steel, formed to depth and bolted or welded in place.
- E. Provide reinforcement for hardware attachment.
- F. Insulation: Insulate inner core of steel sections with manufacturer's standard rigid cellular polystyrene or polyurethane thermal insulation, with maximum flame-spread and smoke-developed indices of 75 and 450, respectively, according to ASTM E 84; or with fiberglass thermal insulation. Secure insulation to door section. Enclose insulation completely, with no exposed insulation material evident.
  - 1. Steel Sheet Inside Face: 0.028 inch (0.7 mm) thick.
- G. Fabricate sections so finished door assembly is rigid and aligned, with tight hairline joints, and free of warp, twist, and deformation.
- H. Finish galvanized steel door sections as follows:
  - 1. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
  - 2. Surface Preparation: Clean galvanized surfaces with nonpetroleum solvent so surfaces are free of oil and surface contaminants.
  - 3. Apply manufacturer's standard primer and finish coats to interior and exterior door faces after forming, according to coating manufacturer's written instructions for application, thermosetting, and minimum dry film thickness.
    - a. Color and Gloss: As indicated by manufacturer's color and gloss designations.

## 2.3 TRACKS, SUPPORTS, AND ACCESSORIES

- A. Tracks: Provide manufacturer's standard, galvanized steel track system, sized for door size and weight, designed for lift type indicated and clearances shown, and complying with ASTM A 653(ASTM A 653M) , for minimum G60 (Z180) zinc coating. Provide complete track assembly including brackets, bracing, and reinforcement for rigid support of ball-bearing roller guides for required door type and size. Slot vertical sections of track at 2 inches (50 mm) o.c. for door-drop safety device. Slope tracks at proper angle from vertical or otherwise design to ensure tight closure at jambs when door unit is closed. Weld or bolt to track supports.
- B. Track Reinforcement and Supports: Provide galvanized steel track reinforcement and support members, complying with ASTM A 36 (ASTM A 36M) and ASTM A 123. Secure, reinforce, and support tracks as required for door size and weight to provide strength and rigidity without sag, sway, and vibration during opening and closing of doors.
- C. Support and attach tracks to opening jambs with continuous angle welded to tracks and attached to wall. Support horizontal (ceiling) tracks with continuous angle welded

to track and supported by laterally braced attachments to overhead structural members at curve and end of tracks.

- D. Weatherseals: Provide replaceable, adjustable, continuous, compressible weather-stripping gaskets of flexible vinyl, rubber, or neoprene fitted to bottom and at top of overhead door.
  - 1. Provide motor-operated doors with combination bottom weatherseal and sensor edge.

## 2.4 HARDWARE

- A. General: Provide heavy-duty, corrosion-resistant hardware, with hot-dip galvanized, stainless-steel, or other corrosion-resistant fasteners, to suit door type.
- B. Hinges: Provide heavy-duty galvanized steel hinges, of not less than 0.0747-inch- (1.9-mm-) thick uncoated steel, at each end stile and at each intermediate stile, per manufacturer's written recommendations for door size. Attach hinges to door sections through stiles and rails with bolts and lock nuts or lock washers and nuts. Use rivets or self-tapping fasteners where access to nuts is not possible. Provide double-end hinges, where required, for doors exceeding 16 feet (4.87 m) in width, unless otherwise recommended by door manufacturer.
- C. Rollers: Provide heavy-duty rollers, with steel ball bearings in case-hardened steel races, mounted with varying projections to suit slope of track. Extend roller shaft through both hinges where double hinges are required. Provide 3-inch- (75-mm-) diameter roller tires for 3-inch (75-mm) track, 2-inch- (50-mm-) diameter roller tires for 2-inch (50-mm) track, and as follows:

Case-hardened steel tires.

- D. Push/Pull Handles: For push-up-operated or emergency-operated doors, provide galvanized steel lifting handles on each side of door.
- E. Slide Bolt: Fabricate with side locking bolts to engage through slots in tracks for locking by padlock, located on single-jamb side, operable from inside only.

## 2.5 COUNTERBALANCING MECHANISM

- A. Torsion Spring: Operation by torsion-spring counterbalance mechanism consisting of adjustable-tension torsion springs, fabricated from oil-tempered-steel wire complying with ASTM A 229(ASTM A 229M) , Class II, mounted on a cross-header tube or steel shaft. Connect to door with galvanized aircraft-type lift cables with cable safety factor of at least 5 to 1. Provide springs calibrated for 10,000 cycles minimum.
- B. Cable Safety Device: Include a spring-loaded, steel or bronze cam mounted to bottom door roller assembly on each side, designed to automatically stop door if either cable breaks.

- C. Bracket: Provide anchor support bracket, as required to connect stationary end of spring to the wall, to level shaft and prevent sag.
- D. Provide a spring bumper at each horizontal track to cushion door at end of opening operation.

## 2.6 MANUAL DOOR OPERATORS

- A. Push-up Operation: Provide lift handles and pull rope for raising and lowering doors, operating with not more than 25-lbf (111-N) lift or pull.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine wall and overhead areas, including opening framing and blocking, with Installer present, for compliance with requirements for installation tolerances, clearances, and other conditions affecting performance of Work of this Section.
  - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. General: Install door, track, and operating equipment complete with necessary hardware, jamb and head mold strips, anchors, inserts, hangers, and equipment supports according to Shop Drawings, manufacturer's written instructions, and as specified.
- B. Fasten vertical track assembly to framing at not less than 24 inches (600 mm) o.c. Hang horizontal track from structural overhead framing with angle or channel hangers welded and bolt fastened in place. Provide sway bracing, diagonal bracing, and reinforcement as required for rigid installation of track and door-operating equipment.

### 3.3 ADJUSTING

- A. Lubricate bearings and sliding parts; adjust doors to operate easily, free from warp, twist, or distortion and fitting weathertight for entire perimeter.

END OF SECTION

**PART 1 - GENERAL****1.1 SCOPE**

- A. Furnish complete hardware as required to adequately equip all movable parts on new doors for perfect operation. Furnish hardware not specified but obviously required for completion of the project, conforming to size, function, quality, and utility of other hardware specified.

**1.2 QUALITY ASSURANCE**

- A. Qualification of Supplier: The finish hardware supplier shall have in his employ an AHC member of the American Society of Architectural Hardware Consultants.
- B. AHC Inspection: Before final inspection of the work under this contract and acceptance of the project by the Owner, visit the site and carefully inspect all hardware for conformance to this specification, adequacy for intended use, proper functioning, appearance, finish, and successful operation, assuming joint responsibility with the Contractor for the achievement of these characteristics and a satisfactory installation.

**1.3 MANUFACTURERS**

- A. Obtain each kind of hardware (latch and lock sets, hinges, closers, etc.) from one manufacturer.
- B. The naming of manufacturers in Hardware Sets does not imply other manufacturer's products will not be acceptable.

**1.4 SUBMITTALS**

- A. Hardware Schedule: As soon as practicable after award of contract and prior to ordering of hardware, submit to the Architect for review, a schedule of hardware to be furnished giving manufacturer's name, catalog number, finish, and location of each item.
- B. Samples: If requested, provide working samples of any items proposed for substitution. Samples will be returned.
- C. Manufacturer's Data: Deliver to installer instructions for installation and maintenance of operating parts and exposed finishes. Furnish templates to fabricators of other work to receive finish hardware.

**1.5 PRODUCT HANDLING**

- A. Furnish hardware separately unit packed (complete with all necessary attachments and fastenings), labeled, and numbered in accordance with Hardware Schedule.

**PART 2 - PRODUCTS**

## 2.1 KEYING

- A. Provide all locks, cylinders, I.C. cores, keys, etc. to be Best. No substitute. Contractor to provide construction cores as needed.
- B. Keying requirements to be determined by a meeting between Manufacturer and Owner. System needs to be on a grandmaster key system. Coordinate with Architect and Owner.
- C. Type and function described in Keyed Notes on applicable drawing sheet(s).

## 2.2 FASTENINGS

- A. Furnish all necessary screws, bolts, and other fasteners of suitable size and type to properly anchor the hardware.
- B. Furnish fastenings, where necessary, with expansion shields, toggle bolts, sex bolts, and other anchors, according to the material to which hardware is to be applied and the recommendations of the hardware manufacturer.
- C. Furnish fastenings compatible with both hardware and substrate material and, if exposed, matching hardware finish.

## 2.3 MANUFACTURER

- A. Products numbers listed in the following specifications are taken from the catalogs of manufacturers listed as follows:

| <u>Specified</u>    | <u>Approved Equal</u>       |
|---------------------|-----------------------------|
| Best Access Systems | No Substitute               |
| Hager, Ives         | Stanley, McKinney           |
| LCN                 | Corbin-Russwin, Norton      |
| Pemko               | National Guard, Reese, Ives |
| Rockwood            | Quality, Ives               |
| Von Duprin          | Corbin-Russwin, Seargent    |

## 2.4 SILENCERS

- A. Provide door silencers as follows: 3 each for single swing doors

## 2.5 SCHEDULE OF HARDWARE COMPONENTS

- A. Quality, function, design and finish are specified herein. Furnish in the amounts as indicated on the drawings or as required for complete and operable facility.

**LOCKSET / TRIM FUNCTION**

|    |          |      |             |
|----|----------|------|-------------|
| L1 | Entrance | Best | 9K3-7AB-15D |
|----|----------|------|-------------|

**CYLINDERS**

CY I.C. Cores 7-pin locking system and hardware Intruder Style/Cylindrical door locks. Construction cores and keying by GC as required.

**HINGES**

|    |                                  |       |                  |
|----|----------------------------------|-------|------------------|
| H2 | Hinges 3 ea Door<br>(Heavy Duty) | Hager | BB1168 4 ½ X 4 ½ |
|----|----------------------------------|-------|------------------|

**CLOSERS**

|    |                   |     |             |
|----|-------------------|-----|-------------|
| C1 | Closer Heavy Duty | LCN | 4000 Series |
|----|-------------------|-----|-------------|

**THRESHOLD**

|    |           |       |             |
|----|-----------|-------|-------------|
| T1 | Threshold | Pemko | 273x224 FGT |
|----|-----------|-------|-------------|

**WEATHERSTRIPPING**

|    |              |                |                                                      |
|----|--------------|----------------|------------------------------------------------------|
| W1 | Weatherstrip | Pemko<br>Pemko | 290PK Perimeter Gasketing<br>216PK Door Bottom Sweep |
|----|--------------|----------------|------------------------------------------------------|

**MISCELLANEOUS ITEMS**

|    |           |       |     |
|----|-----------|-------|-----|
| D1 | Rain Drip | Pemko | 346 |
|----|-----------|-------|-----|

**2.6 FASTENINGS**

- A. Furnish all necessary screws, bolts, and other fasteners of suitable size and type to properly anchor the hardware.

- B. Furnish fastenings, where necessary, with expansion shields, toggle bolts, sex bolts, and other anchors, according to the material to which hardware is to be applied and the recommendations of the hardware manufacturer.
- C. Furnish fastenings compatible with both hardware and substrate material and, if exposed, matching hardware finish.

## 2.7 FINISHES

- A. Furnish Satin Chrome US26D, Satin Stainless Steel US32D finish hardware throughout. Butt hinges shall be satin chrome US26D. Locksets and passage sets shall be satin chrome US26D. Push plates and pull plates shall be satin stainless steel US32D. Unless otherwise indicated, provide satin chrome US26D or satin stainless steel US32D finish hardware. Furnish door closers with an enameled finish to match hardware. Provide mill finish aluminum for thresholds, weatherstrip, sound and light stripping.

## 2.8 MANUFACTURERS

- A. Products numbers listed in the following specifications are taken from the catalogs of manufacturers listed as follows:

|     |    |                         |                  |
|-----|----|-------------------------|------------------|
| 1.  | A  | Anemostat Door Products | Carson CA        |
| 2.  | B  | Bommer Industries, Inc. | Landrum SC       |
| 3.  | C  | Corbin Russwin          | Berlin CT        |
| 4.  | D  | Door Controls, Inc.     | Springfield MO   |
| 5.  | F  | Falcon Lock Company     | Security CO      |
| 6.  | G  | Grant Hardware          | Nyack NY         |
| 7.  | G  | Glynn-Johnson Corp.     | Indianapolis IN  |
| 8.  | H  | Hager Hinge Company     | St. Louis MO     |
| 9.  | I  | Ives                    | Indianapolis IN  |
| 10. | L  | LCN Closers             | Princeton IL     |
| 11. | N  | National Guard Products | Memphis TN       |
| 12. | RX | Rixson                  | Franklin Park IL |
| 13. | SC | Schlage                 | San Francisco CA |
| 14. | S  | Stanley Hardware        | New Britain CT   |
| 15. | TB | Trimco                  | Los Angeles CA   |

## PART 3 - EXECUTION

### 3.1 INSPECTION

- A. Conditions of opening size shall be verified as to door frames being plumb and of correct tolerances to receive doors and hardware. Do not proceed with installation until discrepancies are corrected.

### 3.2 INSTALLATION

- A. Installer shall be competent and have knowledge of hardware.

- B. Mounting heights for all hardware shall be recommended by the Door and Hardware Institute.
- C. Finish Hardware: Install finish hardware in accordance with the best standard practice and as directed by the Architect. Remove and store as required for painting and refit at completion. Adjust moving parts to operate free and easy without binding. All hardware shall be in perfect working order and keys tagged on delivery to Owner.

### 3.3 ADJUSTING

- A. Make necessary final adjustments. Replace or repair any items which are found to be defective or damaged.

### 3.4 PROTECTION

- A. Protect hardware until completion of project.

### 3.5 HARDWARE SETS

- A. Quality, function, design and finish are specified herein. Furnish in the amounts as required by the scoping statements on the drawings or as required for complete and operable facility.

END OF SECTION

## PART 1 - GENERAL

### 1.1 SCOPE

- A. Provide glass and glazing, complete, except glass for aluminum storefront system, aluminum doors, and metal windows will be supplied and installed under their respective sections.

### 1.2 QUALITY ASSURANCE

- A. Provide glass manufactured by Vitro Architectural Glass, NSG/Pilkington, ASG Industries, HGP Industries, or approved equal.
- B. Provide safety glass (tempered, laminated), in compliance with requirements of Standard Building Code, ANSI Z97.1, and 16 CFR 1201. Label each piece of glass indicating compliance with requirements.

### 1.3 SUBMITTALS

- A. Manufacturer's Data: Submit copy of manufacturer's specifications and installation instructions for each type of glass and glazing material. Include test data or certification substantiating that glass complies with specified requirements. Transmit a copy of handling and glazing instructions to glazier.
- B. Samples: Prior to ordering, submit minimum 6" x 6" sample of each type and thickness of glass required for Architect's review.

### 1.4 PROTECTION

- A. Protect glass surfaces and edges at all times during the construction period. Keep glass free from contamination by materials capable of staining glass.

## PART 2 - PRODUCTS

### 2.1 GLASS

- A. General: Conforming to Fed. Spec. DD-G-451 or DD-G-1403, of the various types, classes, and forms specified. See Frame Schedule for glass thicknesses.
- B. Float Glass: Type I, Class 1 (transparent), Quality q3 (glazing select); 1/4" thick, unless otherwise indicated.
- C. Tempered Glass: Types specified above, heat-strengthened (after cutting to final size) to 4 times normal strength, by process designed to eliminate tong marks or by vertical process if glass is installed to conceal tong marks.

- D. Insulated Glass: 1" thick, composed of 1/4" thick tinted tempered outer lite, 1/2" air space, and 1/4" thick clear tempered inner lite. Where indicated as tempered, provide tempered outer lite. Provide units certified as Class CBA under ASTM E 774 test procedure according to IGCC and SIGMA standards. Similar to Vitro 6 mm Solarban 60 (2) on Solargray, Low-e heat treated on 1/2" air on 6mm clear, heat treated interior lite.

## 2.2 GLAZING GASKETS

- A. Structural Rubber: Neoprene extrusions with injection-molded corner units, fabricated into frames, with either integral or separate locking strips (zippers). Standard Products "Stanlock", or approved equal.
- B. Molded Neoprene: Molded or extruded neoprene gaskets of 40 to 60 Shore A durometer hardness, of the profile indicated or as required by the glazing system to install glass with watertight seal.
- C. PVC: Extruded flexible PVC gaskets, of the profile indicated or as required by the glazing system to install glass with watertight seal.
- D. Cellular Neoprene: Closed-cell neoprene gaskets with integral skin, of the profile indicated or as required by the glazing system to install glass with watertight seal.

