PROJECT MANUAL

Replace Roof, Education Building No. 14

Boonville Correctional Center

Boonville, Missouri

Designed By: Connell Architecture, P.C.
2311 East Walnut, Suite B
Columbia, MO 65201-2003

Date Issued: March 22, 2024

Project No.: C2311-01

STATE *of* MISSOURI

OFFICE *of* ADMINISTRATION

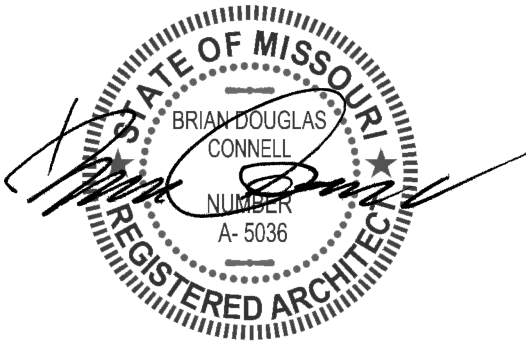
Facilities Management, Design & Construction

SECTION 000107 - PROFESSIONAL SEALS AND CERTIFICATIONS

PROJECT NUMBER: C2311-01

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

1. **BRIAN D. CONNELL, RA-AIA**
   REGISTRATION NUMBER MO A-5036



3/22/2024

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END OF SECTION 000110

SECTION 000115 – LIST OF DRAWINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.1 LIST OF DRAWINGS

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

	TITLE	SHEET #	DATE	CAD #
1.	Cover Sheet	Sheet G-001	3/22/2024	G-001
2.	Location Maps & Drawing Index			
		Sheet G-002	3/22/2024	G-002
3.	Roof Demolition Plan	Sheet AD-100	3/22/2024	AD-100
4.	Roof Replacement Plan	Sheet A-100	3/22/2024	A-100
5.	North & East Exterior Elevations – Masonry Maintenance			
		Sheet A-200	3/22/2024	A-200
6.	South & West Exterior Elevations – Masonry Maintenance			
		Sheet A-201	3/22/2024	A-201
7.	Courtyard Exterior Elevations – Masonry Maintenance			
		Sheet A-202	3/22/2024	A-202
8.	Wall & Roof Details	Sheet A-500	3/22/2024	A-500
9.	Roof Details	Sheet A-501	3/22/2024	A-501
10.	Roof Drainage Details	Sheet A-502	3/22/2024	A-502

END OF SECTION 000115

SECTION 001116 - INVITATION FOR BID

1.0 OWNER:

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

2.0 PROJECT TITLE AND NUMBER:

A. Replace Roof, Education Building No. 14
Boonville Correctional Center
Boonville, Missouri
Project No.: C2311-01

3.0 BIDS WILL BE RECEIVED:

A. Until: 1:30 PM, May 2, 2024

B. **Only electronic bids on MissouriBUYS shall be accepted: https://missouribuys.mo.gov. Bidder must be registered to bid.**

4.0 DESCRIPTION:

A. Scope: The project consists of asbestos and lead abatement, removal and replacement of the entire roof system, repair/tuckpointing of exterior masonry to ensure the integrity of new roof flashing.

B. MBE/WBE/SDVE Goals: MBE 10%, WBE 10%, and SDVE 3%. **NOTE: Only MBE/WBE firms certified by the State of Missouri Office of Equal Opportunity as of the date of bid opening, or SDVE(s) meeting the requirements of Section 34.074, RSMo and 1 CSR 30-5.010, can be used to satisfy the MBE/WBE/SDVE participation goals for this project.**

C. **NOTE: Bidders are provided new Good Faith Effort (GFE) forms on MissouriBUYS.

5.0 PRE-BID MEETING:

A. Place/Time**:** 10:00 AM, April 18, 2024, at 1216 East Morgan Street, Boonville, Missouri 65233.

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. Designer: Connell Architecture, P.C., Brian Connell, 573-875-2455, email: Brianconnell@connellarchitecture.com

B. Project Manager: Scott Zeller, 573-751-2668, email: Scott.Zeller@oa.mo.gov

8.0 GENERAL INFORMATION:

A. The State reserves the right to reject any and all bids and to waive all informalities in bids. No bid may be withdrawn for a period of 20 working days subsequent to the specified bid opening time. The contractor shall pay not less than the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed, as determined by the Missouri Department of Labor and Industrial Relations and as set out in the detailed plans and specifications.

B. Bid results will be available at https://oa.mo.gov/facilities/bid-opportunities/bid-listing-electronic-plans after it is verified that at least one bid is awardable and affordable.

Very Important MissouriBUYS Instructions to Help Submit a Bid Correctly

A. The bidder shall submit his or her bid and all supporting documentation on MissouriBUYS eProcurement System. No hard copy bids shall be accepted. Go to https://missouribuys.mo.gov and register. The bidder must register and complete a profile fully with all required documents submitted prior to submitting a bid.

B. Once registered, log in.
1. Under "Solicitation" select "View Current Solicitations."
2. Under "Filter by Agency" select "OA-FMDC-Contracts Chapter 8", then click "Filter Solicitation" button.
3. Select "Active Solicitations" tab.
4. To see the Solicitation Summary, click on the Project Number and the summary will open. Click each heading to open detailed information.

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

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

E. If you want to verify that you are uploading documents correctly, please contact Paul Girouard: 573-751-4797, paul.girouard@oa.mo.gov ; April Howser: 573-751-0053, April.Howser@oa.mo.gov ; or Mandy Roberson: 573-522-0074, Mandy.Roberson@oa.mo.gov.

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

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 any one (1) party may be limited in accordance with available supply.

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

3.0 - BIDDERS' OBLIGATIONS

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

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

4.0 - INTERPRETATIONS

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

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

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

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

5.0 - BIDS AND BIDDING PROCEDURE

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

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

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

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

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

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

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

6.0 - SIGNING OF BIDS

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

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

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

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

E. A bid should contain the full and correct legal name of the Bidder. If the Bidder is an entity registered with the Missouri Secretary of State, the Bidder's name on the bid form should appear as shown in the Secretary of State's records.

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

7.0 - RECEIVING BID SUBMITTALS

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

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

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

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

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

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

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

8.0 - MODIFICATION AND WITHDRAWAL OF BIDS

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

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

9.0 - AWARD OF CONTRACT

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

B. The Owner reserves the right to let other contracts in connection with the work, including but not by way of limitation, contracts for the furnishing and installation of furniture, equipment, machines, appliances and other apparatus.

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

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

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

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

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

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

10.0 - CONTRACT SECURITY

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

11.0 - LIST OF SUBCONTRACTORS

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

12.0 - WORKING DAYS

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

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 person's domiciliary state and, further, the contractor or Bidder domiciled outside the boundaries of Missouri shall be required to submit an audited financial statement as would be required of a Missouri domiciled contractor or Bidder on a like contract or bid being let in the domiciliary state of that contractor or Bidder.

14.0 – ANTI-DISCRIMINATION AGAINST ISRAEL ACT CERTIFICATION:

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

15.0 - MBE/WBE/SDVE INSTRUCTIONS

A. Definitions:

1. **"MBE"** means a Minority Business Enterprise.

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

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

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 non-responsive, and its bid shall be rejected.

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

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

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

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

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

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

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

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

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

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

D. Certification of MBE/WBE/SDVE Subcontractors:

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

2. The Bidder may determine the certification status of a proposed MBE or WBE subcontractor or supplier by referring to the Office of Equal Opportunity (OEO)'s online MBE/WBE directory (https://apps1.mo.gov/MWBCertifiedFirms/). The Bidder may determine the eligibility of a SDVE subcontractor or supplier by referring to the Division of Purchasing and Materials Management's online SDVE directory (https://oa.mo.gov/sites/default/files/sdvelisting.pdf) or the Department of Veterans Affairs' directory (https://vetbiz.va.gov/basic-search/).

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

E. Waiver of MBE/WBE/SDVE Participation:

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

2. In determining whether a Bidder has made a good faith effort to obtain MBE, WBE and/or SDVE participation, the Director may evaluate the factors set forth in 1 CSR 30-5.010(6)(C) and the following:

   a. The amount of actual participation obtained;

   b. How and when the Bidder contacted potential MBE, WBE, and SDVE subcontractors and suppliers;

   c. The documentation provided by the Bidder to support its contacts, including whether the Bidder provided the names, addresses, phone numbers, and dates of contact for MBE/WBE/SDVE firms contacted for specific categories of work;

   d. If project information, including plans and specifications, were provided to MBE/WBE/SDVE subcontractors;

   e. Whether the Bidder made any attempts to follow-up with MBE, WBE or SDVE firms prior to bid;

   f. Amount of bids received from any of the subcontractors and/or suppliers that the Bidder contacted;

   g. The Bidder's stated reasons for rejecting any bids;

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

F. Contractor MBE/WBE/SDVE Obligations

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

2. If the Contractor fails to meet or maintain the participation requirements contained in the Contractor's bid, the Contractor must satisfactorily explain to the Director why it cannot comply with the requirement and why failing meeting the requirement was beyond the Contractor's control. If the Director finds the Contractor's explanation unsatisfactory, the Director may take any appropriate action including, but not limited to:

    a. Declaring the Contractor ineligible to participate in any contracts with the Division for up to twelve (12) months (suspension); and/or

    b. Declaring the Contractor be non-responsive to the Invitation for Bid, or in breach of contract and rejecting the bid or terminating the contract.

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

4. The Contractor shall provide the Owner with regular reports on its progress in meeting its MBE/WBE/SDVE obligations. At a minimum, the Contractor shall report the dollar-value of work completed by each MBE, WBE, or SDVE during the preceding month and the cumulative total of work completed by each MBE, WBE or SDVE to date with each monthly application for payment. The Contractor shall also make a final report, which shall include the total dollar-value of work completed by each MBE, WBE, and SDVE during the entire contract.

STATE OF MISSOURI
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION
MBE/WBE/SDVE DIRECTORIES

The MBE/WBE Directory for goods and services is maintained by the Office of Equal Opportunity (OEO) and is located at the following web address:

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

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

https://oeo.mo.gov/sdve-certification-program/

https://veterans.certify.sba.gov/#search

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, on behalf of the Department of Corrections.

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

ARTICLE 1. STATEMENT OF WORK

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

Project Name:	**Replace Roof, Education Building No. 14** **Boonville Correctional Center** **Boonville, Missouri**
Project Number:	**C2311-01**

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 $700** per day for each and every day, Sunday and legal holidays excepted, during which the work remains incomplete and unfinished. Any sum which may be due the Owner for such damages shall be deducted and retained by the Owner from any balance which may be due the Contractor when said work shall have been finished and accepted. But such provisions shall not release the Bond of the Contractor from liability according to its terms. In case of failure to complete, the Owner will be under no obligation to show or prove any actual or specific loss or damage.

ARTICLE 4. CONTRACT SUM

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

Base Bid: $

TOTAL CONTRACT AMOUNT: ($CONTRACT AMOUNT)

UNIT PRICES: The Owner accepts the following Unit Prices:

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.

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)
ix. Affidavit for Affirmative Action (Section 005414)

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)
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.

Further, if the Contractor provides any "personal information" as defined in §105.1500, RSMo concerning an entity exempt from federal income tax under Section 501(c) of the Internal Revenue Code of 1986, as amended, the Contractor understands and agrees that it is voluntarily choosing to enter into a state contract and providing such information for that purpose. The state will treat such personal information in accord with §105.1500, RSMo.

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

APPROVED:

_____
Brian Yansen, Director
Division of Facilities Management,
Design and Construction

_____
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.

_____
Corporate Secretary

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

AFFIDAVIT FOR AFFIRMATIVE ACTION

PROJECT NUMBER

NAME

First being duly sworn on oath states: that

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

NAME

a ☐ sole proprietorship ☐ partnership ☐ limited liability company (LLC)

or ☐ corporation, and as such, said proprietor, partner, or officer is duly authorized to make this affidavit on behalf of said sole proprietorship, partnership, or corporation; that under the contract known as

PROJECT TITLE

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

PRINT NAME & SIGNATURE

DATE

NOTARY INFORMATION

NOTARY PUBLIC EMBOSSER SEAL

STATE OF

COUNTY (OR CITY OF ST. LOUIS)

USE RUBBER STAMP IN CLEAR AREA BELOW

SUBSCRIBED AND SWORN BEFORE ME, THIS

DAY OF YEAR

NOTARY PUBLIC SIGNATURE

MY COMMISSION EXPIRES

NOTARY PUBLIC NAME (TYPED OR PRINTED)

Bond No._____

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

REASON FOR SUBSTITUTION

DOES PROPOSED SUBSTITUTION AFFECT OTHER PARTS OF WORK?

☐ YES ☐ NO

IF YES, EXPLAIN

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

☐ YES ☐ NO

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

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

BIDDER/CONTRACTOR	DATE

REVIEW AND ACTION

☐ Resubmit Substitution Request with the following additional information:

☐ Substitution is accepted.

☐ Substitution is accepted with the following comments:

☐ Substitution is not accepted.

ARCHITECT/ENGINEER	DATE

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

PAY APP NO.	PROJECT NUMBER
CHECK IF FINAL ☐**FINAL**	DATE

MBE/WBE/SDVE PROGRESS REPORT

Remit with **ALL** Progress and Final Payments

(Please check appropriate box) ☐CONSULTANT ☐CONSTRUCTION

PROJECT TITLE	
PROJECT LOCATION	
FIRM	
ORIGINAL CONTRACT SUM (Same as Line Item 1. on Form A of Application for Payment) **$**	TOTAL CONTRACT SUM TO DATE (Same as Line Item 3. on Form A of Application for Payment) **$**

THE TOTAL MBE/WBE/SDVE PARTICIPATION DOLLAR AMOUNT OF THIS PROJECT AS INDICATED IN THE ORIGINAL CONTRACT: **$**

SELECT MBE, WBE, SDVE	ORIGINAL CONTRACT PARTICIPATION AMOUNT	PARTICIPATION AMOUNT PAID-TO-DATE (includes approved contract changes)	CONSULTANT/SUBCONSULTANT OR CONTRACTOR/SUBCONTRACTOR/SUPPLIER COMPANY NAME
☐ MBE ☐ WBE ☐ SDVE	$	$	
☐ MBE ☐ WBE ☐ SDVE	$	$	
☐ MBE ☐ WBE ☐ SDVE	$	$	
☐ MBE ☐ WBE ☐ SDVE	$	$	
☐ MBE ☐ WBE ☐ SDVE	$	$	
☐ MBE ☐ WBE ☐ SDVE	$	$	

Revised 05/21

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 EMBOSSER OR BLACK INK RUBBER STAMP SEAL	STATE		COUNTY (OR CITY OF ST. LOUIS)
	SUBSCRIBED AND SWORN BEFORE ME, THIS DAY OF YEAR		**USE RUBBER STAMP IN CLEAR AREA BELOW**
	NOTARY PUBLIC SIGNATURE	MY COMMISSION EXPIRES	
	NOTARY PUBLIC NAME (TYPED OR PRINTED)		

FILE: Closeout Documents

GENERAL CONDITIONS

INDEX

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

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

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

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

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

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

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

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

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

ARTICLE 1.5 - ANTI-KICKBACK

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

insurance contract, or any other contract pertaining to the project.

ARTICLE 1.6 - PATENTS AND ROYALTIES

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

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

ARTICLE 1.7 - PREFERENCE FOR AMERICAN AND MISSOURI PRODUCTS AND SERVICES

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

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

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

ARTICLE 1.8 - COMMUNICATIONS

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

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

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

ARTICLE 1.9 - SEPARATE CONTRACTS AND COOPERATION

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

B. The Contractor shall consult the drawings for all other contractors in connection with this work. Any work conflicting with the above shall be brought to the attention of the Owner’s Representative before the work is performed. If the Contractor fails to do this, and constructs any

work which interferes with the work of another contractor, the Contractor shall remove any part so conflicting and rebuild same, as directed by the Owner's Representative at no additional cost to the Owner.

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

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

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

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

ARTICLE 1.10 - ASSIGNMENT OF CONTRACT

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

ARTICLE 1.11 - INDEMNIFICATION

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

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

ARTICLE 1.12 - DISPUTES AND DISAGREEMENTS

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

ARTICLE 2 -- OWNER/DESIGNER RESPONSIBILITIES

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

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

C. All materials and workmanship used in the work shall be subject to the inspection of the Designer and Construction Representative, and any work which is deemed defective shall be removed, rebuilt or made good immediately upon notice.

The cost of such correction shall be borne by the Contractor. Contractor shall not be entitled to an extension of the contract completion date in order to remedy defective work. All rejected materials shall be immediately removed from the site of the work.

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

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

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

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

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

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

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

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

ARTICLE 3 -- CONTRACTOR RESPONSIBILITIES

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

ARTICLE 3.1 -- ACCEPTABLE SUBSTITUTIONS

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

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

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

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

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

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

2. Material delivered fails to comply with contract requirements.

ARTICLE 3.2 -- SUBMITTALS

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

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

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

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

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

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

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

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

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

ARTICLE 3.3 – AS-BUILT DRAWINGS

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

ARTICLE 3.4 – GUARANTY AND WARRANTIES

A. General Guaranty

   1. Neither the final certificate of payment nor any provision in the contract documents nor partial use or occupancy of the premises by the Owner shall constitute an acceptance of work not done in accordance with contract requirements.
   2. The Contractor or surety shall remedy any defects in the work and pay for any damage to property resulting there from which shall appear within a period of one (1) year from the date of substantial completion unless a longer period is otherwise specified or a differing guaranty period has been established in the substantial completion certificate. The Owner will give notice of observed defects with reasonable promptness.
   3. In case of default on the part of the Contractor in fulfilling this part of this contract, the Owner may correct the work or repair the

damage and the cost and expense incurred in such event shall be paid by or recoverable from the Contractor or surety.

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

B. Extended Warranty

Manufacturer's certificates of warranty shall be obtained for all major equipment. Warranty shall be obtained for at least one year. Where a longer period is offered at no additional cost or called for in the specific equipment specifications, the longer period shall govern.

ARTICLE 3.5 -- OPERATION AND MAINTENANCE MANUALS

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

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

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

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

4. Service Instructions: Provide the following information for all pieces of equipment.

   a. Recommended spare parts including catalog number and name of local supplier or factory representative.

   b. Belt sizes, types, and lengths.

   c. Wiring diagrams.

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

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

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

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

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

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

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

ARTICLE 3.6 – OTHER CONTRACTOR RESPONSIBILITIES

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

B. Contractor shall, at all times, enforce strict discipline and good order among his employees,

and shall not employ on the work any unfit person or anyone not skilled in the work assigned to him/her.

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

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

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

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

G. The Contractor must notify the Construction Representative at least one working day before 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 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.
4. Written Affirmative Action Plans as required in Article 1.4.

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, occupation and craft, number of hours worked and actual wages paid for each individual employee, of the Contractor and all subcontractors working on the project

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

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

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

1. Material has previously been approved through submittal and acceptance of shop drawings conforming to requirements of Article 3.2 of General Conditions.
2. Delivery is made in accordance with the time frame on the approved schedule.
3. Materials, equipment, etc., are properly stored and protected from damage and deterioration and remain so - if not, previously approved amounts will be deleted from subsequent pay applications.
4. The payment request is accompanied by a breakdown identifying the material equipment, etc. in sufficient detail to establish quantity and value.

E. The Contractor shall be allowed to include in the Application and Certification for Payment, one hundred (100%) of the value, subject to retainage,

of major equipment and material stored off the site if all of the following conditions are met:

1. The request for consideration of payment for materials stored off site is made at least 15 working days prior to submittal of the Application for Payment including such material. Only materials inspected will be considered for inclusion on Application for Payment requests.
2. Materials stored in one location off site are valued in excess of $25,000.
3. That a Certificate of Insurance is provided indicating adequate protection from loss, theft conversion or damage for materials stored off site. This Certificate shall show the State of Missouri as an additional insured for this loss.
4. The materials are stored in a facility approved and inspected, by the Construction Representative.
5. Contractor shall be responsible for, Owner costs to inspect out of state facilities, and any delays in the completion of the work caused by damage to the material or for any other failure of the Contractor to have access to this material for the execution of the work.

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

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

1. Defective work not remedied. When a notice of noncompliance is issued on an item or items, corrective action shall be undertaken immediately. Until corrective action is completed, no monies will be paid and no additional time will be allowed for the item or items. The cost of corrective action(s) shall be borne by the Contractor.
2. A reasonable doubt that this contract can be completed for the unpaid balance.
3. Failure of the Contractor to update as-built drawings monthly for review by the Construction Representative.
4. Failure of the Contractor to update the construction schedule.

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

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

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

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

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

c) Certified copies of all payrolls

d) As-built drawings

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

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

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

ARTICLE 6 -- INSURANCE AND BONDS

ARTICLE 6.1 -- BOND

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

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

ARTICLE 6.2 – INSURANCE

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

B. Minimum Scope and Extent of Coverage

1. General Liability

Commercial General Liability, ISO coverage form number or equivalent CG 00 01 ("occurrence" basis), or I-SO coverage form number CG 00 02, or ISO equivalent.

If ISO equivalent or manuscript general liability coverage forms are used, minimum coverage will be as follows: Premises/Operations; Independent Contractors; Products/Completed Operations; personal Injury; Broad Form Property Damage including Completed Operations; Broad Form Contractual Liability Coverage to include Contractor's obligations under Article 1.11 Indemnification and any other Special Hazards required by the work of the contract.

2. Automobile Liability

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

3. Workers' Compensation and Employer's Liability

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

4. Builder's Risk or Installation Floater Insurance

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

to Contractor and Owner as their respective interests may appear.

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

C. Minimum Limits of Insurance

1. General Liability

Contractor

$2,000,000	combined single limit per occurrence for bodily injury, personal injury, and property damage
$2,000,000	annual aggregate

2. Automobile Liability

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

3. Workers' Compensation and Employers Liability

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

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

D. Deductibles and Self-Insured Retentions

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

E. Other Insurance Provisions and Requirements

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

1. General Liability

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

Contractor's insurance coverage shall be primary with respect to all additional insured's. Insurance of self-insurance programs maintained by the designated additional -insured's shall be 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:

Designer:
Brian Connell
Connell Architecture, P.C.
2311 East Walnut, Suite B
Columbia, MO 65201-2003
Telephone: 573-875-2455
Email: Brianconnell@connellarchitecture.com

Construction Representative:
Carl Haley
Division of Facilities Management, Design and Construction
301 W High Street, Room 730
Jefferson City, MO 65101
Telephone: 573-526-0473
Email: Carl.Haley@oa.mo.gov

Project Manager:
Scott Zeller
Division of Facilities Management, Design and Construction
301 West High Street, Room 730
Jefferson City, Missouri 65101
Telephone: 573-751-2668
Email: Scott.Zeller@oa.mo.gov

Contract Specialist:
April Howser
Division of Facilities Management, Design and Construction
301 West High Street, Room 730
Jefferson City, Missouri 65101
Telephone: 573-751-0053
Email: April.Howser@oa.mo.gov

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

4.0 FURNISHING CONSTRUCTION DOCUMENTS:

A. The Owner will furnish the Contractor with approximately 5 complete sets of drawings and specifications at no charge.
B. The Owner will furnish the Contractor with approximately 5 sets of explanatory or change drawings at no charge.
C. The Contractor may make copies of the documents as needed with no additional cost to the Owner.

5.0 SAFETY REQUIREMENTS

Contractor and subcontractors at any tier shall comply with RSMo 292.675 and Article 1.3, E, of Section 007213, General Conditions.

Missouri
Division of Labor Standards
WAGE AND HOUR SECTION

MICHAEL L. PARSON, Governor

Annual Wage Order No. 30

Section 027
COOPER 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
Todd Smith, Director
Division of Labor Standards

Filed With Secretary of State: **March 10, 2023**

Last Date Objections May Be Filed: **April 10, 2023**

Prepared by Missouri Department of Labor and Industrial Relations

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Asbestos Worker	$22.31*
Boilermaker	$22.31*
Bricklayer	$22.31*
Carpenter	$43.92
Lather	
Linoleum Layer	
Millwright	
Pile Driver	
Cement Mason	$22.31*
Plasterer	
Communications Technician	$22.31*
Electrician (Inside Wireman)	$68.24
Electrician Outside Lineman	$22.31*
Lineman Operator	
Lineman - Tree Trimmer	
Groundman	
Groundman - Tree Trimmer	
Elevator Constructor	$22.31*
Glazier	$22.31*
Ironworker	**$65.30**
Laborer	$37.18
General Laborer	
First Semi-Skilled	
Second Semi-Skilled	
Mason	$22.31*
Marble Mason	
Marble Finisher	
Terrazzo Worker	
Terrazzo Finisher	
Tile Setter	
Tile Finisher	
Operating Engineer	$22.31*
Group I	
Group II	
Group III	
Group III-A	
Group IV	
Group V	
Painter	$22.31*
Plumber	$67.10
Pipe Fitter	
Roofer	$22.31*
Sheet Metal Worker	$57.77
Sprinkler Fitter	$22.31*
Truck Driver	$22.31*
Truck Control Service Driver	
Group I	
Group II	
Group III	
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.

Heavy Construction Rates for
COOPER County

Section 027

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Carpenter	$22.31*
Millwright	
Pile Driver	
Electrician (Outside Lineman)	$22.31*
Lineman Operator	
Lineman - Tree Trimmer	
Groundman	
Groundman - Tree Trimmer	
Laborer	$47.50
General Laborer	
Skilled Laborer	
Operating Engineer	$58.87
Group I	
Group II	
Group III	
Group IV	
Truck Driver	
Truck Control Service Driver	$22.31*
Group I	
Group II	
Group III	
Group IV	

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

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

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

*The Division of Labor Standards received 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.

SECTION 011000 – SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. The Project consists of **REPLACE ROOF, EDUCATION BUILDING No. 14**.

1. Project Location: **Education Building No. 14 – Boonville Correctional Center ♦ 1216 East Morgan Street ♦ Boonville, Missouri 65233**.

2. Owner: State of Missouri, Office of Administration, Division of Facilities Management, Design and Construction, Harry S Truman State Office Building, Post Office Box 809, 301 West High Street, Jefferson City, Missouri 65102.

B. Contract Documents, dated **3/22/2024** were prepared for the Project by **Connell Architecture, P.C. ♦ 2311 East Walnut Street ♦ Suite B ♦ Columbia, Missouri 65201**.

C. The Work consists of the removal and replacement of the entire roof system, and repair and tuckpointing of exterior masonry to ensure the integrity of new roof flashing.

1. **Asbestos Abatement:** A limited asbestos inspection was conducted on all areas of the roof and throughout all interior areas of the Education Building No. 14 and asbestos-containing materials were detected in the laboratory analysis of samples taken during the inspection. Asbestos abatement procedures are required in the scope of this project. Refer to Section 028213 - Asbestos Abatement and Appendix A – Asbestos-Containing Materials Survey Report.

2. **Lead Abatement:** A limited visual inspection for lead-containing materials was conducted on all areas of the roof and the exterior of the Education Building No. 14. No lead-containing materials were observed or detected during the visual inspection, therefore no samples were taken from the roof or building exterior for laboratory testing. A limited lead inspection was conducted throughout all interior areas of the Education Building No. 14 and lead-containing materials were detected in the laboratory analysis of samples taken during the inspection. Lead abatement procedures are required in the scope of this project. Refer to Section 028333 - Lead Abatement and Appendix B – Lead-Containing Materials Survey Report.

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

1.3 WORK SEQUENCE

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

1.4 CONTRACTOR USE OF PREMISES

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

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

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

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

1.5 OCCUPANCY REQUIREMENTS

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

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 SCHEDULE OF PRODUCTS ORDERED IN ADVANCE

END OF SECTION 011000

SECTION 012100 – ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

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

B. Types of allowances include the following:

1. Weather allowances.

C. Related Sections include the following:

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

2. Division 1 Section "Unit Prices" for procedures for using unit prices.

1.3 WEATHER ALLOWANCE

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

B. 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.

1.4 SELECTION AND PURCHASE

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

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

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

1.5 SUBMITTALS

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

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

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

1.6 COORDINATION

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

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

3.2 PREPARATION

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

3.3 SCHEDULE OF ALLOWANCES

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

END OF SECTION 012100

SECTION 012200 – UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

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

1.2 SUMMARY

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

B. Related Sections include the following:

1. Division 1 Section "Allowances" for procedures for using Unit Prices to adjust quantity allowances.
2. Division 1 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders.