## 2.3 GLAZING MATERIALS

- A. Glazing Sealants: Dap "Dynaflex 230", Pecora "Synthacalk GC-2+", Bostik "Chem-Calk 916".
- B. Glazing Tape: Dap "Butyl Rubber Tape", Bostik "Chem Tape 40", Tremco "440". Provide fire-rated glazing tape as required for 90 minute fire-rated glass panels over 1,393 square inches.
- C. Setting Blocks: Neoprene or other resilient blocks of 70 to 90 Shore A durometer hardness, adhesively backed on one face only, tested for compatibility with specified glazing sealants.
- D. Spacers: Neoprene or other resilient blocks of 40 to 50 Shore A durometer hardness, tested for compatibility with specified glazing sealant.
- E. Compressible Filler Rod: Closed-cell or waterproof-jacketed foam of polyethylene, butyl rubber, neoprene, polyurethane or vinyl, tested for compatibility with specified glazing sealants, of 5 to 10 psi compression strength (25% deflection), recommended by sealant manufacturer for use in glazing channel to prevent sealant exudation from the channel.
- F. Mirror Mastic: An adhesive setting compound, produced specifically for setting mirrors by spot application method (25% coverage) without support, to be used in 1/8" to 1/2" thickness.

## PART 3 - EXECUTION

### 3.1 PERFORMANCE REQUIREMENTS

- A. Watertight and airtight installation of each piece of glass is required. Each installation must withstand normal temperature changes, wind loading, impact loading (for operating sash and doors) without failure of any kind including loss or breakage of glass, failure of sealants or gaskets to remain watertight and airtight, deterioration of glazing materials and other defects in the work.

### 3.2 INSTALLATION

- A. General: Comply with recommendations of glass manufacturers and manufacturers of sealants and other glazing materials, unless otherwise indicated or specified, including preparation of surfaces.
- B. Clean channel surfaces and prime as recommended by sealant manufacturer.
- C. Cut glass to size as required for measured opening, provide adequate edge clearance and glass bite all around. Cut prior to tempering or coating.
- D. Do not install sheets which have edge damage or face imperfections.
- E. Miter-cut and bond (weld) ends of channel gaskets at corners to provide a continuous gasket.
- F. Seal face gaskets at corners with liquid elastomeric sealant to close openings and prevent withdrawal of gaskets from corners.
- G. Remove and replace glass which is broken, chipped, cracked, abraded or damaged during the construction period.

### 3.3 CURING

- A. Cure glazing sealants and compounds in compliance with manufacturer's instructions and recommendations to obtain high early bond strength, internal cohesive strength and surface durability.

END OF SECTION

**PART 1 - GENERAL**

**1.1 SCOPE**

- A. Replace a single impact-rated glazing unit on building 761 as described in the drawings. Bid a replacement unit, but if the existing unit is able to receive new glazing then at the contractor's option the glazing can be replaced in the existing frame.

**1.2 RELATED SECTIONS**

- A. Section 08 8000 - Glazing.
- B. Section 07 9000 - Joint Sealants.

**1.3 REFERENCES**

- A. AAMA 506 - Voluntary Specifications for Impact and Cycle Testing of Fenestration Products.
- B. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum.
- C. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performance Organic Coatings on Aluminum Extrusions and Panels.
- D. ANSI Z97.1 - Safety Glazing Materials Used in Buildings.
- E. ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
- F. ASTM E1886 - Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.
- G. ASTM E1996 - Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricanes.
- H. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass.
- I. ASTM C1172 - Standard Specification for Laminated Architectural Flat Glass.
- J. UFC 4-010-01 - DoD Minimum Antiterrorism Standards for Buildings.

**1.4 QUALITY ASSURANCE**

- A. Provide impact-rated storm window systems manufactured by one of the following, or approved equal: Graham Architectural Products; WinCo Window Company; Insulgard Security Products; or PGT Innovations/CGI Windows or approved equal.
- B. Provide laminated impact-resistant glazing manufactured by one of the following, or approved equal: NSG/Pilkington; Cardinal Glass Industries (Sea-Storm Series); or Vitro Glass (formerly PPG, Solarban Series) or approved equal.
- C. Provide products meeting the performance criteria specified herein. Substitutions shall be submitted in accordance with the project substitution procedures and are subject to Architect approval.
- D. Provide impact-rated glazing systems that have been tested and certified by an independent testing laboratory acceptable to the authority having jurisdiction. All units shall bear a permanent certification label indicating design pressure, tested pressure, and missile impact criteria.
- E. Installer Qualifications: Engage an experienced installer with a minimum of five (5) years documented experience installing commercial impact-rated window systems of similar scope and complexity.

#### 1.5 SUBMITTALS

- A. Manufacturer's Data: Submit manufacturer's product data, specifications, and installation instructions for each window system and glazing type specified. Include data on frame profiles, glazing system, hardware, and finish.
- B. Shop Drawings: Submit shop drawings indicating plans, elevations, sections, details, dimensions, anchorage, and relationship to adjacent construction. Indicate frame profiles, glazing details, sealant joints, and hardware locations.
- C. Samples: Prior to ordering, submit minimum 6" x 6" sample of each glazing type and a sample of the frame finish for Architect review and approval.
- D. Test Reports: Submit certified laboratory test reports documenting compliance with ASTM E1886 and ASTM E1996 for the specified impact and pressure criteria.
- E. Certificates: Submit certification that products comply with specified requirements, including missile impact level, design pressure rating, and finish compliance.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in manufacturer's original, unopened packaging. Store units in a dry, protected location, off the ground, shielded from weather and jobsite damage. Handle units in accordance with manufacturer's written instructions to prevent damage to frames, glazing, and finish.

#### 1.7 WARRANTY

- A. Provide manufacturer's written warranty against defects in materials and workmanship for a minimum of ten (10) years from date of Substantial Completion for the glazing unit and five (5) years for the frame finish.

## PART 2 - PRODUCTS

### 2.1 IMPACT-RATED STORM WINDOW FRAMES

- A. General: Provide factory-fabricated commercial impact-rated storm window units with extruded aluminum frames, complete with glazing, hardware, weatherstripping, and accessories as specified. Units shall be of size and configuration as indicated on the Drawings.
- B. Frame Material: Extruded aluminum alloy, 6005-T5 or 6063-T5, meeting ASTM B221. Frame sections shall be of sufficient depth and section modulus to meet the specified design pressure without permanent deformation.
- C. Frame Finish: Fluoropolymer (PVDF) coating containing a minimum of 70 percent PVDF resin, applied in a minimum two-coat system, complying with AAMA 2605. Color: Black, to match existing aluminum window frames in the building; exact color to be confirmed by Architect prior to fabrication.
- D. Acceptable Manufacturers: Graham Architectural Products (Hurricane-Resistant Series); WinCo Window Company (Hurricane Resistant Series); Insulgard Security Products (STORMDEFEND Series); PGT Innovations/CGI Windows (Commercial Series); or approved equal meeting specified performance requirements.

### 2.2 IMPACT-RESISTANT GLAZING

- A. General: Provide laminated safety glazing units as indicated on the Drawings, complying with ASTM C1172, ANSI Z97.1, and the impact and pressure requirements specified herein.
- B. Laminated Impact-Resistant Glass: Minimum 1" overall unit thickness, consisting of two lites of heat-strengthened or fully tempered glass per ASTM C1048, bonded with a minimum 0.060-inch-thick ionoplast interlayer (SentryGlas or equal) or polyvinyl butyral (PVB) interlayer; manufacturer to confirm interlayer type for certified compliance with specified missile impact level.
- C. Tint: Glazing tint shall match the tint of existing windows in the building as applicable. Contractor shall obtain a confirmed glass tint on the existing construction before ordering.
- D. Insulating Glass: Provide insulating glass units composed of the specified laminated impact-resistant outer lite, a minimum 1/2" air space with desiccant-filled aluminum or warm-edge spacer, and a compatible inner lite; overall unit thickness as indicated.

- E. Acceptable Glazing Manufacturers: NSG/Pilkington; Cardinal Glass Industries (Sea-Storm Series); Vitro Glass (Solarban Series); or approved equal, certified to meet specified performance requirements.

## 2.3 PERFORMANCE REQUIREMENTS

- A. Design Pressure: Storm window assembly shall be rated for a minimum design pressure as indicated on the Structural Drawings, but not less than +/-55 psf, tested in accordance with ASTM E330.
- B. Impact Resistance: Storm window assembly shall comply with ASTM E1996 and shall withstand large missile impact (9 lb., 2x4 at 50 ft/sec) and small missile impact testing as required by the applicable wind zone, tested in accordance with ASTM E1886. Cyclic pressure testing to follow, per ASTM E1886.
- C. Air Infiltration: Maximum 0.30 cfm per linear foot of sash crack at 1.57 psf, tested per AAMA 502.
- D. Water Resistance: No water infiltration at 12 psf (minimum) when tested per AAMA 502.
- E. Thermal Performance: Whole-window U-factor not to exceed 0.55 as determined per NFRC 100, unless a lower value is required by the energy code of record.
- F. Solar Heat Gain Coefficient: Maximum 0.40 as determined per NFRC 200, unless otherwise directed by the Architect to match existing conditions.

## 2.4 GLAZING GASKETS AND SETTING MATERIALS

- A. Glazing Gaskets: EPDM or neoprene extruded gaskets of profile and durometer hardness required by window manufacturer for the certified and tested glazing system assembly. Gaskets shall be compatible with the specified interlayer material.
- B. Setting Blocks: Neoprene or silicone, 70 to 90 Shore A durometer hardness, sized per glass manufacturer recommendations.
- C. Spacers: Neoprene or silicone, 40 to 50 Shore A durometer hardness; compatible with specified glazing interlayer.

## 2.5 GLAZING SEALANTS

- A. Perimeter Sealant: Silicone sealant, compatible with aluminum frame finish and adjacent substrates; color to match frame finish. Acceptable products: Dow Corning 795, Pecora 864, or Tremco Spectrem 2; or approved equal.
- B. Glazing Tape: Closed-cell polyurethane or butyl rubber tape as required by the manufacturer's certified system; Tremco "440 Tape," Bostik "Chem Tape 40," or approved equal.

- C. Compressible Filler Rod: Closed-cell polyethylene backer rod of diameter 25 percent greater than joint width.

## 2.6 HARDWARE AND ACCESSORIES

- A. Window units shall be fixed with no operable sashes.
- B. Provide concealed anchors, fasteners, and clip assemblies of materials compatible with frame alloy; stainless steel where exposed to moisture. Anchor design shall be sufficient to transfer the specified design loads to the supporting structure.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verify field dimensions of each opening prior to fabrication. Report discrepancies to the Architect before proceeding. Do not begin installation until substrates are plumb, square, and free of defects that would adversely affect installation.
- B. Verify that rough openings are correctly sized, properly flashed, and that backup construction is adequate to receive anchor loads transferred from the window system.

### 3.2 PERFORMANCE REQUIREMENTS

- A. Watertight and airtight installation of each storm window assembly is required. Each installation must withstand normal temperature changes, loading from wind, and building movement without failure, including loss of air or water-tight integrity or deterioration of other performance characteristics.

### 3.3 INSTALLATION

- A. General: Install storm window assemblies in accordance with manufacturer's written installation instructions, approved shop drawings, and AAMA installation guidelines. Coordinate with adjacent trades for flashing, sealant, and substrate conditions.
- B. Set frames plumb, level, and true to line. Shim as required. Secure frames to structure with concealed anchors at spacing required to achieve the specified design pressure rating, but not to exceed 24 inches on center or as required by the tested assembly.
- C. Glazing: Glaze units using the specific materials and methods that are part of the manufacturer's tested and certified system. Do not substitute glazing materials, interlayers, gaskets, or setting materials without written approval from the manufacturer and the Architect. Substitution of any glazing component may void impact certification.
- D. Place setting blocks at quarter points of the glass unit. Center glass in the frame. Do not allow glass edges to bear on metal surfaces.

- E. Clean frame channels and prime as recommended by sealant manufacturer. Apply sealant in a continuous bead without voids. Tool sealant to a neat, concave profile. Wipe off excess sealant promptly.
- F. Do not install glazing units that have edge damage, face imperfections, scratches, delamination, or tint variation from approved samples.
- G. Provide weep holes or drainage paths in frame sills as required by manufacturer to prevent water accumulation.

#### 3.4 FIELD QUALITY CONTROL

- A. Upon installation of a representative number of units as directed by the Architect, provide a field water infiltration test on a minimum of one window of each type per AAMA 502. Remediate any failures and retest.

#### 3.5 CLEANING AND PROTECTION

- A. Clean glazing surfaces upon completion of installation using only cleaning agents and methods recommended by the glass manufacturer. Do not use abrasive cleaners, razor blades, or scrapers on coated or laminated glass surfaces.
- B. Protect completed installations from damage during the remainder of the construction period. Remove and replace at no additional cost any units that are broken, chipped, cracked, scratched, delaminated, or otherwise damaged.

#### 3.6 CURING

- A. Cure glazing sealants and compounds in compliance with manufacturer's instructions and recommendations to obtain high early bond strength, internal cohesive strength, and surface durability.

END OF SECTION

**PART 1 - GENERAL****1.1 SCOPE**

- A. Repair gypsum wallboard as required with installation of replacement window units.

**1.2 ASSURANCE**

- A. Manufacturer: U.S. Gypsum system is specified. Equivalent systems of National Gypsum and CertainTeed are acceptable. Obtain gypsum board, trim accessories, and adhesives from a single manufacturer.
- B. Allowable Tolerance: 1/8" offsets between planes of board faces, and 1/4" in 8 ft. for plumb, level, warp, and bow.

**1.3 PRODUCT HANDLING**

- A. Deliver gypsum drywall materials fully identified with manufacturer's name, brand, type and grade. Store in dry, well ventilated space, protected from the weather under cover and off the ground.

**PART 2 - PRODUCTS****2.1 MATERIALS**

- A. Fire-rated Gypsum Board: 5/8" Type X, gypsum wallboard with tapered edges.
- B. Trim Accessories: Provide manufacturer's standard trim accessories of types indicated for drywall work, formed of galvanized steel unless otherwise indicated, with either knurled and perforated or expanded flanges for nailing or stapling, and beaded for concealment of flanges in joint compound. Provide all corner beads, edge trim-beads, and one-piece control joint beads.
- C. Fasteners: Self-drilling, self-tapping screws for power driving with special head design for gypsum board attachment (Type S), producing surface depression for proper concealment; 1" for single ply and 1-5/8" long for 2 ply. Space 12" o.c. staggered at vertical joints. Use other fasteners as required.
- D. Joint Treatment: Tape and joint compound system recommended by gypsum wallboard manufacturer.

**PART 3 - EXECUTION****3.1 INSTALLATION**

- A. Comply with manufacturer's instructions, as specified and/or as indicated on the drawings.

- B. Apply gypsum board in largest pieces suitable for required repairs.
- C. Finishing:
  - 1. Apply joint treatment at joints (both directions); flanges of corner bead, edge trim, and control joints; penetrations; fastener heads, surface defects and elsewhere as required to prepare work for decoration.
  - 2. Prefill open joints and beveled edges using setting-type joint compound.
  - 3. Apply joint tape at joints between gypsum board, except where trim accessories are indicated.
  - 4. Finish by applying joint compound in three coats (not including prefill), and sand between coats and after last coat.
  - 5. Paint finished drywall to match adjacent conditions.
- D. Textured Walls
  - 1. Match adjacent texture if applicable.
- E. Provide casing beads where edges of gypsum board meet dissimilar materials.
- F. Fasten gypsum board to metal studs with U.S.G. Drywall Screws Type S power driven, spaced as per manufacturer's instructions.
- G. Joint Treatment: Treat all joints, nail heads and other depressions in the surface of the wallboard, in accordance with manufacturers recommendations.

END OF SECTION

## **PART 1 - GENERAL**

### **1.1 SCOPE**

- A. Provide painting and finishing of all items that are not factory finished as specified elsewhere. Provide field painting of all primed structural steel in the canopy, any repaired drywall around replaced windows, and any trim or finished pieces that must be protected from the elements and have a finish coat for customary appearance. Provide touch-up of pre-finished items as required to match original finish.
- B. Do not paint water repellent coatings, exposed aggregate surfaces, pre-finished items unless otherwise noted, or surfaces to receive other decorative finishes.

### **1.2 SUBMITTALS**

- A. Paint Schedule: Submit paint schedule listing each material cross-referenced to the specific paint and finish system and application. Identify by manufacturer's catalog number and general classification.
- B. Samples: If requested, submit samples of finishes type and color on specified materials for verification.

### **1.3 DELIVERY AND STORAGE**

- A. Deliver all materials to the job site in original, new and unopened packages and containers bearing manufacturer's name and label.

## **PART 2 - PRODUCTS**

### **2.1 ACCEPTABLE MANUFACTURERS**

- A. Provide all paints, enamels, stains, varnishes, and admixtures of first line quality as manufactured by Sherwin Williams.

### **2.2 MATERIALS**

- A. See paragraph SCHEDULE OF PAINT TREATMENT for materials. All finish coats shall contain mildewcides. Grind in the factory all interior deep tone colors. Shop mixing is not permitted. Colors as selected by the Architect, and subject to modification on the job at the Architect's discretion.

## **PART 3 - EXECUTION**

### **3.1 INSPECTION**

- A. Examine the areas and conditions under which painting work is to be performed. Do not proceed with the work until unsatisfactory conditions have been corrected. Starting

of painting work will be construed as acceptance of the surfaces within any particular areas.

### 3.2 SURFACE PREPARATION

- A. General: Perform all preparation and cleaning procedures in strict accordance with the paint manufacturer's instructions and as herein specified. Remove all hardware, plates, lighting fixtures, and similar items in place and not to be finish painted, or provide protection prior to surface preparation and painting operations. Remove, if necessary, for the complete painting of the items and adjacent surfaces. Reinstall the removed items by workmen skilled in the trades involved, after painting is completed.
- B. Cementitious Materials: All new surfaces must cure for 7 days. Prepare cementitious surfaces of concrete, cement plaster, and concrete block to be painted by removing all chalk, dust, dirt, grease, oils, and by roughening as required to remove glaze. Determine the alkalinity and moisture content of the surfaces to be painted by performing appropriate tests. If the surfaces are found to be sufficiently alkaline to cause blistering and burning of the finish paint, correct this condition before application of paint. Allow surface to dry thoroughly before proceeding.
- C. Wood: Clean wood surfaces to be painted of all dirt, oil, or other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sandpaper smooth those surfaces exposed to view, and dust off. Prime, stain, or seal wood required to be job painted immediately upon delivery to job. Prime edges, ends, faces, undersides, and backsides of such wood, including cabinets, counters, cases, etc. Scrape and clean small, dry seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer, before application of the priming coat. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood-filler. Sandpaper smooth when dried.
- D. Ferrous Metals: Touch-up shop-applied prime coats which have damaged or bare areas. Wire-brush, solvent clean, and touch up with the same primer as the shop coat.
- E. Galvanized Surfaces: Clean free of oil and surface contaminates with an acceptable non-petroleum based solvent.
- F. Aluminum: Remove film of oil and grease before painting by washing with mineral spirits.
- G. Gypsum Wall Board:
  - 1. Treat all joints, nail heads and other depressions in the surface of the wallboard, in accordance with the recommended manner, with a taped joint system by the gypsum wallboard manufacturer. Do not paint over gypsum wallboard work until taped joints are thoroughly dry.
  - 2. Skim Coat: Where indicated, trowel apply approximately 1/16" thick skim coat of joint topping compound over entire drywall surfaces and sand as required to provide uniform, smooth, even surfaces, free of noticeable defects under low angle lighting.

- H. Existing Surfaces: Remove rust, dirt, grease, and loose and peeling paint from surface and spot prime entire area with appropriate primer. Remove surface contamination by washing with powdered commercial cleaner. Wash thoroughly and allow to dry. Dull glossy surfaces with fine sandpaper or steel wool. Spot prime with appropriate primer. Paint with top coats as specified.

### 3.3 APPLICATION

- A. Apply paint to brush, roller, spray, or other acceptable practice in accordance with the manufacturer's directions. Use brushes best suited for the type of material being applied. Use rollers of carpet, velvet back, or high pile sheep's wool as recommended by the manufacturer for material and texture required.
- B. The number of coats and paint film thickness required is the same regardless of the application method. Do not apply succeeding coats until the previous coat has completely dried. Sand between each enamel or varnish coat application with fine sand paper, or rub surfaces with pumice stone where required to produce an even smooth surface in accordance with the coating manufacturer's directions.
- C. Apply additional coats when undercoats, stains, or other conditions show through the final coat of paint, until the paint film is of uniform finish, color and appearance.
- D. Give special attention to insure that all surfaces, including edges corners, crevices welds, and exposed fasteners receive a film thickness equivalent of that of flat surfaces.

### 3.4 CLEAN-UP

- A. Thoroughly clean all spots, smears, spills, etc., remove from the site all discarded paint materials, rubbish cans and rags at the end of each work day.

### 3.5 SCHEDULE OF PAINT TREATMENTS

| No. | Location                     | Coats | Materials                                                                                                                                                                      |
|-----|------------------------------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.  | Ext. & Int. ferrous metal    | 3     | Shop priming is specified under the respective metal section.<br>1st Coat: Rust primer.<br>2nd & 3rd Coat: Ext. alkyd semi-gloss paint.                                        |
| 2.  | Ext. & Int. galvanized metal | 3     | Shop priming is specified under the respective metal section.<br>Pretreatment: Chemical wash.<br>1st Coat: Galv. iron primer.<br>2nd & 3rd Coats: Ext. alkyd semi-gloss paint. |

- |     |                                                                                                          |   |                                                                                                                        |
|-----|----------------------------------------------------------------------------------------------------------|---|------------------------------------------------------------------------------------------------------------------------|
| 3.  | Other metal surfaces (factory finished, primed or prefinished), louvers, brackets, braces, and supports. | 2 | Clean and prime abraded spots as specified in metal sections and finish in two coats specified for adjoining surfaces. |
| 4.  | Aluminum (mill finished).                                                                                | 2 | Treat with vinyl wash coat, and then use primer and finish coats as specified for adjoining surfaces.                  |
| 5.  | Ext. concrete, cement plaster (stucco) EIFS, except soffit.                                              | 2 | 1st. Coat: Masonry conditioner.<br>2nd & 3rd Coats: Semi-gloss acrylic latex masonry paint.                            |
| 6.  | Ext. concrete block (CMU).                                                                               | 3 | 1st Coat: Block filler.<br>2nd & 3rd Coats: Semi-gloss acrylic latex masonry paint.                                    |
| 7.  | Int. hardwood<_>, including doors, trim, hardwood plywood>                                               | 3 | 1st Coat: Paste wood filler/ stain.<br>2nd & 3rd Coat: Polyurethane varnish.                                           |
| 8.  | Int. softwood, including opaque painted casework, trim, softwood plywood.                                | 3 | 1st Coat: Wall & wood primer.<br>2nd & 3rd Coat: Semi-gloss alkyd enamel.                                              |
| 20. | Int. concrete block (CMU).                                                                               | 3 | 1st Coat: Block filler.<br>2nd & 3rd Coats: Match existing                                                             |
| 91. | Int. gypsum board.                                                                                       | 3 | 1st Coat: Vinyl-acrylic emulsion sealer.<br>2nd & 3rd Coats: Match existing                                            |

END OF SECTION

**PART 1 - GENERAL****1.1 SCOPE**

- A. Provide horizontal louver blind units, complete.

**1.2 QUALITY ASSURANCE**

- A. Provide each blind as a complete unit produced by one manufacturer, including hardware, accessory items, mounting brackets and fastenings.
- B. Warranty: Provide Five (5) Year warranty of material and operation defects, assuming proper use and maintenance according to manufacturer's recommendations.

**1.3 SUBMITTALS**

- A. Manufacturer's Data: Submit installation instructions including methods of installation for each type of opening and supporting structure. Transmit copy of instructions and recommendations to the installer.
- B. Samples: Submit manufacturer's full range of material color and finish samples for selection by Architect.
- C. Operation and Maintenance Data: Submit manufacturer's operation and maintenance instructions.
- D. Extra Materials: Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Window Blinds: Full-sized units equal to 5 percent of quantity installed for each size, color, and material indicated, but no fewer than 2 units.

**PART 2 - PRODUCTS****2.1 2-INCH HORIZONTAL BLINDS**

- A. Manufacturer and Product:
  - 1. Hunter Douglas, Levolor, Bali, or approved equal.
  - 2. Basis of Design: Springs Window Fashions LP
    - a. Product: Bali Heritage 2" Horizontal Blind
    - b. Options: Wand Tilter
    - c. Color: Selected from manufacturer's standard colors
- B. Product Description:
  - 1. SureTight™ Headrail: "U"-shaped 1-5/8" high by 2-1/4" deep channel with an 1/8" light blocking lip on the bottom center line fabricated from 0.022" thick phosphate

treated steel with rolled edges at top with a prime coat of vinyl primer and finished coat of polyester baked enamel to match bottomrail and end support brackets and to coordinate with slats. Headrail shall be roll-formed.

2. Head Channel Hardware: Metal hardware shall be electroplated with lift cord and ladders guided by acetal low friction thermoplastic grommets in the head channel that prevents wear and discoloration. Operating hardware shall be mechanically locked into head channel, by means of snapping in fittings with no mechanical cleats visible from underside of headrail.
3. Extruded Aluminum Bottomrail: Aluminum bottomrail, 9/16" high by 2" deep, sculptured "C" shape. The bottomrail is .040" thick (before coating) anodized aluminum extrusion, internally grooved to accept dust covered slat and coated with polyester baked enamel to match headrail and coordinate with slat color. Thermoplastic protective caps in bottom of rail shall be used to secure ladder ends and assure window sill protection. Hold-down bracket pins are available.
4. Slats: Slats shall be aluminum alloyed for maximum strength, flexibility and resistance to corrosion. Slats shall be nominally 2" wide and 0.008" thick. Slats shall have a pre-coating treatment to bond the polyester baked enamel finish coat that features our Advanced Finishing Technology (AFT) which provides a smoother, harder, less porous surface that provides anti-static performance to help repel dust and anti-microbial qualities to help resist fungal and bacteria growth. Slat thickness and ladder support distances shall be such that there is no visible sag.
5. Tilt Rod Support: Tilt rod support shall be low friction thermoplastic and shall support tilt rod. It shall provide a smooth bearing and center the ladder drum over ladder hole. Incorporated with tilt rod support shall be metal lift cord rollers to guide lift cords when entering and exiting headrail for smoother lifting and lowering operation. Grommet shall prevent cord and braided ladder wear and discoloration.
6. Ladder Drum: Ladder drums are made of high strength thermoplastic which securely attaches braided ladder or cloth tapes.
7. Cord Lock: Metal cord lock shall be a snap-in design and incorporate a floating shaft-type locking pin. The freely rotating locking pin shall offer minimum wear to cord. Cord lock shall incorporate a crash-proof safety feature that shall lock blind automatically upon release of cord. End of lift cords shall be treated with plastic tassels.
8. Wand Tiliter: The wand tiliter shall be a snap-in component incorporating a worm and gear arrangement in a totally enclosed gear case. The worm and gear shall be zinc die casting and the gear case of low friction thermoplastic. The wand shall be a clear polycarbonate solid rod, with a hexagonal shape measuring approximately 5/16" across the points. Wand shall be attached to the tiliter shaft by means of a hook and sleeve, and shall be easily detached and reattached in the field.
9. Square Tilt Rod: Tilt rod shall be electro-zinc coated solid steel. Tilt rod shall be hexagonal in cross-section measuring 1/4" at its widest points.
10. Braided Ladders (Slat Supports): Braided ladder which will assure proper control with adequate overlap of slats in closed position. Distance between end ladder and end of slats will not exceed 6", distance between braided ladders shall not exceed 24".

- a. Braided Ladder Material: Material shall be 100% high tenacity polyester yarn. Vertical component shall not be less than 0.045" diameter nor greater than 0.060" diameter, which will provide maximum strength and flexibility with minimum stretch. Horizontal component, or rungs, shall not be less than two threads and shall be approximately 44.0mm long. Ladders shall be sufficient length for bottom of blind to hang with tolerance of plus one-half/minus zero inches of the specified length. Ladders shall be dyed to manufacturer's standard colors.
  - b. Braided Ladder Clip: Plated metal clip shall be mechanically clinched to the end of each braided ladder to lock in holes to ladder drum.
- 11. Lift Cord: Lift cord shall be braided with polyester jacket and center core or an approved equal construction. Size of cord shall be 1.8mm. Cords shall be detachable, if required, and shall be of sufficient length to properly control the raising and lowering of the blind. Lift cords shall be equipped with plastic tassels. Cord ends shall be securely anchored to the bottomrail and it shall be possible to detach and attach cords. Cording arrangements shall comply with assembly standards set for the size and weight of the blind. Cords shall be coordinated to manufacturer's standard colors.
- 12. Cord Lock and Tilter Operation Locations:
  - a. 2" Horizontal Blinds shall be made with the following cord lock and tilter location options when viewed from within the room:
    - (1) Tilter at left, cord lock at right (standard)
    - (2) Cord lock at left, tilter at right (reverse)
    - (3) Tilter and cord lock at left (both left)
    - (4) Tilter and cord lock at right (both right)
    - (a) On blinds less than 20-1/8" wide, only options 1 and 2 above apply.
- 13. End Support Brackets: Universal hinged cover end support brackets of phosphate treated steel with a prime coat of vinyl primer and a finish coat of baked on polyester enamel in color to match headrail. Brackets shall facilitate easy removal of head channel and will include an adjustable tab to eliminate lateral headrail movement.
- 14. Intermediate Support Brackets: Brackets shall be of electroplated steel stamping, and shall be furnished for blinds over 48" wide. Maximum spacing for intermediate support brackets shall be 48".
- 15. Extension Brackets: Optional adjustable extension brackets are available. Brackets allow extensions of 1" and 1-3/4".
- 16. Hold-Down Brackets: Universal hold-down brackets for sill or jamb installations are available.
- 17. End Stiffeners:
  - a. To add rigidity to the headrail, thermoplastic end stiffener caps shall be inserted at each end of the headrail.
- 18. General: The blind shall be free of sharp edges, burrs or other defects which might be harmful. When other materials result in improved specifications, they may be adopted.
- 19. Size Limitations:
  - a. Maximum width: 142"
  - b. Maximum drop: 126"

20. Color: Color of headrail, bottomrail, ladder and cord shall coordinate with slats. Plastic headrail components will be either white or black.

## 2.2 FABRICATION AND OPERATION

- A. Prior to fabrication verify actual opening dimensions by accurate site measurements.
- B. Fabricate components of blinds with non-corrosive, non-staining, non-fading materials completely compatible with each other and requiring no lubrication during normal expected life.
- C. Fabricate blinds to fill the openings as indicated from head to sill and jamb to jamb. For continuous window wall installation, blind ends should occur only over mullions or other defined vertical separations, unless otherwise indicated.
- D. Space supporting cords in accordance with manufacturer's standards, unless otherwise indicated.
- E. Space slats to provide overlap for light exclusion when in fully closed position.
- F. Operation: Equip blind units, unless otherwise indicated, for full-tilting with slats rotating approximately 180 degrees. Place lift operating controls on left hand side of blind units. Equip units with full-height raising to manufacturer's minimum stacking dimension, with lifting cord locks for stopping blinds at any point of ascending or descending travel. Place cords on right hand side of blind units.

## PART 3 - EXECUTION

### 3.1 INSPECTION

- A. Examine the substrates and conditions under which the horizontal blinds are to be installed. Do not proceed with the work until unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. Install units in accordance with manufacturer's instructions and accepted shop drawings. Provide intermediate supports at intervals to permit easy entrance and removal of head, and to ensure level head and slat position.
- B. Provide adequate clearance between sash and divisions between blinds to permit unencumbered operation of sash hardware.
- C. Divisions between blinds are permitted only at mullions of continuous windows and openings where more than one blind for one opening occurs.
- D. Set tilt and lift controls. Demonstrate blinds to be in smooth, uniform working order.

### 3.3 CLEANING

- A. Clean soiled blind surfaces with a mild soap solution. Do not use steam, hot water, bleach or any abrasive or solvent-based cleaners. Do not wash metallic colors.
- B. To ensure proper drying, provide adequate ventilation for blinds; remove bottomrail plastic end caps, and tip headrail and bottomrail to drain water.