1.3 DEFINITIONS

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

1.4 PROCEDURES

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

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

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

D. List of Unit Prices: A list of Unit Prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each Unit Price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 LIST OF UNIT PRICES

A. Unit Price No. 1 - Masonry Tuckpointing:

1. Description: Preliminary cleaning, including removal of plant growth, and repointing masonry joints according to Section 040120 Maintenance of Unit Masonry."
2. Unit of Measurement: Per square foot.
3. Quantity included in Base Bid: 4,000 square feet

B. Unit Price No. 2 – Unit Masonry Repair/Replacement:

1. Description: Repair or replacement of damaged or deteriorated unit masonry according to Section 040120 Maintenance of Unit Masonry."
2. Unit of Measurement: Per square foot.
3. Quantity included in Base Bid: 100 square feet

C. Unit Price No. 3 – Steel Roof Deck Replacement:

1. Description: Replacement of damaged or deteriorated steel roof deck (South Roof) according to Section 053123 Steel Roof Deck.
2. Unit of Measurement: Per square foot.
3. Quantity included in Base Bid: 150 square feet

END OF SECTION 012200

SECTION 012600 – CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

B. Related Sections include the following:

1. Division 1, Section 012100 "Allowances" for procedural requirements for handling and processing Allowances.
2. Division 1, Section 012200 "Unit Prices" for administrative requirements for using Unit Prices.
3. Division 1, Section 013115 “Project Management Communications” for administrative requirements for communications.
4. Division 0, Section 007213, Article 3.1 "Acceptable Substitutions" for administrative procedures for handling Requests for Substitutions made after Contract award.
5. Division 0, Section 007213, Article 4.0 "Changes in the Work" for Change Order requirements.

1.3 REQUESTS FOR INFORMATION

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

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

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

1.4 MINOR CHANGES IN THE WORK

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

1.5 PROPOSAL REQUESTS

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

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

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

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

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

1.6 CHANGE ORDER PROCEDURES

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

SECTION 013100 – COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

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

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

C. Related Sections include the following:

1. Division 1, Section 013200 "Schedules" for preparing and submitting Contractor's Construction Schedule.
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.

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

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

4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components including mechanical and electrical.

C. Prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate Contractors if coordination of their Work is required.

D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other Contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's Construction Schedule.
2. Preparation of the Schedule of Values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Startup and adjustment of systems.
8. Project Closeout activities.

E. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. Refer to other Sections for disposition of salvaged materials that are designated as Owner's property.

1.4 SUBMITTALS

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

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

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

1.5 PROJECT MEETINGS

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

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

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

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

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

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

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

a. Contract Documents

b. Options

c. Related RFIs

d. Related Change Orders

e. Purchases

f. Deliveries

g. Submittals

h. Review of mockups

i. Possible conflicts

j. Compatibility problems

k. Time schedules

l. Weather limitations

m. Manufacturer's written recommendations

n. Warranty requirements

o. Compatibility of materials

p. Acceptability of substrates

q. Temporary facilities and controls

r. Space and access limitations

s. Regulations of authorities having jurisdiction

t. Testing and inspecting requirements

u. Installation procedures

v. Coordination with other Work

w. Required performance results

x. Protection of adjacent Work

y. Protection of construction and personnel

3. Contractor shall record significant conference discussions, agreements, and disagreements including required corrective measures and actions.

4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.

5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

6. Revise paragraph below if Project requires holding progress meetings at different intervals. Insert special intervals such as "every third Tuesday" to suit special circumstances.

7. Project name

8. Name and address of Contractor

9. Name and address of Designer

10. RFI number including RFIs that were dropped and not submitted

11. RFI description

12. Date the RFI was submitted

13. Date Designer's response was received

14. Identification of related DSI or Proposal Request, as appropriate

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 013115 - PROJECT MANAGEMENT COMMUNICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Division 1, Section 013300 - Submittals

C. Division 1, Section 012600 – Contract Modification Procedures

1.2 SUMMARY

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

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

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

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

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

2. Authorized users will be contacted directly and assigned a temporary user password.
3. Individuals shall be responsible for the proper use of their passwords and access to data as agents of the company in which they are employed.

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

G. Communications: The use of fax, email and courier communication for this project is discouraged in favor of using E-Builder® to send messages. Communication functions are as follows:
1. Document Integrity and Revisions:
   a. Documents, comments, drawings and other records posted to the system shall remain for the project record. The authorship time and date shall be recorded for each document submitted to the system. Submitting a new document or record with a unique ID, authorship, and time stamp shall be the method used to make modifications or corrections.
   b. The system shall make it easy to identify revised or superseded documents and their predecessors.
   c. Server or Client side software enhancements during the life of the project shall not alter or restrict the content of data published by the system. System upgrades shall not affect access to older documents or software.
2. Document Security:
   a. The system shall provide a method for communication of documents. Documents shall allow security group assignment to respect the contractual parties communication except for Administrative Users. DO NOT POST PRIVATE OR YOUR COMPANY CONFIDENTIAL ITEMS IN THE DATABASE!
3. Document Integration:
   a. Documents of various types shall be logically related to one another and discoverable. For example, requests for information, daily field reports, supplemental sketches and photographs shall be capable of reference as related records.
4. Reporting:
   a. The system shall be capable of generating reports for work in progress, and logs for each document type. Summary reports generated by the system shall be available for team members.
5. Notifications and Distribution:
   a. Document distribution to project members shall be accomplished both within the extranet system and via email as appropriate. Project document distribution to parties outside of the project communication system shall be accomplished by secure email of outgoing documents and attachments, readable by a standard email client.
6. Required Document Types:

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

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

I. Minimum Equipment and Internet Connection: In addition to other requirements specified in this Section, the Owner and his representatives, the Construction Manager and his representatives, the Architect and his consultants, and the Contractor and his sub-contractors and suppliers at every tier required to have a user license(s) shall be responsible for the following:
   1. Providing suitable computer systems for each licensed user at the users normal work location[1] with high-speed Internet access, i.e. DSL, local cable company's Internet connection, or T1 connection.
   2. Each of the above referenced computer systems shall have the following minimum system[2] and software requirements:

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

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

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable.)

END OF SECTION 013115

[2] The minimum system herein will not be sufficient for many tasks and may not be able to process all documents and files stored in the E-Builder® Documents area.

SECTION 013200 – SCHEDULE – BAR CHART

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

PART 2 - PRODUCTS – (Not Applicable)

PART 3 - EXECUTION

3.1 SUBMITTAL PROCEDURES

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

1. The Schedule of Values must have the following line items included with the value of the item as indicated below:

   a. O&M's (Owner's Manual)

      1) $1,000,000.00 (One million) and under – 2% of the total contract amount

      2) Over $1,000,000.00 (One million) – 1% of the total contract amount

   b. Close Out Documents

      1) $1,000,000.00 (One million) and under – 2% of the total contract amount

      2) Over $1,000,000.00 (One million) – 1% of the total contract amount

   c. General Conditions

      1) No more than 10%

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

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

3.2 CONSTRUCTION PROGRESS SCHEDULE – BAR CHART SCHEDULE

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

1. The Contractor shall provide a separate time bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week.

    a. If practical, use the same Schedule of Values breakdown for schedule time bars.

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

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

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

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

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

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

1. Requirement for Phased completion

2. Work by separate Contractors

3. Work by the Owner

4. Pre-purchased materials

5. Coordination with existing construction

6. Limitations of continued occupancies

7. Un-interruptible services
8. Partial Occupancy prior to Substantial Completion
9. Site restrictions
10. Provisions for future construction
11. Seasonal variations
12. Environmental control

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

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

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

1. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
    a. Structural completion.
    b. Permanent space enclosure
    c. Completion of mechanical installation
    d. Completion of the electrical portion of the Work
    e. Substantial Completion

3.3 SCHEDULE OF SUBMITTALS

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

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

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

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

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

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

3.4 SCHEDULE OF INSPECTIONS AND TESTS

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

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

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

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

END OF SECTION 013200

SECTION 013300 – SUBMITTALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

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

1.2 SUMMARY

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

1. Shop Drawings
2. Product Data
3. Samples
4. Quality Assurance Submittals
5. Construction Photographs
6. Operating and Maintenance Manuals
7. Warranties

B. Administrative Submittals: Refer to General and Supplementary Conditions other applicable Division 1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to, the following:

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

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

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

1.3 SUBMITTAL PROCEDURES

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

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

2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.

    a. The Designer reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received.

B. Each drawing and/or series of drawings submitted must be accompanied by a letter of transmittal giving a list of the titles and numbers of the drawings. Each series shall be numbered consecutively for ready reference and each drawing shall be marked with the following information:

1. Date of Submission

2. Name of Project

3. Location

4. Section Number of Specification

5. State Project Number

6. Name of Submitting Contractor

7. Name of Subcontractor

8. Indicate if Item is submitted as specified or as a substitution

1.4 SHOP DRAWINGS

A. Comply with the General Conditions, Article 3.2.

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

C. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates, and similar drawings including the following information:

1. Dimensions

2. Identification of products and materials included by sheet and detail number

3. Compliance with specified standards

4. Notation of coordination requirements

5. Notation of dimensions established by field measurement

6. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8½"x 11" but no larger than 24"x 36".

1.5 PRODUCT DATA

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

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

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

   a. Manufacturer's printed recommendations

   b. Compliance with Trade Association standards

   c. Compliance with recognized Testing Agency standards

   d. Application of Testing Agency labels and seals

   e. Notation of dimensions verified by field measurement

   f. Notation of coordination requirements

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

1.6 SAMPLES

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

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

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

   a. Specification Section number and reference

   b. Generic description of the Sample

   c. Sample source

   d. Product name or name of the Manufacturer

   e. Compliance with recognized standards

   f. Availability and delivery time

2. The Contractor shall submit samples for review of size, kind, color, pattern, and texture. Submit samples for a final check of these characteristics with other

elements and a comparison of these characteristics between the final submittal and the actual component as delivered and installed.

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

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

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

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

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

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

1.7 QUALITY ASSURANCE DOCUMENTS

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

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

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

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

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

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

1. The Contractor shall submit digital photographs. The Construction Administrator shall determine the quantity and naming convention at the preconstruction meeting.

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
013200	Schedules	Construction Schedule
013200	Schedules	Schedule of Values
013200	Schedules	List of Subcontractors
013200	Schedules	Major Material Suppliers
013300	Construction Digital Photographs	Certification
013513.16	Material Safety Data Sheets	Product Data
013513.16	List of Employees Who Will Submit Fingerprint Background Checks	Certification
013513.16	MO Applicant Fingerprint Privacy Notice	Certification
013513.16	Applicant Privacy Rights (Signed)	Certification
013513.16	Privacy Act Statement (Signed)	Certification
013513.16	Inventory of Tools, Equipment & Materials	Schedule of Values
024119	Selective Demolition - Pre-Demo Photographs	Certification
024119	Selective Demolition - Landfill Records	Certification
028213	Asbestos Abatement – ACM Disposal Receipts	Certification
028333	Lead Abatement – LBP Disposal Receipts	Certification
040120	Maintenance of Unit Masonry – Pre-Con Test Report	Test Report
040120	Maintenance of Unit Masonry	Product Data
040120	Maintenance of Unit Masonry – Joint Details	Shop Drawings
040120	Maintenance of Unit Masonry – Colors/Textures	Sample

061000	Rough Carpentry	Product Data
074113	Metal Roof Panels	Product Data
074113	Metal Roof Panels – Coordination Drawings	Shop Drawings
074113	Metal Roof Panels - Color	Sample
074113	Metal Roof Panels – Manufacturer's Certification	Certification
074113	Metal Roof Panels – Installer Qualifications	Certification
074113	Metal Roof Panels	Warranty
075423	TPO Roofing	Product Data
075423	TPO Roofing	Shop Drawings
075423	TPO Roofing	Warranty
075423	TPO Roofing - Installer's Warranty	Warranty
076200	Sheet Metal Flashing & Trim	Product Data
076200	Sheet Metal Flashing & Trim	Shop Drawings
076200	Sheet Metal Flashing & Trim	Warranty
076200	Sheet Metal Flashing & Trim - Color	Sample
077100	Roof Specialties	Product Data
077100	Roof Specialties	Shop Drawings
077100	Roof Specialties	Warranty
077100	Roof Specialties - Color	Sample
079200	Joint Sealants	Product Data
079200	Joint Sealants	Warranty
079200	Joint Sealants – Color	Sample
220719	Plumbing Piping Insulation	Product Data
221005	Plumbing Piping	Product Data
221006	Plumbing Piping Specialties – Roof Drains	Product Data
221006	Plumbing Piping Specialties - Roof Drains	Warranty

END OF SECTION 013300

SECTION 013513.16 - SITE SECURITY AND HEALTH REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUBMITTALS

A. List of required submittals:

1. Materials Safety Data Sheets for all hazardous materials to be brought onsite.
2. Schedule of proposed shutdowns, if applicable.
3. Revise list to include all required submittals.
4. 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.
5. Tuberculin skin test results for all employees required to be tested as set forth below.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 ACCESS TO THE SITE

A. The Contractor shall arrange with Facility Representatives to establish procedures for the controlled entry of workers and materials into the work areas at the Facility.

B. The Contractor shall establish regular working hours with Facility Representatives. The Contractor must report changes in working hours or overtime to Facility Representatives and obtain approval twenty-four (24) hours ahead of time. The Contractor shall report emergency overtime to Facility Representatives as soon as it is evident that overtime is needed. The Contractor must obtain approval from Facility Representatives for all work performed after dark.

C. The Contractor shall provide the name and phone number of the Contractor's employee or agent who is in charge onsite; this individual must be able to be contacted in case of emergency. The Contractor must be able to furnish names and address of all employees upon request.

D. The Contractor shall provide Facility Representatives notice twenty-four (24) hours prior to any possible vehicle entry and/or required escort. The Contractor shall maintain a time log of any delays in gaining entrance to the Facility due to lack of an escort, which is to be submitted monthly with the Contractor's pay request materials. The purpose of this log is to establish a basis for a contract change, if required. The log shall contain the date and time of delay, date and time of request of entry, workers delayed (name and occupation), and name of the Facility Representative to whom the request was made, if possible. Any delay in entry must be validated by sallyport and pass office personnel at the Facility. Only delays greater than thirty

(30) minutes will be considered for a contract change. A 30-minute delay upon arrival with a vehicle to enter the sallyport should be expected.

3.2 RULES OF THE FACILITY

A. The Contractor and its workers shall observe the following rules:

1. There shall be no fraternization with inmates.
2. No intoxicating beverages or illegal drugs shall be brought onto Facility grounds.
3. No firearms, other weapons, or explosives shall be carried onto Facility grounds.
4. No prescription drugs above one day's dosage shall be carried on Facility grounds.
5. Any vehicle or individual is subject to search at any time while on Facility grounds.
6. The vehicles of the Contractor and its workers shall be locked whenever unattended.
7. All tools and equipment shall be tightly secured during non-working hours in the Contractor's storage trailer or assigned area.
8. The Facility will not be responsible for the Contractor's tools, equipment, or materials. The Contractor shall keep and maintain a current tool inventory. The tool inventory shall be made available to Facility Representatives and the Owner upon request.
9. The Contractor shall report any missing tools to Facility Representatives immediately.
10. Smoking shall be permitted only in accordance with the regulations of the Facility.
11. Possession or use of smokeless tobacco or smokeless non-tobacco alternatives is strictly prohibited.

B. All workers shall be required to sign an acknowledgement of receipt of these rules.

3.3 SECURITY CLEARANCES AND RESTRICTIONS

A. DOC SECURITY CLEARANCE REQUIREMENTS

1. Prior to the commencement of any onsite work, the Contractor shall submit a list containing the name, date of birth, and Missouri driver's license number or social security number of all construction personnel to the Missouri Department of Corrections for the purpose of obtaining security clearances. The required information shall be submitted at the pre-construction meeting, or as otherwise directed by Department of Corrections' personnel. Any construction personnel with pending warrants or felony convictions within the last five (5) years or other offenses deemed to create a security risk by Department of Corrections shall not be allowed onsite. The Department of Corrections reserves the right to refuse admission to any individual they feel may be detrimental to the security of the Facility.

3.4 FIRE PROTECTION, SAFETY, AND HEALTH CONTROLS

A. The Contractor shall take all necessary precautions to guard against and eliminate possible fire hazards.

1. Onsite burning is prohibited.
2. The Contractor shall store all flammable or hazardous materials in proper containers located outside the buildings or offsite, if possible.
3. The Contractor shall provide and maintain, in good order, during construction fire extinguishers as required by the National Fire Protection Association. In areas of flammable liquids, asphalt, or electrical hazards, 15-pound carbon dioxide or 20-pound

dry chemical extinguishers shall be provided.

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

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

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

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

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

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

H. The Contractor's workers shall not be under the influence of any intoxicating substances while on the Facility premises.

3.5 TUBERCULOSIS TESTING REQUIREMENTS

A. All workers who will be in the confines of the Facility for more than ten (10) consecutive working days must provide proof of a negative tuberculin skin test. The test results must be no more than six (6) months old at the commencement of construction. The Contractor or the worker, not the Owner, shall pay the cost of the test.

B. The Contractor shall submit to Facility Representatives current tuberculin skin test results for all workers who are required to have such a test in accordance with paragraph A above. If the contract period extends for more than twelve (12) months, the Contractor must provide new test results for all workers prior to the anniversary of the contract commencement date.

C. Any worker required to have a tuberculin skin test under paragraph A above who fails or refuses to do so will be denied admission to the facility until such time as proof of the test results are provided.

D. If any worker has a tuberculin skin test with positive results, the worker shall be denied access to the facility until the worker produces a certification from a physician licensed to practice in the State of Missouri that the worker does not have infectious tuberculosis.

E. The Contractor shall not be entitled to any additional time or compensation if any of its workers are denied access to the facility because of failure to produce negative tuberculin skin test

results.

F. Failure or refusal of the Contractor to maintain and produce the required tuberculin skin test records shall be a material breach of this contract, which shall subject the Contractor to a declaration of default.

3.6 PREA FOR CONTRACTORS AND EMPLOYEES

A. The contractor and all of the contractor's employees and agents providing services in any Department of Corrections institution must be at least 18 years of age. A Missouri Uniform Law Enforcement System (MULES) check or other background investigation may be required on the contractor, the contractor's employees and agents before they are allowed entry into the institution. The contractor, its employees and agents understand and agree that the Department may complete criminal background records checks annually for the contractor and the contractor's employees and agents that have the potential to have contact with inmates.

B. The institution shall have the right to deny access into the institution for the contractor and any of the contractor's employees and agents for any reason, at the discretion of the institution.

C. The contractor, its employees and agents under active federal or state felony or misdemeanor supervision must receive written division director approval prior to providing services pursuant to a Department contract. Similarly, contractors/employees/agents with prior felony convictions and not under active supervision must receive written division director approval in advance.

D. The contractor, its employees and agents shall at all times observe and comply with all applicable state statutes, Department rules, regulations, guidelines, internal management policies and procedures, and general orders of the Department that are applicable, regarding operations and activities in and about all Department property. Furthermore, the contractor, its employees and agents, shall not obstruct the Department or any of its designated officials from performing their duties in response to court orders or in the maintenance of a secure and safe correctional environment. The contractor shall comply with the Department's policies and procedures relating to employee conduct.

1. The Department has a zero tolerance policy for any form of sexual misconduct to include staff/contractor/volunteer on offender, or offender on offender, sexual harassment, sexual assault, sexual abuse and consensual sex.

    a. Any contractor or contractor's employee or agent who witnesses any form of sexual misconduct must immediately report it to the warden of the institution. If a contractor or contractor's employee or agent fails to report or knowingly condones sexual harassment or sexual contact with or between offenders, the Department may cancel the contract, or at the Department's sole discretion, require the contractor to remove the employee/agent from providing services under the contract.
    b. Any contractor or contractor's employee or agent who engages in sexual abuse shall be prohibited from entering the institution and shall be reported to law enforcement agencies and licensing bodies, as appropriate.

E. The contractor, its employees and agents shall not interact with the offenders except as is necessary to perform the requirements of the contract. The contractor, its employees and agents shall not give anything to nor accept anything from the offenders except in the normal

performance of the contract.

F. If any contractor or contractor's employee or agent is denied access into the institution for any reason or is denied approval to provide service to the Department for any reason stated herein, it shall not relieve the contractor of any requirements of the contract. If the contractor is unable to perform the requirements of the contract for any reason, the contractor shall be considered in breach.

3.7 DISRUPTION OF UTILITIES

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

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

3.8 CELL PHONES AND ELECTRONIC DEVICES

A. Cell Phones, pagers, smart watches (that can send/receive messages), fitness wrist bands (that can send/receive messages) or other electronic devices are not permitted.

1. Contractors, repairpersons, or information technology services department staff may be permitted to bring in a cell phone and portable wireless router (Wi-Fi, MiFi, etc.) if approved by the Chief Administrative Officer (CAO) when the phone is necessary to complete job duties relating to repairs on a case by case basis.
2. Tables (IPad, etc.) are not allowed with the exception of for re-entry purposes approved via the division of adult institutions (DAI) director and the re-entry manager.
3. Laptop computers may be permitted by the CAO on a case by case basis.

3.9 PROTECTION OF PERSONS AND PROPERTY

A. SAFETY PRECAUTIONS AND PROGRAMS

1. The Contractor shall at all times conduct operations under this Contract in a manner to avoid the risk of bodily harm to persons or risk of damage to any property. The Contractor shall promptly take precautions which are necessary and adequate against conditions created during the progress of the Contractor's activities hereunder which involve a risk of bodily harm to persons or a risk of damage to property. The Contractor shall continuously inspect Work, materials, and equipment to discover and determine any such conditions and shall be solely responsible for discovery, determination, and correction of any such conditions. The Contractor shall comply with applicable safety laws, standards, codes, and regulations in the jurisdiction where the Work is being performed, specifically, but without limiting the generality of the foregoing, with rules regulations, and standards adopted pursuant to the Williams-Steiger Occupational Safety and Health Act of 1970 and applicable amendments.
2. All contractors, subcontractors and workers on this project are subject to the Construction Safety Training provisions 292.675 RSMo.

3. In the event the Contractor encounters on the site, material reasonably believed to be asbestos, polychlorinated biphenyl (PCB), lead, mercury, or other material known to be hazardous, which has not been rendered harmless, the Contractor shall immediately stop Work in the area affected and report the condition to the Owner's Representative and the Architect in writing. The Work in the affected area shall not thereafter be resumed except by written agreement of the Owner's Representative and Contractor if in fact the material is asbestos or polychlorinated biphenyl (PCB) and has not been rendered harmless. The Work in the affected area shall be resumed in the absence of asbestos or polychlorinated biphenyl (PCB), or when it has been rendered harmless by written agreement of the Owner's Representative and the Contractor. “Rendered Harmless” shall mean that levels of such materials are less than any applicable exposure standards, including but limited to OSHA regulations.

B. SAFETY OF PERSONS AND PROPERTY

1. The Contractor shall take reasonable precautions for safety of, and shall provide protection to prevent damage, injury, or loss to:
   a. clients, staff, the public, construction personnel, and other persons who may be affected thereby;
   b. the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor or the Contractor's Subcontractors of any tier; and
   c. other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.
2. The Contractor shall give notices and comply with applicable laws, standards, codes, ordinances, rules, regulations, and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury, or loss.
3. The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, safeguards for safety and protection, including, but not limited to, posting danger signs and other warnings against hazards, promulgating safety regulations, and notifying owners and users of adjacent sites and utilities.
4. When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise the highest degree of care and carry on such activities under supervision of properly qualified personnel.
5. The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in this Section caused in whole or in part by the Contractor, a Subcontractor of any tier, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable, and for which the Contractor is responsible under this Section, except damage or loss attributable solely to acts or omissions of Owner or the Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's other obligations stated elsewhere in the Contract.
6. The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents, and the maintaining, enforcing and supervising of safety precautions and programs. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner's

Representative and Architect. The Contractor shall hold regularly scheduled safety meetings to instruct Contractor personnel on safety practices, accident avoidance and prevention, and the Project Safety Program. The Contractor shall furnish safety equipment and enforce the use of such equipment by its employees and its subcontractors of any tier.

7. The Contractor shall not load or permit any part of the construction or site to be loaded so as to endanger its safety.
8. The Contractor shall promptly report in writing to the Owner all accidents arising out of or in connection with the Work which cause death, lost time injury, personal injury, or property damage, giving full details and statements of any witnesses. In addition, if death, serious personal injuries, or serious property damages are caused, the accident shall be reported immediately.
9. The Contractor shall promptly notify in writing to the Owner of any claims for injury or damage to personal property related to the work, either by or against the Contractor.
10. The Owner assumes no responsibility or liability for the physical condition or safety of the Work site or any improvements located on the Work site. The Contractor shall be solely responsible for providing a safe place for the performance of the Work. The Owner shall not be required to make any adjustment in either the Contract Sum or Contract Time concerning any failure by the Contractor or any Subcontractor to comply with the requirements of this Paragraph.
11. In no event shall the Owner have control over, charge of, or any responsibility for construction means, methods, techniques, sequences or procedures or for safety precautions and programs in connection with the Work, notwithstanding any of the rights and authority granted the Owner in the Contract Documents.
12. The Contractor shall maintain at his own cost and expense, adequate, safe and sufficient walkways, platforms, scaffolds, ladders, hoists and all necessary, proper, and adequate equipment, apparatus, and appliances useful in carrying on the Work and which are necessary to make the place of Work safe and free from avoidable danger for clients, staff, the public and construction personnel, and as may be required by safety provisions of applicable laws, ordinances, rules regulations and building and construction codes.

END OF SECTION 013513.16

SECTION 015000 – CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

B. Temporary utilities include, but are not limited to, the following:

1. Water service and distribution
2. Temporary electric power and light
3. Temporary heat
4. Ventilation
5. Telephone service
6. Sanitary facilities, including drinking water
7. Storm and sanitary sewer

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

1. Field offices and storage sheds
2. Temporary roads and paving
3. Dewatering facilities and drains
4. Temporary enclosures
5. Hoists and temporary elevator use
6. Temporary project identification signs and bulletin boards
7. Waste disposal services
8. Rodent and pest control
9. 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: Comply with requirements in Division 6 Section "Rough Carpentry".

1. For job-built temporary office, shops, and sheds within the construction area, provide UL-labeled, fire-treated lumber and plywood for framing, sheathing, and siding.

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

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

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

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

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

C. Temporary Heating: 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.

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

E. Wash Facilities: The Owner will provide wash facilities at designated locations for personnel involved in handling materials that require wash-up for a health and sanitary condition. Supply cleaning compounds appropriate for each condition.

F. Drinking-Water Facilities: Provide containerized, tap-dispenser, bottled-water drinking-water units, including paper supply.

3.3 SUPPORT FACILITIES INSTALLATION

A. General: The Owner's Representative will address the Agency's policy and procedure for field offices, storage sheds, and other temporary construction and support facilities at the Pre-Bid Meeting.

B. Construction Parking: The Owner's Representative will address the Agency's policy and procedure for parking at the Pre-Bid Meeting.

C. 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.

D. 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.

E. 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.

F. Daily Magnet Sweep: Contractor shall perform a magnet sweep around the entire perimeter of any given roof or construction area at least once per day.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Temporary Fire Protection: 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”.

B. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and the public of the hazard being protected against.

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. At Substantial Completion, clean and renovate permanent facilities used during the construction period.

END OF SECTION 015000

SECTION 017400 – CLEANING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

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

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

PART 2 - PRODUCTS

2.1 MATERIALS

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

PART 3 - EXECUTION

3.1 PROGRESS CLEANING

A. General

1. Retain all stored items in an orderly arrangement allowing maximum access, not impending drainage or traffic, and providing the required protection of materials.
2. Do not allow the accumulation of scrap, debris, waste material, and other items not required for construction of this Work.
3. At least twice each 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.

4. Daily, perform a magnet sweep around the entire perimeter of any given roof/construction area.

C. Structures

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

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

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

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

3.2 FINAL CLEANING

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

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

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

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

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

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

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

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

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

8. Broom clean concrete floors in unoccupied spaces.

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

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

11. Remove labels that are not permanent labels.

12. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

    a. Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.

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

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

15. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.

16. Clean ducts, blowers, and coils if units were operated without filters during construction

17. Clean food-service equipment to a sanitary condition, ready and acceptable for its intended use.

18. 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.

19. Leave the Project clean and ready for occupancy.

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

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

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

END OF SECTION 017400

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building or structure.

1.2 DEFINITIONS

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

B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner.

C. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.

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

1.3 PRE-INSTALLATION MEETINGS

A. Pre-demolition Conference: Conduct conference at Project site.

1.4 INFORMATIONAL SUBMITTALS

A. Pre-demolition Photographs or Video: Submit before Work begins. Refer to Submittal Chart in Section 013300 – Submittals.

1.5 CLOSEOUT SUBMITTALS

A. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.6 FIELD CONDITIONS

A. Owner will occupy portions of buildings immediately adjacent to and below selective demolition areas. Conduct selective demolition so Owner's operations will not be disrupted.

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

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

D. Hazardous Materials: Asbestos Containing Materials are present in the existing roof systems to be selectively demolished as a part of the scope of this work. A Limited Asbestos Inspection report is included in Section 028213 Asbestos Abatement of the Specifications. Examine report to become aware of locations where asbestos containing materials are present.

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

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

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

1.7 WARRANTY

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

PART 2 - PRODUCTS

2.1 PEFORMANCE REQUIREMENTS

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

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

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

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

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

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

1. Comply with requirements for existing services/systems interruptions specified in Section 011000 "Summary of Work."

3.3 PREPARATION

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

1. Comply with requirements for access and protection specified in Section 015000 "Temporary Facilities and Controls."

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

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

3.4 SELECTIVE DEMOLITION, GENERAL

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

1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, roofs, or framing.
5. Dispose of demolished items and materials promptly.

B. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable,

protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

3.5 DISPOSAL OF DEMOLISHED MATERIALS

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

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

B. Burning: Do not burn demolished materials.

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

3.6 CLEANING

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

B. Perform a magnet sweep daily around the perimeter of the building.

END OF SECTION 024119

SECTION 028213 – ASBESTOS ABATEMENT

PART 1 - GENERAL

1.1 PROJECT/WORK IDENTIFICATION

A. General: The work specified herein shall be the abatement of asbestos containing materials by certified and registered persons who are knowledgeable, qualified and trained in the abatement, handling, and disposal of asbestos containing material, and subsequent cleaning of the affected environment.

B. The Contractor shall supply all labor, materials, equipment, testing, services, permits, notifications, insurance, and incidentals which are necessary or required to perform the work in accordance with applicable local, state, and federal regulations as may be necessary for the abatement of asbestos containing materials and for other work as specified in this section or as indicated in associated drawings, sketches, or details of the work.

C. Scope of Work:

1. Abate/remove asbestos containing materials identified in the Asbestos Survey conducted on the Education Building No. 14 at the Boonville Correctional Center (included in the Project Manual as Appendix A).

D. All abatement work areas must pass visual inspection as well as in-progress air-monitoring.

1.2 LIST OF MATERIALS CONTAINING ASBESTOS (TO BE ABATED)

A. Location and Quantity of Materials Containing Asbestos: Refer to Table 1 – Summary of Analytical Test Results contained in the Asbestos Survey (included in the Project Manual as Appendix A) for the identification, quantity and location of asbestos containing materials on the Education Building No. 14 at the Boonville Correctional Center.

B. Contractor is responsible for verifying all materials and quantities identified above prior to submitting their bid. The final quantity of gray caulk to be abated will be based on the construction specifications.

1.3 TERMINOLOGY/DEFINITIONS/ABBREVIATIONS

A. Definitions:

1. Abatement: The Encapsulation, Enclosure and/or Removal of Asbestos Containing Materials (ACM). For Category I Non-friable ACM which will remain non-friable throughout disposal, abatement procedures will be modified and simplified as found within these and other applicable regulations.
2. Adequately Wet: To sufficiently mix or penetrate with liquid to prevent the release of particulates.
3. AHERA: Asbestos Hazard Emergency Response Act of 1966 (P.L. 99-519).
4. Aggressive Air Sampling: Sweeping of floors, ceilings and walls and other surfaces with the exhaust of a minimum of one horsepower leaf blower or equivalent immediately prior to air monitoring.

5. Air Sampling Professional: An individual, certified by the State of Missouri, who supervises air sampling activities during asbestos abatement projects.

6. Air Sampling Technician: An individual, under the supervision of an Air Sampling Professional, who performs air sampling during asbestos abatement projects.

7. Asbestos: The asbestiform varieties of serpentinite (chrysotile, antigorite), riebeckite (crocidolite), cummintonite-grumerite (amosite), anthophyllite, and actinolite-tremolite. For purposes of determining respiratory and worker protection both the asbestiform and non-asbestiform varieties of the above materials and any of these materials that have been chemically treated and/or altered shall be considered as asbestos.

8. Asbestos Abatement Project Designer: An individual, certified by the State of Missouri, who prepares plans and specifications for asbestos abatement projects.

9. Asbestos Abatement Supervisor: An individual, certified by the State of Missouri, who directs, controls, and/or supervises workers during an asbestos abatement project.

10. Asbestos Abatement Worker: An individual, certified by the State of Missouri, who performs asbestos abatement.

11. Asbestos-Containing Material (ACM): Any material or product which contains more than 1 percent asbestos by weight as determined by using the Polarized Light Microscopy method.

12. Asbestos-Containing Building Material (ACBM): Surfacing ACM, thermal system insulation ACM, or miscellaneous ACM that is found in or on building components.

13. Asbestos Containing Building Material (ACBM) Repair: The restoration of ACBM to an undamaged condition or to an intact state so as to prevent fiber release

14. Asbestos-Containing Waste Material (ACWM): Any material to be removed from a work area for disposal that is an asbestos containing material (ACM) or is suspected of being contaminated with ACM.

15. Barrier: Any surface that seals off the work area to inhibit the movement of asbestos fibers.

16. Breathing Zone: A hemisphere forward of the shoulders with a radius of approximately 6 to 9 inches.

17. Category I Non-friable ACM: Asbestos-containing packings, gaskets, resilient floor covering and asphalt roofing products containing more than one percent (1%) asbestos as determined using the method specified in 40 CFR part 763, subpart F, Appendix A, section 1, Polarized Light Microscopy.

18. Category II Non-friable ACM: Any material, excluding category I non-friable ACM, containing more than one percent (1%) asbestos as determined using the methods specified in 40 CFR part 768, subpart F, Appendix A, section 1, Polarized Light Microscopy that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure.

19. Certified Industrial Hygienist (C.I.H.): An industrial hygienist, certified in Comprehensive Practice by the American Board of Industrial Hygiene.

20. Competent Person: An individual, capable of identifying existing asbestos hazards in the workplace and who has authority to take prompt corrective measures to

eliminate them. His duties include: establishing the negative-pressure enclosure, ensuring its integrity, and controlling entry to and exit from the enclosure; supervising any employee exposure monitoring; ensuring that all employees working within such an enclosure wear the appropriate personal protective equipment, are trained in the use of appropriate methods of exposure control, and in the use of hygiene facilities and decontamination procedures; and ensuring that engineering controls in use are in proper operating condition and are functioning properly. An individual who has been certified by the State of Missouri as an Asbestos Abatement Supervisor is considered a "Competent Person".

21. Owner's Construction Representative: An employee of the Division of Design and Construction representing the Director during the construction phase of the contract commencing at Notice of Award.

22. Containment: Area where asbestos abatement project is conducted. Area must be enclosed either by a glove bag or plastic sheeting barriers.

23. Critical Barrier: Plastic sheeting or other material to be placed over Work Area openings (i.e., windows, HVAC supply and return vents, doors, electrical fixtures, etc.).

24. Decontamination Facility: The serial arrangement of rooms or spaces for the purpose of separating the work site from the building environment upon entering the Work Area and for the cleaning of persons, equipment and contained waste prior to returning to the clean environment.

25. Disposal Bag: A properly labeled 6 mil. thick leak-tight clear plastic bag used for transporting asbestos waste from work site and to the disposal site.

26. Encapsulant (Sealant): A liquid material which can be applied to asbestos-containing material and which prevents the release of asbestos fibers from the ACM either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the ACM and binding its components together (penetrating encapsulant) or is specifically designed to minimize fiber release during removal of ACM (removal encapsulant).

27. Encapsulation: Treatment of asbestos-containing materials with an encapsulant.

28. Enclosure: The construction of an airtight, impact resistant barrier to isolate a surface coated with ACM.

29. Friable: Any material which when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

30. Glove Bag: A manufactured or fabricated device, typically constructed of six mil transparent polyethylene or polyvinyl chloride plastic. This device consists of two inward projecting long sleeves, an internal tool pouch and an attached, labeled receptacle for asbestos waste.

31. Initial Exposure Assessment: Is a required assessment to be performed by the Contractor's Competent Person (Asbestos Abatement Supervisor) concerning the exposure potential of a specific asbestos projects, or series of similar asbestos projects. If it is concluded that the employee exposures during the project are likely to be consistently below the Permissible Exposure Limit, the Contractor establishes a Negative Initial Exposure Assessment.

32. Outside Air: Air outside containment.

33. Permissible Exposure Limit (PEL): Eight-hour time weighted average of 0.1 fibers/cubic centimeter.

34. Personal Monitoring: Sampling of the asbestos fiber concentrations within the Breathing Zone.

35. Regulated Asbestos-Containing Material (RACM): Friable asbestos material; Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading; or Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.

36. Removal: To take out or eliminate ACM from building components, materials, substrates.

37. Third Party Air Monitor (TPAM): The Air Sampling Professional who conducts air monitoring who is not under the direct control of the abatement contractor and who has been selected by the owner.

38. Visible Emission: Any discharge of an air contaminant into the atmosphere that is visually detectable without the aid of instruments.

39. Work Area: A specific room or physically isolated portion of a room, other than the space enclosed within a glove bag, in which friable asbestos-containing material is required to be handled in accordance with current federal and state regulations. The area is designated as a work area from the time that the room, or portion of it, is secured and access restrictions are in place. The area remains designated as a work area until the time that it has been cleaned in accordance with any requirements applicable to the operations conducted.

B. Abbreviations:

1. AIA: American Institute of Architects
2. AIHA: American Industrial Hygiene Association
3. MDNR: Missouri Department of Natural Resources
4. DEQ: Division of Environmental Quality, MDNR
5. DOT: U. S. Department of Transportation
6. EPA: U. S. Environmental Protection Agency
7. MDH: Missouri Department of Health
8. NIOSH: National Institute for Occupational Safety and Health
9. NVLAP: National Voluntary Laboratory Accreditation Program
10. OSHA: Occupational Safety and Health Administration, U. S. Department of Labor.
11. TPAM: Third Party Air Monitor

1.4 SUMMARY OF REQUIREMENTS:

A. All work performed on this project shall be done in the strictest accordance with applicable federal, state and local regulations, standards and codes governing asbestos abatement and

any other trade work done in conjunction with the abatement. All applicable codes, regulations and standards are adopted into this specification and will have the same force and effect as this specification.

B. The most recent edition of any relevant regulation, standard, document or code shall be in effect. Where conflict among requirements or these specifications exists, the most stringent requirements shall be utilized.

C. Because asbestos exposure is a serious health hazard, construction work involving any asbestos-containing materials is regulated by the Occupational Safety and Health Administration Regulations. Compliance with OSHA regulations in the completion of this project is the **sole** responsibility of the contractor. OSHA regulations include, but are not limited to, conducting appropriate negative exposure assessments and/or daily personnel air monitoring. However, the following requirements will apply regardless of the removal methods to be employed:

1. Regardless of the removal methods employed, the Contractor shall immediately stop work in the event of any of the following:
    a. Visible Emissions (as defined in this document), or
    b. Sanding, grinding, cutting abrading, removal by open flame, or
    c. Breathing Zone air samples exceed the PEL or Excursion Limit; furthermore, the contractor shall implement corrective work practices upon the approval of the Asbestos Abatement Project Designer, make re-notification to all regulatory agencies of the changes in work practices and material conditions, and comply with all referenced regulations in this document and the applicable sections of this specification as noted.
2. If any of the conditions in subparagraph e above are observed by the Owner's Construction Representative or by the Third-Party Air Monitor (TPAM), then either of these parties has the right to issue a directive to stop work. The Contractor shall be obligated to implement corrective action. The contractor shall not be entitled to additional compensation.

D. NON-FRIABLE ACM. The caulk within the scope of work is considered a non-friable Category II material. The Contractor is strongly encouraged to remove the caulk using methods that will not render the material friable. All applicable federal, state, and local requirements, including notifications, should be followed.

1. Make notifications in compliance with Section 2.1 of this specification.
2. Remove and dispose of all asbestos containing materials in compliance with the federal and state regulations as listed, but not necessarily limited to, those under section 4.0 of this specification.

1.5 PROJECT COORDINATION

A. Contractor shall coordinate and schedule all phases of the work of the contract documents under his control with the Owner's Construction Representative, Facility Representative, any subcontractors, materials suppliers, and other parties involved as necessary to ensure the smooth and orderly transition of separate phases, timely placement of items and materials, cooperation between parties, and proper execution of the work**.**

B. All coordination necessary with the facility will be made through the Facility Representative or their designated representative. The Owner's Construction Representative and Facility Representative prior to the start of any work will approve scheduling and access to the work areas.

C. Normal working hours of the facility will be observed in performing the work unless the Facility Representative and Owner's Construction Representative approves the modification as addressed in the Special Conditions.

D. Contractor shall not communicate with any news or media outlets. Any news media inquiries or releases shall be directed to the Facilities Management Design and Construction Division at (573) 751-3339.

E. The Contractor, project superintendent, subcontractors, and other appropriate parties shall attend meetings as scheduled and as otherwise necessary to accomplish the work in a timely and efficient manner. Meetings shall include but are not limited to the following:

1. Pre-Construction Meeting: The Owner's Construction Representative may schedule a pre-construction meeting after the Notice of Award has been issued. The Owner's Construction Representative will determine the date, time, and exact place of this meeting and all necessary parties will be notified, if need be. During the meeting, discussions will be held in regard to construction procedures, scheduling requirements, general conditions, special conditions, channels of communication, responsible persons, requirements for submittals, documentation requirements, payment applications, and other pertinent information necessary for completing the work. Specific requirements of the facility in regard to security, safety, utilities, access to buildings, and related matters will also be discussed.

2. If, in the opinion of the Owner's Construction Representative, additional meetings are required to maintain progress or scheduling requirements on the work, additional meetings will be scheduled.

F. All fees required for notification requirements, re-notifications, and/or inspections by the Department of Natural Resources and all other federal, state, or local agencies shall be paid by the Contractor. If necessary, bulk samples analysis information required in conjunction with the notification to the Missouri Department of Natural Resources, U. S. Environmental Protection Agency or city having jurisdiction shall be provided by the Contractor unless provided within this specification.

G. Should the project fall behind schedule the abatement contractor is expected to take such steps, as necessary, to complete the project on time. The Contractor will be entitled to no additional compensation for implementation of such steps to maintain the work schedule.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 NOTIFICATIONS

A. A courtesy abatement notification shall be submitted to the MDNR. Use EPA form "Notification of Demolition and Renovation and the MDNR form "Asbestos Project

Notification", to all applicable federal, state, and local agencies, including but not limited to those listed below. **Draft copies of all notifications shall be submitted to the Consultant at least 3 days prior to being submitted to the regulatory agencies.**

1. Department of Natural Resources
   Air Pollution Control Program (ASBESTOS)
   P. O. Box 176
   Jefferson City, MO 65102

2. Provide copies of these notifications to the Owner's Construction Representative, with the Facilities Management Design and Construction Division as well as SCI Engineering.

3.2 SUBMITTALS

A. The following submittals will be required of the Contractor prior to commencement of work and are subject to approval by the Owner's Construction Representative. The Contractor shall send one copy of the submittals for approval to the Owner's Construction Representative.

3. Copy of Material Safety Data Sheets (MSDS) for each product to be used by the contractor in the performance of his work. Contractor will also maintain copies of the MSDS on site, per OSHA.

4. A copy of the courtesy notifications to regulatory agencies as required in Section 2.1 of this specification.

5. Current training certificates and MDNR licenses for project superintendent, asbestos abatement supervisor(s), and asbestos workers. Superintendent shall meet the qualifications established in Section 3.8 of these specifications.

6. Name, address, and contact person's name of testing laboratory or laboratories to be utilized by the Contractor in analyzing samples for bulk analysis or air monitoring from taking personal air samples. Required by OSHA.

7. Provide a detailed work schedule with milestones for the completion of the project within the established timeframe.

8. Provide a disposal plan to detail the types of disposal containers to be used, the methods of transportation to the disposal site, the waste hauler, and disposal site.

9. Copies of notifications required as part of the emergency notification plan in Section 3.6 of this specification.

B. Upon completion of the work and prior to final payment, the following information must be submitted to the Owner's Construction Representative.

1. Waste disposal receipts and waste shipment record on all asbestos waste removed from the project. The enclosed Waste Shipment Record and Receipt form (or something similar) must be used for every load brought to the waste disposal site. The disposal and/or shipment record must include the following information:

   a. Work site name and address

   b. Project Number

   c. Owner's name and telephone

   d. Operator's (Contractor's) name, address and telephone

e. Waste Disposal Site name, address and telephone

f. Name and address of responsible agency

g. Type of materials and quantity in cubic yards or tons.

h. Name, address and phone number of transporter, and date of transport

i. Name, address and phone number of Waste Disposal Site representative and date material was received.

2. Air monitoring test results from all air samples taken during abatement, to include area, in progress and personal tests. Results must be written in final report form.

3. Written certification from the Contractor's abatement superintendent as required in Section 3.7 of this specification.

4. Any other specific requirements spelled out in the General Conditions.

3.3 TESTING LABORATORY

C. Testing laboratories utilized by the Contractor for OSHA required sample analysis during the project shall meet the following minimum requirements:

1. For bulk sample analysis, the laboratory must be accredited by the National Voluntary Laboratory Accreditation Program for asbestos fiber analysis.
2. For air samples analyzed by Phase Contrast Microscopy, the laboratory must be accredited by the American Industrial Hygiene Association.
3. For air samples analyzed by Transmission Electron Microscopy, the laboratory must be accredited by the National Voluntary Laboratory Accreditation Program.
4. On-site analysis by Phase Contrast Microscopy, when applicable, shall be by an Air Sampling Technician or Air Sampling Professional who has completed a NIOSH 582 course or equivalent.
5. Neither the Contractor, nor any of his principals, officers, or directors may have any financial or business interests in any laboratory utilized on this contract.

3.4 LOCAL AREA PROTECTION/SITE SECURITY

A. The Contractor shall be responsible for all areas of the building used by him and/or subcontractors in the performance of the work. He shall exert full control over the actions of all employees and subcontractors with respect to the use and preservation of the existing building, except such controls as may be specifically reserved to the Owner by these specifications.

B. The Contractor has the right to exclude from the work area all persons who have no purpose related to the work or its inspection and shall require all persons in the work area to observe the same regulations as he requires his employees.

C. The Contractor shall have control of site security during abatement operations in order to protect his work and equipment. He will have the owner's assistance in notifying building occupants of impending activity and enforcement of restricted access by owner's employees.

D. The Contractor shall keep, as a minimum, two 10-pound type ABC fire extinguishers on site at all times. One extinguisher will be maintained outside the work area and one inside

the work area. The Contractor's employees shall be trained in the use and operation of the extinguishers.

E. The Contractor shall use as small an area as necessary for storage of supplies and equipment and shall keep such in a neat and orderly fashion.

F. Contractor is prohibited from entering portions of the building not required for completion of their scope of work.

G. The Contractor shall maintain the work area free from rubbish, debris, and dirt and keep a clean safe work area. The Contractor shall take measures to keep surfaces free from contamination or shall clean and lock down surfaces after work is done, protect with plastic sheeting and/or plywood during work, or remove from the work area. Trash must be removed daily and will not be allowed to accumulate.

H. Contractor is responsible for all damage to the structure other than that required for the removal of the ACMs. At the conclusion of the project, the Contractor must repair such incidental damage including tape and glue residue, paint coatings and damage to surfaces, finishes and building components.

I. No signage, equipment or materials shall be placed or stored outside the work area.

3.5 WORKER PROTECTION/TRAINING

A. The Contractor shall be responsible for providing his employees with proper respiratory protection, respiratory training, a written respirator program, medical examinations, protective clothing and equipment and for maintaining medical records to comply with OSHA requirements.

B. The Contractor shall be responsible for all testing and costs incurred for complying with requirements OSHA regulations for Personal Monitoring.

C. All workers are to be trained in the dangers inherent in handling asbestos and breathing asbestos dust and in proper work procedures and personal and protective measures.

3.6 EMERGENCY PROTECTION PLAN

A. The Contractor shall be responsible for developing a written site-specific Emergency Protection Plan and shall maintain this plan on site. The plan shall include considerations for asbestos leakage from site, fire, explosion, toxic atmospheres, electrical hazards, slips, falls, and heat related injury. All employees shall be instructed and trained in the procedures.

B. Emergency protection planning shall also include written notification of police, fire, and medical personnel of the planned abatement activities, work schedule, and the layout of the work area, particularly barriers that may affect response capabilities.

3.7 SUPERINTENDENCE OF ABATEMENT

A. The Contractor shall designate an abatement superintendent, who will serve as the Contractor's representative on the project and will ensure that all work is performed in compliance with all applicable regulations and following minimum requirements:

B. The Abatement Superintendent must be certified as an Asbestos Abatement Supervisor and must have at least one-year full-time experience in asbestos abatement work.

1. Shall be on site whenever work is going on.

2. Maintain a daily log documenting project events, visitations/inspections, problems, and accidents.

3. Implement first aid, safety training, respiratory protection, and ensure workers are trained in emergency procedures.

4. Conduct visual inspection of the work area prior to TPAM's final clearance inspection. This inspection shall be documented.

5. Supervise activities of any subcontractors of the Contractor to ensure compliance with contract documents.

6. Duties shall include those for the "Competent Person" as defined in this specification.

7. Superintendent must have a cellular telephone when at the project site and the contact information for the supervisor provided to the construction manager and TPAM.

3.7 FINAL CLEARANCE REQUIREMENTS

A. All (if any) critical barriers and/or containment must remain in place until work area is cleared by Contractor's abatement superintendent and Owner's Construction Representative in accordance with this section.

B. Following the completion of the abatement work, the abatement superintendent shall notify the Owner's Construction Representative. The Contractor's abatement superintendent shall then perform a visual inspection of the work area.

C. All in-progress samples will be analyzed, at a minimum, by the PCM (NIOSH 7400) method, unless specifically stated elsewhere within this specification. Unless deemed unnecessary by the Air Sampling Professional at the time of sample collection, the upwind and downwind air samples (2) will act as project clearance samples. In addition to this, 1 field blank and 1 sealed blank will be analyzed. The abatement shall be considered complete when the result of <u>each</u> of upwind and downwind samples indicate airborne fiber (> 0.25 um dia. x 5 um L) concentrations are no greater than the PCM limit of quantitation of 0.01 f/cc of air. Test results should be made available to the Contractor within 24 hours. If the NIOSH 7400 PCM clearance sampling method fails, then the TEM method 7402 may be utilized to further evaluate the air sample(s) that exceed 0.01 f/cc. The TPAM will be responsible for determining if a failing PCM sample will be analyzed by TEM 7402.

D. Any work areas failing to meet the clearance requirements of this section shall be re-cleaned and re-tested at the Contractor's expense until satisfactory levels are obtained. The Owner will not reimburse the Contractor for re-cleaning the work area.

3.8 RE-ESTABLISHMENT OF THE WORK AREA AND SYSTEMS

A. Re-establishment of the work area shall only occur after the Contractor has complied with the clearance requirements of Section 3.9. All barriers, signs, trash, and equipment shall then be removed from the site. All electrical and HVAC systems shall be re-established.

B. All damage to finishes, equipment, and/or the area affected by the abatement shall be repaired by the Contractor to equal or better condition as was prior to the work, at no cost to the Owner.

3.9 WASTE DISPOSAL

A. All Asbestos Containing Waste Material (ACWM) shall be disposed of in compliance with current federal and state regulations.

B. ACM shall be disposed of in a Missouri licensed demolition landfill or a sanitary landfill having a state permit to operate and accept such waste.

C. A chain of custody letter/waste shipment record and disposal receipts shall be provided to the Owner for all materials disposed of.

D. The waste shipment record shall be originated and signed by the waste generator and shall be used to track and substantiate the disposition of ACWM.

3.10 DRAWINGS

A. For the purpose of this specification, drawings, when provided, are not intended to be used for anything other than a "reference" to the work area. Information is not specific to quantities or to the exact location of ACM. The Contractor is required to field verify the conditions, locations, and quantities referenced.

3.11 CODES AND REGULATIONS

A. This section sets forth governmental regulations and industry standards which are included and incorporated herein by reference and made a part of this specification.

A. Requirements include adherence to work practices and procedures set forth in applicable codes, regulations and standards.

B. General Applicability of Codes, Regulations and Standards: Except to the extent that more explicit or more stringent requirements are written directly into the contract documents, all applicable codes, regulations standards, statutes, laws and rules 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 are bound herewith. In the event of conflicting applicable codes, regulations, standards, statutes, laws, or rules, the more stringent shall apply to these specifications.

C. Contractor Responsibility: The Contractor shall assume full responsibility and liability for compliance with all applicable federal, state, and local regulations pertaining to work practices, hauling, disposal and protection of workers, visitors to the site, and persons occupying areas adjacent to the site. The Contractor is responsible for providing medical

examinations and maintaining medical records of personnel as required by the applicable federal, state, and local regulations. The Contractor shall hold the Owner harmless for failure to comply with any applicable work, hauling, disposal, safety, health, record keeping or other regulation on the part of himself, his employees, or his subcontractors.

D. Requirements which govern asbestos abatement work or hauling and disposal of asbestos waste materials include but are not limited to the following:

1. U. S. Department of Labor, Occupational Safety and Health Administration (OSHA) including but not limited to:

   a. Title 20, Part 1910, Section 1001 and Part 1926, Section 58 of the Code of Federal Regulations.

   b. Respiratory Protection, Title 29, Part 1910, Section 134 of the Code of Federal Regulations.

   c. Construction Industry, Title 29, Part 1926, of the Code of Federal Regulations.

   d. Access to Employee Exposure and Medical Records, Title, 29, Part 1910, Section 2 of the Code of Federal Regulations.

   e. Hazard Communication, Title 29, Part 1910, Section 1200 of the Code of Federal Regulations.

   f. Specifications for Accident prevention Signs and Tags, Title 29, Part 1910, Section 145 of the Code of Federal Regulations.

2. U. S. Environmental Protection Agency (EPA) including but not limited to:

   a. National Emission Standards for Hazardous Air Pollutants (NESHAPS) Title 40, Part 61, Subpart M of the Code of Federal Regulations.

   b. Asbestos Hazard Emergency Response Act (AHERA), Public Law (99-519) applicable only on schools.

   c. Asbestos-Containing Materials in Schools: Title 40, Part 763 of the Code of Federal Regulations, applicable only on schools.

3. U. S. Department of Transportation (DOT)

   a. Title 49, Part 172, Section 101 of the Code of Federal Regulations.

4. State of Missouri

   a. H.B. 77, 85th General Assembly.

   b. Missouri Air Conservation Law, Chapter 643.

   c. Due to a recent court decision, the following Code of State Regulations do not apply to this specification:

      i. 10 CSR 10-6.020, Definitions

      ii. 10 CSR 10-6.080, Emission Standards for Hazardous Air Pollutants.

      iii. 10 CSR 10-6.230, Administrative Penalties

      iv. 10 CSR 10-6.240, Asbestos Abatement Projects-Registration, Notification and Performance Requirements.

v. 10 CSR 10-6.250, Asbestos Abatement Projects - Certification, Accreditation, and Business Exemption Requirements.

END OF SECTION 028213

SECTION 028333 – LEAD ABATEMENT

PART 1 - GENERAL

1.1 SUMMARY

A. General: The work specified herein shall be the abatement of materials containing lead by certified and registered persons who are knowledgeable, qualified and trained in the abatement, handling, and disposal of materials containing lead, and subsequent cleaning of the affected environment.

B. The Contractor shall supply all labor, materials, equipment, services, permits, notifications, insurance, and incidentals which are necessary or required to perform the work in accordance with applicable local, state, and federal regulations for the Scope of Work detail herein.

C. All work must pass a final visual clearance performed by others.

D. If the lead-bearing components will be sanded, ground or abraded, all work must be performed by individuals who have been trained in accordance with the EPA's RRP Program. The Contractor is not required to be RRP-certified; however, the individuals performing work that may impact lead-based materials shall have received the 8-hour RRP training.

1.2 LIST OF MATERIALS CONTAINING LEAD

A. Location and Quantity of Materials Containing Lead: Refer to Table 1 – LBP XRF Results contained in the Lead Based Paint Survey (included in the Project Manual as Appendix B) for the identification, quantity and location of materials containing lead identified on the Education Building No. 14 at the Boonville Correctional Center.

The Contractor is responsible for verifying all field conditions and quantities prior to submitting their bid.

1.3 TERMINOLOGY/DEFINITIONS/ABBREVIATIONS

A. Definitions:

1. Administrative Control: Written policies prepared before work begins which remove or prevent exposure to physical, biological, or chemical hazards.

2. Air Sampling Professional: An individual who by qualifications and experience is proficient in air monitoring and possesses a valid Missouri Certification and License.

3. Approved Waste Disposal Site: A solid waste disposal area that is authorized by the Department of Natural Resources to receive lead-based paint containing solid wastes.

4. Barrier: An envelope or containment that seals off the work area to inhibit the movement of particulate and dust particles.

5. Biological Monitoring: The analysis of a person's blood and/or urine, to determine the level of lead contamination in the body.

6. CFR: The Code of Federal Regulations, in the basic component of the Federal Register publication system. The CFR is a codification of the regulations of the various Federal Agencies.

7. Characteristics: The EPA has identified four characteristics of a hazardous waste: Ignitability; Corrosivity; Reactivity and Toxicity. Any solid waste that exhibits one or more of these characteristics is classified as a hazardous waste under RCRA.