END OF SECTION

**PART 1 - GENERAL**

**1.1 SCOPE:**

- A. Provide a pre-engineered metal building canopy, complete as indicated in the plans and this specification, including engineering of the structure, structural drawings sealed by the Engineer, including major and minor structural elements as required for a complete structural and roof system. Provide trim, flashing, and accessories complete.
- B. Metal Building System:
  - 1. "Covered Training Area" on drawings.
  - 2. Metal roof system
  - 3. Soffits and miscellaneous trim

**1.2 RELATED WORK SPECIFIED IN OTHER SECTIONS:**

- A. Metal Roof Panels, Section 07 4213
- B. Painting, Section 09 9100

**1.3 QUALITY ASSURANCE:**

- A. The design and construction of the Pre-Engineered Building System must conform strictly to these specifications.
- B. The structure shall be the design of a manufacturer who is regularly engaged in the fabrication of pre-engineered metal building structures. All materials shall be new, unused and free from defect.
- C. The following standards and criteria (of most recent issue) shall be used where applicable in the structural design of the building covered by this specification.
  - 1. "Recommended Design Practices Manual", Metal Building Manufacturers Association.
  - 2. "Steel Construction Manual", American Institute of Steel Construction.
  - 3. "Cold Formed Steel Design Manual", American Iron and Steel Institute.
  - 4. "Aluminum Construction Manual", The Aluminum Association.
  - 5. "Code for Welding in Building Construction", American Welding Society.
- D. Building Code: The 2018 International Building Code (IBC) shall be followed in every respect except where more stringent requirements are established herein.
- E. The following criteria shall be applicable in other phases of the design:
  - 1. Structural Steel Painting Council - Standards.
  - 2. Federal, Military and Commercial Standards.
  - 3. ASTM Standards.
  - 4. Ratings by: Underwriters' Laboratories, Inc.,

## 5. Factory Mutual

- F. Design Loads: Shall be as indicated on Structural sheets and the 2018 International Building Code (IBC).
- G. Combination of Loads: The combining of normal loads and auxiliary loads for design purposes shall be as prescribed and recommended by the Metal Building Manufacturers Association "Design Practices Manual" of recent issue, unless otherwise specified.
- H. Lateral bracing of columns shall be achieved by portal framing only; no cross-bracing. Diagonal bracing may be provided within the roof diaphragm if required.

### 1.4 SUBMITTALS:

#### A. Certification:

1. All bidders must include with their shop drawings and submittals a letter from the metal building manufacturer certifying that the structure proposed will be furnished to meet or exceed all design load criteria and that all structural design will be in strict conformance with that prescribed in the MBMA "Design Practices Manual" of recent issue, or as otherwise specified.
2. After the awarding of the contract, structural analysis shall be submitted by the metal building manufacturer.

- B. Shop Drawings: Submit detailed shop drawings showing complete layout of all framing, connections, bracing, jointing, accessories, panel materials, and miscellaneous items. Structural drawings shall also show design loading used and reactions both static and dynamic induced at the foundation. These drawings shall be sealed by a structural engineer licensed to practice in the State of Missouri.

### 1.5 QUALITY ASSURANCE:

#### A. Manufacturer's Qualifications:

1. Manufacturer regularly engaged, for past 10 years, in manufacture of metal building systems of similar type to that specified.
2. Accredited based on IAS Accreditation Criteria AC472 and requirements in International Building Code (IBC), Chapter 17.

#### B. Installer's Qualifications:

1. Installer regularly engaged, for past 5 years, in installation of metal building systems of similar type to that specified.
2. Employ persons trained for installation of metal building systems.

#### C. Certificate of design and manufacturing conformance:

1. Metal building system manufacturer shall submit written certification prepared and signed by a Professional Engineer, registered to practice in Missouri verifying that building system design and metal roof system design (including panels, clips, and support system components) meet indicated specifications, loading requirements and applicable codes of authorities having jurisdiction.
2. Certification shall reference specific dead loads, live loads, snow loads, wind loads/speeds, tributary area load reductions (if applicable), concentrated loads,

- collateral loads, seismic loads, end-use categories, governing code bodies, including year, and load applications.
- 3. Certificate shall be on metal building system manufacturer's letterhead.
- 4. Refer to Submittals article of this specification section.

D. Material Testing:

- 1. In addition to material certifications of structural steel, metal building system manufacturer shall provide, upon request at time of order, evidence of compliance with specifications through testing.

## 1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Storage and Handling Requirements:
  - 1. Store and handle materials in accordance with manufacturer's instructions.
  - 2. Keep materials in manufacturer's original, unopened containers and packaging until installation.
  - 3. Do not store materials directly on ground.
  - 4. Store materials on flat, level surface, raised above ground with adequate support to prevent sagging.
  - 5. Protect materials and finish during storage, handling and installation to prevent damage.

## 1.7 WARRANTY

- A. Metal building system manufacturer shall provide a written weathertightness warranty for a maximum of 25 years against leaks in standing seam roof panels, arising out of or caused by ordinary wear and tear under normal weather and atmospheric conditions.
  - 1. Warranty shall be signed by both the metal roof system manufacturer and the metal roof system installer.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS:

- A. Equivalent systems by the following manufacturers are acceptable:
  - 1. Butler Manufacturing
  - 2. Liberty Building Systems
  - 3. American Building Systems
  - 4. Star Building Systems
  - 5. Alliance
  - 6. Ceko Building Systems
  - 7. MBCI
  - 8. Pac-clad
  - 9. United Structures of America
  - 10. Varco-Pruden

2.2 ROOF COVERING AND SUPPORTS: The roof construction shall carry an Underwriters' Laboratories Construction (Uplift) classification of not less than Class 90.

A. Roof Panels:

1. Prefinished, clip mounted, painted standing seam metal roof similar to Varco Pruden SSR, 24" wide. The exposed metal roof covering shall be 24 gage (minimum) of such configuration to provide the specified load carrying capabilities and deflection requirements of this specification. Roof panels shall be of "standing-seam interlocking" design and secured to the purlins with a concealed structural fastening system. The concealed system shall provide minimal through penetration of the exposed roofing surface and allow the roof covering to move independently of any differential thermal movement by the structural framing system. Except at the concealed fastener, there shall be no thermal contact of the roof panels with the supporting purlin. The standing seams shall have a factory-applied, non-hardening sealant, and the seams shall be continuously locked or crimped together by mechanical means during erection. Roof panels with lap-type side (longitudinal) joints and exposed structural fasteners shall not be considered acceptable.
2. Roof panels shall be fastened to the purlins with a concealed clip or backing device of steel having a protective metallic coating. Through penetration of the roofing surface by exposed fasteners shall occur only at terminal locations of the roof panels. Such fasteners shall be zinc aluminum coated (ZAC) cast head, long life shroud with neoprene washer.
3. Deflection of the roof panel shall not exceed  $L/180$  of its span when supporting the applicable vertical live loads previously described.

B. Guarantee: Durability of the roof panels due to rupture, structural failure or perforation shall be guaranteed for a period of 20 years by the building manufacturer. A specimen copy of the document must accompany the bid, clearly stating the conditions under which the guarantee is valid.

C. Purlins:

1. The purlin's configuration, thickness and spacing shall be the building manufacturer's standard provided all design criteria, including deflection, is met or exceeded.
2. The deflection of the purlin shall not exceed  $L/180$  of its span when supporting the applicable vertical live loads previously prescribed and any collateral loads required.

2.3 STRUCTURAL STEEL PRIMER and PAINTING:

- A. All uncoated structural steel shall be given one (1) shop coat of rust inhibitive (primer) paint which meets or exceeds Federal Specification TT-P-664C, Amendment 2 (Glidden 5210), or certification shall be submitted that it conforms to a recognized authoritative specification, such as from a Federal or Military authority of the Structural Steel Painting Council and is compatible with the epoxy to be used as a finish coat.

- B. Provide primer in manufacturer's standard gray or red primer. Touch up any damage to primer finish on structural elements.
- C. Paint all exposed structural steel subject to the weather in structures without enclosed walls.

## 2.6 TRIM AND ACCESSORIES:

- A. Provide all necessary trim, components, and accessories for a complete and finished installation of the metal building system.
- B. Perimeter soffits: Not required.

## PART 3 - EXECUTION

### 3.1 ERECTION:

- A. Erection of metal building, accessories and insulation shall be by an experienced erector authorized by the manufacturer as trained and qualified to erect that manufacturer's product. The manufacturer shall inspect the Work and certify its correctness.

END OF SECTION

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY**

- A. Section Includes:
  - 1. Equipment supports.

**1.3 PERFORMANCE REQUIREMENTS**

- A. Structural Performance: Hangers and supports for HVAC piping and equipment shall withstand the effects of gravity loads and stresses within limits and under conditions indicated according to ASCE/SEI 7.
  - 1. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

**1.4 ACTION SUBMITTALS**

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show fabrication and installation details and include calculations for the following; include Product Data for components:
  - 1. Equipment supports.

**1.5 INFORMATIONAL SUBMITTALS**

- A. Welding certificates.

**1.6 QUALITY ASSURANCE**

- A. Structural Steel Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- B. Pipe Welding Qualifications: Qualify procedures and operators according to ASME Boiler and Pressure Vessel Code.

**PART 2 - PRODUCTS**

**2.1 EQUIPMENT SUPPORTS**

- A. Description: Welded, shop- or field-fabricated equipment support made from structural carbon-steel shapes.

## 2.2 MISCELLANEOUS MATERIALS

- A. Structural Steel: ASTM A 36/A 36M, carbon-steel plates, shapes, and bars; black and galvanized.

## PART 3 - EXECUTION

### 3.1 HANGER AND SUPPORT INSTALLATION

- A. Install hangers and supports complete with necessary attachments, inserts, bolts, rods, nuts, washers, and other accessories.
- B. Equipment Support Installation: Fabricate from welded-structural-steel shapes.

### 3.2 EQUIPMENT SUPPORTS

- A. Fabricate structural-steel stands to suspend equipment from structure overhead or to support equipment above floor.
- B. Provide lateral bracing, to prevent swaying, for equipment supports.

### 3.3 METAL FABRICATIONS

- A. Cut, drill, and fit miscellaneous metal fabrications for trapeze pipe hangers and equipment supports.
- B. Fit exposed connections together to form hairline joints. Field weld connections that cannot be shop welded because of shipping size limitations.
- C. Field Welding: Comply with AWS D1.1/D1.1M procedures for shielded, metal arc welding; appearance and quality of welds; and methods used in correcting welding work; and with the following:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
  - 4. Finish welds at exposed connections so no roughness shows after finishing and so contours of welded surfaces match adjacent contours.

### 3.4 ADJUSTING

- A. Hanger Adjustments: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.
- B. Trim excess length of continuous-thread hanger and support rods to 1-1/2 inches.

### 3.5 PAINTING

- A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
  - 1. Apply paint by brush or spray to provide a minimum dry film thickness of 2.0 mils.
- B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

### 3.6 HANGER AND SUPPORT SCHEDULE

- A. Use hangers and supports with galvanized metallic coatings for piping and equipment that will not have field-applied finish.
- B. Use carbon-steel pipe hangers and supports and attachments for general service applications.
  - 1.

END OF SECTION

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

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

### 1.2 SUMMARY

- A. Section Includes:
  - 1. Equipment labels.

### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Equipment Label Schedule: Include a listing of all equipment to be labeled with the proposed content for each label.

### 1.4 COORDINATION

- A. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.
- B. Coordinate installation of identifying devices with locations of access panels and doors.

### 1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of label through one source from a single manufacturer.

## PART 2 - PRODUCTS

### 2.1 EQUIPMENT LABELS

- A. Plastic Labels for Equipment:
  - 1. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/8 inch thick, and having predrilled holes for attachment hardware.
  - 2. Letter Color: White.
  - 3. Background Color: Black .
  - 4. Maximum Temperature: Able to withstand temperatures up to 160 deg F.
  - 5. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.
  - 6. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately

larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.

7. Fasteners: Stainless-steel rivets or self-tapping screws.
8. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.

- B. Label Content: Include equipment's Drawing designation or unique equipment number.

## 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 EQUIPMENT LABEL INSTALLATION

- A. Install or permanently fasten labels on each major item of mechanical equipment.
- B. Locate equipment labels where accessible and visible.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
  - 1. Pipes, tubes, and fittings.
  - 2. Piping specialties.
  - 3. Piping and tubing joining materials.
  - 4. Valves.
  - 5. Dielectric fittings.

1.3 DEFINITIONS

- A. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.

1.4 PERFORMANCE REQUIREMENTS

- A. Minimum Operating-Pressure Ratings:
  - 1. Piping and Valves: 100 psig minimum unless otherwise indicated.
- B. Natural-Gas System Pressure within Buildings: 0.5 psig or less.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of the following:
  - 1. Piping specialties.
  - 2. Valves. Include pressure rating of selected models.
  - 3. Dielectric fittings.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Handling Flammable Liquids: Remove and dispose of liquids from existing natural-gas piping according to requirements of authorities having jurisdiction.
- B. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.

- C. Store and handle pipes and tubes having factory-applied protective coatings to avoid damaging coating, and protect from direct sunlight.

## 1.7 PROJECT CONDITIONS

- A. Interruption of Existing Natural-Gas Service: Do not interrupt natural-gas service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide purging and startup of natural-gas supply according to requirements indicated:
  - 1. Notify Architect no fewer than two days in advance of proposed interruption of natural-gas service.
  - 2. Do not proceed with interruption of natural-gas service without Architect's written permission.

## PART 2 - PRODUCTS

### 2.1 PIPES, TUBES, AND FITTINGS

- A. Steel Pipe: ASTM A 53/A 53M, black steel, Schedule 40, Type E or S, Grade B.
  - 1. Malleable-Iron Threaded Fittings: ASME B16.3, Class 150, standard pattern.
  - 2. Unions: ASME B16.39, Class 150, malleable iron with brass-to-iron seat, ground joint, and threaded ends.

### 2.2 PIPING SPECIALTIES

- A. Appliance Flexible Connectors:
  - 1. Indoor, Fixed-Appliance Flexible Connectors: Comply with ANSI Z21.24.
  - 2. Corrugated stainless-steel tubing with polymer coating.
  - 3. Operating-Pressure Rating: 0.5 psig.
  - 4. End Fittings: Zinc-coated steel.
  - 5. Threaded Ends: Comply with ASME B1.20.1.
  - 6. Maximum Length: 36 inches

### 2.3 JOINING MATERIALS

- A. Joint Compound and Tape: Suitable for natural gas.
- B. Welding Filler Metals: Comply with AWS D10.12/D10.12M for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

### 2.4 MANUAL GAS SHUTOFF VALVES

- A. General Requirements for Metallic Valves, NPS 2 and Smaller: Comply with ASME B16.33.
  - 1. CWP Rating: 125 psig.
  - 2. Threaded Ends: Comply with ASME B1.20.1.
  - 3. Dryseal Threads on Flare Ends: Comply with ASME B1.20.3.

4. Tamperproof Feature: Locking feature for valves indicated in "Underground Manual Gas Shutoff Valve Schedule" and "Aboveground Manual Gas Shutoff Valve Schedule" Articles.
  5. Listing: Listed and labeled by an NRTL acceptable to authorities having jurisdiction for valves 1 inch and smaller.
  6. Service Mark: Valves 1-1/4 inches to NPS 2 shall have initials "WOG" permanently marked on valve body.
- B. Two-Piece, Full-Port, Bronze Ball Valves with Bronze Trim: MSS SP-110.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. BrassCraft Manufacturing Company; a Masco company.
    - b. Conbraco Industries, Inc.; Apollo Div.
    - c. McDonald, A. Y. Mfg. Co.
  2. Body: Bronze, complying with ASTM B 584.
  3. Ball: Chrome-plated bronze.
  4. Stem: Bronze; blowout proof.
  5. Seats: Reinforced TFE; blowout proof.
  6. Packing: Threaded-body packnut design with adjustable-stem packing.
  7. Ends: Threaded, flared, or socket as indicated in "Underground Manual Gas Shutoff Valve Schedule" and "Aboveground Manual Gas Shutoff Valve Schedule" Articles.
  8. CWP Rating: 600 psig.
  9. Listing: Valves NPS 1 and smaller shall be listed and labeled by an NRTL acceptable to authorities having jurisdiction.
  10. Service: Suitable for natural-gas service with "WOG" indicated on valve body.
- C. Bronze Plug Valves: MSS SP-78.
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Lee Brass Company.
    - b. McDonald, A. Y. Mfg. Co.
  2. Body: Bronze, complying with ASTM B 584.
  3. Plug: Bronze.
  4. Ends: Threaded, socket, or flanged as indicated in "Underground Manual Gas Shutoff Valve Schedule" and "Aboveground Manual Gas Shutoff Valve Schedule" Articles.
  5. Operator: Square head or lug type with tamperproof feature where indicated.
  6. Pressure Class: 125 psig.
  7. Listing: Valves NPS 1 and smaller shall be listed and labeled by an NRTL acceptable to authorities having jurisdiction.
  8. Service: Suitable for natural-gas service with "WOG" indicated on valve body.