8. Container: Any portable device, in which material is stored, transported, treated, disposed of, or otherwise handled.

9. Containment: A process for protecting both workers and the environment by controlling exposures to lead dust and debris created during renovation.

10. Contingency Plan: A document setting out an organized, planned, and coordinated course of action to be followed in case of a fire or explosion or a release of hazardous waste or hazardous waste constituents from the project site or a treatment, storage, or disposal facility that could threaten human health or the environment.

11. Contractor: Any business entity, public unit, or person, certified and licensed to conduct business in the State of Missouri and the employee have the EPA RRP training.

12. Discharge or Hazardous Waste Discharge: The accidental or intentional spilling, leaking, pumping, pouring, emitting, discharge emptying, or dumping of hazardous wastes onto any land or water or into the air.

13. Disposal Bag: A properly labeled 6 mil thick leak-tight plastic bag used for transporting waste from the work area to the disposal site.

14. Disposal Facility: A facility or part of a facility at which hazardous waste is intentionally placed into or on any land or water, and at which the waste will remain after closure.

15. EPA Identification Number: The unique number assigned by EPA to each generator or transporter of hazardous waste, and each treatment, storage, or disposal facility.

16. Exposure Monitoring: The personal air monitoring of an employee's Breathing Zone to determine the amount of contaminant (e.g. lead) to which he/she is exposed.

17. Federal Register: A document published daily by the federal government that contains either proposed or final regulations.

18. Generator: Any person who first creates a hazardous waste, or any person who first makes the waste subject to the Subtitle C regulation (e.g., imports a hazardous waste, initiates a shipment of a hazardous waste from a TSD, or mixes hazardous wastes of different DOT shipping descriptions by placing them into a single container).

19. Hazardous Waste: As defined in RCRA the term "hazardous waste" means a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may:

a. Cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or

b. Pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

As defined in the regulations a solid waste is hazardous if it meets one of four conditions:

1) Exhibits a characteristic of a hazardous waste (40 CFR Sections 261.20 through 262.24).

2) Has been listed as hazardous (40 CFR Section 261.31 through 261.33).

3) Is a mixture containing a listed hazardous waste and a non-hazardous solid waste (unless the mixture is specifically excluded or no longer exhibits any of the characteristics of hazardous waste).

4) Is not excluded from regulations as a hazardous waste.

20. Landfill: A disposal facility or part of a facility where hazardous waste is placed in or on land and which is not a land treatment facility, a surface impoundment, or an injection well.

21. Lead-Based Paint: Any surface coating (paint, varnish, shellac, etc.) that contains more than 600 parts per million (.06% by weight) as defined by the Consumer Products Safety Commission. Lead-based paint is 1 milligram of lead per square centimeter (1.0 mg/cm² as measured by XRF) or has a weight of 5,000 parts per million (0.5% by weight) as defined by HUD.

22. Lead (inorganic), Pb: An element, which means that its atomic structure is permanently arranged and is not changed by chemical reactions. Lead can combine chemically with other atoms or molecules to make new compounds. Lead is considered a heavy metal: "heavy," because lead weighs much more than the same volume of water, and "metal," because when it is refined from raw ore into its pure form, lead can be hammered or drawn into shapes.

23. Listed: Hazardous wastes that have been placed on one of three lists developed by EPA: Non-specific source wastes; specific source wastes; commercial chemical products. These lists were developed by examining different types of waste and chemical products to see if they exhibit one of the four characteristics, meet the statutory definition of hazardous waste, are acutely toxic or acutely hazardous, or are otherwise toxic.

24. Manifest: The shipping document, EPA form 8700-22, used for identifying the quantity, composition, origin, routing, and destination of hazardous waste during its transportation from the point of generation to the point of treatment, storage, or disposal.

25. Owner: The State of Missouri.

26. Pattern: The process of identifying specific building components containing lead-based paint at a hazardous level within a project or group of buildings.

27. Permissible Exposure Limit or PEL: The highest average amount of lead that you are allowed to breathe over an 8-hour period. The OSHA PEL for General Construction is 50 ug/m3.

28. Personal Samples: (for sampling lead dust) - Air samples collected from within the Breathing Zone of a worker, but outside the respirator. The samples are collected with a personal sampling pump, pulling 1 to 4 liters/minute of air.

29. Project Manager: An employee of the Division of Facilities Management, Design and Construction, representing the Director during the length of the project.

30. RCRA: Resource Conservation and Recovery Act of 1976. An amendment to the Solid Waste Disposal Act of 1965. RCRA was amended in 1980 and most recently on November 8, 1984 by Hazardous and Solid Waste Amendments.

31. Regulation or Rule: All or part of any Federal statement of general or particular applicability and future effect designed to: (1) implement, interpret, or prescribe law or policy, or, (2) describe the Federal Department's organization or its procedures or practice requirements.

32. Representative Sample: A sample of a universe or whole (e.g., waste sample pile, lagoon, ground water, or waste stream) which can be expected to exhibit the average properties of the universe or whole.

33. Site: The land or water area where any facility is physically located or conducted, including adjacent land used in connection with the facility or activity.

34. Solid Waste: As defined in RCRA the term "solid waste" means any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility, and other discarded material, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges which are point sources subject to permits under the Clean Water Act, or special nuclear or byproduct material as defined by the Atomic Energy Act of 1954.

35. Storage: The holding of hazardous waste for a temporary period, at the end of which time the hazardous waste is treated, disposed of, or stored elsewhere.

36. Substrate: A surface upon which a finish material (paint, etc.) has been or may be applied. Examples of substrates include wood, plaster, metal, and drywall.

37. Toxic Characteristic Leaching Procedure or TCLP: A test designed to identify wastes likely to leach hazardous concentrations of particular toxic constituents into the ground water as a result of improper management. This test provides the determination of whether a solid waste is classified as a hazardous substance.

38. Toxicity: A characteristic of hazardous waste as measured by the TCLP.

39. Transporter: Any person engaged in the off-site transportation of hazardous waste within the United States, by air, rail, highway, or water, if such transportation requires a manifest under 40 CFR Part 262.

40. Treatment: Any method, technique or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize it, or render it non-hazardous or less hazardous, or to recover it, make it safer to transport, store or dispose of, or amenable for recovery, storage, or volume reduction.

41. TSD: A treatment, storage, or disposal hazardous waste facility.

42. Waste Disposal Site: A solid waste disposal area that is authorized by the Missouri Department of Natural Resources to receive lead containing solid waste.

43. Waste Shipment Record: The shipping document, required to be originated and signed by the waste generator, used to track and substantiate the disposition of lead containing waste material.

B. Abbreviations:

ASTM: American Society for Testing and Materials.

DNR: Missouri Department of Natural Resources, 10 CSR 25 – Hazardous Waste Management. 260.350 – 260.575 – RSMo.

DHSS: Missouri Department of Health & Senior Services – Lead Poisoning Prevention.

DOT: U.S. Department of Transportation

EPA: U.S. Environmental Protection Agency

FMDC: Missouri Division of Facilities Management, Design & Construction

NIOSH: National Institute for Occupational Safety and Health

NVLAP: National Voluntary Laboratory Accreditation Program

OSHA: Occupational Safety and Health Administration, U.S. Department of Labor

RRP: Remove Replace Paint

1.4 SUMMARY OF REQUIREMENTS

A. All work performed on this project shall be done in the strictest accordance with applicable federal, state and local regulations, standards and codes governing the renovation activities described in this scope of work. All applicable codes, regulations and standards are adopted into this specification and will have the same force and effect as this specification.

B. The most recent edition of any relevant regulation, standard, document or code shall be in effect. Where conflict among requirements or these specifications exists, the most stringent requirements shall be utilized.

C. Because ingestion or inhalation of lead containing dust is a serious health hazard, construction work involving lead-based paint is regulated by the Occupational Safety and Health Administration Regulations. Compliance with OSHA regulations in the completion of this project is the **sole** responsibility of the Contractor.
OSHA regulations include but are not limited to conducting daily personnel air monitoring. However, the following requirements will apply regardless of the removal methods to be employed:

1) Regardless of the removal methods employed, the Contractor shall immediately stop work in the event of any of the following:

a) Visible Emissions.

b) Breathing Zone air samples exceed the PEL or Excursion Limit; furthermore, the Contractor shall implement corrective work practices, upon the approval of the owner and TPAM, make re-notification to all regulatory agencies of the changes in work practices and material conditions, and comply with all referenced regulations in this document and the applicable sections of this specification as noted.

2) If any of the conditions in subparagraph "a" above are observed by the Construction Administrator or by the TPAM, then either of these parties has the right to issue a directive to stop work. The Contractor shall be obligated to implement corrective action. The Contractor shall not be entitled to additional compensation.

A. Lead-Based Paint: This scope of work could include the disturbance of lead-containing components therefore all applicable federal, state, and local requirements, including notifications, should be followed. Should the renovation project include the disturbance of lead-containing components, the project will be performed as an RRP project; therefore, notification to the Missouri Department of Health and Senior Services (DHSS) will not be required.

1) Make notifications in compliance with Section 2.1 of this specification.

2) Recycle of all lead-containing components shall be performed in compliance with the federal and state regulations as listed but not necessarily limited to those under Section 4.0 of this specification. It is the Contractor's responsibility to perform all necessary testing if the waste will not be handled and disposed of a hazardous waste.

1.5 PROJECT COORDINATION

A. Contractor shall coordinate and schedule all phases of the work of the contract documents under his control with the Construction Administrator, Facility Representative, TPAM, any Sub-Contractors, materials suppliers, and other parties involved as necessary to ensure the smooth and orderly transition of separate phases, timely placement of items and materials, cooperation between parties, and proper execution of the work.

B. All coordination necessary with the facility will be made through the Facility Representative or their designated representative. The Construction Administrator and Facility Representative prior to the start of any work will approve scheduling and access to the work areas.

C. Normal working hours of the facility will be observed in performing the work unless the Facility Representative and Construction Administrator approve the modification as addressed prior to project beginning.

D. Contractor shall coordinate any news media inquiries or releases with the Facilities Management Design and Construction Division at (573) 751-3339.

E. The Contractor, project superintendent, Sub-Contractors, and other appropriate parties shall attend meetings as scheduled and as otherwise necessary to accomplish the work in a timely and efficient manner. Meetings may include, but are not limited to, the following:

1) Pre-Construction Conference: The Construction Administrator will schedule the pre-construction conference after the Notice of Award has been issued. The Construction Administrator will determine the date, time, and exact place of this meeting and all necessary parties will be notified. During the meeting, discussions will be held in regard to construction procedures, scheduling requirements, general conditions, special conditions, channels of communication, responsible persons, requirements for submittals, documentation requirements, payment applications, and other pertinent information necessary for completing the work. Specific requirements of the facility in regard to security, safety, utilities, access to buildings, and related matters will also be discussed.

2) If, in the opinion of the Construction Administrator, additional meetings are required to maintain progress or scheduling requirements on the work, additional meetings will be scheduled.

F. All fees required for notification requirements, re-notifications, and/or inspections by the applicable local, state or federal agencies shall be paid by the Contractor. This is a renovation project and therefore notification to the Missouri DHSS is not required.

PART 2 – PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 NOTIFICATIONS

A. Should renovation activities disturb the lead-containing components the project shall then be performed as an RRP renovation project. Notification to the Missouri DHSS will not be required.

B. The Contractor is responsible for notifications, and associated fees to other local, state or federal agencies (i.e. construction permits, etc.).

3.2 SUBMITTALS

A. The following items are required to be submitted by the Contractor prior to the commencement of work. The Contractor shall send one copy of the submittals for approval and then send approved copies of the submittals to the distribution list as discussed at the Pre-Construction Conference.

1) Should the renovation activities disturb the lead-impacted components then proof of EPA RRP training for the individuals that may disturb the lead-containing components must be submitted. The Contractor is not required to be RRP-certified; however, the individuals performing work that may impact lead-based paints shall have received the 8-hour RRP training.

2) Provide a recycling plan to detail the types of disposal containers to be used, the methods of transportation to the recycling site, the waste hauler, and recycling site.

B. Prior to final acceptance of the project, the following items must be submitted to the Contractor Administrator:

1) Waste Disposal/Recycling Receipts: The waste transporter's manifest and the recycling receipts on all lead containing waste removed from the project.

2) Close-out documentation required by the General Conditions, i.e., certified payrolls, Final Receipt of Payment and Release Form, Compliance with Prevailing Wage Affidavit and MBE/WBE reports.

C. Upon completion of the work and prior to final payment, the following information must be submitted to the Construction Administrator;

1) Waste disposal/recycling receipts and waste shipment records on all lead waste removed from the project. The Waste Shipment Record and Receipt form (or something similar) must be used for every load brought to the waste disposal/recycling site. The recycling and/or shipment record must include the following information:

a) Work site name and address

b) Project Number

c) Owner's name and telephone

d) Operator's (Contractor's) name, address and telephone

e) Waste Disposal/Recycling Site name, address and telephone

f) Name and address of responsible agency

g) Type of materials and quantity in cubic yards or tons

h) Name, address and phone number of transporter, and date of transport

i) Name, address and phone number of Waste Disposal/Recycling Site representative and date material was received

2) Any other specific requirements spelled out in the General Conditions.

3.3 DRAWINGS

A. For the purpose of this specification, drawings, when provided, are not intended to be used for anything other than a "reference" to the work area. Information is not specific to quantities or to the exact location of materials containing lead to be removed. The Contractor is required to field verify the conditions, locations, and quantities referenced.

3.4 LOCAL AREA PROTECTION/SITE SECURITY

A. The Contractor shall be responsible for all areas of the building used by him and/or Sub-Contractors in the performance of the work. He shall exert full control over the actions of all employees and Sub-Contractors with respect to the use and preservation of the existing building, except such controls as may be specifically reserved to the owner by these specifications.

B. The Contractor has the right to exclude from the work area all persons who have no purpose related to the work or its inspection and shall require all persons in the work area to observe the same regulations as he requires his employees.

C. The Contractor shall have control of site security during renovation in order to protect his work and equipment. He will have the owner's assistance in notifying building occupants of impending activity and enforcement of restricted access by owner's employees.

D. The Contractor shall keep, as a minimum, two 10-pound type ABC fire extinguishers on site at all times. One extinguisher will be maintained outside the work area and one inside the work area. The Contractor's employees shall be trained in the use and operation of the extinguishers.

E. The Contractor shall use as small an area as necessary for storage of supplies and equipment and shall keep such in a neat and orderly fashion.

F. Access to emergency exits, stairways, emergency disconnects (i.e. fire suppressant, electrical, plumbing, etc.), and all other important building systems must remain unrestricted during the project. The Contractor must submit a written request to the Facility Representative if their work (i.e dust barriers, equipment, etc.) will limit access to the building or important building systems.

G. Contractor is prohibited from entering portions of the building not required for completion of their scope of work.

H. The Contractor must secure access into the work area to prevent public entrance. The Contractor should post warning tape and install warning signs at each door leading to the work area. All signage should be kept within the work area and not in public areas of the building.

I. The Contractor shall maintain the work area free from rubbish, debris, and dirt and keep a clean safe work area. The Contractor shall take measures to keep surfaces free from contamination or shall clean and lock down surfaces after work is done, protect with plastic sheeting and/or plywood during work, or remove from the work area. Trash must be removed daily and will not be allowed to accumulate.

J. Contractor is responsible for all damage to the structure other than that required to complete the scope of work outlined herein. At the conclusion of the project, the Contractor must repair such incidental damage including tape and glue residue, paint coatings and damage to surfaces, finishes and building components.

K. All signage, equipment and material shall be kept within the work area. No signs shall be placed in public areas.

3.5 WORKER PROTECTION/TRAINING

A. The Contractor shall be responsible for providing his employees with proper respiratory protection, respiratory training, a written respirator program, medical examinations, protective clothing and equipment and for maintaining medical records to comply with OSHA requirements.

B. The Contractor shall be responsible for all testing and costs incurred for complying with requirements OSHA regulations for personal monitoring, including but not limited to, all applicable air and blood sampling.

C. All workers are to be trained in the dangers inherent in handling lead-containing materials, breathing lead dust, in proper work procedures, and personal and protective measures.

D. Should impact of the lead-bearing components be required, then all work must be performed by individuals who have been trained in accordance with the EPAs RRP Program. The Contractor is not required to be RRP-certified; however, the individuals performing work that may impact lead-based paints shall have received the 8-hour RRP training.

3.6 EMERGENCY PROTECTION PLAN

A. The Contractor shall be responsible for developing a written site specific Emergency Protection Plan and shall maintain this plan on-site. The plan shall include considerations for fire, explosion, toxic atmospheres, electrical hazards, slips, falls, and heat related injury. All employees shall be instructed and trained in the procedures. The plan shall also include contact information for local emergency personnel including the police, fire, and medical services and the nearest hospital/emergency medical treatment facility.

3.7 PROJECT SUPERINTENDENT

A. The Contractor shall designate a project superintendent, who will serve as the Contractor's representative on the project and will ensure that all work is performed in compliance with all applicable regulations and following minimum requirements:

1) The Superintendent and crew must be trained in accordance with the Environmental Protection Agency's Renovation, Repair and Painting (RRP) Program and must have at least one-year full-time experience in working with lead-based paint.

2) Shall be on site whenever work is going on.

3) Maintain a daily log documenting project events, visitations/inspections, problems, and accidents.

4) Implement first aid, safety training, respiratory protection, and ensure workers are trained in emergency procedures.

5) Conduct visual inspection of the work area prior to the final, third party, inspection. This inspection shall be documented.

a) Supervise activities of any Sub-Contractors of the Contractor to ensure compliance with contract documents.

3.8 THIRD PARTY AIR MONITORING

A. The Contractor will contract with an Air Sampling Professional to perform the following minimum duties:

1) Review Contractor's work plan and provide third party recommendations;

2) Collect air samples (should they be required) periodically during the RRP renovation project, as necessary. Air samples shall be analyzed by NIOSH Methods 7105, 7082, or 7300;

3) Provide Construction Administrator with periodic project reports describing amount and type of work done and other project concerns;

4) A visual inspection of the work area will be conducted prior to final RRP renovation clearance;

5) Review Contractor's disposal documentation;

6) Laboratories shall be accredited by ELLAP (AIHA – Environmental Lead Laboratory Accreditation Program) and NLLAP (EPA – National Lead Laboratory Accreditation Program); and

7) Neither the Contractor, nor any of its principals, officers, or directors may have any financial or business interests in any laboratory utilized on this contract.

3.9 FINAL CLEARANCE REQUIREMENTS

A. The work area, including all equipment, dust barriers (if necessary) must remain in place and operational until work area is cleared in accordance with this section.

B. Following the completion of the renovation work, the project superintendent shall notify the Construction Administrator. The superintendent shall then perform a visual inspection of the work area.

C. Renovation activities are not considered to be complete until the visual clearance is acceptable.

3.10 RE-ESTABLISHMENT OF THE WORK AREA AND SYSTEMS

A. Re-establishment of the work area shall only occur after the Contractor has complied with the clearance requirements of Section 2.9. Once the project's clearance criteria have been met, the Contractor may remove barriers, signs, trash, and equipment from the site.

B. Should any debris or dust be generated in the work area, then the entire area shall be cleaned, using a HEPA vacuum and wet wiping, as a final step to the renovation process.

C. All damage to finishes, equipment, and/or the area affected by the renovation shall be repaired by the Contractor to equal or better condition as was prior to the work, at no cost to the owner.

3.11 WASTE DISPOSAL

A. The lead-bearing components should be disposed of separately and properly recycled at a licensed facility.

3.12 CODES AND REGULATIONS

A. This section sets forth governmental regulations and industry standards, which are included and incorporated herein by reference and made a part of this specification.

B. Requirements include adherence to work practices and procedures set forth in applicable codes, regulations and standards.

C. General Applicability of Codes, Regulations and Standards: Except to the extent that more explicit or more stringent requirements are written directly into the contract documents, all applicable codes, regulations standards, statutes, laws and rules 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 are bound herewith. In the event of conflicting applicable codes, regulations, standards, statutes, laws, or rules, the more stringent shall apply to these specifications.

D. Contractor Responsibility: The Contractor shall assume full responsibility and liability for compliance with all applicable federal, state, and local regulations pertaining to work practices, hauling, disposal and protection of workers, visitors to the site, and persons occupying areas adjacent to the site. The Contractor is responsible for providing medical examinations and maintaining medical records of personnel as required by the applicable federal, state, and local regulations. The Contractor shall hold the owner harmless for failure to comply with any applicable work, hauling, disposal, safety, health, record keeping or other regulation on the part of himself, his employees, or his Sub-Contractors.

END OF SECTION 028333

SECTION 040120 – MAINTENANCE OF UNIT MASONRY

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. Section includes maintenance of unit masonry consisting of brick clay masonry restoration and cleaning as follows:

1. Repairing unit masonry, including replacing units.
2. Repointing joints.
3. Preliminary cleaning, including removing plant growth.
4. Cleaning exposed unit masonry surfaces.

B. Related Sections include the following:

1. Division 1, Section 012200 "Unit Prices" for administrative requirements for using Unit Prices.
2. Division 0, Section 007213, Article 4.0 "Changes in the Work" for Change Order requirements.

1.3 DEFINITIONS

A. Low-Pressure Spray: 100 to 400 psi; 4 to 6 gpm.

B. Medium-Pressure Spray: 400 to 800 psi; 4 to 6 gpm.

1.4 PRE-CONSTRUCTION TESTING

A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on masonry units as follows.

1. Existing Brick: Test each type of existing masonry unit indicated for replacement, according to testing methods in ASTM C 67 for compressive strength, 24-hour cold-water absorption, 5-hour boil absorption, saturation coefficient, and initial rate of absorption (suction). Carefully remove five existing units from locations designated by Architect. Take testing samples from these units.
2. Existing Mortar: Test according to ASTM C 295, modified as agreed by testing service and Architect for Project requirements, to determine proportional composition of original ingredients, sizes and colors of aggregates, and approximate strength. Use X-ray diffraction, infrared spectroscopy, and differential thermal analysis as necessary to supplement microscopical methods. Carefully remove existing mortar from within joints at five locations designated by Architect or testing service.

3. Temporary Patch: As directed by Architect, provide temporary materials at locations from which existing samples were taken.

4. Replacement Brick: Test each proposed type of replacement masonry unit, according to sampling and testing methods in ASTM C 67 for compressive strength, 24-hour cold-water absorption, 5-hour boil absorption, saturation coefficient, and initial rate of absorption (suction).

1.5 ACTION SUBMITTALS

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

B. Shop Drawings: For the following:

1. Provisions for expansion joints or other sealant joints.

C. Samples: For each exposed product and for each color and texture specified.

1.6 INFORMATIONAL SUBMITTALS

A. Pre-construction test reports.

1.7 QUALITY ASSURANCE

A. Qualifications: Engage an experienced masonry restoration and cleaning firm to perform work of this Section. Firm shall have completed work similar in material, design, and extent to that indicated for this Project with a record of successful in-service performance. Experience installing standard unit masonry is not sufficient experience for masonry restoration work.

1. At Contractor's option, work may be divided between two specialist firms: one for cleaning work and one for repair work.

2. Field Supervision: Restoration specialist firms shall maintain experienced full-time supervisors on Project site during times that clay masonry restoration and cleaning work is in progress.

3. Restoration Worker Qualifications: Persons who are experienced in restoration work of types they will be performing. When masonry units are being patched, assign at least one worker among those performing patching work who is trained and certified by manufacturer of patching compound to apply its products.

B. Mockups: Prepare mockups of restoration and cleaning to demonstrate aesthetic effects and set quality standards for materials and execution and for fabrication and installation.

1. Masonry Repair: Prepare sample areas for each type of masonry material indicated to have repair work performed. If not otherwise indicated, size each mockup not smaller than 2 adjacent whole units or approximately 48 inches (1200 mm) in least dimension. Erect sample areas in existing walls unless otherwise indicated, to demonstrate quality of materials, workmanship, and blending with existing work. Include the following as a minimum:

a. Replacement:

1) Four brick units replaced.

b. Patching: Three small holes at least 1 inch (25 mm) in diameter for each type of masonry material indicated to be patched, so as to leave no evidence of repair.

2. Repointing: Rake out joints in 2 separate areas , each approximately 36 inches (900 mm) high by 48 inches (1200 mm) wide for each type of repointing required and repoint one of the areas.

3. Cleaning: Clean an area approximately 25 sq. ft. (2.3 sq. m) for each type of masonry and surface condition.

C. Preinstallation Conference: Conduct conference at Project site.

1.8 FIELD CONDITIONS

A. Owner will occupy the buildings and grounds immediately adjacent to and below the areas to receive maintenance of unit masonry work. Conduct maintenance of unit masonry work so Owner's operations will not be disrupted.

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

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with maintenance of unit masonry work.

D. Hazardous Materials: Asbestos Containing Materials are present in the existing roof systems to be selectively demolished as a part of the scope of this work. A Limited Asbestos Inspection report is included in Section 028213 Asbestos Abatement of the Specifications. Examine report to become aware of locations where asbestos containing materials are present.

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

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

1. Maintain fire-protection facilities in service during maintenance of unit masonry operations.

1.9 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during maintenance of unit masonry operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 PEFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning maintenance of unit masonry operations. Comply with hauling and disposal regulations of authorities having jurisdiction.

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

2.2 MASONRY MATERIALS

A. Face Brick: Provide face brick, including specially molded, ground, cut, or sawed shapes where required to complete masonry restoration work.

1. Provide units with physical properties, colors, color variation within units, surface texture, size, and shape to match existing brickwork.

a. Physical Properties per ASTM C 67:

b. For existing brickwork that exhibits a range of colors or color variation within units, provide brick that proportionally matches that range and variation rather than brick that matches an individual color within that range.

B. Building Brick: Provide building brick complying with ASTM C 62, Grade SW where in contact with earth, Grade SW, MW, or NW for concealed backup; and of same vertical dimension as face brick, for masonry work concealed from view.

2.3 MORTAR MATERIALS

A. Portland Cement: ASTM C 150, Type I or Type II, gray where required for color matching of exposed mortar.

1. Provide cement containing not more than 0.60 percent total alkali when tested according to ASTM C 114.

B. Hydrated Lime: ASTM C 207, Type S.

C. Mortar Sand: ASTM C 144 unless otherwise indicated.

1. Color: Provide natural sand or ground marble, granite, or other sound stone of color necessary to produce required mortar color.

2. For pointing mortar, provide sand with rounded edges.

3. Match size, texture, and gradation of existing mortar sand as closely as possible. Blend several sands if necessary to achieve suitable match.

D. Mortar Pigments: Natural and synthetic iron oxides, compounded for mortar mixes. Use only pigments with a record of satisfactory performance in masonry mortars.

E. Water: Potable.

2.4 MANUFACTURED REPAIR MATERIALS

A. Masonry Patching Compound: Factory-mixed cementitious product that is custom manufactured for patching masonry.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. Cathedral Stone Products, Inc.; Jahn M100 Terra Cotta and Brick Repair Mortar.

b. Conproco Corporation; Mimic or Matrix.

c. Edison Coatings, Inc.; Custom System 45.

2. Use formulation that is vapor- and water permeable (equal to or more than the masonry unit), exhibits low shrinkage, has lower modulus of elasticity than the masonry units being repaired, and develops high bond strength to all types of masonry.

3. Formulate patching compound used for patching brick in colors and textures to match each masonry unit being patched.

2.5 CLEANING MATERIALS

A. Water: Potable.

B. Hot Water: Water heated to a temperature of 140 to 160 deg F (60 to 71 deg C).

C. Job-Mixed Detergent Solution: Solution prepared by mixing 2 cups (0.5 L) of tetrasodium polyphosphate, 1/2 cup (125 mL) of laundry detergent, and 20 quarts (20 L) of hot water for every 5 gal. (20 L) of solution required.

D. Job-Mixed Mold, Mildew, and Algae Remover: Solution prepared by mixing 2 cups (0.5 L) of tetrasodium polyphosphate, 5 quarts (5 L) of 5 percent sodium hypochlorite (bleach), and 15 quarts (15 L) of hot water for every 5 gal. (20 L) of solution required.

E. Nonacidic Gel Cleaner: Manufacturer's standard gel formulation, with pH between 6 and 9, that contains detergents with chelating agents and is specifically formulated for cleaning masonry surfaces.

F. Nonacidic Liquid Cleaner: Manufacturer's standard mildly alkaline liquid cleaner formulated for removing mold, mildew, and other organic soiling from ordinary building materials, including polished stone, brick, aluminum, plastics, and wood.

G. Mild Acidic Cleaner: Manufacturer's standard mildly acidic cleaner containing no muriatic (hydrochloric), hydrofluoric, or sulfuric acid; or ammonium bifluoride or chlorine bleaches.

H. Acidic Cleaner: Manufacturer's standard acidic masonry cleaner composed of hydrofluoric acid or ammonium bifluoride blended with other acids, detergents, wetting agents, and inhibitors.