## 2.5 DIELECTRIC FITTINGS

- A. General Requirements: Assembly of copper alloy and ferrous materials with separating nonconductive insulating material. Include end connections compatible with pipes to be joined.
- B. Dielectric Unions:
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Capitol Manufacturing Company.
    - b. Central Plastics Company.
    - c. McDonald, A. Y. Mfg. Co.
    - d. Watts Regulator Co.; a division of Watts Water Technologies, Inc.
    - e. Wilkins; a Zurn company.
  - 2. Description:
    - a. Standard: ASSE 1079.
    - b. Pressure Rating: 125 psig minimum at 180 deg F.
    - c. End Connections: Solder-joint copper alloy and threaded ferrous.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine roughing-in for natural-gas piping system to verify actual locations of piping connections before equipment installation.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Close equipment shutoff valves before turning off natural gas to premises or piping section.
- B. Inspect natural-gas piping according to the International Fuel Gas Code to determine that natural-gas utilization devices are turned off in piping section affected.
- C. Comply with the International Fuel Gas Code requirements for prevention of accidental ignition.

### 3.3 INDOOR PIPING INSTALLATION

- A. Comply with the International Fuel Gas Code for installation and purging of natural-gas piping.
- B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. 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 on Coordination Drawings.

- C. 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.
- D. Locate valves for easy access.
- E. Install piping free of sags and bends.
- F. Install fittings for changes in direction and branch connections.
- G. Verify final equipment locations for roughing-in.
- H. Comply with requirements in Sections specifying gas-fired appliances and equipment for roughing-in requirements.
- I. Drips and Sediment Traps: Install drips at points where condensate may collect, including service-meter outlets. Locate where accessible to permit cleaning and emptying. Do not install where condensate is subject to freezing.
  - 1. Construct drips and sediment traps using tee fitting with bottom outlet plugged or capped. Use nipple a minimum length of 3 pipe diameters, but not less than 3 inches long and same size as connected pipe. Install with space below bottom of drip to remove plug or cap.
- J. Connect branch piping from top or side of horizontal piping.
- K. Do not use natural-gas piping as grounding electrode.

### 3.4 VALVE INSTALLATION

- A. Install manual gas shutoff valve for each gas appliance ahead of corrugated stainless-steel tubing, aluminum, or copper connector.

### 3.5 PIPING JOINT CONSTRUCTION

- A. Ream ends of pipes and tubes and remove burrs.
- B. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
- C. Threaded Joints:
  - 1. Thread pipe with tapered pipe threads complying with ASME B1.20.1.
  - 2. Cut threads full and clean using sharp dies.
  - 3. Ream threaded pipe ends to remove burrs and restore full inside diameter of pipe.
  - 4. Apply appropriate tape or thread compound to external pipe threads unless dryseal threading is specified.

5. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

### 3.6 CONNECTIONS

- A. Install piping adjacent to appliances to allow service and maintenance of appliances.
- B. Connect piping to appliances using manual gas shutoff valves and unions. Install valve within 36 inches of each gas-fired appliance and equipment. Install union between valve and appliances or equipment.
- C. Sediment Traps: Install tee fitting with capped nipple in bottom to form drip, as close as practical to inlet of each appliance.

### 3.7 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Tests and Inspections:
  1. Test, inspect, and purge natural gas according to the International Fuel Gas Code and authorities having jurisdiction.
- C. Natural-gas piping will be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports.

### 3.8 INDOOR PIPING SCHEDULE FOR SYSTEM PRESSURES LESS THAN 0.5 PSIG

- A. Aboveground, branch piping NPS 1 and smaller shall be the following:
  1. Steel pipe with malleable-iron fittings and threaded joints.

### 3.9 ABOVEGROUND MANUAL GAS SHUTOFF VALVE SCHEDULE

- A. Valves in branch piping for single appliance shall be one of the following:
  1. Two-piece, full-port, bronze ball valves with bronze trim.
  2. Bronze plug valve.

END OF SECTION

## **PART 1 - GENERAL**

### **1.1 RELATED DOCUMENTS**

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

### **1.2 SUMMARY**

- A. This Section includes gas-fired unit heaters.

### **1.3 ACTION SUBMITTALS**

- A. Product Data: For each type of fuel-fired unit heater indicated. Include rated capacities, operating characteristics, and accessories.

### **1.4 INFORMATIONAL SUBMITTALS**

- A. Field quality-control test reports.
- B. Warranty: Special warranty specified in this Section.

### **1.5 CLOSEOUT SUBMITTALS**

- A. Operation and Maintenance Data: For fuel-fired unit heaters to include in emergency, operation, and maintenance manuals.

### **1.6 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.
- B. ASHRAE/IESNA 90.1 Compliance: Applicable requirements in ASHRAE/IESNA 90.1, Section 6 - "Heating, Ventilating, and Air-Conditioning."

### **1.7 WARRANTY**

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace heat exchanger of fuel-fired unit heater that fails in materials or workmanship within specified warranty period.
  - 1. Warranty Period for Heat Exchanger: Ten years from date of Substantial Completion.
  - 2. Warranty Period for Unit: One year from date of Substantial Completion.

## **PART 2 - PRODUCTS**

## 2.1 GAS-FIRED UNIT HEATERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
  - 1. Lennox Industries, Inc.
  - 2. Modine Manufacturing Company.
  - 3. Reznor/Thomas & Betts Corporation.
  - 4. Sterling HVAC Products; Div. of Mestek Technology Inc.
  - 5. Trane.
- B. Description: Factory assembled, piped, and wired, and complying with ANSI Z83.8/CSA 2.6.
- C. Fuel Type: Design burner for natural gas having characteristics same as those of gas available at Project site.
- D. Type of Venting: Powered vented.
- E. Housing: Steel, with integral draft hood and inserts for suspension mounting rods.
  - 1. External Casings and Cabinets: Baked enamel over corrosion-resistant-treated surface.
- F. Heat Exchanger: Aluminized steel.
- G. Burner Material: Aluminized steel with stainless-steel inserts.
- H. Unit Fan: Formed-steel propeller blades riveted to heavy-gage steel spider bolted to cast-iron hub, dynamically balanced, and resiliently mounted.
  - 1. Fan-Blade Guard: Galvanized steel, complying with OSHA specifications, removable for maintenance.
  - 2. General requirements for motors:
    - a. Motors: Totally enclosed with internal thermal-overload protection.
    - b. Motor Sizes: Minimum size as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.
    - c. Controllers, Electrical Devices, and Wiring: Electrical devices and connections are specified in electrical Sections.
- I. Controls: Regulated redundant gas valve containing pilot solenoid valve, electric gas valve, pilot filter, pressure regulator, pilot shutoff, and manual shutoff all in one body.
  - 1. Gas Control Valve: Single stage.
  - 2. Ignition: Electronically controlled electric spark with flame sensor.
  - 3. Fan Thermal Switch: Operates fan on heat-exchanger temperature.

- 4. Vent Flow Verification: Flame rollout switch and Differential pressure switch to verify open vent.
  - 5. Control transformer.
  - 6. High Limit: Thermal switch or fuse to stop burner.
  - 7. Thermostat: Single-stage, wall-mounting type with 50 to 90 deg F operating range, fan on/Auto switch, and System On/Off switch.
- J. Discharge Louvers: Independently adjustable horizontal blades.
- K. Accessories:
- 1. Four-point suspension kit.
  - 2. Vent piping sized and installed per manufacturer's written instructions.
  - 3. Listed exhaust flue terminal.
- L. Capacities and Characteristics: Refer to equipment schedule on drawings.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install and connect gas-fired unit heaters and associated fuel and vent features and systems according to NFPA 54, applicable local codes and regulations, and manufacturer's written installation instructions.
- B. Suspended Units: Suspend from substrate using threaded rods, spring hangers, and building attachments. Secure rods to unit hanger attachments. Adjust hangers so unit is level and plumb.

### 3.2 CONNECTIONS

- A. Piping installation requirements are specified in other Sections. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Install piping adjacent to fuel-fired unit heater to allow service and maintenance.
- C. Gas Piping: Comply with Section 23 1123 "Facility Natural-Gas Piping." Connect gas piping to gas train inlet; provide union with enough clearance for burner removal and service.
- D. Electrical Connections: Comply with applicable requirements in electrical Sections.
  - 1. Install electrical devices furnished with heaters but not specified to be factory mounted.

### 3.3 FIELD QUALITY CONTROL

- A. Perform tests and inspections and prepare test reports.
- B. Tests and Inspections:

1. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
2. Verify bearing lubrication.
3. Verify proper motor rotation.
4. Test Reports: Prepare a written report to record the following:
  - a. Test procedures used.
  - b. Test results that comply with requirements.
  - c. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

C. Remove and replace malfunctioning units and retest as specified above.

### 3.4 ADJUSTING

- A. Adjust initial temperature set points.
- B. Adjust burner and other unit components for optimum heating performance and efficiency.

### 3.5 DEMONSTRATION

- A. Train Owner's maintenance personnel to adjust, operate, and maintain fuel-fired unit heaters.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes: General administrative and procedural requirements for electrical installations. The following administrative and procedural requirements are included in this section to expand requirements specified in Division 1.
  - 1. Submittals
  - 2. Record documents.
  - 3. Operation and Maintenance manuals
  - 4. Rough-ins.
  - 5. Electrical equipment coordination and installations including access and working Clearances.
  - 6. Cutting and Patching
  - 7. Warranties

1.3 SUBMITTALS

- A. General: Follow the procedures specified in Division 1. Division 26 sections define required Submittals.
- B. Within 30 days after Award of Contract, the Contractor shall submit information for approval related to any non-incidental electrical work, as applicable.

1.4 QUALITY ASSURANCE

- A. Source limitation, to the fullest extent possible, provide products of the same kind, from a single source.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to the project properly identified with names, model numbers, types, grades, compliance labels, and other information needed for identification.
- B. Store products in protected spaces to prohibit physical damage.
- C. Follow manufacturer's instructions for handling including the lift limitations and dimensions necessary for egress.

## 1.6 SCOPE OF WORK

- A. This section of the work shall comprise the furnishing of materials, equipment, tools, labor and transportation necessary for the complete installation of the electrical systems shown, specified, or otherwise required to complete other work. Work is to be complete in every respect whether specifically mentioned in contract documents or not. This work and material includes, but is not limited to, the following items:
  - 1. Power supply to all HVAC equipment, motors, plumbing equipment, etc.

## 1.7 RESPONSIBILITY OF THE CONTRACTOR

- A. Each contractor shall be responsible for all work of every description in connection with his contract. He shall specifically and distinctly assume, and does so assume, all risk for damage or injury from whatever cause to property or person used or employed on or in connection with his work and of all damage or injury to any persons or property wherever located, resulting from any action of operation under the contract or in connection with the work.
- B. Each contractor will be held responsible for the execution of a satisfactory and complete piece of work, in accordance with the true intent of the drawings and specifications and all bulletins and addenda which may be issued during the time of bidding. He shall provide, without extra charge, all incidental items required as part of his work, even though not particularly specified or indicated.
- C. Each contractor shall be responsible for compliance with all national, state, local and county codes, standards, ordinances and regulations.
- D. This contractor shall visit the site of the building before submitting a proposal on this work and thoroughly familiarize himself with existing conditions and operations. Removal or modification of part of existing or new work will not justify any additional payment of bidder because of failure to visit site.

## 1.8 DRAWINGS AND SPECIFICATIONS

- A. The interrelation of the specifications, drawings and schedules shall be as hereinbefore described in the architectural sections of the specifications.
- B. Should the drawings disagree in themselves, or with the specifications, the better quality or greater quantity of work or materials shall be estimated upon, and unless otherwise ordered by the Architect in writing, shall be performed or furnished. In case the specifications should not fully agree with the schedules, the latter shall govern.
- C. The drawings and specifications are intended to designate the general description of the work which shall be performed by each of the major contractors. It is not intended to include all items of work, either generally or specifically, nor is it intended to limit the scope of the work where plans, schedules, notes or standard practice requires the inclusion of other specific items.

- D. When the drawings do not give exact details as to the elevations of pipe, conduit and ducts, the contractors shall physically arrange the systems to fit in the space available at the elevations intended with the proper grades for the functioning of the systems involved. Piping, exposed conduit and the duct systems are generally intended to be installed true and square to the building construction, and located as high as possible against the structure in a neat and workmanlike manner. Work shall be concealed in all finished areas except as shown.

#### 1.9 COORDINATE WITH OTHER TRADES

- A. The Electrical Contractor shall check with the General Contractor and other contractors, either under his control or those responsible solely to the Owner for any work being performed under this specification to determine whether there will be any interference with the electrical work. If the Electrical Contractor fails to check with the other contractors and the electrical work is later found to interfere with their work, then he shall make necessary changes without additional cost or delay to the Owner to eliminate such interferences.
- B. Coordinate arrangement, mounting, and support of electrical equipment:
  - 1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
  - 2. To provide for ease of disconnecting the equipment with minimum interference to other installations.
  - 3. To allow right of way for piping and conduit installed at required slope.
  - 4. So connecting raceways, cables, wireways, cable trays, and busways will be clear of obstructions and of the working and access space of other equipment.

#### 1.10 CODES AND STANDARDS

- A. All materials and workmanship shall comply with all applicable local, county, state and national codes, specifications, ordinances, utility company regulations and specified industry standards.
- B. In case of difference between building codes, specifications, regulations and the Contract Documents, the most stringent shall govern. The contractor shall promptly notify the Construction Manager in writing of any such difference. Should the Contractor perform any work that does not comply with the requirements of the applicable building codes, state laws, local ordinances, industry standards, utility company regulations, he shall bear all costs arising in correcting these deficiencies.
- C. In addition to the local, county, and state ordinances, and the utility company regulations, the following industry standards and codes shall apply as applicable, except where the requirements of this specification are more stringent than the following standards, they shall take precedence:
  - 1. ASTM - American Society of Testing Materials
  - 2. IEEE - Institute of Electrical and Electronics Engineers

3. IES - Illuminating Engineering Society
4. NEC - National Electrical Code
5. NEMA - National Electrical Manufacturers Association
6. NFPA - National Fire Protection Association
7. UL - Underwriters' Laboratories
8. ADA - Americans With Disabilities Act

#### 1.11 CLEANING

- A. This Contractor shall thoroughly clean all devices and equipment furnished and set in place under this contract. All surfaces shall be properly polished and shall be free of paint and other dirt and debris.
- B. This Contractor shall be required to touch up or refinish all equipment furnished with factory applied finishes which have been damaged during the construction of the work. He shall properly protect the front of all panelboards, switchboards and other similar equipment to prevent marring and other defacing.

#### PART 2 - PRODUCTS

#### PART 3 - EXECUTION

##### 3.1 ROUGH-IN

- A. Verify final locations for rough-ins with field measurements and with the requirements of the actual equipment to be connected.
- B. Refer to drawings and equipment specifications for rough-in requirements.
- C. Owner reserves the right to approve final location of all electrical devices prior to rough-in and may opt to move diagrammatic location indicated on Contract Drawings up to six feet horizontally, ten feet vertically.

##### 3.2 ELECTRICAL INSTALLATIONS

- A. Comply with NECA 1.
- B. General: Sequence, coordinate, and integrate the various elements of electrical systems, materials, and equipment. Comply with the following requirements:
  1. Coordinate electrical systems, equipment, and materials installation with other building components.
  2. Verify all dimensions by field measurements.
  3. Arrange for chases, slots, and openings in other building components to allow for electrical installations.
  4. Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete and other structural components, as they are constructed.