2.6 ACCESSORY MATERIALS

A. Setting Buttons: Resilient plastic buttons, non-staining to masonry, sized to suit joint thicknesses and bed depths of masonry units without intruding into required depths of pointing materials.

2.7 MORTAR MIXES

A. Measurement and Mixing: Measure cementitious materials and sand in a dry condition by volume or equivalent weight. Do not measure by shovel; use known measure. Mix materials in a clean, mechanical batch mixer.

1. Mixing Pointing Mortar: Thoroughly mix cementitious materials and sand together before adding any water. Then mix again adding only enough water to produce a damp, unworkable mix that will retain its form when pressed into a ball. Maintain mortar in this dampened condition for 15 to 30 minutes. Add remaining water in small portions until mortar reaches desired consistency. Use mortar within one hour of final mixing; do not retemper or use partially hardened material.

B. Colored Mortar: Produce mortar of color required by using specified ingredients. Do not alter specified proportions without Architect's approval.

1. Mortar Pigments: Where mortar pigments are indicated, do not exceed a pigment-to-cement ratio of 1:10 by weight.

C. Do not use admixtures in mortar unless otherwise indicated.

D. Mortar Proportions: Mix mortar materials in the following proportions:

1. Pointing Mortar for Brick: 1 part portland cement, 2 parts lime, and 6 parts sand.

a. Add mortar pigments to produce mortar colors required.

2.8 CHEMICAL CLEANING SOLUTIONS

A. Dilute chemical cleaners with water to produce solutions not exceeding concentration recommended by chemical-cleaner manufacturer.

B. Acidic Cleaner Solution for Brick: Dilute with water to produce hydrofluoric acid content of 3 percent or less, but not greater than that recommended by chemical-cleaner manufacturer.

C. Acidic Cleaner Solution for Glazed Terra Cotta: Dilute with water to concentration demonstrated by testing that does not etch or otherwise damage terra cotta surface, but not greater than that recommended by chemical-cleaner manufacturer.

PART 3 - EXECUTION

3.1 PROTECTION

A. Protect persons, motor vehicles, surrounding surfaces of building being restored, building site, plants, and surrounding buildings from harm resulting from masonry restoration work.

B. Comply with chemical-cleaner manufacturer's written instructions for protecting building and other surfaces against damage from exposure to its products. Prevent chemical-cleaning solutions from coming into contact with people, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.

1. Cover adjacent surfaces with materials that are proven to resist chemical cleaners used unless chemical cleaners being used will not damage adjacent surfaces. Use materials that contain only waterproof, UV-resistant adhesives. Apply masking agents to comply with manufacturer's written instructions. When no longer needed, promptly remove masking to prevent adhesive staining.

2. Keep wall wet below area being cleaned to prevent streaking from runoff.

3.2 BRICK REMOVAL AND REPLACEMENT

A. At locations indicated, remove bricks that are damaged, spalled, or deteriorated or are to be reused. Carefully demolish or remove entire units from joint to joint, without damaging surrounding masonry, in a manner that permits replacement with full-size units.

B. Support and protect remaining masonry that surrounds removal area. Maintain flashing, reinforcement, lintels, and adjoining construction in an undamaged condition.

C. Notify Architect of unforeseen detrimental conditions including voids, cracks, bulges, and loose units in existing masonry backup, rotted wood, rusted metal, and other deteriorated items.

D. Remove in an undamaged condition as many whole bricks as possible.

1. Remove mortar, loose particles, and soil from brick by cleaning with hand chisels, brushes, and water.

2. Remove sealants by cutting close to brick with utility knife and cleaning with solvents.

E. Clean bricks surrounding removal areas by removing mortar, dust, and loose particles in preparation for replacement.

F. Replace removed damaged brick with other removed brick in good quality, where possible, or with new brick matching existing brick, including size. Do not use broken units unless they can be cut to usable size.

G. Install replacement brick into bonding and coursing pattern of existing brick. If cutting is required, use a motor-driven saw designed to cut masonry with clean, sharp, unchipped edges.

1. Maintain joint width for replacement units to match existing joints.

2. Use setting buttons or shims to set units accurately spaced with uniform joints.

H. Lay replacement brick with completely filled bed, head, and collar joints. Butter ends with sufficient mortar to fill head joints and shove into place. Wet both replacement and surrounding bricks that have ASTM C 67 initial rates of absorption (suction) of more than 30 g/30 sq. in. per min. (30 g/194 sq. cm per min.). Use wetting methods that ensure that units are nearly saturated but surface is dry when laid.

1. Tool exposed mortar joints in repaired areas to match joints of surrounding existing brickwork.

2. Rake out mortar used for laying brick before mortar sets and point new mortar joints in repaired area to comply with requirements for repointing existing masonry, and at same time as repointing of surrounding area.

3. When mortar is sufficiently hard to support units, remove shims and other devices interfering with pointing of joints.

3.3 MASONRY UNIT PATCHING

A. Patching Bricks:

1. Remove loose material from masonry surface. Carefully remove additional material so patch will not have feathered edges but will have square or slightly undercut edges on area to be patched and will be at least 1/4 inch (6 mm) thick, but not less than recommended by patching compound manufacturer.

2. Mask adjacent mortar joint or rake out for repointing if patch will extend to edge of masonry unit.

3. Mix patching compound in individual batches to match each unit being patched.

4. Rinse surface to be patched and leave damp, but without standing water.

5. Brush-coat surfaces with slurry coat of patching compound according to manufacturer's written instructions.

6. Place patching compound in layers as recommended by patching compound manufacturer, but not less than 1/4 inch (6 mm) or more than 2 inches (50 mm) thick. Roughen surface of each layer to provide a key for next layer.

7. Trowel, scrape, or carve surface of patch to match texture and surrounding surface plane or contour of the masonry unit. Shape and finish surface before or after curing, as determined by testing, to best match existing masonry unit.

8. Keep each layer damp for 72 hours or until patching compound has set.

3.4 CLEANING MASONRY, GENERAL

A. Proceed with cleaning in an orderly manner; work from top to bottom of each scaffold width and from one end of each elevation to the other. Ensure that dirty residues and rinse water will not wash over cleaned, dry surfaces.

B. Use only those cleaning methods indicated for each masonry material and location.

1. Do not use wire brushes or brushes that are not resistant to chemical cleaner being used. Do not use plastic-bristle brushes if natural-fiber brushes will resist chemical cleaner being used.

2. Use spray equipment that provides controlled application at volume and pressure indicated, measured at spray tip. Adjust pressure and volume to ensure that cleaning methods do not damage masonry.

   a. Equip units with pressure gages.

3. For chemical-cleaner spray application, use low-pressure tank or chemical pump suitable for chemical cleaner indicated, equipped with cone-shaped spray tip.

4. For water-spray application, use fan-shaped spray tip that disperses water at an angle of 25 to 50 degrees.

5. For heated water-spray application, use equipment capable of maintaining temperature between 140 and 160 deg F (60 and 71 deg C) at flow rates indicated.

C. Perform each cleaning method indicated in a manner that results in uniform coverage of all surfaces, including corners, moldings, and interstices, and that produces an even effect without streaking or damaging masonry surfaces.

D. Water-Spray Application Method: Unless otherwise indicated, hold spray nozzle at least 6 inches (150 mm) from surface of masonry and apply water in horizontal back and forth sweeping motion, overlapping previous strokes to produce uniform coverage.

E. Chemical-Cleaner Application Methods: Apply chemical cleaners to masonry surfaces to comply with chemical-cleaner manufacturer's written instructions; use brush or spray application. Do not spray apply at pressures exceeding 50 psi (345 kPa). Do not allow chemicals to remain on surface for periods longer than those indicated or recommended by manufacturer.

F. Rinse off chemical residue and soil by working upward from bottom to top of each treated area at each stage or scaffold setting. Periodically during each rinse, test pH of rinse water running off of cleaned area to determine that chemical cleaner is completely removed.

1. Apply neutralizing agent and repeat rinse if necessary to produce tested pH of between 6.7 and 7.5.

3.5 PRELIMINARY CLEANING

A. Removing Plant Growth: Completely remove visible plant, moss, and shrub growth from masonry surfaces. Carefully remove plants, creepers, and vegetation by cutting at roots and allowing to dry as long as possible before removal. Remove loose soil and debris from open masonry joints to whatever depth they occur.

B. Preliminary Cleaning: Before beginning general cleaning, remove extraneous substances that are resistant to cleaning methods being used. Extraneous substances include paint, calking, asphalt, and tar.

1. Carefully remove heavy accumulations of material from surface of masonry with a sharp chisel. Do not scratch or chip masonry surface.
2. Remove paint and calking with alkaline paint remover.
    a. Comply with requirements in "Paint Removal" Article.
    b. Repeat application up to two times if needed.
3. Remove asphalt and tar with solvent-type paint remover.
    a. Comply with requirements in "Paint Removal" Article.
    b. Apply paint remover only to asphalt and tar by brush without prewetting.
    c. Allow paint remover to remain on surface for 10 to 30 minutes.
    d. Repeat application if needed.

3.6 CLEANING MASONRY

A. Detergent Cleaning:

1. Wet masonry with cold water applied by low-pressure spray.
2. Scrub masonry with detergent solution using medium-soft brushes until soil is thoroughly dislodged and can be removed by rinsing. Use small brushes to remove soil from mortar joints and crevices. Dip brush in solution often to ensure that adequate fresh detergent is used and that masonry surface remains wet.
3. Rinse with cold water applied by low-pressure spray to remove detergent solution and soil.
4. Repeat cleaning procedure above where required to produce cleaning effect established by mockup.

B. Mold, Mildew, and Algae Removal:

1. Wet masonry with cold water applied by low-pressure spray.
2. Apply mold, mildew, and algae remover by brush.
3. Scrub masonry with medium-soft brushes until mold, mildew, and algae are thoroughly dislodged and can be removed by rinsing. Use small brushes for mortar joints and crevices. Dip brush in mold, mildew, and algae remover often to ensure that adequate fresh cleaner is used and that masonry surface remains wet.

4. Rinse with cold water applied by low-pressure spray to remove mold, mildew, and algae remover and soil.

5. Repeat cleaning procedure above where required to produce cleaning effect established by mockup.

C. Nonacidic Gel Chemical Cleaning:

1. Wet masonry with cold water applied by low-pressure spray.

2. Apply nonacidic gel cleaner in 1/8-inch (3-mm) thickness by brush, working into joints and crevices. Apply quickly and do not brush out excessively so area will be uniformly covered with fresh cleaner and dwell time will be uniform throughout area being cleaned.

3. Let cleaner remain on surface for period indicated below:

a. As recommended by chemical-cleaner manufacturer.

b. As established by mockup.

4. Remove bulk of nonacidic gel cleaner by squeegeeing into containers for disposal.

5. Rinse with cold water applied by low-pressure spray to remove chemicals and soil.

6. Repeat cleaning procedure above where required to produce cleaning effect established by mockup. Do not repeat more than once.

D. Nonacidic Liquid Chemical Cleaning:

1. Wet masonry with cold water applied by low-pressure spray.

2. Apply cleaner to masonry in two applications by brush or low-pressure spray. Let cleaner remain on surface for period indicated below:

a. As recommended by chemical-cleaner manufacturer.

b. As established by mockup.

3. Rinse with cold water applied by low-pressure spray to remove chemicals and soil.

4. Repeat cleaning procedure above where required to produce cleaning effect established by mockup. Do not repeat more than once.

E. Mild Acidic or Acidic Chemical Cleaning:

1. Wet masonry with cold water applied by low-pressure spray.

2. Apply cleaner to masonry in two applications by brush or low-pressure spray. Let cleaner remain on surface for period indicated below:

a. As recommended by chemical-cleaner manufacturer.

b. As established by mockup.

3. Rinse with cold water applied by low-pressure spray to remove chemicals and soil.

4. Repeat cleaning procedure above where required to produce cleaning effect established by mockup. Do not repeat more than once.

3.7 REPOINTING MASONRY

A. Rake out and repoint joints to the following extent:

1. All joints in areas indicated.

2. Joints where mortar is missing or where they contain holes.
3. Cracked joints where cracks can be penetrated at least 1/4 inch (6 mm) by a knife blade 0.027 inch (0.7 mm) thick.
4. Cracked joints where cracks are 1/16 inch (1.6 mm) or more in width and of any depth.
5. Joints where they sound hollow when tapped by metal object.
6. Joints where they are worn back 1/4 inch (6 mm) or more from surface.
7. Joints where they are deteriorated to point that mortar can be easily removed by hand, without tools.
8. Joints where they have been filled with substances other than mortar.
9. Joints indicated as sealant-filled joints.

B. Do not rake out and repoint joints where not required.

C. Rake out joints as follows, according to procedures demonstrated in approved mockup:
1. Remove mortar from joints to depth of 2 times joint width, but not less than 1/2 inch (13 mm) or not less than that required to expose sound, unweathered mortar.
2. Remove mortar from masonry surfaces within raked-out joints to provide reveals with square backs and to expose masonry for contact with pointing mortar. Brush, vacuum, or flush joints to remove dirt and loose debris.
3. Do not spall edges of masonry units or widen joints. Replace or patch damaged masonry units as directed by Architect.
    a. Cut out mortar by hand with chisel and resilient mallet. Do not use power-operated grinders.
    b. Cut out center of mortar bed joints using angle grinders with diamond-impregnated metal blades. Remove remaining mortar by hand with chisel and resilient mallet.

D. Notify Architect of unforeseen detrimental conditions including voids in mortar joints, cracks, loose masonry units, rotted wood, rusted metal, and other deteriorated items.

E. Pointing with Mortar:
1. Rinse joint surfaces with water to remove dust and mortar particles. Time rinsing application so, at time of pointing, joint surfaces are damp but free of standing water. If rinse water dries, dampen joint surfaces before pointing.
2. Apply pointing mortar first to areas where existing mortar was removed to depths greater than surrounding areas. Apply in layers not greater than 3/8 inch (9 mm) until a uniform depth is formed. Fully compact each layer thoroughly and allow it to become thumbprint hard before applying next layer.
3. After low areas have been filled to same depth as remaining joints, point all joints by placing mortar in layers not greater than 3/8 inch (9 mm). Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing masonry units have worn or rounded edges, slightly recess finished mortar surface below face of masonry to avoid widened joint faces. Take care not to spread mortar beyond joint edges onto exposed masonry surfaces or to featheredge the mortar.

4. When mortar is thumbprint hard, tool joints to match original appearance of joints as demonstrated in approved mockup. Remove excess mortar from edge of joint by brushing.

5. Cure mortar by maintaining in thoroughly damp condition for at least 72 consecutive hours including weekends and holidays.

    a. Acceptable curing methods include covering with wet burlap and plastic sheeting, periodic hand misting, and periodic mist spraying using system of pipes, mist heads, and timers.

6. Hairline cracking within the mortar or mortar separation at edge of a joint is unacceptable. Completely remove such mortar and repoint.

F. Where repointing work precedes cleaning of existing masonry, allow mortar to harden at least 30 days before beginning cleaning work.

3.8 FINAL CLEANING

A. After mortar has fully hardened, thoroughly clean exposed masonry surfaces of excess mortar and foreign matter; use wood scrapers, stiff-nylon or -fiber brushes, and clean water, spray applied at low pressure.

1. Do not use metal scrapers or brushes.

2. Do not use acidic or alkaline cleaners.

END OF SECTION 040120

SECTION 053123 – STEEL ROOF DECKING

PART 1 - GENERAL

1.1 SUMMARY

A. Related Documents:

1. Drawings and general provisions of the Contract apply to this Section.
2. Review these documents for coordination with additional requirements and information that apply to work under this Section.

B. Section Includes:

1. Steel roof deck and accessories.
2. Formed steel cant strips, eave strips, valley strips and closure strips.
3. Framed openings up to 18 inches.
4. Bearing plates and angles.

C. Related Sections:

1. Division 1 - General Requirements.

1.2 REFERENCES

A. General:

1. The following documents form part of the Specifications to the extent stated. Where differences exist between standards, the one affording the greatest protection shall apply.
2. Unless otherwise noted, the referenced standard edition is the current one at the time of commencement of the Work.

B. AISI - Specification for the Design of Cold-Formed Steel Structural Members

C. ASTM International:

1. ASTM A36 / A36M Standard Specification for Carbon Structural Steel
2. ASTM A653 / A653M Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
3. ASTM A924 Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process

D. AWS D1.1 - Structural Welding Code

E. Steel Deck Institute (SDI) - Design Manual for Composite Decks, Form Decks, Roof Decks

F. Factory Mutual FM4451 – Approval Standard for Factory Mutual Approval Inspection Procedure

G. Underwriters' Laboratories (UL) - Fire Resistance Directory

H. Steel Structures Painting Council (SSPC) – Systems and Specifications

1.3 SUBMITTALS

A. Submit under provisions of Division 1 Section 013300 "Submittals".

B. Shop drawings: Indicate decking plan, deck profile dimensions, supports, projections, openings, finishes, pertinent details, and accessories.

C. Certificates are required which indicate the decking meets or exceeds specified requirements.

D. Submit documentation that welders employed on the Work meet AWS qualifications.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site under provisions of Division 1 Section 011000 "Summary of Work".

B. Store decking on wood sleepers with slope for positive drainage cut plastic wrappings to encourage ventilation.

PART 2 - PRODUCTS

2.1 MATERIALS

1. Approved manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:
    a. Inryco Inc.
    b. Verco Decking, Inc.
    c. Vulcraft Group.
    d. Approved equal.

B. Sheet steel shall conform to ASTM A653, Grade 33, structural quality, and be galvanized with a G90 coating; in accordance with ASTM A924 prime painted.

C. Bearing angles shall be galvanized steel conforming to ASTM A 36.

D. Welding materials shall conform to AWS D1.1.

E. Cell closures shall be closed cell foam rubber, 1-inch thick, profiled to decking.

F. Accessories are to be the same material and finish as the decking and not less than 20 gauge (0.0358 inch) of required profiles and size.

G. The primer and touch-up paint for painted deck shall be free of lead or zinc chromate. Galvanizing repair paint shall conform to SSPC 20 and result in a dry film containing 94 percent zinc dust by weight.

2.2 FABRICATION

A. Metal decking shall be 22 gauge (0.0299 inch) - sheet steel (excluding finish), 1-1/2 inch high with fluted profile to SDI in 24 inch or 32 inch wide sheets. The decking will be multiple span with lapped joints.

B. Cant strips of formed sheet steel shall be the same gauge as the decking with a 45 degree slope, a nominal height of 3-1/2 inches and a flange for attachment.

G. Welding washers shall be uncoated mild steel, 3/4 inch outside diameter and 1/8 inch thick.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify existing conditions prior to starting work.

3.2 INSTALLATION

A. Erect metal decking in accordance with SDI Design Manual for Composite Decks, Form Decks, Roof Decks. Provide welding in accordance with AWS D1.1.

B. On steel support members provide at least 1-1/2 inch bearing. Align and level on supports.

C. On masonry support surfaces provide at least 4 inches bearing. Align and level on supports.

D. Mechanically fasten male/female side laps at 24 inches O.C. maximum. Weld deck to steel supports at the ends with fusion welds through weld washers at 12 inches O.C.

E. Seal deck joints, laps, ends and penetrations with sealant.

F. Reinforce deck openings from 6 to 18 inches in size with 2 inch by 2 inch by 1/4-inch steel angles. Extend angles at least two flutes each side of the opening and weld to the deck.

G. Install 6-inch-wide sheet steel cover plates where deck changes direction. Spot weld in place 12 inches O.C. maximum.

H. Position roof sump pans with flange bearing on top surface of deck. Weld at each deck flute.

I. Place metal cant strips in position and weld to decking.

J. Immediately after welding painted deck in place and removing slag, touch-up damaged surface coating with prime paint. Immediately after welding galvanized deck in place and removing slag, touch-up damaged surface coating with galvanizing repair paint.

K. Equipment openings in roof deck shall only be cut immediately prior to placing equipment over the opening.

L. Fire Watch: Contractor shall assign personnel to maintain surveillance of areas where hot work is being conducted per OSHA regulations.

END OF SECTION 053123

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Framing with dimension lumber.
2. Rooftop equipment bases and support curbs.
3. Wood blocking, cants, and nailers.
4. Plywood backing panels.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements
2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.

1.3 INFORMATIONAL SUBMITTALS

A. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. Provide dressed lumber, S4S, unless otherwise indicated.

B. Maximum Moisture Content of Lumber: 19 percent for 2-inch nominal thickness or less, 19 percent for more than 2-inch nominal thickness unless otherwise indicated.

C. Engineered Wood Products: Provide engineered wood products acceptable to the Designer and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.

1. Allowable Design Stresses: Provide engineered wood products with allowable design stresses, as published by manufacturer, that meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

D. Plywood Products:

1. Fir Plywood: U.S. Product Standard PS1 (latest edition), grade-stamped and edge branded to DFPA Standards of the American Plywood Association.

2. Plywood: CDX (Exterior – Exposure 1), rated for 24-inch span, thickness as shown on Drawings.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC3b for exterior construction not in contact with the ground and Use Category UC4a for items in contact with the ground.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium. Do not use inorganic boron (SBX) for sill plates.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

D. Application: Treat all rough carpentry unless otherwise indicated.

1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.

2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.

3. Wood framing and furring attached directly to the interior of below-grade exterior masonry or concrete walls.

4. Wood framing members that are less than 18 inches above the ground in crawlspaces or unexcavated areas.

5. Wood floor plates that are installed over concrete slabs-on-grade.

2.3 FIRE-RETARDANT-TREATED MATERIALS

A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article, that are acceptable to the Designer, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.

1. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.

2. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.

C. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Kiln-dry plywood after treatment to a maximum moisture content of 15 percent.

D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.

E. Application: Treat items indicated on Drawings, and the following:

1. Concealed blocking.
2. Roof construction.
3. Plywood backing panels.

2.4 DIMENSION LUMBER FRAMING

A. Framing Other Than Non-Load-Bearing Interior Partitions: Construction or No. 2 grade.

1. Application: Framing other than interior partitions not indicated as load-bearing.
2. Species:
   a. Hem-fir (north); NLGA.
   b. Southern pine; SPIB.
   c. Douglas fir-larch; WCLIB or WWPA.
   d. Mixed southern pine; SPIB.
   e. Spruce-pine-fir; NLGA.
   f. Douglas fir-south; WWPA.
   g. Hem-fir; WCLIB or WWPA.
   h. Douglas fir-larch (north); NLGA.
   i. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.

2.5 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.
3. Rooftop equipment bases and support curbs.
4. Cants.
5. Furring.
6. Grounds.

B. For items of dimension lumber size, provide Construction or No. 2 grade lumber of any species.

C. For concealed boards, provide lumber with 19 percent maximum moisture content and any of the following species and grades:

1. Mixed southern pine; No. 2 grade; SPIB.
2. Eastern softwoods; No. 2 Common grade; NeLMA.
3. Northern species; No. 2 Common grade; NLGA.
4. Western woods; Construction or No. 2 Common grade; WCLIB or WWPA.

2.6 PLYWOOD BACKING PANELS

A. Equipment Backing Panels: Exterior, C-C Plugged in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.

2.7 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. Where rough carpentry is exposed to weather, in-ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

B. Power-Driven Fasteners: NES NER-272.

C. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

2.8 METAL FRAMING ANCHORS

A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

1. Cleveland Steel Specialty Co.
2. KC Metals Products, Inc.
3. Phoenix Metal Products, Inc.
4. Simpson Strong-Tie Co., Inc.
5. USP Structural Connectors.

B. Galvanized-Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 (Z180) coating designation.

1. Use for interior locations unless otherwise indicated.

C. Hot-Dip, Heavy-Galvanized Steel Sheet: ASTM A 653/A 653M; structural steel (SS), high-strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS Type B); G185 (Z550) coating designation; and not less than 0.036 inch thick.

1. Use for wood-preservative-treated lumber and where indicated.

2.9 MISCELLANEOUS MATERIALS

A. Sill-Sealer Gaskets: Glass-fiber-resilient insulation, fabricated in strip form, for use as a sill sealer; 1-inch nominal thickness, compressible to 1/32 inch; selected from manufacturer's standard widths to suit width of sill members indicated.

B. Sill-Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to suit width of sill members indicated.

C. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.025 inch.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.

B. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

C. Install fire-retardant treated plywood backing panels with classification marking of testing agency exposed to view.

D. Shear Wall Panels: Install shear wall panels to comply with manufacturer's written instructions.

E. Metal Framing Anchors: Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.

F. Do not splice structural members between supports unless otherwise indicated.

G. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

H. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with requirements for attaching other construction.

3.2 PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

B. Protect rough carpentry from weather.

END OF SECTION 061000

SECTION 074113 - METAL ROOF PANELS

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. Section includes:

1. Standing-seam metal roof panels.
2. Accessories

1.3 DEFINITIONS

A. Metal Roof Panel Assembly: Metal roof panels, attachment system components, miscellaneous metal framing, and accessories necessary for a complete weathertight roofing system.

1.4 PERFORMANCE REQUIREMENTS

A. General Performance: Metal roof panels shall comply with performance requirements without failure due to defective manufacture, fabrication, installation, or other defects in construction.

B. Delegated Design: Design metal roof panel assembly, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

C. Air Infiltration: Air leakage through the metal roof assembly of not more than 0.015 cfm/sq. ft. of roof area when tested according to ASTM E 1680 at the following test-pressure difference: 624 PSF.

D. Water Penetration: No water penetration when tested according to ASTM E 1646 at the following test-pressure difference: 20 percent of positive design wind pressure but not less than 6.24 lbf/sq. ft.

E. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift resistance class UL 90.

F. Metal roof panel assembly shall be installed in accordance with UL construction method #448.

G. FMG Listing: Provide a metal roof panel assembly that complies with the requirements of FMG 4471 and is listed in FMG's "Approval Guide" for Class I construction. Metal roof panel assembly materials shall be identified with FMG markings.

1. Fire/Windstorm Classification: Class I A-90.
2. Hail Resistance: MH

H. Structural Performance: Provide metal roof panel assemblies capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated, based on testing according to ASTM E 1592:

1. Wind Loads: Uniform pressure of 20 lbf/sq. ft. acting inward or outward.
2. Snow Loads: 20 lbf/sq. ft.
3. Deflection Limits: Metal roof panel assemblies shall withstand wind and snow loads with vertical deflections no greater than 1/180 of the span.

I. Thermal Movements: Allow for thermal movements resulting from ambient and surface temperature changes. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss. Temperature Change: 180 degrees F material surfaces.

1.5 SUBMITTALS

A. Product Data: For each type of product, include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.

B. Shop Drawings: Show fabrication and installation layouts of metal roof panels; details of edge conditions, side-seam and end-lap joints, panel profiles, corners, anchorages, trim, flashings, closures, accessories and special details. Distinguish between factory and field-assembled work.

1. Accessories: Include details of the following items, at a scale of not less than 1½ inches per 12 inches:
   a. Flashing and trim.
   b. Roof curbs.
   c. Snow guards. Manufacturer's layout at 1/8 inch per 12 inches.

C. Samples for Initial Selection: For each type of metal panel indicated with factory-applied color finishes. Include similar Samples of trim and accessories involving color selection.

D. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below.

1. Metal Panels: 12 inches long by actual panel width. Include clips, fasteners, closures, and other metal roof panel accessories.
2. Trim and Closures: 12 inches long. Include fasteners and other exposed accessories.

E. Delegated-Design Submittal: For metal roof panel assembly, indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

F. Coordination Drawings: Roof plans, drawn to scale, on which the following items are shown and coordinated with each other, base on input from installers of the items involved:

1. Roof panels and attachments.
2. Roof-mounted items including roof hatches, equipment supports, pipe supports and penetrations, snow guards, and items mounted on roof curbs.

G. Manufacturer's Certificates: Signed by manufacturer certifying that roof panels comply with stated performance requirements.

H. Qualification Data: For qualified installer, professional engineer and testing agency.

I. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency for each product.

J. Field Quality-Control Reports.

K. Maintenance Data: For metal roof panel assembly, to include in maintenance manuals.

L. Warranties: Samples of manufacturer's special warranties for the metal roof panel assembly.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Manufacturer and Installer.

B. Product Test Reports: For each product, for tests performed by a qualified testing agency.

C. Field quality-control reports.

D. Sample Warranties: For special warranties.

1.7 CLOSEOUT SUBMITTALS

A. Maintenance Data: For metal panels to include in maintenance manuals.

1.8 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in architectural sheet metal products.

B. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by the manufacturer.

C. Source Limitations: Obtain each type of metal roof panels from single source from a single manufacturer.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Deliver components, metal roof panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.

B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.

C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or any other surface damage.

D. Retain strippable protective covering on metal panels until installation. Protect strippable protective covering on metal roof panels from exposure to sunlight and high humidity. Remove as panels are being installed. Verify film is not left on installed panels.

1.10 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal roof panels to be performed according to manufacturer's written instructions and warranty requirements.