5. Sequence, coordinate, and integrate installations of electrical materials and equipment for efficient flow of the work. Give particular attention to large equipment requiring positioning prior to closing in the building.
6. Coordinate the cutting and patching of building components to accommodate the installation of electrical equipment and materials.
7. Where mounting heights are not detailed or dimensioned, install electrical services and overhead equipment to provide the maximum headroom possible.
8. Coordinate the installation of electrical materials and equipment above ceilings with suspension system, mechanical equipment and systems, and structural components.
9. Coordinate connection of electrical systems with exterior underground and overhead utilities and services. Comply with requirements of governing regulations, franchised service companies, and controlling agencies. Provide required connection for each service.
10. Install systems, materials, and equipment to conform with approved submittal data, including coordination drawings, to greatest extent possible. Conform to arrangements indicated by the Contract Documents, recognizing that portions of the work are shown only in diagrammatic form. Where coordination requirements conflict with individual system requirements, refer conflict to the Architect.
11. Install systems, materials, and equipment level and plumb, parallel and perpendicular to other building systems and components, where installed exposed in finished spaces.
12. Install electrical equipment to facilitate servicing, code clearance, maintenance, and repair or replacement of equipment components of both electrical equipment and other nearby installations. As much as practical, connect equipment for ease of disconnecting, with minimum of interference with other installations.

### 3.3 CUTTING AND PATCHING

- A. General: Perform cutting and patching in accordance with General Conditions.
- B. Protection of Installed Work: During cutting and patching operations, protect adjacent installations.
- C. Provide and maintain temporary partitions or dust barriers adequate to prevent the spread of dust and dirt to adjacent areas.
- D. Do not endanger or damage installed work through procedures and processes of cutting and patching.
- E. Arrange for repairs required to restore other work because of damage caused as a result of electrical installations.
- F. No additional compensation will be authorized for cutting and patching work that is necessitated by ill-timed, defective, or non-conforming installations.

- G. Perform cutting, fitting, and patching of electrical equipment and materials required to:
  - 1. Uncover work to provide for installation of ill-timed work.
  - 2. Remove and replace defective work.
  - 3. Remove and replace work not conforming to requirements of the Contract Documents.
  - 4. Remove samples of installed work as specified for testing.
  - 5. Upon written instructions from the Architect, uncover and restore work to provide for Architect observation of concealed work.
- H. Locate, identify, and protect electrical services passing through remodeling or demolition area and serving other areas required to be maintained operational. When transit services must be interrupted, provide temporary services for the affected areas and notify the Owner prior to changeover.
- I. Cut, remove, and legally dispose of selected electrical equipment, components, and materials as indicated, including but not limited to removal of electrical items indicated to be removed and items made obsolete by the new work.
- J. Protect the structure, furnishings, finishes, and adjacent materials not indicated or scheduled to be removed.

#### 3.4 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Electrical penetrations occur when raceways, cables, wireways, cable trays, or busways penetrate concrete slabs, concrete or masonry walls, or fire-rated floor and wall assemblies.
- B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.
- C. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
- D. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.
- E. Cut sleeves to length for mounting flush with both surfaces of walls.
- F. Extend sleeves installed in floors 2 inches above finished floor level.
- G. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway or cable, unless indicated otherwise.
- H. Seal space outside of sleeves with grout for penetrations of concrete and masonry. Promptly pack grout solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect grout while curing.

- I. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint. Comply with requirements in Division 07 Section "Joint Sealants."

### 3.5 SLEEVE-SEAL INSTALLATION

- A. Install to seal exterior wall penetrations.
- B. Use type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

### 3.6 SYSTEM OPERATING TESTS

- A. After the successful completion of all equipment start-up and test requirements, the following formal tests shall be performed on the complete electrical systems:
  - 1. First Operating Test by Contractor: The Contractor shall prove the operation of the electrical systems and of each individual item in the systems. At least 10 days notice shall be given the Architect of such tests. If any item of the systems fails to perform, corrections shall be made and this test shall be repeated until the operating test is successful.

### 3.7 WARRANTIES

- A. Refer to Division 1 for procedures and submittal requirements for warranties. Refer to individual equipment specifications for warranty requirements.

### 3.8 CLEANING

- A. Refer to General Conditions for general requirements for final cleaning.

END OF SECTION

## PART 1 - GENERAL

### 1.1 SCOPE

- A. Provide all labor, materials, equipment, and supervision required to repair an existing photovoltaic (PV) system. Work includes replacement of damaged or missing PV panels using salvaged compatible panels, repair of galvanized pipe support frames and unistrut mounting hardware, and electrical reconnection of the system to a condition ready for recommissioning. Recommissioning, monitoring, and utility interconnection are not part of the base bid.
- B. Field conditions governing extent of work are not fully defined. Contractor shall field-verify all existing conditions before submitting a price and shall include in the Work all items reasonably implied by the scope, whether or not explicitly detailed on the Contract Documents.

### 1.2 QUALIFICATIONS AND QUALITY ASSURANCE

- A. Contractor shall be able to furnish qualifications illustrating that they have been involved with the installation and maintenance of similar PV systems for 5 years or more, and have the capacity to assign staff with at least this level of experience to doing the work. Although final commissioning and monitoring are not part of the base bid, the Owner may add this by change instrument therefore the subcontractor shall also be qualified to commission the repaired systems if needed and arrange for reestablishment of monitoring, etc.
- B. Contractor shall hold a current electrical contractor license in the jurisdiction of the Work and shall demonstrate prior experience with PV system installation or repair. Work on energized circuits is not permitted; Contractor shall de-energize all circuits before commencing work and verify absence of voltage with calibrated test equipment.
- C. All salvaged panels used as replacements shall be from the same manufacturer and model series as the panels being replaced, or shall have electrical characteristics (Voc, Vmp, Isc, Imp, and power output) compatible with the existing string configuration. Contractor shall verify compatibility before installation.
- D. Work shall conform to NFPA 70 (National Electrical Code), applicable local electrical codes, and OSHA 29 CFR 1926 Subpart K (Electrical) as applicable.

### 1.3 SUBMITTALS

- A. Pre-Construction: Before commencing work, submit a brief written work plan describing the sequence of operations, panel de-energization procedure, and disposal or storage plan for damaged panels and hardware.

- B. Salvaged Panel Data: Submit manufacturer data sheets for salvaged replacement panels, including electrical characteristics, and a brief written statement of compatibility with the existing string configuration.
- C. Closeout: Upon completion, submit a record of panels replaced (location, model), structural repairs made, and a summary of electrical tests performed, including open-circuit voltage and short-circuit current readings for each repaired string.

#### 1.4 HEALTH AND SAFETY

- A. General: Contractor is solely responsible for the safety of its employees, subcontractors, and the public during the Work. Comply with all applicable OSHA regulations.
- B. Electrical Hazards: PV panels generate voltage whenever exposed to light, including overcast conditions. Treat all panel leads and conductors as energized until confirmed de-energized by test. Use appropriately rated PPE (insulating gloves, safety glasses) when handling panels or conductors. Cover panels with opaque material to reduce output before disconnecting wiring.
- C. Fall Protection: All PV units affected by this scope of work are on ground-mounted frames, so fall protection measures should be limited to ordinary safety for installations within 12' of the ground.
- D. Damaged Panels: Handle cracked or broken panels as potentially hazardous materials. Do not walk on or apply pressure to damaged panels. Wrap broken glass in heavy plastic before transport. Dispose of damaged panels in accordance with applicable state and local regulations.

### PART 2 - PRODUCTS

#### 2.1 PHOTOVOLTAIC PANELS

- A. Replacement Panels: Salvaged panels of the same manufacturer and model series as existing, or panels with electrical characteristics compatible with the existing string configuration as verified by Contractor. Panels shall be free of cracked cells, delamination, discolored backsheets, failed bypass diodes, and damaged connectors. Contractor shall inspect and test each salvaged panel prior to installation.
- B. Panel Testing: Prior to installation, test each salvaged panel under available light conditions with a calibrated multimeter. Record and submit Voc and Isc readings. Notify Owner if there are insufficient numbers of salvage panels with output below their expected levels for an installed age of 5 years.

#### 2.2 STRUCTURAL REPAIR MATERIALS

- A. Galvanized Pipe: Hot-dip galvanized steel (fence) pipe, matching existing pipe diameter. Use only where replacement of damaged sections is required; preserve existing pipe wherever structurally sound.

- B. Unistrut and Hardware: P1000 or P1001 series (or equivalent) galvanized unistrut channel and compatible fittings, clamps, bolts, and nuts, hot-dip or mechanically galvanized, matching existing hardware type and size. Replace corroded, bent, or stripped hardware; do not reuse hardware with damaged threads or significant section loss.

## 2.3 ELECTRICAL MATERIALS

- A. PV Wire and Connectors: USE-2/PV Wire, rated 600V or 1000V as required by existing system design, with UV-resistant jacket. Connectors shall be MC4 or equivalent locking type, compatible with existing wiring connectors. Do not mix connector brands without verified compatibility.
- B. Grounding Hardware: Lay-in lugs, grounding clamps, and bonding jumpers as required, compatible with existing grounding conductor size and material.

## PART 3 - EXECUTION

### 3.1 EXISTING CONDITIONS

- A. Site Assessment: Before beginning work, survey the entire array and document the location and nature of all damage to panels, frames, unistrut supports, and wiring. Photograph conditions before and after repair. Report any conditions that differ materially from those anticipated in the Contract Documents to the Owner's Representative before proceeding.
- B. String Identification: Identify and label all strings before disconnecting any wiring. Verify that the existing combiner box, disconnects, and inverter are locked out and tagged out before commencing electrical work.

### 3.2 STRUCTURAL REPAIRS

- A. Frame Repair: Repair or replace sections of galvanized pipe framing that are bent, fractured, or exhibit section loss due to corrosion. Make field cuts square; apply touch-up coating to all cut ends and damaged galvanized surfaces within 24 hours of cutting.
- B. Unistrut and Mounting Hardware: Replace corroded or damaged unistrut sections, clamps, bolts, and nuts as required to restore a rigid, properly aligned mounting surface. Torque all bolted connections to hardware manufacturer's recommendations. Re-align mounting rails so that panel surfaces are coplanar within the tolerances of the original installation.

### 3.3 PANEL REPLACEMENT

- A. Removal: Disconnect panel wiring before unbolting panels from the mounting system. Remove damaged panels carefully to avoid further breakage. Retain all serviceable mounting hardware for reuse.

- B. Installation: Mount replacement panels with clamps and hardware appropriate for the panel frame type, following the panel manufacturer's installation requirements for edge clearance, clamping zone, and torque. Ensure each panel is mechanically bonded to the mounting system through listed grounding hardware or listed grounding clips.
- C. Verify panel orientation and polarity before making any electrical connections. Do not connect panels to strings until all panels in the string are mounted and the string has been verified clear of ground faults.

### 3.4 ELECTRICAL RECONNECTION

- A. General: Restore all wiring in a manner consistent with the original installation. Replace damaged wire, connectors, and conduit in kind. Do not splice PV source circuit conductors within conduit runs; use listed in-line connectors only where permitted by the NEC.
- B. Reconnect strings in the same configuration as the original design. Verify polarity at each connector before mating. After reconnection, cover panels and test each string for Voc and Isc at the combiner box prior to closing any disconnects. Record all test values.
- C. Grounding and Bonding: Verify continuity of equipment grounding conductor from each module frame to the grounding electrode system. Restore any bonding connections that were disturbed during the Work.

### 3.5 COMMISSIONING READINESS

- A. Upon completion of all repairs, conduct a final visual inspection of the entire array. Confirm that all panels are securely mounted, all wiring is properly routed and protected, all connectors are fully mated and locked, and all disconnects are in the open (off) position. Notify the Owner's Representative in writing that the system is ready for recommissioning. Do not close any system disconnects or restore grid connection; that work is outside the scope of this Contract.
- B. Owner may choose to add commissioning and monitoring as an additional service by change document to this contract.

### 3.6 CLEANING

- A. Remove all debris, damaged panel material, discarded hardware, and packaging from the site. Leave the array area in a clean condition. Dispose of waste, including broken panels, in accordance with applicable regulations.

END OF SECTION

## **PART 1 - GENERAL**

### **1.1 SUMMARY**

- A. Perform filling, compacting, hauling, and grading operations inside demolished building area as required for below-grade restoration to achieve matching grades with surroundings and continuous terrain slope. Provide trenching and backfilling for mechanical and electrical work and utilities.
- B. Provide suitable fill from off-site if on-site quantities are insufficient or unacceptable, and legally dispose of excess fill off-site.

### **1.2 PROJECT CONDITIONS**

- A. Locate existing underground utilities in the area of work. Utilities to the demolished building will be removed, terminated, and properly backfilled. Provide adequate means of protection during earthwork operations. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of operating authority.

### **1.3 TESTING AND INSPECTION**

- A. Comply with Section 01 45 33 – Special Inspections and Procedures.
- B. Testing Laboratory and Reporting: Owner shall provide the services of a qualified independent geotechnical testing laboratory to perform soil testing and inspection service during earthwork operations.
- C. Test and analysis of fill material will be performed in accordance with ASTM D698-12 or ASTM D1557-12 "Standard" Proctor Density as recommended by testing laboratory
- D. Frequency of test: One in-place compaction test should be performed for each 2,500 square feet of fill placed, per lift, with a minimum of three tests per lift, unless otherwise recommended by testing laboratory.
- E. Non-conforming work shall be corrected as directed by testing laboratory.

### **1.4 SUBMITTALS**

- A. Comply with Section 01 33 00.
- B. Submit for approval list of materials and gradations proposed for use.

## 1.5 QUALITY ASSURANCE

- A. Compaction (Unless otherwise indicated in Geotechnical Analysis or as recommended by Testing Laboratory):
  - 1. Under lawns or unpaved areas, 90% minimum density, ASTM D698-12, at moisture content range of 3% below to 3% above optimum moisture content.
- B. Grading Tolerances Outside Building Lines:
  - 1. Lawns, unpaved areas, and walks, plus or minus 1-inch.
  - 2. Pavements, plus or minus ½-inch.
- C. Grading Tolerance for Fill Under Building Slabs: Plus, or minus ½-inch measured with 10-foot straightedge.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Topsoil: Material defined as friable clay loam surface soil found in a depth of not less than 4". Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, objects over 2" in diameter, reproductive parts of noxious weeds, roots, brush, litter, and other objectionable material.
- B. Common Fill: Material acceptable for intended use as subbase for paving specified unless noted on the drawings.
  - 1. Naturally or artificially graded mixture of natural or crushed gravel.
  - 2. Crushed limestone graded from 1" to dust.
  - 3. Crushed slag.
  - 4. Natural or crushed sand, free of silt, clay, loam, friable or soluble materials, and organic matter.
  - 5. Cohesive subgrade: Subgrade soils may be stabilized with hydrated lime, cement, or flyash, or chemical treatment in accordance with AASHTO standards. The quantity of additive required should be determined after the site is stripped of the loose topsoil and the subgrade soils exposed. Actual percentage required shall be determined by independent laboratory tests provided by Contractor and approved by Geotechnical Engineer.
  - 6. Substitute materials may be utilized with prior approval from Geotechnical Engineer.

## PART 3 - EXECUTION

### 3.1 BACKFILL AND FILL

- A. Place and compact acceptable soil material in layers to required elevations. Do not place materials on surfaces that are muddy, frozen, contain ice, or frost. Backfill excavations as promptly as work permits.
- B. Place acceptable materials in layers not more than 8" loose depth for materials compacted by heavy equipment and not more than 4" loose depth for materials compacted by hand equipment to subgrades indicated as follows:
  - 1. Common Fill: Use under unpaved areas. Note, where post-tension type foundation systems are indicated or when recommended in Geotechnical Analysis for other foundation system types, provide 12" of high plastic index type clay soil "plug" surrounding unpaved building perimeter for a minimum of five (5) feet extension from building properly compacted to minimize infiltration of surface water for gaining access to subgrade beneath structure.

### 3.2 GRADING

- A. Subgrade elevation shall be installed to continue the prevailing site drainage pattern after installation of topsoil. No standing water should accumulate in former building site after construction.

### 3.3 MAINTENANCE AND DISPOSAL

- A. Protect existing structures, planting, utilities, and conditions not specifically described as being removed.
- B. Protect newly graded areas from traffic and erosion. Recompact and regrade settled, disturbed and damaged areas as necessary to restore quality, appearance, and condition of work.
- C. Control erosion to prevent runoff into sewers or damage sloped or runoff areas.
- D. Control dust to prevent hazards to adjacent properties and vehicles. Immediately repair or remedy damage caused by dust, including air filters in equipment and vehicles. Clean soiled surfaces.
- E. Dispose of waste and unsuitable materials off-site in a legal manner.

END OF SECTION

**PART 1 - GENERAL****1.1 SCOPE**

- A. Restore lawns removed or damaged by work of this Project.

**1.2 QUALITY ASSURANCE**

- A. Provide all lawn work by a single firm.
- B. Source Quality Control:
  - 1. Sod: Provide nursery grown sod as classified in the American Sod Producers Association (ASPA) "Guideline Specifications to Sodding".
  - 2. Seed: Provide state-certified seed of latest season's crop, labeled in conformance with U.S. Department of Agriculture rules and regulations under the Federal Seed Act and applicable state seed regulations.

**1.3 SUBMITTALS**

- A. Certificates of Conformance and Compliance: 2 weeks prior to delivery, submit notarized certificates attesting that lawn materials meet specified requirements.

**1.4 PRODUCT DELIVERY, STORAGE AND HANDLING**

- A. Package Materials: Deliver packaged materials in containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery, and while stored at site.
- B. Sod:
  - 1. Time delivery so that sod will be placed within 24 hours after cutting. Protect sod against drying and breaking of cut pieces. If sod is stacked, place roots to roots or grass to grass.
  - 2. Sprinkle sod with water and cover with moist burlap, straw or other approved covering and protect from exposure to wind and direct sunlight. Cover so that air can circulate and heating will not develop.

**1.5 JOB CONDITIONS**

- A. Examine subgrade, verify elevations, and observe conditions under which work is to be performed. Do not proceed with work until unsatisfactory conditions have been corrected.
- B. Proceed with and complete lawn work as rapidly as portions of site become available, working within seasonal limitations for each kind of lawn work required.

- C. Planting Time: Plant or install materials during normal planting seasons, unless otherwise accepted. Correlate planting with specified maintenance periods to provide maintenance until substantial completion.

## 1.6 WARRANTY

- A. Warranty lawns for 90 days following Substantial Completion.
- B. Turf Removal and Replacement: Provide replacement turf complying with requirements indicated and specified. Replacement turf must be of the same species as original turf.

## PART 2 - PRODUCTS

### 2.1 TOPSOIL

- A. Use stockpiled topsoil.
- B. New Topsoil: Fertile, friable, natural loam, surface soil, reasonably free of subsoil, clay, lumps, brush, reproductive parts of noxious weeds, and other litter, and free of roots, stumps, stones larger than 2" in any dimension. Obtain topsoil from local sources or from areas having similar soil characteristics to that found at project site. Obtain topsoil only from naturally, well-drained sites where topsoil occurs in a depth of not less than 4"; do not obtain from bogs or marshes.

### 2.2 SOILS AMENDMENTS

- A. Commercial Fertilizer: Complete fertilizer of neutral character, with some elements derived from organic sources and containing percentages of available plant nutrients as acceptable.

### 2.3 LAWN MATERIALS

- A. Species: Tall Fescue, equal mix of three varieties: Jaguar, Crossfire, and Arid.
- B. Grass Seed: Fresh, clean, dry new-crop seed, in sealed standard containers, with minimum 98% pure seed and 85% germination by weight, and containing no more than 1% weed seeds. A combined total of 60 noxious weed seeds per pound of seed may be used, except do not permit Johnson grass seed, field bindweed seed, or nut grass seed in any amount.
- C. Mulch: Wood cellulose fiber for use with hydraulic application of grass seed and fertilizer specifically prepared and processed to eliminate growth or germination-inhibiting factors and dyed an appropriate color to facilitate visual metering of application of materials. Provide fiber with a pH range of 3.5 to 5.0, containing a maximum of 12% moisture on an air-dry weight basis, plus or minus 3% at time of manufacture. Manufacture wood cellulose fiber so that:
  - 1. After addition and agitation in slurry tanks with fertilizers, grass seeds, water and other additives, the fibers in the material will become uniformly suspended to form a homogenous slurry.

2. When hydraulically sprayed on the ground the material will form a blotter-like cover impregnated uniformly with grass seed.
  3. The cover will allow the absorption of moisture and allow rainfall or applied water to percolate to the underlying soil.
- D. Erosion Control Fabric: Biodegradable proprietary fabric of standard manufacture for control of erosion until turf becomes established.
- E. Sod: Strongly rooted, not less than 2 years old and free of noxious weeds, and undesirable grasses. Five days prior to cutting sod, remove all loose materials from surface. Cut sod while moist. Provide only sod capable of growth and development when planted (viable, not dormant) and in pieces 12" wide by not less than 12" in length.

## 2.4 WATER

- A. Clean, free from oil, acids, soluble salts, and organic impurities. The Owner will provide a source for water on site.

## PART 3 - EXECUTION

### 3.1 PREPARATION FOR PLANTING LAWNS

- A. Loosen subgrade of lawn areas to a minimum depth of 4". Remove stones over 1-1/2" in any dimension and sticks, roots, rubbish, and other extraneous matter. Limit preparation to areas that will be planted promptly after preparation.
- B. If determined by the soils test, apply soil amendments in quantities as required to establish growth of grasses.
- C. After light rolling and natural settlement of subbase, spread topsoil to a minimum of 4" to 6" to meet lines, grades and elevations indicated.
- D. Place approximately half of topsoil required. Work into top of loosened subgrade to create a transition layer, then place remaining half.
- E. Fertilizer: Apply as per package directions for sodding or seeding.
- F. Incorporate fertilizers into the soil to depth of at least four inches (incorporation may be part of the tillage operation specified). Prior to seeding or sodding, restore soil to an even condition.
- G. Allow for sod thickness in areas to be sodded.
- H. Moisten lawn areas before planting if soil is dry. Water thoroughly and allow surface moisture to dry before planting lawns. Do not create a muddy soil condition.
- I. Restore lawn areas to specified condition if eroded or otherwise disturbed after fine grading and prior to planting.

### 3.2 PLANTING

#### A. Seeding Lawns:

1. Do not use wet or moldy seed, or seed otherwise damaged in transit or storage.
2. Hydroseeding: Mix seed, fertilizer, and approved mulch material in the required amount of water to produce a homogenous slurry. Uniformly apply under pressure at a rate of 1 lb. per 1,000 sq. ft. (dry weight). Add wood cellulose mulch after the seed and fertilizer have been thoroughly mixed. Apply at a rate of 25 lbs. per 1,000 sq. ft. (dry weight). Lime, when applied hydraulically, shall be a single separate operation.
3. Start watering immediately. Apply water to the seeded areas at a rate sufficient to ensure thorough wetting of soil to a depth of at least 4". Properly supervise watering operations to prevent run-off. Repair all areas damaged by watering operations at no additional cost to the Owner.
4. Provide erosion control fabric as required for slopes.

#### B. Sodded Lawns:

1. Lay sod within 24 hours from the time of stripping. Do not lay dormant sod. Do not lay sod if ground is frozen. Do not lay sod on soil which has been treated with soil sterilants until sufficient time has elapsed to permit dissipation of toxic effects. Place sodding in accordance with ASPA Guideline Specifications for Sodding. Lay sod at right angles to slopes or the flow of water. On slope areas, start sodding at the bottom of the slope.
2. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod strips; do not overlap. Stagger strips to offset joints in adjacent courses. Work from boards to avoid damage to subgrade or sod. Tamp or roll lightly to ensure contact with subgrade. Work sifted soil into minor cracks between pieces of sod; remove excess to avoid smothering of adjacent grasses. Peg sod on slopes as required to prevent slippage. Use 1" x 1" x 6" wooden pegs with one end sharpened.
3. Water sod thoroughly with a fine spray immediately after planting.

### 3.3 MAINTENANCE

- A. Maintenance Period: Begin maintenance immediately after planting. Maintain lawns until Substantial Completion of Lawns.
- B. Maintain lawns by watering, fertilizing, weeding, mowing, trimming, and other operations including rolling, regrading and replanting to establish a smooth, acceptable lawn, free of eroded and bare areas. Mow to a height of 2-1/2" when grass is 4" high.
- C. Maintain lawns for not less than 60 days, and longer as required to establish an acceptable lawn.
- D. Termination of the Turf Guarantee Period: An inspection of all turf will be held at end of warranty period. No additional guarantee will be required for replacement turf.

Guarantee will end on date of this inspection and inspection will be considered final provided the following requirements have been met.

1. Dead, missing, and defective turf have been replaced as directed by the Architect.
2. Remedial measures directed by the Architect to ensure turf survival have been carried out.
3. Damage incurred while making turf replacements has been repaired.

#### 3.4 CLEANUP AND PROTECTION

- A. Keep pavements clean and work area in an orderly condition. Remove excess and waste material daily. Upon completion of sodding in an area, clear area of debris, spoil piles, and containers. Where existing grass areas have been damaged or scarred during planting operations, restore disturbed areas to their original condition. Keep clear, at all times, at least one paved pedestrian access route and one paved vehicular access route to each building.
- B. Protect lawn work and materials from damage due to lawn operations, operations by other contractors and trades and trespassers. Maintain protection during installation and maintenance periods. Treat, repair or replace damaged lawn work.

#### 3.5 INSPECTION AND ACCEPTANCE

- A. When lawn work is completed, including maintenance, the Architect, will, upon request, make an inspection to determine acceptability.
- B. Where inspected lawn work does not comply with the requirements, replace rejected work and continue specified maintenance until re-inspected by the Architect and found to be acceptable. Remove rejected turf and materials promptly from the project site.

END OF SECTION

# APPENDIX A

## **Security Storage Service, Inc.**

8208 Oakmont Rd.  
Nixa MO 65714

417-840-8414

---

May 17, 2026

**TO: JW Brad Baker, AIA, NCARB  
GHN | Architects+Engineers  
300 S Jefferson Avenue, Suite 301  
Springfield, Missouri 65806**

Dear Sirs:

Pursuant to our agreement and instructions, an asbestos inspection of a **(Commercial) structure located at 799 National Guard Rd., Neosho Missouri, (Building 884)** was completed on May 7, 2026. The inspector was Keith Mills, Certificate #**7034112625M0IR7058**. The inspection included observation and bulk sampling, as necessary, of areas and materials suspected to have asbestos content. Any samples taken are referred to San Air Laboratories, a nationally accredited laboratory, for analysis. Chain of custody documentation is preserved.

Observation and sampling are limited to areas of the property, which are visible and accessible during normal usage of the structure. Should additional areas or materials, which might be suspect, become exposed during demolition, renovation, or alteration, we will return to inspect these as desired.

Of the materials surveyed and/or tested on the original inspection date, **Ceiling Texture Tested POSITIVE.**

This assessment was conducted by an AHERA and Missouri certified asbestos inspector. Conclusions contained herein are based solely upon the described scope of work in Security Storage Service's proposal and inspection of the described areas. No opinion, expressed or implied, is made as to the presence or absence of asbestos in areas of the site not accessible and/or not included in the scope of this inspection. There are many situations where ACM may be concealed in inaccessible areas. When these areas become exposed during construction, remodeling, or demolition, such materials should either be sampled or treated as assumed asbestos-containing. Further inspection may be warranted as areas are exposed during such activities. This report has been prepared for the client designated above and is not for use of other parties without the express consent of that client.

# ***Security Storage Service, Inc.***

---

8208 Oakmont Dr.  
Nixa-Fremont Hills MO 65714

Telephone 417-840-8414

May 17, 2026

## **SAMPLING CHECKLIST**

**Location: 799 National Guard Rd., Neosho Missouri, (Building 884)**

**Date: May 7, 2026**

**Client: GHN**

Exterior Description: Stucco Walls/Shingle Roof

Interior Description: Wood Floors/Wood Walls

The following samples were taken to determine the presence of asbestos:

| Sample #    | Material/Location                              | Friable/Non-Friable | Result          |
|-------------|------------------------------------------------|---------------------|-----------------|
| <b>5701</b> | <b>Ceiling Texture/South Room F 900sq. ft.</b> |                     | <b>POSITIVE</b> |
| <b>5702</b> | <b>Ceiling Texture/South Room F</b>            |                     | <b>POSITIVE</b> |
| <b>5703</b> | <b>Ceiling Texture/South Room F</b>            |                     | <b>POSITIVE</b> |
| 5704        | Sheetrock/Ceiling South Room NF 900sq. ft.     |                     | Negative        |
| 5705        | Insulation/Attic F 1500cu. ft.                 |                     | Negative        |
| 5706        | 2x2 Ceiling Tile/South Room F 900sq. ft.       |                     | Negative        |
| 5708        | White Floor Tile/South Room NF 450sq. ft.      |                     | Negative        |
| 5709        | Blue Floor Tile/South Room NF 450sq. ft.       |                     | Negative        |
| 5710        | Floor Mastic/South Room NF 900sq.ft.           |                     | Negative        |
| 5711        | Floor Mastic/South Room NF                     |                     | Negative        |
| 5712        | Floor Mastic/South Room NF                     |                     | Negative        |
| 5713        | TSI/Air Duct North Room Ceiling F 40sq. ft.    |                     | Negative        |
| 5714        | 2x4 Ceiling Tile/North Room F 500sq. ft.       |                     | Negative        |
| 5715        | Tan Floor Tile/Mens Restroom NF 80sq.ft.       |                     | Negative        |
| 5716        | 2x2 Ceiling Tile/Mens Restroom F 80sq. ft.     |                     | Negative        |
| 5717        | TSI/Black Air Duct Hall F 40sq. ft.            |                     | Negative        |
| 5718        | Cove Base/Mens Restroom NF 40sq. ft.           |                     | Negative        |
| 5719        | Stucco/Exterior Walls NF 3500sq.ft.            |                     | Negative        |
| 5720        | Shingle/Roof NF 4000sq.ft.                     |                     | Negative        |



Keith Mills

Security Storage Service

Missouri Certification Number: 7034112625M0IR7058

Course Training Date: November 26, 2025

Missouri Certification Approval Date: December 01, 2025

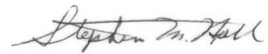
Missouri Certification Expiration Date: December 01, 2026

THIS CERTIFIES

Keith A Mills

HAS COMPLETED THE CERTIFICATION

REQUIREMENTS FOR: Asbestos Inspector

A handwritten signature in cursive script, appearing to read "Stephen M. Hall".

Director of Air Pollution Control Program



**The Identification Specialists**

Analysis Report  
prepared for  
Security Storage Services Inc.

**Report Date: 5/13/2026**

**Project Name: Camp Crowder**

**SanAir ID#: 26027476**



NVLAP LAB CODE 200870-0

10501 Trade Court, North Chesterfield, Virginia 23236  
888.895.1177 | 804.897.1177 | fax: 804.897.0070 | LabReports@SanAir.com | SanAir.com



SanAir ID Number

26027476

FINAL REPORT

5/13/2026 9:40:49 AM

**Name:** Security Storage Services Inc.  
**Address:** 8208 Oakmont Drive  
Nixa, MO 65714  
**Phone:** 417-840-8414

**Project Number:**  
**P.O. Number:**  
**Project Name:** Camp Crowder  
**Collected Date:** 5/7/2026  
**Received Date:** 5/11/2026 10:25:00 AM

Dear Keith Mills,

We at SanAir would like to thank you for the work you recently submitted. The 20 sample(s) were received on Monday, May 11, 2026 via FedEx. The final report(s) is enclosed for the following sample(s): 5701, 5702, 5703, 5704, 5705, 5706, 5707, 5708, 5709, 5710, 5711, 5712, 5713, 5714, 5715, 5716, 5717, 5718, 5719, 5720.

These results only pertain to this job and should not be used in the interpretation of any other job. This report is only complete in its entirety. Refer to the listing below of the pages included in a complete final report.

Sincerely,

A handwritten signature in black ink that reads "Sandra Sobrino". The signature is fluid and cursive.

Sandra Sobrino  
Asbestos & Materials Laboratory Manager  
SanAir Technologies Laboratory

**Final Report Includes:**

- Cover Letter
- Analysis Pages
- Disclaimers and Additional Information

**Sample conditions:**

- 20 samples in Good condition.