B. Field Measurements: Verify actual dimensions of construction contiguous with metal roof panels by field measurements before fabrication and installation.

1.11 COORDINATION

A. Coordinate sizes and locations of roof curbs, equipment supports, and roof penetrations with actual equipment provided or existing on roof.

B. Coordinate metal roof panel installation with rain drainage work, flashing, trim, construction of deck, nailers, walls, soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.12 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal roof panel assemblies that fail in materials or workmanship within specified warranty period at no cost to the Owner.

1. Failures include, but are not limited to, the following:
    a. Structural failures including rupturing, or perforating.
    b. Deterioration of metals and other materials beyond normal weathering.
2. Warranty Period: 20 years from date of Substantial Completion.

B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal roof panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Exposed Panel Finish: Deterioration includes, but is not limited to the following:
    a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
    b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
    c. Cracking, chipping, checking, peeling, or failure of paint to adhere to bare metal.
2. Finish Warranty Period: 20 years from date of Substantial Completion.

C. Special Weathertightness Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace, at no cost to the Owner, the metal roof panel assemblies that fail to remain weathertight, including leaks, within specified warranty period.

1. Warranty Period: 20 years from date of Substantial Completion.
2. Shop drawings must be provided to, reviewed, and approved by panel manufacturer prior to panel system installation.
3. Inspections by panel system manufacturer technical representative are required. Perform first inspection when underlayment and flashing are in place and second inspection when the roof is complete.

D. Special Installer Warranty: Furnish a written warranty signed by the Panel Applicator guaranteeing materials and workmanship for weathertightness of the metal panel roof assembly, flashings, penetrations, and against all leaks.

1. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PANEL MATERIALS

A. Metallic-Coated Steel Sheet: Restricted flatness steel sheet metallic coated by the hot-dip process and prepainted by the coil-coating process to comply with ASTM A 755/A 755M.

1. Nominal Thickness: 0.024 inch (24 gauge).

2. Zinc-Coated (galvanized) Steel Sheet: ASTM A 653/ A 653 M, G90 coating designation; structural quality.

3. Surface: Smooth, straited finish.

4. Exposed Coil-Coated Finish: Two-coat fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat or acrylic-coated galvalume. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturer's written instructions.

5. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.

B. Painted materials shall have a removable plastic film to protect the paint during roll forming, shipping and handling.

C. Color: As selected by Architect from manufacturer's full range of standard colors.

2.2 METAL ROOF PANELS

A. General: Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed clips in side laps. Include clips, cleats, pressure plates, and accessories required for weathertight installation.

1. Steel Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E 1514.

B. Vertical-Rib, Snap-Joint, Standing-Seam Metal Roof Panels: Formed with vertical ribs at panel edges and a flat pan between ribs; designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of panels, engaging opposite edge of adjacent panels, and snapping panels together.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following manufacturers.

a. ATAS International

b. Berridge Manufacturing Company – Cee Lock System

c. McElroy Metal

d. MBCI, a division of NCI Building Systems, L.P. – LokSeam System

e. Approved equal

2. Nominal Thickness: 0.024 inch (24 gauge).

3. Provide optional vinyl weather seal at lock seams.

4. Color: As selected by Architect from manufacturer's full range of standard colors.

5. Panel Coverage: 16.5 inches.

6. Panel Height: 1.5 inches.

2.3 UNDERLAYMENT MATERIALS

A. Self-Adhering, High-Temperature Underlayment: Provide self-adhering, cold-applied, sheet underlayment, a minimum of 40 mils thick, consisting of slip-resistant, polyethylene-film top surface laminated to a layer of butyl or SBS-modified asphalt adhesive, with release-paper backing. Provide primer when recommended by underlayment manufacturer.

1. Thermal Stability: Stable after testing at 240 deg F; ASTM D 1970.

2. Low-Temperature Flexibility: Passes after testing at minus 20 deg F; ASTM D 1970.

3. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Mid-States Asphalt Quick Stick HT Pro

b. Polyglass Polystick MTS

c. Soprema Lastobond Shield HT

d. Tamko TW Underlayment or TW Metal & Tile Underlayment

e. Approved equal

2.4 ROOF INSULATION

A. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 4, Grade 1 with coated glass facers on both major surfaces.

B. Provide pre-formed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

2.5 ROOF INSULATION ACCESSORIES

A. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roof insulation and cover boards to substrate, and acceptable to roofing system manufacturer.

B. Insulation Adhesive: Insulation manufacturer’s recommended cold-applied adhesive formulated to attach roof insulation to substrate or to another insulation layer.

C. Cover Board: ASTM C 1289, Type II, Class 4, Grade 1 high-density polyisocyanurate cover board with glass-mat facers, **1/2 inch (12.7 mm)** thick.

2.6 MISCELLANEOUS MATERIALS

A. Miscellaneous Metal Subframing and Furring: ASTM C 645; cold-formed, metallic-coated steel sheet, ASTM A 653/A 653M, G90 coating designation or ASTM A 792/A 792M, Class AZ50 coating designation unless otherwise indicated. Provide manufacturer's standard sections as required for support and alignment of metal panel system.

B. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.

1. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal panels.

2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.

C. Flashing and Trim: Provide flashing and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.

D. Gutters: Formed from same material as roof panels, complete with end pieces, outlet tubes, and other special pieces as required. Fabricate in minimum 96-inch long sections, of size and metal thickness according to SMACNA's "Architectural Sheet Metal Manual." Furnish gutter supports spaced a maximum of 24 inches o.c., fabricated from same metal as gutters. Provide wire ball strainers of compatible metal at outlets. Finish gutters to match metal roof panels.

E. Downspouts: Formed from same material as roof panels. Fabricate in 10-foot long sections, complete with formed elbows and offsets, of size and metal thickness according to SMACNA's "Architectural Sheet Metal Manual." Finish downspouts to match gutters.

F. Roof Curbs: Fabricated from same material as roof panels, 0.024 inch (24 gauge) nominal thickness; galvalume or stainless steel; supply an integral full-length cricket for curbs wider than 24 inches supported by a structural metal deck. Fabricate curb flashing from 0.024 inch (24 gauge) material. On open framing, provide roof underlayment and decking at and about roof curb per roofing manufacturer’s requirements. Maintain a minimum of 1/2 of roofing panel width on each side of roof curb and start panels a minimum of 9 inches up slope of roof curb, flashing roofing panels to roof curb per roofing manufacturer’s requirements. Fabricate curb and sub-framing to withstand indicated loads of size and height of roof top equipment. Where required insulate roof curbs with rigid insulation.

G. Panel Fasteners: Zinc-coated steel, corrosion resisting steel, zinc cast head, or nylon capped steel, type and size as approved for the applicable loading requirements.

H. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are non-staining, and do not damage panel finish.

1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, non-sag, nontoxic, non-staining tape ½ inch wide and 1/8 inch thick.

2. Joint Sealant: ASTM C920; elastomeric, polyurethane, polysulfide, or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal roof panels and remain weathertight; and as recommended in writing by metal roof panel manufacturer.

I. Snow Guards: Prefabricated, noncorrosive units designed to be installed without penetrating metal roof panels.

1. Seam-mounted, metal, non-penetrating bar clamp and tubing snow guards: Zinc Zamak clamps designed for attachment to standing seam of metal roof panels using stainless steel set screws, with 1 inch by 1 inch aluminum square tubing, end caps and 1 inch barricade plates. Color to match roof panels color.

2. Subject to compliance with requirements, provide products by one of the following:

a. Sno-Gem, Inc – Sno Barricade system

b. Ace-Clamp Snow Guards – PMC Industries, Inc.

c. Alpine Snow Guards

d. Approved equal

2.7 FABRICATION

A. General: Fabricate and finish metal roof panels and accessories at the factory to the greatest extent possible, by manufacturer's standard procedures and processes and as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.

B. On-Site Fabrication: Subject to compliance with requirements of this Section, metal panels may be fabricated on-site using factory set, non-adjustable, portable roll-forming equipment if panels are of same profile and warranted by manufacturer to be equal to factory-formed panels. Fabricate according to equipment manufacturer's written instructions and to comply with details shown.

C. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.

D. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of item indicated.

1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.

2. End Seams: Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.

3. Sealed Joints: Form non-expansion, but movable joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.

4. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal roof panel manufacturer for application, but not less than thickness of metal being secured.

2.8 FINISHES

A. Comply with NAAMM’s “Metal Finishes Manual for Architectural and Metal Products” for recommendations for applying and designating finishes.

B. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Appearance of Finished Work: Noticeable variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are unacceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal panel supports, and other conditions affecting performance of the Work.

1. Examine primary and secondary roof framing to verify that rafters, purlins, angles, channels, and other structural panel support members and anchorages have been installed within alignment tolerances required by metal roof panel manufacturer.

2. Examine solid roof sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal roof panel manufacturer.

a. Verify that air- or water-resistive barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

B. Examine roughing-in for components and systems penetrating metal panels to verify actual locations of penetrations relative to seam locations of metal panels before installation.

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

3.2 PREPARATION

A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages according to ASTM C 754 and metal panel manufacturer's written recommendations.

3.3 UNDERLAYMENT INSTALLATION

A. Self-Adhering Sheet Underlayment: Apply primer if required by manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation. Apply at locations indicated below, wrinkle free, in shingle fashion to shed water, and with end laps of not less than 6 inches (152 mm) staggered 24 inches (610 mm) between courses. Overlap side edges not less than 36 inches (914.4 mm). Roll laps with roller. Cover underlayment within 14 days or as directed by the underlayment product manufacturer.

1. Apply over the entire roof surface.

B. Flashings: Install flashings to cover underlayment to comply with requirements specified in Section 076200 "Sheet Metal Flashing and Trim."

3.4 METAL PANEL INSTALLATION

A. General: Install metal panels according to manufacturer's written instructions in orientation, sizes, and locations indicated. Install panels perpendicular to supports unless otherwise indicated. Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Shim or otherwise plumb substrates receiving metal panels to be level to 1/4 inch in 20 ft. (6 mm in 6.1 m).
2. Flash and seal metal panels at perimeter of all openings. Do not begin installation until air- or water-resistive barriers and flashings that will be concealed by metal panels are installed.
3. Locate and space fastenings in uniform vertical and horizontal alignment.
4. Install flashing and trim as metal panel work proceeds.
5. Panels should be continuous without end laps.
6. Align bottoms of metal panels and fasten.
7. Provide weathertight escutcheons for pipe- and conduit-penetrating panels.

B. Fasteners:

1. Steel Panels: Use stainless-steel fasteners for surfaces exposed to the exterior; use galvanized-steel fasteners for surfaces exposed to the interior.
2. Aluminum Panels: Use stainless-steel fasteners for surfaces exposed to the exterior; use stainless-steel fasteners for surfaces exposed to the interior.

C. Anchor Clips: Anchor metal roof panels and other components of the Work securely in place, using manufacturer's approved fasteners according to manufacturers' written instructions.

D. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by metal panel manufacturer.

E. Standing-Seam Metal Roof Panel Installation: Fasten metal roof panels to supports with concealed clips at each standing-seam joint at location, spacing, and with fasteners recommended in writing by manufacturer.

1. Install clips to supports with self-tapping fasteners.
2. Install pressure plates, if required, at locations indicated in manufacturer's written installation instructions.
3. Snap Joint: Nest standing seams and fasten together by interlocking and completely engaging factory-applied vinyl weather seal.

F. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting and provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete metal panel system including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, and similar items. Provide types indicated by metal roof panel manufacturers; or, if not indicated, types recommended by metal roof panel manufacturer.

G. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

1. Install exposed flashing and trim that is without buckling and tool marks, and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and achieve waterproof and weather-resistant performance.

2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim.

H. Gutters: Join sections with riveted and soldered or lapped and sealed joints. Attach gutters to eave fascia with gutter hangers spaced not more than 24 inches (914 mm) o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.

I. Downspouts: Join sections with telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch (25 mm) away from walls; locate fasteners at top and bottom and at approximately 60 inches (1524 mm) o.c. in between.

1. Provide elbows at base of downspouts to direct water away from building.

2. Connect downspouts to underground drainage system indicated.

J. Roof Curbs: Install flashing around bases where they meet metal roof panels.

K. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to metal roof panels as recommended by manufacturer.

3.5 ERECTION TOLERANCES

A. Installation Tolerances: Shim and align metal panel units within installed tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines as indicated and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

3.6 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect metal roof panel installation, including accessories. Report results in writing.

B. Remove and replace applications of metal roof panels where tests and inspections indicate that they do not comply with specified requirements.

C. Additional tests and inspections, at Contractor's expense, are performed to determine compliance of replaced or additional work with specified requirements.

D. Prepare test and inspection reports.

3.7 CLEANING AND PROTECTION

A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.

B. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 074113

SECTION 075423 - THERMOPLASTIC POLYOLEFIN (TPO) ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Thermoplastic Polyolefin (TPO) roofing membrane system.

1.2 PERFORMANCE REQUIREMENTS

A. Solar Reflectance Index: Not less than 78 (initial value) when calculated according to ASTM E 1980, based on testing identical products by a qualified testing agency.

B. Wind Uplift Rating: The roofing membrane system installation shall meet the minimum requirements of FM 1A-90 for wind uplift resistance.

C. Fire Resistance Rating: The roofing membrane system shall meet the minimum requirements of UL Class C when tested in accordance with UL 790 or ASTM E 108.

1.3 ACTION SUBMITTALS

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

B. The roofing system manufacturer shall submit with shop drawings a written confirmation that all roofing components, exclusive of the roof deck, contained in the roofing system proposed are approved and compatible with the warranty requirements of the roof system as specified, and that the warranty specified will be issued at completion of the project if the system is installed as designed.

C. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work.

D. Samples for Verification: For the following products:

1. Sheet roofing, color White.

1.4 INFORMATIONAL SUBMITTALS

A. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.

1. Submit evidence of compliance with performance requirements.

B. Research/evaluation reports.

C. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by membrane roofing system manufacturer to install manufacturer's product.

B. Source Limitations: Obtain components including roof insulation and fasteners for membrane roofing system approved by membrane roofing manufacturer.

C. Exterior Fire-Test Exposure: ASTM E 108, Class C; for application and roof slopes indicated, as determined by testing identical membrane roofing materials by a qualified testing agency. Materials shall be identified with appropriate markings of applicable testing agency.

D. Pre-installation Roofing Conference: Conduct conference at Project site.

E. Field Quality Control: Comply with all applicable provisions of Section 075423 Part 3.5.

1.7 WARRANTY

A. Roofing Manufacturer's Warranty: Manufacturer's standard or customized form, without monetary limitation, in which manufacturer agrees to repair or replace components of membrane roofing system that fail in materials or workmanship within specified warranty period.

1. Warranty Period: 20 years from date of Substantial Completion.

2. The roofing manufacturer's warranty shall be executed by both the roofing system manufacturer and the roofing contractor.

B. Roofing Installer's Warranty: The Contractor shall submit an executed copy of the Roofing Installer's Warranty covering insulation, fasteners, vapor retarders, membrane roofing, base flashing, penetrations, curbs, accessories, etc. for a warranty period of two (2) years from the Date of Substantial Completion. Refer to Appendix B – Roofing Installer's Warranty Form.

PART 2 - PRODUCTS

2.1 TPO MEMBRANE ROOFING

A. Fabric-Reinforced Thermoplastic Polyolefin Sheet: ASTM D 6878, internally fabric or scrim reinforced, uniform, flexible TPO sheet.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Carlisle SynTec Incorporated.

b. Firestone Building Products Company.

c. Versico Incorporated.

2. Thickness: 60 mils, nominal.

3. Color: White (minimum initial solar reflectance value of 0.78)

2.2 AUXILIARY MEMBRANE ROOFING MATERIALS

A. General: Auxiliary membrane roofing materials recommended by roofing system manufacturer for intended use, and compatible with membrane roofing.

1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.

2. Adhesives and sealants that are not on the exterior side of weather barrier shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):

a. Plastic Foam Adhesives: 50 g/L.

b. Gypsum Board and Panel Adhesives: 50 g/L.

c. Multipurpose Construction Adhesives: 70 g/L.

d. Fiberglass Adhesives: 80 g/L.

e. Single-Ply Roof Membrane Adhesives: 250 g/L.

f. Other Adhesives: 250 g/L.

g. Single-Ply Roof Membrane Sealants: 450 g/L.

h. Nonmembrane Roof Sealants: 300 g/L.

i. Sealant Primers for Nonporous Substrates: 250 g/L.

j. Sealant Primers for Porous Substrates: 775 g/L.

B. Sheet Flashing: Manufacturer's standard unreinforced thermoplastic polyolefin sheet flashing, 55 mils thick, minimum, of same color as sheet membrane.

C. Bonding Adhesive: Manufacturer's standard.

D. Slip Sheet: Manufacturer's standard, of thickness required for application.

E. Metal Termination Bars: Manufacturer's standard, predrilled stainless-steel or aluminum bars, approximately 1 inch wide by 1/8-inch thick; with anchors.

F. Metal Battens: Manufacturer's standard, aluminum-zinc-alloy-coated or zinc-coated steel sheet, approximately 1 inch wide by 0.05-inch thick, pre-punched.

G. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer.

H. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories.

2.3 ROOF INSULATION

A. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 1, Grade 2 (20 psi) with felt or glass-fiber mat facer on both major surfaces. Mechanically-fasten insulation system to substrate in compliance with requirements of FM 1A-90.

B. Tapered Insulation: Provide factory-tapered insulation boards fabricated to achieve an overall roof slope greater than or equal to ¼ inch per 12 inches. Mechanically-fasten tapered insulation to substrate in compliance with requirements of FM 1A-90.

C. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated and required to achieve a minimum overall roof slope of ¼ inch per 12 inches to drain. Fabricate to slopes indicated in approved shop drawings. Mechanically-fasten insulation shapes to substrate in compliance with requirements of FM 1A-90.

2.4 INSULATION ACCESSORIES

A. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roof insulation and cover boards to substrate, and acceptable to roofing system manufacturer.

B. Insulation Adhesive: Insulation manufacturer's recommended cold-applied adhesive formulated to attach roof insulation to substrate or to another insulation layer.

C. Cover Board: ASTM C 1289, Type II, Class 4, Grade 1 (80 psi), high-density polyisocyanurate insulation cover board with glass-mat facers, **1/2 inch** thick. Mechanically-fasten cover board system to substrate in compliance with requirements of FM 1A-90.

PART 3 - EXECUTION

3.1 SUBSTRATE BOARD

A. Install substrate board with long joints in continuous straight lines, perpendicular to roof slopes with end joints staggered between rows a minimum of 6 inches. Tightly butt substrate boards together.

1. Fasten substrate board to deck to resist uplift pressure at corners, perimeter, and field of roof according to membrane roofing system manufacturers' written instructions for compliance with requirements of FM 1A-90.

3.2 INSULATION INSTALLATION

A. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.

B. Comply with membrane roofing system and insulation system manufacturer's written installation instructions for compliance with the requirements of FM 1A-90.

C. Install tapered insulation under area of roofing to conform to slopes indicated.

D. Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2.7 inches or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches in each direction.

E. Mechanically Fastened Insulation: Install each layer of insulation and secure first layer of insulation to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to roof deck type. Fasten each layer of insulation to resist uplift pressure a corners, perimeter, and field of roof in compliance with membrane roofing system and cover board system manufacturer’s written installation instructions for compliance with the requirements of FM 1A-90.

F. Install cover boards over insulation in insulation with long joints in continuous straight lines with end joints staggered between rows. Offset coverboard joints from joints of insulation below a minimum of 6 inches in each direction. Loosely butt cover boards together. Comply with membrane roofing system and cover board system manufacturer's written installation instructions for compliance with the requirements of FM 1A-90.

3.3 ADHERED MEMBRANE ROOFING INSTALLATION

A. Adhere membrane roofing over area to receive roofing and install according to membrane roofing system manufacturer's written instructions.

B. Accurately align membrane roofing and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

C. Bonding Adhesive: Apply to substrate and underside of membrane roofing at rate required by manufacturer and allow to partially dry before installing membrane roofing. Do not apply to splice area of membrane roofing.

D. In addition to adhering, mechanically fasten membrane roofing securely at terminations, penetrations, and perimeter of roofing.

E. Apply membrane roofing with side laps shingled with slope of roof deck where possible.

F. Seams: Clean seam areas, overlap membrane roofing, and hot-air weld side and end laps of membrane roofing and sheet flashings according to manufacturer's written instructions to ensure a watertight seam installation.

1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of sheet membrane.
2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.
3. Repair tears, voids, and lapped seams in roofing that does not comply with requirements.

3.4 BASE FLASHING INSTALLATION

A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.

B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.

D. Clean seam areas, overlap, and firmly roll sheet flashings into the adhesive. Hot-air weld side and end laps to ensure a watertight seam installation.

E. Extend membrane flashing up and over the top of parapets, curbs, expansion joints and other similar features, extending a minimum of 3 inches down the opposite vertical face. Terminate membrane flashing under anchor bars, termination bars, or other types of fasteners in compliance with the membrane roofing system manufacturer's written installation instructions.

3.5 FIELD QUALITY CONTROL

A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion.

B. Repair or remove and replace components of membrane roofing system where inspections indicate that they do not comply with specified requirements.

C. Defective or nonconforming conditions requiring repair or removal and replacement are defined as follows, unless more stringent criteria are required by the roofing system manufacturer:

1. Blister, Bubble, Capillaries or Voids: A spongy raised portion of the roofing membrane resulting from improper surface preparation, pressure of entrapped air, entrapped water vapor, inadequate adhesive, adhesive bonding failure, improper attachment method, or resulting from climatic conditions at the time of installation. Individual conditions shall not exceed four (4) inches in diameter, multiple occurrences shall not be spaced less than forty-eight (48) inches on center, nor shall multiple occurrences exceed sixteen (16) square inches within one hundred forty-four (144) square feet of surface area.
2. Fishmouth: Opening or void in lapped edge or seam.
3. Punctures or Holes: Condition compromising the watertightness of the roofing system.
4. Seam or Joint Separation: Unbonded edge condition where probing tool penetrates lapped area under firm pressure.
5. Slope, Drainage or Ponding: No roof surface shall retain or pond water forty-eight (48) hours after a precipitation event where climatic conditions are conducive to drying.
6. Wrinkles or Distortions: Surface conditions that impede the proper drainage of water. Insulation and cover board joints shall not exceed ¼-inch wide or exceed ¼-inch vertical offset.
7. The contractor shall pay all costs for additional inspections required to verify that repairs or replacements are in compliance with these provisions.

END OF SECTION 075423

SECTION 076200 - SHEET METAL FLASHING AND TRIM

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.

B. Section 077100 Roof Specialties.

1.2 SUMMARY

A. This Section includes the following sheet metal flashing and trim:

1. Roof flashing, counterflashing, reglets.
2. Gutters, downspouts, scuppers.
3. Formed coping and trim.

1.3 PERFORMANCE REQUIREMENTS

A. General: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing, rattling, leaking, and fastener disengagement.

B. Thermal Movements: Provide sheet metal flashing and trim that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of sheet metal and trim thermal movements. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

C. Water Infiltration: Provide sheet metal flashing and trim that do not allow water infiltration to building interior.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Shop Drawings: Show layouts of sheet metal flashing and trim, including plans and elevations. Distinguish between shop- and field-assembled work. Include the following:

1. Identify material, thickness, weight, and finish for each item and location in Project.
2. Details for forming sheet metal flashing and trim, including profiles, shapes, seams, and dimensions.
3. Details for fastening, joining, supporting, and anchoring sheet metal flashing and trim, including fasteners, clips, cleats, and attachments to adjoining work.

4. Details of expansion-joint covers, including showing direction of expansion and contraction.

C. Samples for Initial Selection: For each type of sheet metal flashing and trim indicated with factory-applied color finishes.

1. Include similar Samples of trim and accessories involving color selection.

1.5 QUALITY ASSURANCE

A. Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal Manual." Conform to dimensions and profiles shown unless more stringent requirements are indicated.

B. Installer Qualifications: Engage an experienced Installer who has completed sheet metal flashing and trim work similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver sheet metal flashing materials and fabrications undamaged. Protect sheet metal flashing and trim materials and fabrications during transportation and handling.

B. Unload, store, and install sheet metal flashing materials and fabrications in a manner to prevent bending, warping, twisting, and surface damage.

C. Stack materials on platforms or pallets, covered with suitable weathertight and ventilated covering. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.

1.7 COORDINATION

A. Coordinate installation of sheet metal flashing and trim with interfacing and adjoining construction to provide a leakproof, secure, and noncorrosive installation.

B. Coordinate Work of this Section with interfacing and adjoining Work for proper sequencing of each installation. Ensure best possible weather resistance, durability of Work, and protection of materials and finishes.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified in Part 2.2 (below).

2.2 SHEET METALS

A. Aluminum-Zinc Alloy-Coated Steel Sheet (Galvalume): For unexposed flashings, cleats, clips, etc., ASTM A 792/A 792M, Class AZ50 coating designation, Grade 40; structural quality with manufacturer's standard clear acrylic coating both sides.

B. Steel Sheet: ASTM A 240/A 240M, Type 304.

1. Aluminum-Zinc Alloy-Coated Steel: 0.0276 inch thick.

C. Organic Coating Finish: Apply the following system by coil-coating process on galvalume steel sheet as recommended by coating manufacturers and applicator.

1. Fluoropolymer 2-Coat Coating System: Manufacturer's standard 2-coat, thermocured system composed of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 605.2.
    a. Color and Gloss: As selected by Architect from manufacturer's full range of choices for color and gloss.
    b. Resin Manufacturers: Subject to compliance with requirements, provide fluoropolymer coating systems containing resins produced by one of the following manufacturers:
        1) Ausimont USA, Inc. (Hylar 5000)
        2) AtoFina Chemicals, Inc. (Kynar 500)
        3) Arkema Group (Kynar 500)
        4) An Acceptable Substitution which meets the requirements of these specifications per the three manufacturers listed above.
2. Coil-Coated Steel Sheet Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:
    a. Atlas Aluminum Corporation.
    b. Berridge Manufacturing Company.
    c. Firestone Una-Clad.
    d. Copper Sales, Inc.
    e. MM Systems Corporation.
    f. Petersen Aluminum Corporation.
    g. Vincent Metals.

D. Shop Finish, Rain Drainage: Provide manufacturer's standard baked-on, acrylic shop finish on sheet metal flashing and trim; 1.0-mil dry film thickness. Color as selected by Architect from manufacturer’s full range of choices for color and gloss.

2.3 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation.

B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads.

1. Exposed Fasteners: Heads matching color of sheet metal by means of plastic caps or factory-applied coating.
2. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws, gasketed, with hex washer head.
3. Blind Fasteners: High-strength aluminum or stainless-steel rivets.

C. Sealing Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealing tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape.

D. Elastomeric Sealant: ASTM C 920, elastomeric polyurethane, polysulfide or silicone polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

E. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant, polyisobutylene plasticized, heavy bodied for hooked-type expansion joints with limited movement.

F. Epoxy Seam Sealer: 2-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior and interior nonmoving joints, including riveted joints.

G. Adhesives: Type recommended by flashing sheet metal manufacturer for waterproof and weather-resistant seaming and adhesive application of flashing sheet metal.

H. Metal Accessories: Provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of Work, matching or compatible with material being installed; noncorrosive; size and thickness required for performance.

2.4 FABRICATION, GENERAL

A. Sheet Metal Fabrication Standard: Fabricate sheet metal flashing and trim to comply with recommendations of SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of the item indicated.

B. Comply with details shown to fabricate sheet metal flashing and trim that fit substrates and result in waterproof and weather-resistant performance once installed. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

C. Form exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems.

D. Seams: Fabricate nonmoving seams in aluminum with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.

E. Expansion Provisions: Space movement joints at maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped or bayonet-type expansion provisions in Work cannot be used or would not be sufficiently weatherproof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).

F. Sealed Joints: Form non-expansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.

G. Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact with asphalt mastic or other permanent separation as recommended by manufacturer.

H. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of sheet metal exposed to public view.

I. Fabricate cleats and attachment devices from same material as sheet metal component being anchored or from compatible, noncorrosive metal recommended by sheet metal manufacturer.

1. Size: As recommended by SMACNA manual or sheet metal manufacturer for application but never less than thickness of metal being secured.

2.5 FINISHES

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions and other conditions affecting performance of work.

1. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. General: As otherwise indicated, install sheet metal flashing and trim to comply with performance requirements, manufacturer's installation instructions, and SMACNA's "Architectural Sheet Metal Manual." 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 that will be permanently watertight and weatherproof.

B. Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.

1. Torch cutting of sheet metal flashing and trim is not permitted.

C. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by fabricator or manufacturers of dissimilar metals.

1. Coat side of uncoated aluminum or stainless-steel sheet metal flashing and trim with bituminous coating where flashing and trim will contact wood, ferrous metal, or cementitious construction.
2. Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet or install a course of polyethylene underlayment.
3. Bed flanges in thick coat of asphalt roofing cement where required for waterproof performance.