SanAir ID Number

26027476

FINAL REPORT

5/13/2026 9:40:49 AM

**Name:** Security Storage Services Inc.  
**Address:** 8208 Oakmont Drive  
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**Phone:** 417-840-8414

**Project Number:**  
**P.O. Number:**  
**Project Name:** Camp Crowder  
**Collected Date:** 5/7/2026  
**Received Date:** 5/11/2026 10:25:00 AM

Analyst: Hogrefe, Sarah

**Asbestos Bulk PLM EPA 600/R-93/116**

| SanAir ID / Description                                                      | Stereoscopic                        | Components   |               | Asbestos Fibers |
|------------------------------------------------------------------------------|-------------------------------------|--------------|---------------|-----------------|
|                                                                              | Appearance                          | % Fibrous    | % Non-fibrous |                 |
| 5701 / 26027476-001<br>799 National Guard Rd., Neosho<br>MO Bldg 884         | White<br>Non-Fibrous<br>Homogeneous |              | 98% Other     | 2% Chrysotile   |
| 5702 / 26027476-002<br>799 National Guard Rd., Neosho<br>MO Bldg 884         | White<br>Non-Fibrous<br>Homogeneous |              | 98% Other     | 2% Chrysotile   |
| 5703 / 26027476-003<br>799 National Guard Rd., Neosho<br>MO Bldg 884         | White<br>Non-Fibrous<br>Homogeneous |              | 98% Other     | 2% Chrysotile   |
| 5704 / 26027476-004<br>799 National Guard Rd., Neosho<br>MO Bldg 884         | White<br>Non-Fibrous<br>Homogeneous | 5% Cellulose | 95% Other     | None Detected   |
| 5705 / 26027476-005<br>799 National Guard Rd., Neosho<br>MO Bldg 884         | Pink<br>Fibrous<br>Homogeneous      | 99% Glass    | 1% Other      | None Detected   |
| 5706 / 26027476-006<br>799 National Guard Rd., Neosho<br>MO Bldg 884         | White<br>Fibrous<br>Homogeneous     | 99% Glass    | 1% Other      | None Detected   |
| 5707 / 26027476-007<br>799 National Guard Rd., Neosho<br>MO Bldg 884         | Yellow<br>Fibrous<br>Homogeneous    | 99% Glass    | 1% Other      | None Detected   |
| 5708 / 26027476-008<br>799 National Guard Rd., Neosho<br>MO Bldg 884, Tile   | White<br>Non-Fibrous<br>Homogeneous |              | 100% Other    | None Detected   |
| 5708 / 26027476-008<br>799 National Guard Rd., Neosho<br>MO Bldg 884, Mastic | Tan<br>Non-Fibrous<br>Homogeneous   |              | 100% Other    | None Detected   |
| 5709 / 26027476-009<br>799 National Guard Rd., Neosho<br>MO Bldg 884, Tile   | Blue<br>Non-Fibrous<br>Homogeneous  |              | 100% Other    | None Detected   |

Analyst:

Approved Signatory:

Analysis Date: 5/13/2026

Date: 5/13/2026



SanAir ID Number

26027476

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**Received Date:** 5/11/2026 10:25:00 AM

Analyst: Hogrefe, Sarah

**Asbestos Bulk PLM EPA 600/R-93/116**

| SanAir ID / Description                                                                 | Stereoscopic                            | Components                 |               | Asbestos Fibers |
|-----------------------------------------------------------------------------------------|-----------------------------------------|----------------------------|---------------|-----------------|
|                                                                                         | Appearance                              | % Fibrous                  | % Non-fibrous |                 |
| 5709 / 26027476-009<br>799 National Guard Rd., Neosho<br>MO Bldg 884, Mastic            | Tan<br>Non-Fibrous<br>Homogeneous       |                            | 100% Other    | None Detected   |
| 5710 / 26027476-010<br>799 National Guard Rd., Neosho<br>MO Bldg 884                    | Beige<br>Non-Fibrous<br>Homogeneous     |                            | 100% Other    | None Detected   |
| 5711 / 26027476-011<br>799 National Guard Rd., Neosho<br>MO Bldg 884                    | Beige<br>Non-Fibrous<br>Homogeneous     |                            | 100% Other    | None Detected   |
| 5712 / 26027476-012<br>799 National Guard Rd., Neosho<br>MO Bldg 884                    | Beige<br>Non-Fibrous<br>Homogeneous     |                            | 100% Other    | None Detected   |
| 5713 / 26027476-013<br>799 National Guard Rd., Neosho<br>MO Bldg 884                    | Silver<br>Fibrous<br>Homogeneous        | 99% Glass                  | 1% Other      | None Detected   |
| 5714 / 26027476-014<br>799 National Guard Rd., Neosho<br>MO Bldg 884                    | White<br>Fibrous<br>Homogeneous         | 50% Cellulose<br>10% Glass | 40% Other     | None Detected   |
| 5715 / 26027476-015<br>799 National Guard Rd., Neosho<br>MO Bldg 884, Tile              | Grey<br>Non-Fibrous<br>Homogeneous      |                            | 100% Other    | None Detected   |
| 5715 / 26027476-015<br>799 National Guard Rd., Neosho<br>MO Bldg 884, Mastic            | Yellow<br>Non-Fibrous<br>Homogeneous    |                            | 100% Other    | None Detected   |
| 5715 / 26027476-015<br>799 National Guard Rd., Neosho<br>MO Bldg 884, Leveling Compound | Off-White<br>Non-Fibrous<br>Homogeneous |                            | 100% Other    | None Detected   |
| 5716 / 26027476-016<br>799 National Guard Rd., Neosho<br>MO Bldg 884                    | White<br>Fibrous<br>Homogeneous         | 50% Cellulose<br>10% Glass | 40% Other     | None Detected   |

Analyst:

Approved Signatory:

Analysis Date: 5/13/2026

Date: 5/13/2026



SanAir ID Number

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5/13/2026 9:40:49 AM

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**Collected Date:** 5/7/2026  
**Received Date:** 5/11/2026 10:25:00 AM

Analyst: Hogrefe, Sarah

**Asbestos Bulk PLM EPA 600/R-93/116**

| SanAir ID / Description                                                        | Stereoscopic                          | Components    |               | Asbestos Fibers |
|--------------------------------------------------------------------------------|---------------------------------------|---------------|---------------|-----------------|
|                                                                                | Appearance                            | % Fibrous     | % Non-fibrous |                 |
| 5717 / 26027476-017<br>799 National Guard Rd., Neosho<br>MO Bldg 884           | Various<br>Fibrous<br>Heterogeneous   | 90% Glass     | 10% Other     | None Detected   |
| 5718 / 26027476-018<br>799 National Guard Rd., Neosho<br>MO Bldg 884, Covebase | Grey<br>Non-Fibrous<br>Homogeneous    |               | 100% Other    | None Detected   |
| 5718 / 26027476-018<br>799 National Guard Rd., Neosho<br>MO Bldg 884, Mastic   | Tan<br>Non-Fibrous<br>Homogeneous     |               | 100% Other    | None Detected   |
| 5719 / 26027476-019<br>799 National Guard Rd., Neosho<br>MO Bldg 884, Coating  | White<br>Non-Fibrous<br>Heterogeneous |               | 100% Other    | None Detected   |
| 5719 / 26027476-019<br>799 National Guard Rd., Neosho<br>MO Bldg 884, Stucco   | Grey<br>Non-Fibrous<br>Heterogeneous  |               | 100% Other    | None Detected   |
| 5719 / 26027476-019<br>799 National Guard Rd., Neosho<br>MO Bldg 884, Foam     | White<br>Non-Fibrous<br>Homogeneous   |               | 100% Other    | None Detected   |
| 5720 / 26027476-020<br>799 National Guard Rd., Neosho<br>MO Bldg 884           | White<br>Non-Fibrous<br>Heterogeneous | 20% Cellulose | 80% Other     | None Detected   |

Analyst:

Approved Signatory:

Analysis Date: 5/13/2026

Date: 5/13/2026

**Disclaimer and Additional Information:**  
**Asbestos Bulk PLM EPA 600/R-93/116**

This report is the sole property of the client named on the chain-of-custody (COC) submitted to SanAir Technologies Laboratory, Inc. (SanAir). Results in the report are confidential information intended only for the use by the customer listed on the COC. Neither results nor reports will be discussed with or released to any third party without our client's written permission. The final report shall not be reproduced, except in full, without written approval of the laboratory to assure that parts of the report are not taken out of context. This report and any information contained within shall not be edited, altered, or modified in any way by any persons or agencies receiving, viewing, distributing, or otherwise possessing a copy of this final report. The laboratory reserves the right to perform amendments to any finalized report, of which shall supersede and make obsolete any previous editions. Such changes, modifications, additions, or deletions shall be effective immediately upon notice thereof, which may be given by means including but not limited to posting on the SanAir client portal website, electronic or conventional mail, or by any other means.

The information provided in this report applies only to the samples submitted and is relevant only for the date, time, and location of sampling. The accuracy of the results is dependent upon the client's sampling procedure and information provided to the laboratory by the client on the COC. SanAir assumes no responsibility for the sampling procedure and will provide evaluation reports based solely on the sample(s) in the condition received at the laboratory and information provided by the client on the COC, such as: project number, project name, collection dates, P.O. number, special instructions, samples collected by, sample numbers, sample identifications, sample type, selected analysis type, flow rate, total volume or area, and start-stop times that may affect the validity of the results in this report. Samples were received in good condition unless otherwise noted on the report. When the client requires samples to be tested that deviates from a specific method or condition, all reported results may be affected by the deviation. SanAir assumes no responsibility or liability for the manner in which the results are used or interpreted.

This report does not constitute nor shall not be used by the client to claim product, process, system, or person certification, approval, or endorsement by NVLAP, NIST, NELAC, AIHA LAP, LLC or any other U.S. governmental agencies; all or some tests contained in this report may not be accredited by every local, state, and federal regulatory agencies. Refer to the SanAir website at [www.sanair.com](http://www.sanair.com) for copies of current certificates and scopes of various accreditations, certifications, and licenses or contact the laboratory for inquiries regarding the status or scope of an accreditation or certification.

Samples are held for a period of 60 days. Fibers smaller than 5 microns cannot be seen with this method due to scope limitations. For NY state samples, method EPA 600/M4-82-020 is performed.

**NYELAP Disclaimer:**

Polarized-light microscopy is not consistently reliable in detecting asbestos in floor covering and similar non-friable organically bound materials. Quantitative transmission electron microscopy is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos containing.

**Asbestos Accreditations, Certifications, and Licenses**

National Voluntary Laboratory Accreditation Program (NVLAP) Lab Code 200870-0

City of Philadelphia Department of Public Health Air Management Services, Certification#ALL-460

Commonwealth of Pennsylvania Department of Environmental Protection Number 68-05397

California State Environmental Laboratory Accreditation Program Certificate Number 2915

Colorado Department of Public Health and Environment Registration Number AL-23143

Connecticut Department of Public Health Environmental Laboratory Registration Number PH-0105

Massachusetts Department of Labor Standards Asbestos Analytical Services License Number:

AA000222

State of Maine Department of Environmental Protection License Number: LB-0075

New York State Department of Health Laboratory ID: 11983

State of Rhode Island Department of Health Certification No.: PLM00126

Texas Department of State Health Services License Number: 300440

Commonwealth of Virginia Department of Professional and Occupational Regulation Number:

3333000323

State of Washington Department of Ecology Laboratory ID: C989

State of West Virginia Bureau for Public Health Analytical Laboratory Number: LT000616

Vermont Department of Health License Number: Asb-Co-An-000006

Louisiana Department of Environmental Quality AI Number 212253, LELAP Lab ID #05088





**CD Phase Construction Budget**  
(Architect's Opinion of Probable Costs)

**Missouri National Guard**

**Storm Damage Repairs 2025, Multiple Assets**

Date: 7/10/2026

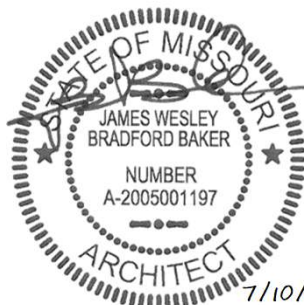
**Address**

AE Project No. 25.048

799 National Guard Drive, Neosho, MO 64850

Owner's Project No. T2601-01

| #  | Project Component                       | Quantity | Unit   | Unit Cost   | Expected Cost |
|----|-----------------------------------------|----------|--------|-------------|---------------|
| 1  | EX754 LIGHT ADJUSTMENT                  | 1        | LS     | \$ 1,500.00 | \$ 1,500.00   |
| 2  | PV884 Demo/Salvage                      | 30       | Panels | \$ 375.00   | \$ 11,250.00  |
| 3  | PV960 Repairs                           | 15       | Panels | \$ 1,200.00 | \$ 18,000.00  |
| 4  | PV751 Repairs                           | 3        | Panels | \$ 1,200.00 | \$ 3,600.00   |
| 6  | PV41A Repairs                           | 3        | Panels | \$ 1,200.00 | \$ 3,600.00   |
| 7  | Bldg 43 Doors Replacement               | 2        | Doors  | \$ 3,500.00 | \$ 7,000.00   |
| 8  | Bldg 43A New Observation Canopy         | 540      | SF     | \$ 100.00   | \$ 54,000.00  |
| 9  | Bldg 41&49 Roof/Gutter Replacement      | 38       | SQ     | \$ 3,300.00 | \$ 125,400.00 |
| 10 | Bldg 405B Roof/Gutter Replacement       | 83       | SQ     | \$ 3,300.00 | \$ 273,900.00 |
| 11 | Bldg 748 Roof/Gutter Replacement        | 60       | SQ     | \$ 3,300.00 | \$ 198,000.00 |
| 12 | Bldg 750 Roof/Gutter Replacement        | 71       | SQ     | \$ 3,300.00 | \$ 234,300.00 |
| 13 | Bldg 753 Roof/Gutter Replacement        | 145      | SQ     | \$ 3,300.00 | \$ 478,500.00 |
| 14 | Bldg 755 Roof/Gutter Replacement        | 60       | SQ     | \$ 3,300.00 | \$ 198,000.00 |
| 15 | Bldg 802 Roof/Gutter Replacement        | 16       | SQ     | \$ 3,300.00 | \$ 52,800.00  |
| 16 | Bldg 803 Roof/Gutter Replacement        | 130      | SQ     | \$ 3,300.00 | \$ 429,000.00 |
| 17 | Bldg 960 Roof/Gutter Replacement        | 204      | SQ     | \$ 3,300.00 | \$ 673,200.00 |
| 18 | Bldg 961 Roof/Gutter Replacement        | 15       | SQ     | \$ 3,300.00 | \$ 49,500.00  |
| 19 | Bldg 902 Exterior Wall Replacement      | 1800     | SF/W   | \$ 18.00    | \$ 32,400.00  |
| 20 | Bldg 106 New Unit Heaters               | 4        | Units  | \$ 4,375.00 | \$ 17,500.00  |
| 21 | Bldg 107 New Overhead Door / Fix Soffit | 1        | Door   | \$ 6,600.00 | \$ 6,600.00   |
| 22 | Bldg 750 Window Replacement             | 15       | Units  | \$ 3,750.00 | \$ 56,250.00  |
| 23 | Bldg 761 Window Replacement             | 1        | Unit   | \$ 6,750.00 | \$ 6,750.00   |
| 24 | Bldg 750 EIFS Repair                    | 740      | SF/W   | \$ 20.00    | \$ 14,800.00  |
| 25 | Bldg 750 Exterior Painting              | 4050     | SF/W   | \$ 2.50     | \$ 10,125.00  |
| 26 | Bldg 884 Complete Demolition            | 3800     | SF     | \$ 30.00    | \$ 114,000.00 |



|                                    |     |           |                     |
|------------------------------------|-----|-----------|---------------------|
| <b>Subtotal of Component Costs</b> |     | <b>\$</b> | <b>3,069,975.00</b> |
| Small Project Contingency          | 10% | \$        | 306,997.50          |
| Contractor's Overhead & Profit     | 20% | \$        | 61,399.50           |
| <b>Total Construction Costs</b>    |     | <b>\$</b> | <b>3,438,372.00</b> |

**Total Project Cost \$ 3,438,372.00**