D. Install exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

E. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and elastomeric or butyl sealant.

F. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

1. Space cleats not more than 12 inches apart. Anchor each cleat with two fasteners. Bend tabs over fasteners.

G. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with elastomeric or butyl sealant concealed within joints.

H. Fasteners: Use fasteners of sizes that will penetrate substrate not less than 1-1/4 inches for nails and not less than 3/4 inch for wood screws.

1. Galvanized or Prepainted, Metallic-Coated Steel: Use stainless-steel fasteners.
2. Stainless Steel: Use stainless-steel fasteners.

I. Seal joints with elastomeric or butyl sealant as required for watertight construction.

1. Where sealant-filled joints are used, embed hooked flanges of joint members not less than 1 inch into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is moderate, between 40 and 70 deg F, set joint members for 50 percent movement either way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F.

J. Soldered Joints:

1. Do not solder prepainted, metallic-coated steel sheet.

3.3 ROOF DRAINAGE SYSTEM INSTALLATION

A. General: Install sheet metal roof drainage items to produce complete roof drainage system according to SMACNA recommendations and as indicated. Coordinate installation of roof perimeter flashing with installation of roof drainage system.

B. Downspouts: Join sections with 1-1/2 inch telescoping joints. Provide 1-1/2 inch wide hangers designed to hold downspouts securely 1 inch away from walls; locate hangers 12” from top and bottom and at approximately 60 inches o.c. in between, and a minimum of three hangers per downspout.

1. Provide elbows at base of downspout to direct water away from building.
2. Provide concrete splashblocks at base of downspouts to direct water away from building as indicated at locations where downspouts are not provided.

C. Conductor Heads: Anchor securely to wall with elevation of conductor head as indicated.

3.4 ROOF FLASHING INSTALLATION

A. General: Install sheet metal roof flashing and trim to comply with performance requirements**,** sheet metal manufacturer's written installation instructions and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, set units true to line, and level as indicated. Install work with laps, joints, and seams that will be permanently watertight.

B. Counterflashings: Coordinate installation of counterflashings with installation of assemblies to be protected by counterflashing. Lap counterflashing joints a minimum of 2 inches and bed with sealant.

3.5 CLEANING AND PROTECTION

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean and neutralize flux materials. Clean off excess solder and sealants.

C. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed. On completion of installation, clean finished surfaces, including removing unused fasteners, metal filings, pop rivet stems, and pieces of flashing. Maintain in a clean condition during construction.

D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

E. Provide final protection and maintain conditions that ensure sheet metal flashing and trim Work during construction is without damage or deterioration other than natural weathering at the time of Substantial Completion.

END OF SECTION 076200

SECTION 077100 - ROOF SPECIALTIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Copings.
2. Roof-edge flashings.
3. Roof-edge drainage systems.
4. Reglets and counterflashings.

1.2 PERFORMANCE REQUIREMENTS

A. FM Approvals' Listing: Manufacture and install copings and roof-edge flashings that are listed in FM Approvals' "RoofNav" and approved for windstorm classification Class 1-90. Identify materials with FM Approvals' markings.

1.3 ACTION SUBMITTALS

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

B. Shop Drawings: For roof specialties. Include plans, elevations, expansion-joint locations, keyed details, and attachments to other work. Distinguish between plant- and field-assembled work.

C. Samples: For each exposed product and for each color and texture specified.

1.4 INFORMATIONAL SUBMITTALS

A. Product test reports.

B. Warranty: Sample of special warranty.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.6 QUALITY ASSURANCE

A. Pre-installation Conference: Conduct conference at Project site.

1.7 WARRANTY

A. Special Warranty on Painted Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace roof specialties that show evidence of deterioration of factory-applied finishes within **20** years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 EXPOSED METALS

A. Copper Sheet: ASTM B 370, cold-rolled copper sheet, H00 or H01 temper.

1. Non-Patinated Exposed Finish: Mill.
2. Pre-Patinated Copper-Sheet Finish: Pre-patinated according to ASTM B 882.

B. Aluminum Sheet: ASTM B 209 (ASTM B 209M), alloy as standard with manufacturer for finish required, with temper to suit forming operations and performance required.

1. Surface: Smooth, flat finish.
2. Mill Finish: As manufactured.
3. Exposed Coil-Coated Finishes: Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
    a. Two-Coat Fluoropolymer: AAMA 620. System consisting of primer and fluoropolymer color topcoat containing not less than 70 percent PVDF resin by weight.
4. Clear Anodic Finish, Coil Coated: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.
5. Color Anodic Finish, Coil Coated: AAMA 611, AA-M12C22A42/A44, Class I, 0.018 mm or thicker.

C. Stainless-Steel Sheet: ASTM A 240/A 240M or ASTM A 666, Type 304.

D. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 (Z275) coating designation.

1. Surface: Smooth, flat finish.
2. Exposed Coil-Coated Finishes: Pre-painted by the coil-coating process to comply with ASTM A 755/A 755M. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
    a. Two-Coat Fluoropolymer: AAMA 621. System consisting of primer and fluoropolymer color topcoat containing not less than 70 percent PVDF resin by weight.

2.2 CONCEALED METALS

A. Aluminum Sheet: ASTM B 209 (ASTM B 209M), alloy and temper recommended by manufacturer for type of use and structural performance indicated, mill finished.

B. Aluminum Extrusions: ASTM B 221 (ASTM B 221M), alloy and temper recommended by manufacturer for type of use and structural performance indicated, mill finished.

C. Stainless-Steel Sheet: ASTM A 240/A 240M or ASTM A 666, Type 304.

D. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 (Z275) coating designation.

2.3 UNDERLAYMENT MATERIALS

A. Felt: ASTM D 226, Type II (No. 30), asphalt-saturated organic felt, nonperforated.

B. Self-Adhering, High-Temperature Sheet: Minimum 30 to 40 mils thick, consisting of slip-resisting polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer.

1. Thermal Stability: ASTM D 1970; stable after testing at 240 deg F.
2. Low-Temperature Flexibility: ASTM D 1970; passes after testing at minus 20 deg F.

C. Polyethylene Sheet: 6-mil- thick polyethylene sheet complying with ASTM D 4397.

D. Slip Sheet: Building paper, 3-lb/100 sq. ft. minimum, rosin sized.

2.4 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, protective coatings, sealants, and other miscellaneous items required by manufacturer for a complete installation.

B. Fasteners: Manufacturer's recommended fasteners, suitable for application and designed to meet performance requirements. Furnish the following unless otherwise indicated:

1. Exposed Penetrating Fasteners: Gasketed screws with hex washer heads matching color of sheet metal.
2. Fasteners for Copper Sheet: Copper, hardware bronze, or passivated Series 300 stainless steel.
3. Fasteners for Aluminum: Aluminum or Series 300 stainless steel.
4. Fasteners for Stainless-Steel Sheet: Series 300 stainless steel.
5. Fasteners for Zinc-Coated (Galvanized) Steel Sheet: Series 300 stainless steel or hot-dip zinc-coated steel according to ASTM A 153/A 153M or ASTM F 2329.

C. Elastomeric Sealant: ASTM C 920, elastomeric polymer sealant of type, grade, class, and use classifications required by roofing-specialty manufacturer for each application.

D. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.

E. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187.

F. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.

G. Solder for Copper: ASTM B 32, lead-free solder.

2.5 COPINGS

A. Copings: Manufactured coping system consisting of formed-metal coping cap in section lengths not exceeding 12 feet, concealed anchorage; corner units, end cap units, and concealed splice plates with same finish as coping caps.

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. Architectural Products Company.
    b. ATAS International, Inc.
    c. Castle Metal Products.
    d. Cheney Flashing Company.
    e. Hickman Company, W. P.
    f. Johns Manville.
    g. Merchant & Evans, Inc.
    h. Metal-Era, Inc.
    i. Metal-Fab Manufacturing, LLC.
    j. MM Systems Corporation.
    k. National Sheet Metal Systems, Inc.
    l. Perimeter Systems; a division of Southern Aluminum Finishing Company, Inc.
    m. Petersen Aluminum Corporation.
2. Coping-Cap Material: Zinc-coated steel, nominal 24-gauge thickness.
    a. Finish: Two-coat fluoropolymer.
    b. Color: As selected by Architect from manufacturer's full range.
3. Corners: Factory mitered and mechanically clinched and sealed watertight.
4. Special Fabrications: Two-way sloped coping cap.
5. Coping-Cap Attachment Method: Face leg hooked to continuous cleat with back leg fastener exposed, fabricated from coping-cap material.
6. Snap-on-Coping Anchor Plates: Concealed, galvanized-steel sheet, 12 inches wide, with integral cleats.
7. Face Leg Cleats: Concealed, continuous galvanized-steel sheet.

2.6 ROOF-EDGE FLASHINGS

A. Roof-Edge Fascia: Manufactured, two-piece, roof-edge fascia consisting of snap-on metal fascia cover in section lengths not exceeding 12 feet and a continuous formed- or extruded-aluminum anchor bar with integral drip-edge cleat to engage fascia cover. Provide matching corner units.

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. Hickman Company, W. P.
    b. Johns Manville.
    c. Metal-Era, Inc.
    d. Metal-Fab Manufacturing, LLC.

e. National Sheet Metal Systems, Inc.

f. Perimeter Systems; a division of Southern Aluminum Finishing Company, Inc.

2. Fascia Cover: Fabricated from mill-finish .040 aluminum sheet – metallic color finish similar to existing stainless-steel fascia.

3. Anchor Rail: Factory-formed 20-gauge galvanized steel rail with integral drip-edge cleat and pre-punched fastener slots.

4. Fasteners: Minimum #10 x 2 inch stainless steel fasteners, spaced per manufacturer's written installation instructions for compliance with the requirements of FM 1A-90.

5. Corners: Factory-mitered and mechanically clinched and sealed watertight.

6. Splice Plates: Concealed, of same material, finish, and shape as fascia cover.

7. Fascia Accessories: Downspout scuppers with integral conductor head and downspout adapters.

B. One-Piece Gravel Stops: Manufactured, one-piece, metal gravel stop in section lengths not exceeding 12 feet, with a horizontal flange and vertical leg terminating in a drip edge, and concealed splice plates of same material, finish, and shape as gravel stop. Provide matching corner units.

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. Architectural Products Company.

b. Cheney Flashing Company.

c. Hickman Company, W. P.

d. Metal-Era, Inc.

e. Metal-Fab Manufacturing, LLC.

f. MM Systems Corporation.

g. National Sheet Metal Systems, Inc.

2. Fabricate from the following exposed metal:

a. Zinc-Coated Steel: Nominal 24-gauge (0.0239 inch) thickness.

3. Corners: Factory mitered and mechanically clinched and sealed watertight.

C. Zinc-Coated Steel Finish: Two-coat fluoropolymer.

1. Color: As selected by Architect from manufacturer's full range.

2.7 ROOF-EDGE DRAINAGE SYSTEMS

A. 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:

1. Andreas Renner KG.

2. Architectural Products Company.

3. ATAS International, Inc.

4. Berger Building Products, Inc.

5. Castle Metal Products.
6. Cheney Flashing Company.
7. Hickman Company, W. P.
8. Metal-Era, Inc.
9. Metal-Fab Manufacturing, LLC.
10. MM Systems Corporation.
11. National Sheet Metal Systems, Inc.
12. Perimeter Systems; a division of Southern Aluminum Finishing Company, Inc.

B. Gutters: Manufactured in uniform section lengths not exceeding 12 feet, with matching corner units, ends, outlet tubes, and other accessories. Elevate back edge at least 1 inch above front edge. Furnish flat-stock gutter straps, gutter brackets, expansion joints, and expansion-joint covers fabricated from same metal as gutters.

1. Fabricate from the following exposed metal:
   a. Zinc-Coated Steel: Nominal 24-gauge (0.0239-inch) thickness.
2. Gutter Profile: Style A according to SMACNA's "Architectural Sheet Metal Manual."
3. Corners: Factory mitered and mechanically clinched and sealed watertight.
4. Gutter Supports: Manufacturer's standard supports as selected by Architect with finish matching the gutters.
5. Gutter Accessories: Wire ball downspout strainer, Flat end caps.

C. Downspouts: Corrugated rectangular cross-section complete with elbows, manufactured from the following exposed metal. Furnish with metal hangers, from same material as downspouts, and anchors.

1. Zinc-Coated Steel: Nominal 24-gauge (0.0239-inch) thickness.

D. Parapet Scuppers: Manufactured with closure flange trim to exterior, 4-inch- wide wall flanges to interior, and base extending 4 inches beyond cant or tapered strip into field of roof.

1. Fabricate from the following exposed metal:
   a. Zinc-Coated Steel: Nominal 24-gauge (0.0239-inch) thickness.

E. Conductor Heads: Manufactured conductor heads, each with flanged back and stiffened top edge and of dimensions and shape indicated, complete with outlet tube that nests into upper end of downspout.

1. Fabricate from the following exposed metal:
   a. Zinc-Coated Steel: Nominal 24-gauge (0.0239-inch) thickness.

F. Zinc-Coated Steel Finish: Two-coat fluoropolymer finish.

1. Color: As selected by Architect from manufacturer's full range.

2.8 REGLETS AND COUNTERFLASHINGS

A. 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:

1. Cheney Flashing Company.
2. Fry Reglet Corporation.
3. Metal-Era, Inc.
4. MM Systems Corporation.
5. National Sheet Metal Systems, Inc.

B. Reglets: Manufactured units formed to provide secure interlocking of separate reglet and counterflashing pieces, from the following exposed metal:

1. Zinc-Coated Steel: Nominal 24-gauge (0.0239-inch thickness.
2. Corners: Factory mitered and mechanically clinched and sealed watertight.
3. Surface-Mounted Type: Provide reglets with slotted holes for fastening to substrate, with neoprene or other suitable weatherproofing washers, and with channel for sealant at top edge.
4. Masonry Type, Embedded: Provide reglets with offset top flange for embedment in masonry mortar joint.

C. Counterflashings: Manufactured units of heights to overlap top edges of base flashings by 4 inches (100 mm) and in lengths not exceeding 12 feet designed to snap into reglets or through-wall-flashing receiver and compress against base flashings with joints lapped, from the following exposed metal:

1. Zinc-Coated Steel: Nominal 24-gauge (0.0239-inch thickness.

D. Accessories:

1. Flexible-Flashing Retainer: Provide resilient plastic or rubber accessory to secure flexible flashing in reglet where clearance does not permit use of standard metal counterflashing or where reglet is provided separate from metal counterflashing.
2. Counterflashing Wind-Restraint Clips: Provide clips to be installed before counterflashing to prevent wind uplift of counterflashing lower edge.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. General: Install roof specialties according to manufacturer's written instructions. Anchor roof specialties securely in place, with provisions for thermal and structural movement. Use fasteners, solder, protective coatings, separators, sealants, and other miscellaneous items as required to complete roof-specialty systems.

1. Install roof specialties level, plumb, true to line and elevation; with limited oil-canning and without warping, jogs in alignment, buckling, or tool marks.
2. Provide uniform, neat seams with minimum exposure of solder and sealant.
3. Install roof specialties to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before manufacture.
4. Torch cutting of roof specialties is not permitted.

5. Install underlayment with adhesive for temporary anchorage. Apply in shingle fashion to shed water, with lapped joints of not less than 2 inches. Roll laps of self-adhering sheet underlayment with roller; cover within 14 days.

B. Metal Protection: Protect metals against galvanic action by separating dissimilar metals from contact with each other or with corrosive substrates by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.

1. Coat concealed side of uncoated aluminum and stainless-steel roof specialties with bituminous coating where in contact with wood, ferrous metal, or cementitious construction.

2. Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of self-adhering, high-temperature sheet underlayment or polyethylene sheet.

C. Expansion Provisions: Allow for thermal expansion of exposed roof specialties.

1. Space movement joints at a maximum of 12 feet with no joints within 18 inches of corners or intersections unless otherwise shown on Drawings.

2. When ambient temperature at time of installation is between 40 and 70 deg F, set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures.

D. Fastener Sizes: Use fasteners of sizes that will penetrate substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.

E. Seal joints with sealant as required by roofing-specialty manufacturer.

F. Seal joints as required for watertight construction. Place sealant to be completely concealed in joint. Do not install sealants at temperatures below 40 deg F.

G. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets to be soldered to a width of 1-1/2 inches except reduce pre-tinning where pre-tinned surface would show in completed Work. Tin edges of uncoated copper sheets using solder for copper. Do not use torches for soldering. Heat surfaces to receive solder and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.

3.2 COPING INSTALLATION

A. Install cleats, anchor plates, and other anchoring and attachment accessories and devices with concealed fasteners.

B. Anchor copings to meet performance requirements.

1. Interlock face and back leg drip edges of snap-on coping cap into cleated anchor plates anchored to substrate at manufacturer's required spacing that meets performance requirements.

3.3 ROOF-EDGE FLASHING INSTALLATION

A. Install cleats, cants, and other anchoring and attachment accessories and devices with concealed fasteners.

B. Anchor roof edgings with manufacturer's required devices, fasteners, and fastener spacing to meet performance requirements.

3.4 ROOF-EDGE DRAINAGE-SYSTEM INSTALLATION

A. General: Install components to produce a complete roof-edge drainage system according to manufacturer's written instructions.

B. Gutters: Join and seal gutter lengths. Allow for thermal expansion. Attach gutters to firmly anchored gutter supports spaced not more than 24 inches apart. Attach ends with rivets and seal with sealant to make watertight. Slope to downspouts.

1. Install gutter with expansion joints at locations indicated but not exceeding 40 feet apart. Install expansion joint caps.

C. Downspouts: Join sections with manufacturer's standard telescoping joints. Provide hangers with fasteners designed to hold downspouts securely to walls and 1-inch away from walls; locate fasteners at top and bottom and at approximately 60 inches o.c.

D. Parapet Scuppers: Install scuppers where indicated through parapet. Continuously support scupper, set to correct elevation, and seal flanges to interior wall face, over cants or tapered edge strips, and under roofing membrane.

E. Conductor Heads: Anchor securely to wall with elevation of conductor top edge 1 inch below scupper discharge.

3.5 REGLET AND COUNTERFLASHING INSTALLATION

A. Surface-Mounted Reglets: Install reglets to receive flashings where flashing without embedded reglets is indicated on Drawings. Install at height so that inserted counterflashings overlap 4 inches over top edge of base flashings.

B. Counterflashings: Insert counterflashings into reglets or other indicated receivers; ensure that counterflashings overlap 4 inches over top edge of base flashings. Lap counterflashing joints a minimum of 4 inches and bed with sealant. Fit counterflashings tightly to base flashings.

3.6 CLEANING AND PROTECTION

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean and neutralize flux materials. Clean off excess solder and sealants.

C. Remove temporary protective coverings and strippable films as roof specialties are installed.

END OF SECTION 077100

SECTION 079200 - JOINT SEALANTS

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 DESCRIPTION OF WORK

A. Furnish all labor, material, plant and services required to complete caulking and sealing and as necessary to make building completely watertight.

B. Refer to drawings for particular items requiring caulking and sealant, but joints requiring caulking and sealants shall not be limited to those shown on drawings.

1.3 RELATED WORK

A. All in-seam sealant, lap sealant, splicing cement, and cut-off mastic shall be provided by roof membrane manufacturer or approved for compatibility with roofing membrane.

1.4 QUALITY ASSURANCE

A. Basis of Specification:

1. Pecora Corporation

B. Acceptable Manufacturers:

1. Sonneborn, Division of Contech, Inc.
2. Tremco Manufacturing Company
3. W. R. Grace & Company
4. or acceptable substitution.

C. Standards:

1. Related Standards: Provide work in accordance with applicable standards specified and product manufacturer's specifications for materials and workmanship unless Project Documents require conformance with more stringent requirements. Provide the most stringent requirements.

D. Quality Control:

1. Seal sample areas in project as directed by Owner's Representative for each type of sealant required, in accordance with project requirements and colors selected, and obtain Architect's approval for appearance before proceeding.

1.5 SUBMITTALS

A. Product Data:

1. Submit two copies of manufacturer's specifications and installation instructions for each type material required and proposed for use. Include description of material,

physical properties and limitations for use of such materials. Include information regarding the need for and use of primers with sealants proposed, and time limit in which material must be used after date of manufacturing.

B. Guarantee:

1. Submit written guarantee signed jointly by Sealant Installer and General Contractor agreeing that all caulking and sealant work will be free of defective material and workmanship for a period of three (3) years from date of Certificate of Substantial Completion for project, and that defective work, if any, occurring during guarantee period will be corrected at no additional cost to Owner.

2. Submit written guarantee to Owner, through Owner's Representative prior to final acceptance of project work by Owner.

1.6 DELIVERY, STORAGE AND HANDLING

A. Sealant Contractor shall cooperate with Owner's Representative in delivery and storage of his equipment on Project. Equipment shall be handled by qualified and experienced worker.

B. Products shall be delivered in original cartons or containers bearing original labels, and shall be delivered, stored and handled to prevent damage of any nature and as recommended by manufacturer.

C. Deliver sealant materials in sealed containers with date of manufacture clearly shown on each package. Store materials in cool, dry, covered or shaded area, assigned exclusively to this Contractor. Packages and containers showing evidence of contamination due to damage shall be removed from Project Site immediately and replaced with fresh, damage-free material. Materials containing flammable and volatile solvents shall be kept away from heat, sparks and flame. Proper safety precautions must be taken in storage and application.

PART 2: PRODUCTS

2.1 SEALANT MATERIALS

A. Type A Sealant: Two-component, modified polyurethane sealant, non-sag type, conforming to Federal Specification TT-S-277 E - Type II and ANSI All6.l.

B. Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Pecora “Dynatrol II”.

2. Sika “Sikaflex-2c NS”.

3. BASF “MasterSeal NP 2”

C. Sealant colors as selected by Architect from standard available colors.

2.2 JOINT-SEALANT BACKING

A. General: Provide sealant backings of material and type that are non-staining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F. Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and otherwise contribute to optimum sealant performance.

2.3 ACCESSORY MATERIALS

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

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

C. Bond Breaker Tape: Self-adhesive, polyethylene film tape as recommended by sealant manufacturer.

D. Masking Tape: Non-staining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3: EXECUTION

3.1 INSPECTION

A. Examine premises before start of work and ascertain existing conditions.

B. Verify that other trades have completed their work as necessary before application of sealant work.

C. Examine joint surfaces and conditions to ascertain adequate bond can be obtained, and that surfaces are free of defects or foreign substances which would be detrimental to satisfactory application of sealants specified. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

D. Report any unsatisfactory conditions or defects and do not proceed with work until such conditions or defects are corrected. Starting of work shall constitute acceptance of surfaces and conditions.

E. Proceed with installation only after all unsatisfactory conditions have been corrected.

3.2 PREPARATION AND INSTALLATION, GENERAL

A. Prepare joint surfaces and install materials in strict accordance with manufacturer's instructions and as specified, to achieve properly sealed joints with neat, even appearance.

B. Do not proceed with installation of sealants under adverse weather conditions, or when temperatures are below or above manufacturer's recommended limitations for installation.

C. Have joints or spaces to be sealed clean and dry, free of oil, grease, dust and other foreign substances which would interfere with or impair sealant work. Clean surfaces immediately before installation of primer and/or sealant as applicable and necessary.

D. Prime joint surfaces where recommended by sealant manufacturer using primer material compatible with sealant used and proper for joint surfaces involved. Do not allow primer to spill or migrate onto adjoining surfaces.

E. Install bond breaker tape to isolate back of sealant from backing surface wherever required by manufacturer's recommendations to ensure sealant will perform properly.

F. Install compressible sealant backer rod or strip in joints where suitable backing does not exist and as required to provide proper depth of sealant as recommended by sealant manufacturer. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

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

G. Depth of sealants shall be as recommended by sealant manufacturer for conditions involved, but within the following general limitations, measured at the center (thin) section of bead:

1. For normal moving joints sealed with elastomeric sealants and not subject to traffic, provide sealant depth equal to 50% of joint width, but not more than 1/2" deep nor less than 1/4" deep.
2. For joints sealed with non-elastomeric sealants, provide sealant depth in the range of 75% to 125% of joint width.

H. Install sealants by proven techniques to comply with the following and at the same time backings are installed:

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

I. Two-part sealants shall be mixed in strict accordance with manufacturer's instructions using recommended mixing equipment. Accurately control proportions of the components to achieve ratio established by the manufacturer. Sealant mixing shall not be done until sealant is to be applied.

J. Use sealant colors as selected and approved by Architect. General intent is to reasonably match color of adjacent finished surfaces.

K. Sealed joints shall be smooth, free of sags or voids. Sealant surfaces shall be slightly concave, and slightly below adjoining surfaces. Tool all joints as recommended by manufacturer for sealant used.

L. Remove excess or misplaced sealant promptly as work progresses. Clean surfaces which have been soiled with approved solvent and/or cleaning agent that will not damage surfaces.

M. Remove defective or unsatisfactory work if any and replace with new materials after cleaning and preparing joint surfaces as recommended by manufacturer.

N. Leave work in neat, clean condition.

O. Remove, clean and re-caulk all previously caulked exterior joints on the building per the Construction Drawings.

3.4 CLEANING

A. Sealant Contractor shall immediately clean all adjacent materials which have been soiled and leave work in neat, clean condition. Use only approved type stripping compounds, solvents and cleaners.

3.5 PROTECTION

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

3.6 SCHEDULE OF SEALANTS

A. Unless otherwise noted, sealant type specified shall be used as follows:

1. For all exterior joints (except joints in pavement), for interior joints in exterior walls, and for all expansion/control joints in building.

B. Provide caulking and sealant of joints and voids where indicated on drawings and as required for completion of the work. Locations for such sealed joints and voids include but not necessarily limited to the following:

1. Exterior:

a) All joints between and around the flashing, counter flashing and bar flashing.

b) Any joint locations where there is a potential for leaks.

END OF SECTION 079200

SECTION 220719 PLUMBING PIPING INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Flexible elastomeric cellular insulation.

1.02 REFERENCE STANDARDS

A. ASTM C534/C534M - Standard Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form 2023.

B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2023b.

C. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials Current Edition, Including All Revisions.

1.03 SUBMITTALS

A. See Section 013300 – Submittals for submittal procedures.

B. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.

1.04 FIELD CONDITIONS

A. Maintain ambient conditions required by manufacturers of each product.

B. Maintain temperature before, during, and after installation for minimum of 24 hours.

PART 2 PRODUCTS

2.01 REGULATORY REQUIREMENTS

A. Surface Burning Characteristics: Flame spread index/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84 or UL 723.

2.02 FLEXIBLE ELASTOMERIC CELLULAR INSULATION

A. Manufacturers:

1. Aeroflex USA, Inc; Aerocel Stay-Seal with Protape (SSPT): www.aeroflexusa.com/#sle.
2. Armacell LLC; AP Armaflex: www.armacell.us/#sle.
3. K-Flex USA LLC; Insul-Tube: www.kflexusa.com/#sle.

B. Insulation: Preformed flexible elastomeric cellular rubber insulation complying with ASTM C534/C534M Grade 1; use molded tubular material wherever possible.

1. Minimum Service Temperature: Minus 40 degrees F (Minus 40 degrees C).
2. Maximum Service Temperature: 220 degrees F (104 degrees C).
3. Connection: Waterproof vapor barrier adhesive.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Inserts and Shields:

1. Application: Piping 1-1/2 inches (40 mm) diameter or larger.

3.02 SCHEDULES

A. Plumbing Systems:

1. Roof Drainage Above Grade: 1" thick.

END OF SECTION 220719

SECTION 221005 PLUMBING PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Storm drainage piping, buried within 5 feet (1500 mm) of building.

B. Storm drainage piping, above grade.

C. Pipe hangers and supports.

D. Pipe sleeve-seal systems.

1.02 REFERENCE STANDARDS

A. ASME B31.9 - Building Services Piping 2020.

B. ASTM D2564 - Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems 2020.

C. ASTM D2665 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings 2020.

D. ASTM D2855 - Standard Practice for the Two-Step (Primer and Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets 2020.

E. ASTM D3034 - Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings 2021.

F. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation 2018, with Amendment (2019).

1.03 SUBMITTALS

A. See Section 013300 - Submittals for submittal procedures.

B. Product Data: Provide data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturer’s catalog information.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

2.02 STORM DRAINAGE PIPING, BURIED WITHIN 5 FEET (1500 MM) OF BUILDING

A. PVC Pipe: ASTM D2665 or ASTM D3034.

1. Fittings: PVC.
2. Joints: Solvent welded, with ASTM D2564 solvent cement.

2.03 STORM DRAINAGE PIPING, ABOVE GRADE

A. PVC Pipe: ASTM D2665.
   1. Fittings: PVC.
   2. Joints: Solvent welded, with ASTM D2564 solvent cement.

2.04 PIPE HANGERS AND SUPPORTS

A. Provide hangers and supports that comply with MSS SP-58.
   1. If type of hanger or support for a particular situation is not indicated, select appropriate type using MSS SP-58 recommendations.
   2. Overhead Supports: Individual steel rod hangers attached to structure or to trapeze hangers.
   3. Trapeze Hangers: Welded steel channel frames attached to structure.
   4. Vertical Pipe Support: Steel riser clamp.

2.05 PIPE SLEEVE-SEAL SYSTEMS

A. Modular Mechanical Seals:
   1. Elastomer-based interlocking links continuously fill annular space between pipe and wall-sleeve, wall or casing opening.
   2. Watertight seal between pipe and wall-sleeve, wall or casing opening.
   3. Size and select seal component materials in accordance to service requirements.
   4. Glass reinforced plastic pressure end plates.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.

C. Install piping to maintain headroom, conserve space, and not interfere with use of space.

D. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.

E. Install bell and spigot pipe with bell end upstream.

F. PVC Pipe: Make solvent-welded joints in accordance with ASTM D2855.

G. Pipe Hangers and Supports:

1. Install in accordance with ASME B31.9.
2. Place hangers within 12 inches (300 mm) of each horizontal elbow.
3. Use hangers with 1-1/2 inch (40 mm) minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.

H. Pipe Sleeve-Seal Systems:

1. Install manufactured sleeve-seal systems in sleeves located in grade slabs and exterior concrete walls at piping entrances into building.
2. Provide sealing elements of the size, quantity, and type required for the piping and sleeve inner diameter or penetration diameter.
3. Locate piping in center of sleeve or penetration.
4. Install field assembled sleeve-seal system components in annular space between sleeve and piping.
5. Tighten bolting for a watertight seal.
6. Install in accordance with manufacturer's recommendations.

3.02 SCHEDULES

A. Pipe Hanger Spacing:

1. Plastic Piping:
   a. All Sizes:
      1) Maximum Hanger Spacing: 6 ft (1.8 m).
      2) Hanger Rod Diameter: 3/8 inch (9 mm).

END OF SECTION 221005

SECTION 221006 - PLUMBING PIPING SPECIALTIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Roof Drains.

1.02 REFERENCE STANDARDS

A. ASME A112.6.4 - Roof, Deck, and Balcony Drains 2022.

1.03 SUBMITTALS

A. See Section 013300 - Submittals for submittal procedures.

B. Product Data: Provide component sizes, rough-in requirements, service sizes, and finishes.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Specialties in Potable Water Supply Systems: Provide products that comply with NSF 61 and NSF 372 for maximum lead content.

2.02 DRAINS

A. Roof Drains:
   1. Assembly: ASME A112.6.4.
   2. Body: Powder-coated cast iron with sump.
   3. Size: 12” diameter flange, 4” diameter outlet
   4. Strainer: Removable cast iron dome with vandal proof screws.
   5. Accessories: Coordinate with roofing type:
      a. Adjustable extension sleeve for roof insulation.
   6. Manufacturers:
      a. Jay R. Smith Manufacturing Company: www.jrsmith.com.
      b. MIFAB, Inc: www.mifab.com.
      c. OMG Roofing Products: www.omgroofing.com.
      d. Zurn Industries, LLC: www.zurn.com.

B. Downspout Nozzles:
   1. Body and Flange: Nickel Bronze.
   2. Hub size: 6” diameter (push-on type to accept PVC drain pipe).

3. Manufacturers:
    a. Josam Model 25016-PVC
    b. Watts Model RD-940-PVC
    c. Zurn Model Z199-PVC
    d. Approved equal.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

END OF SECTION 221006

APPENDIX A

ASBESTOS-CONTAINING MATERIALS SURVEY REPORT

SCI ENGINEERING, INC.
EARTH • SCIENCE • SOLUTIONS
GEOTECHNICAL
ENVIRONMENTAL
NATURAL RESOURCES
CULTURAL RESOURCES
CONSTRUCTION SERVICES

May 25, 2023

Brian Connell
Connell Architecture, P.C.
2311 East Walnut, Suite B
Columbia, Missouri 65201

RE: Asbestos Survey Activities
Boonville Correctional Center – Replace Roof, Education Building
1216 East Morgan Street
Boonville, Missouri
SCI No. 2015-0405.25

Dear Brian Connell:

INTRODUCTION

SCI Engineering, Inc. (SCI) is pleased to submit this report of the analytical test results for samples of suspect asbestos-containing materials (ACMs) collected during the survey performed on May 3, 2023. The survey was conducted by Anna Mecey, Missouri-Licensed Asbestos Inspector. A copy of Anna's asbestos inspector license is enclosed.

The purpose of this survey was to identify ACMs in accessible areas of the Education Building at the Boonville Correctional Center in Boonville, Missouri. This survey is intended to satisfy the requirements for the asbestos National Emission Standard for Hazardous Air Pollutant for demolition and renovation as well as for Occupational Safety and Health Administration (OSHA) compliance.

The on-site structure is an approximate 12,824-square-foot education building which appeared to have been constructed in the 1940s. The exterior of the structure was brick with wood windows, and a rubber, foam insulation and concrete roof. The structure utilized a forced air HVAC system.

LIMITATIONS

SCI's asbestos survey entailed visually assessing accessible areas only. If any other suspect asbestos materials are discovered during demolition or renovation, please contact SCI, and we will make arrangements for assessment of these materials. Areas behind walls, under subfloors and above fixed ceilings are considered non-accessible.

During the course of performing the survey of the structure, SCI was able to access all locations within the structure. However, Connell Architecture, the client, informed SCI not to collect samples of the ceramic wall tile and associated grout and mortar throughout the structure. Additionally, the client asked SCI not to survey the exterior of the structure.

ASBESTOS SURVEY

Sixty-nine samples were collected from the on-site structure. Of these 69 samples, 94 samples/layers were analyzed using a positive stop procedure. These samples were analyzed by Polarized Light Microscopy (PLM). Of the 94 samples/layers analyzed, 10 were found to contain asbestos. Analytical test results and chain-of-custody documentation are enclosed. The results of the analysis of all samples are summarized in Table 1.

Table 1 - Summary of Analytical Test Results

Sample Number	Material Location	Material Description	Approx. Quantity	Result	Category
1216-1a	Roof Penetrations and Seams	Black Roofing Tar	100 sf	None Detected	--
1216-1b				None Detected	
1216-1c				11% Chrysotile	NCI
1216-2a	Roof Penetrations	Gray Roofing Tar	100 sf	None Detected	--
1216-2b				None Detected	
1216-2c				None Detected	
1216-3a	Roof	Roof Core	12,824 sf	None Detected in Rubber, Insulation, Adhesive and Insulation	--
1216-3b				None Detected in Rubber, Gray or White Insulation, and Adhesive	
1216-3c				None Detected in Gray or White Insulation	
1216-4a	Roof Penetrations and Ventilator Perimeter	Gray Roof Caulk	30 lf	3% Chrysotile	NCI
1216-4b				Not Analyzed due to Positive Stop	
1216-4c				Not Analyzed due to Positive Stop	
1216-5a	Roof Ventilator	Brown Ventilator Cloth	6 sf	None Detected	--
1216-5b				None Detected	
1216-5c				None Detected	
1216-6a	Parapet Wall between North and South Sections for Roof	White Roof Caulk	117 lf	None Detected	--
1216-6b				None Detected	
1216-6c				None Detected	
1216-7a	Rubber Seams on Parapet Walls	Black Roof Caulk	100 lf	None Detected	--
1216-7b				None Detected	
1216-7c				None Detected	
1216-8a	Classrooms and Offices	Tan with White Speckled 12" x 12" Floor Tile with Black Mastic (on concrete)	11,485 sf	None Detected in Floor Tile or Mastic	--
1216-8b				None Detected in Floor Tile or Mastic	
1216-8c				8% Chrysotile in Black Mastic; None Detected in Floor Tile	NCI

sf - square feet
lf - linear feet
NCI - Non-Friable Category I Material

Table 1 - Summary of Analytical Test Results (continued)

Sample Number	Material Location	Material Description	Approx. Quantity	Result	Category
1216-9a	Classrooms	Tan Cove Base with Tan Mastic	--	None Detected in Cove Base or Mastic	--
1216-9b				None Detected in Cove Base or Mastic	
1216-9c				None Detected in Cove Base or Mastic	
1216-10a	Room 14-B07	1' x 1' Pinhole White Ceiling Tile	1,254 sf	None Detected	--
1216-10b				None Detected	
1216-10c				None Detected	
1216-11a	Room 14-B07	Black Cove Base with Brown Mastic	5 lf	None Detected in Cove Base or Mastic	--
1216-11b				None Detected in Cove Base or Mastic	
1216-11c				None Detected in Cove Base or Mastic	
1216-12a	Room 14-B07	Brown Cove Base with Brown Mastic	10 lf	None Detected in Cove Base or Mastic	--
1216-12b				None Detected in Cove Base or Mastic	
1216-12c				None Detected in Cove Base or Mastic	
1216-13a	Hallways	Brown with Dark Speckled 12" x 12" Floor Tile with Black Mastic (on concrete)	2,675 sf	None Detected in Floor Tile or Mastic	--
1216-13b				None Detected in Floor Tile or Mastic	
1216-13c				7% Chrysotile in Black Mastic; None Detected in Floor Tile	NCI
1216-14a	Bathrooms	1" x 1" Multi-colored Ceramic Floor Tile (on concrete)	100 sf	None Detected	--
1216-14b				None Detected	
1216-14c				None Detected	
1216-15a	Throughout	Plaster System	--	None Detected in White or Gray Plaster	--
1216-15b				None Detected in White or Gray Plaster	
1216-15c				None Detected in White Plaster	
1216-16a	Ceiling of Rooms 14-B16 and 14-B18	Yellow Fireproofing	1,325 sf	None Detected	--
1216-16b				None Detected	
1216-16c				None Detected	
1216-17a	Rooms 14-124, 14-146 and 14-147	Yellow 9" x 9" Floor Tile with Black Mastic (on concrete)	548 sf	14% Chrysotile in Floor Tile; 9% Chrysotile in Black Mastic	NCI
1216-17b				Floor Tile and Mastic Not Analyzed due to Positive Stop	
1216-17c				Floor Tile and Mastic Not Analyzed due to Positive Stop	

sf - square feet
lf - linear feet
NCI - Non-Friable Category I Material

Table 1 - Summary of Analytical Test Results (continued)

Sample Number	Material Location	Material Description	Approx. Quantity	Result	Category
1216-18a	Rooms14-146 and 14-147	Green 9" x 9" Floor Tile with Black Mastic (on concrete)	510 sf	11% Chrysotile in Floor Tile; 6% Chrysotile in Black Mastic	NCI
1216-18b				Floor Tile and Mastic Not Analyzed due to Positive Stop	
1216-18c				Floor Tile and Mastic Not Analyzed due to Positive Stop	
1216-19a	Rooms14-124, 14-146 and 14-147	Red 9" x 9" Floor Tile with Black Mastic (on concrete)	225 sf	12% Chrysotile in Floor Tile; 7% Chrysotile in Black Mastic	NCI
1216-19b				Floor Tile and Mastic Not Analyzed due to Positive Stop	
1216-19c				Floor Tile and Mastic Not Analyzed due to Positive Stop	
1216-20a	1st Floor Men's Bathroom Ceiling	Plaster System	50 sf	None Detected in Texture or Plaster	--
1216-20b				None Detected in Texture or Plaster	
1216-20c				None Detected in Texture or Plaster	
1216-21a	1st Floor SE Hall (14-100) and Rooms 14-118/120	1' x 1' Ceiling Tile	1,310 sf	None Detected	--
1216-21b				None Detected	
1216-21c				None Detected	
1216-22a	1st Floor SE Hall (14-100) and Rooms 14-118/120	Gray Mastic Pucks (above 21abc)	655 sf	None Detected	--
1216-22b				None Detected	
1216-22c				None Detected	
1216-23a	1st Floor SE Hall (14-100) and Rooms 14-118/120	Tan Mastic Pucks (above 21abc)	655 sf	None Detected	--
1216-23b				None Detected	
1216-23c				None Detected	

sf - square feet
NCI - Non-Friable Category I Material

DEMOLITION/RENOVATION

According to the Missouri Department of Natural Resources (MDNR), any friable or potentially friable ACM equal to or greater than 260 linear feet or 160 square feet is classified as a regulated ACM (RACM) and must be removed prior to demolition or renovation which would significantly damage the material.

The black mastic associated with the 12-inch by 12-inch tan with white speckled floor tile and the 12-inch by 12-inch brown with dark speckled floor tile and the 9-inch by 9-inch yellow, red and green floor tile and associated mastic are Category I non-friable materials and would not normally require removal. However, should renovation activities impact these materials, they should be removed by a licensed abatement contractor prior to renovations.

The black roofing tar and gray roof caulk are Category I non-friable materials and would not normally require removal. However, should renovation activities impact these materials, they should be removed by a licensed abatement contractor prior to renovations.

Although no asbestos-containing thermal system insulation (TSI) was observed in this structure, it is possible that asbestos-containing TSI is present in the wall cavities and floor cavities of the building where piping is present due to the construction date of the building. If any suspect pipe insulation is encountered during renovation, please contact SCI for analysis of the materials.

The Occupational Safety & Health Administration also has regulations (29 CFR Parts 1910 et al, Occupational Exposure to Asbestos, August 10, 1994) regarding removal of asbestos-containing materials which must be followed.

REPORTING

Attached is Missouri Department of Natural Resources' (MDNR) Notification of Demolition and Renovation form, which has been filled out to the extent possible by SCI. The remaining information must be completed by you.

This report, as well as the completed EPA Notification of Demolition and Renovation form, must be submitted to MDNR, Air Pollution Control, PO Box 176, Jefferson City, MO, 65102, Stephanie Hamilton at asbestosnotifications@dnr.mo.gov.

It should be noted that following submittal of the notification form, there is a 10-day waiting period before demolition, renovation, or abatement activities can begin.

If this report is to be used for bidding purposes for asbestos abatement, SCI recommends the contractor visit the site to verify all conditions and quantities.

SCI appreciates the opportunity to be of service to you on this project. Please contact us if you have any questions or comments regarding the information provided.

Respectfully,

SCI ENGINEERING, INC.

Anna R. Mecey
MO State Certified Asbestos Inspector
Certificate Number 7011062822MOIR21750

Brian L. Lieb
Project Scientist

Jessica B. Keeven, CHMM
Senior Scientist

Enclosures

MISSOURI DEPARTMENT OF NATURAL RESOURCES
AIR POLLUTION CONTROL PROGRAM

ASBESTOS NESHAP NOTIFICATION OF DEMOLITION AND RENOVATION

GENERAL INSTRUCTIONS

NOTE: There is a $100 review fee for this notification. Make checks payable to the department's Air Pollution Control Program or the appropriate local agency.

1. First-time notices = "Original." Amended projects = "Revision." Notice of cancellation = "Cancelled."
2. In the event that no asbestos removal was necessary, indicate "N/A" for asbestos removal contractor.
3. Indicate the type of project.
4. Mark the "YES" box if asbestos is present. In the next box, indicate what types of asbestos materials are present. Mark the "NO" box if no asbestos is present.
5. Failure to complete this section will result in an unapproved project. Include building uses, sizes and age. If you do not know the exact information, give your best estimate.
6. All regulated structures must be inspected by a certified asbestos inspector prior to renovation or demolition. Typically: "Certified asbestos inspector, with sample analysis by PLM." If other methods were used, explain.
7. All asbestos materials present in the building must be included here. Enter amounts (in ft^2, linear feet, or ft^3) of material to be removed from or left in the building. For example, in the column "Nonfriable asbestos material to be removed," under subcolumn "CAT II" (on the "surface area" line) you might enter "5,200" and "transite" under the number. The inspection report, which must be attached to the notification, should reflect this information.
8. This line must be completed. Never enter a date that is not at least 10 working days after your postmark, unless you have been granted a waiver by the department. **Missouri law requires notifications to be submitted at least 10 working days in advance of the project start date.**
9. If applicable, enter the dates on which abatement will occur or has occurred.
10. Give a brief description of your demolition/renovation plans, including the scope of work to be performed and the methods used to perform the work. Use an additional page if necessary.
11. Describe how any asbestos-containing materials (ACM) involved will be removed prior to demolition/renovation. If ACM will be left in the building, then indicate precautions used to prevent ACM from being made friable. If all asbestos has been removed, "N/A."
12. Identify waste transporter.
13. Identify waste disposal site.
14. Complete this section only for ordered demolitions. Submit the order with the notification. For all others, "N/A."
15. Complete this section only for emergency renovation projects. For all other renovations, indicate "N/A."
16. Indicate what will be done in the event that friable asbestos or suspect materials are unexpectedly encountered.
17. For regulated asbestos abatement or demolition of an unsafe or damaged structure when a prior inspection has not been conducted, a person trained in the requirements of 40 CFR Part 61, Subpart M must be on site to supervise the asbestos abatement. In the event that no asbestos is present or has already been removed, mark "N/A."
18. Always sign and date this line. This form may be signed by the project owner or operator. The project approval letter will be mailed to the person who signs the notification form.

NOTE: **For all regulated demolition and renovation projects, always include a complete copy of your asbestos inspection report with the notification form.**

Send completed forms to:	If using priority mail, send to:
Missouri Department of Natural Resources APCP, Asbestos PO Box 176 Jefferson City, MO 65102	Missouri Department of Natural Resources APCP, Asbestos 1659 E. Elm St. Jefferson City, MO 65101

MISSOURI DEPARTMENT OF NATURAL RESOURCES
AIR POLLUTION CONTROL PROGRAM

ASBESTOS NESHAP NOTIFICATION OF DEMOLITION AND RENOVATION

FOR OFFICE USE ONLY	
DATE RECEIVED	POSTMARK
CHECK DATE	CHECK NUMBER
CHECK AMOUNT	NOTIFICATION NUMBER

There is a $100 review fee for this notification. Processing will be delayed if notification is received without payment.

1. TYPE OF NOTIFICATION

☐ O – ORIGINAL ☐ C – CANCELLED ☐ R – REVISION, WRITE REVISION NUMBER _____

2. FACILITY INFORMATION (IDENTIFY OWNER, REMOVAL CONTRACTOR AND OTHER OPERATOR)

OWNER'S NAME	ADDRESS		
CITY	STATE	ZIP CODE	EMAIL
CONTACT	TITLE		TELEPHONE NUMBER WITH AREA CODE
ASBESTOS REMOVAL CONTRACTOR	ADDRESS		
CITY	STATE	ZIP CODE	EMAIL
CONTACT	TITLE		TELEPHONE NUMBER WITH AREA CODE
DEMOLITION CONTRACTOR	ADDRESS		
CITY	STATE	ZIP CODE	EMAIL
CONTACT	TITLE		TELEPHONE NUMBER WITH AREA CODE

3. TYPE OF OPERATION

☐ D – DEMO ☐ O – ORDERED DEMO ☐ R – RENOVATION ☐ E – EMERGENCY RENOVATION

4. IS ASBESTOS PRESENT?

☑ YES ☐ NO

LIST TYPE(S) OF ASBESTOS MATERIAL TO BE REMOVED

5. FACILITY DESCRIPTION

BUILDING NAME: Boonville Correctional Center			
ADDRESS: 1216 East Morgan Street			
CITY: Boonville	COUNTY: Cooper	STATE: MO	ZIP CODE:
SITE LOCATION: Education Building			
BUILDING SIZE: 12,824 sf	NUMBER OF FLOORS:	AGE IN YEARS: ~80	
PRESENT USE: Education Building	PRIOR USE:		

6. PROCEDURE, INCLUDING ANALYTICAL METHOD, IF APPROPRIATE, USED TO DETECT THE PRESENCE OF ASBESTOS MATERIAL. INCLUDE A COPY OF THE ASBESTOS INSPECTION.

7. APPROXIMATE AMOUNT OF ASBESTOS, INCLUDING: A. REGULATED ACM (RACM) B. CATEGORY I ACM C. CATEGORY II ACM	RACM TO BE REMOVED	NONFRIABLE ASBESTOS MATERIAL TO BE REMOVED		NONFRIABLE ASBESTOS MATERIAL NOT TO BE REMOVED	
		CAT I	CAT II	CAT I	CAT II
PIPES (LINEAR FEET)					
SURFACE AREA (SQUARE FEET)					
VOL. RACM OFF FACILITY COMPONENT (CUBIC FEET)					

8. SCHEDULED DATES DEMO/RENOVATION (MM/DD/YY)

START: COMPLETION:

9. SCHEDULED DATES ASBESTOS REMOVAL (MM/DD/YY)

START: COMPLETION:	WEEKDAY WORK HOURS	WEEKEND WORK HOURS

10. DESCRIPTION OF PLANNED DEMOLITION OR RENOVATION WORK AND METHOD(S) TO BE USED

11. DESCRIPTION OF WORK PRACTICES AND ENGINEERING CONTROLS TO BE USED TO PREVENT EMISSIONS OF ASBESTOS AT THE DEMOLITION OR RENOVATION SITE.

12. WASTE TRANSPORTER

NAME	ADDRESS		
CITY		STATE	ZIP CODE
CONTACT PERSON		TELEPHONE NUMBER WITH AREA CODE	

13. WASTE DISPOSAL SITE

NAME		
LOCATION		
CITY	STATE	ZIP CODE
TELEPHONE NUMBER WITH AREA CODE		

14. IF DEMOLITION ORDERED BY A GOVERNMENT AGENCY, IDENTIFY THE AGENCY BELOW.

NAME	TITLE
AGENCY	
DATE OF ORDER (MM/DD/YY) INCLUDE A COPY OF THE ORDER.	DATE ORDERED TO BEGIN (MM/DD/YY)

15. FOR EMERGENCY RENOVATIONS

DATE AND HOUR OF EMERGENCY

DESCRIPTION OF THE SUDDEN, UNEXPECTED EVENT

EXPLANATION OF HOW THE EVENT CAUSED UNSAFE CONDITIONS OR WOULD CAUSE EQUIPMENT DAMAGE OR AN UNREASONABLE FINANCIAL BURDEN

16. DESCRIPTION OF PROCEDURES TO BE FOLLOWED IN THE EVENT THAT UNEXPECTED ASBESTOS IS FOUND OR PREVIOUSLY NONFRIABLE ASBESTOS MATERIAL BECOMES CRUMBLED, PULVERIZED OR REDUCED TO POWDER.

17. I CERTIFY THAT AN INDIVIDUAL TRAINED IN THE PROVISIONS OF THIS REGULATION (40 CFR PART 61, SUBPART M) WILL BE ON-SITE DURING THE DEMOLITION OR RENOVATION AND EVIDENCE THAT THE REQUIRED TRAINING HAS BEEN ACCOMPLISHED BY THIS PERSON WILL BE AVAILABLE FOR INSPECTION DURING NORMAL BUSINESS HOURS (REQUIRED 1 YEAR AFTER PROMULGATION).

SIGNATURE OF OWNER/OPERATOR	DATE

18. I CERTIFY THAT THE ABOVE INFORMATION IS CORRECT.

SIGNATURE OF OWNER/OPERATOR	DATE

EMSL Analytical, Inc.

100 Green Park Industrial Court Saint Louis, MO 63123

Tel/Fax: (314) 577-0150 / (314) 776-3313

http://www.EMSL.com / saintlouislab@emsl.com

EMSL Order:	392304924
Customer ID:	SCI50
Customer PO:	
Project ID:	

Attention:	Brian Lieb	**Phone:**	(636) 949-8200
	SCI Engineering, Inc.	**Fax:**	(636) 949-8269
	130 Point West Blvd.	**Received Date:**	05/04/2023 8:00 AM
	Saint Charles, MO 63301	**Analysis Date:**	05/10/2023 - 05/11/2023
		Collected Date:	

Project: 2015-0405.25 Boonville Correctional Center - 1216 E Morgan Street, Boonville MO

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
1216-1A *392304924-0001*		Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-1B *392304924-0002*		Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-1C *392304924-0003*		Various Non-Fibrous Homogeneous		89% Non-fibrous (Other)	11% Chrysotile
1216-2A *392304924-0004*		Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-2B *392304924-0005*		Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-2C *392304924-0006*		Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-3A-Rubber Membrane *392304924-0007*		Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-3A-Insulation *392304924-0007A*		Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-3A-Adhesive *392304924-0007B*		Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-3A-Insulation *392304924-0007C*		White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-3B-Rubber Membrane *392304924-0008*		Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-3B-Insulation *392304924-0008A*		Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-3B-Adhesive *392304924-0008B*		Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-3B-Insulation *392304924-0008C*		White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-3C-Insulation *392304924-0009*		Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 05/11/2023 11:35:34

EMSL Analytical, Inc.

100 Green Park Industrial Court Saint Louis, MO 63123

Tel/Fax: (314) 577-0150 / (314) 776-3313

http://www.EMSL.com / saintlouislab@emsl.com

EMSL Order:	392304924
Customer ID:	SCI50
Customer PO:	
Project ID:	

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
1216-3C-Insulation *392304924-0009A*		White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-4A *392304924-0010*		Brown Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
1216-4B *392304924-0011*					Positive Stop (Not Analyzed)
1216-4C *392304924-0012*					Positive Stop (Not Analyzed)
1216-5A *392304924-0013*		Brown Fibrous Homogeneous	87% Fibrous (Other)	13% Non-fibrous (Other)	None Detected
1216-5B *392304924-0014*		Brown Fibrous Homogeneous	88% Fibrous (Other)	12% Non-fibrous (Other)	None Detected
1216-5C *392304924-0015*		Brown Fibrous Homogeneous	85% Fibrous (Other)	15% Non-fibrous (Other)	None Detected
1216-6A *392304924-0016*		Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-6B *392304924-0017*		Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-6C *392304924-0018*		Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-7A *392304924-0019*		Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-7B *392304924-0020*		Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-7C *392304924-0021*		Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-8A-Floor Tile *392304924-0022*		Various Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-8A-Mastic *392304924-0022A*		Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-8B-Floor Tile *392304924-0023*		Various Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-8B-Mastic *392304924-0023A*		Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-8C-Floor Tile *392304924-0024*		Various Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-8C-Mastic *392304924-0024A*		Black Non-Fibrous Homogeneous		92% Non-fibrous (Other)	8% Chrysotile

Initial report from: 05/11/2023 11:35:34

EMSL Analytical, Inc.
100 Green Park Industrial Court Saint Louis, MO 63123
Tel/Fax: (314) 577-0150 / (314) 776-3313
http://www.EMSL.com / saintlouislab@emsl.com

EMSL Order: 392304924
Customer ID: SCI50
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
1216-9A-Cove Base *392304924-0025*		Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-9A-Mastic *392304924-0025A*		Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-9B-Cove Base *392304924-0026*		Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-9B-Mastic *392304924-0026A*		Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-9C-Cove Base *392304924-0027*		Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-9C-Mastic *392304924-0027A*		Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-10A *392304924-0028*		Various Fibrous Homogeneous	9% Cellulose 69% Min. Wool	22% Non-fibrous (Other)	None Detected
1216-10B *392304924-0029*		Various Fibrous Homogeneous	6% Cellulose 69% Min. Wool	25% Non-fibrous (Other)	None Detected
1216-10C *392304924-0030*		Various Fibrous Homogeneous	5% Cellulose 70% Min. Wool	25% Non-fibrous (Other)	None Detected
1216-11A-Cove Base *392304924-0031*		Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-11A-Mastic *392304924-0031A*		Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-11B-Cove Base *392304924-0032*		Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-11B-Mastic *392304924-0032A*		Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-11C-Cove Base *392304924-0033*		Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-11C-Mastic *392304924-0033A*		Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-12A-Cove Base *392304924-0034*		Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-12A-Mastic *392304924-0034A*		Brown Non-Fibrous Homogeneous	7% Wollastonite	93% Non-fibrous (Other)	None Detected
1216-12B-Cove Base *392304924-0035*		Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-12B-Mastic *392304924-0035A*		Brown Non-Fibrous Homogeneous	8% Wollastonite	92% Non-fibrous (Other)	None Detected

Initial report from: 05/11/2023 11:35:34

EMSL Analytical, Inc.
100 Green Park Industrial Court Saint Louis, MO 63123
Tel/Fax: (314) 577-0150 / (314) 776-3313
http://www.EMSL.com / saintlouislab@emsl.com

EMSL Order: 392304924
Customer ID: SCI50
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
1216-12C-Cove Base *392304924-0036*		Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-12C-Mastic *392304924-0036A*		Brown Non-Fibrous Homogeneous	5% Wollastonite	95% Non-fibrous (Other)	None Detected
1216-13A-Floor Tile *392304924-0037*		Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-13A-Mastic *392304924-0037A*		Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-13B-Floor Tile *392304924-0038*		Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-13B-Mastic *392304924-0038A*		Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-13C-Floor Tile *392304924-0039*		Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-13C-Mastic *392304924-0039A*		Black Non-Fibrous Homogeneous		93% Non-fibrous (Other)	7% Chrysotile
1216-14A *392304924-0040*		Peach Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-14B *392304924-0041*		Peach Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-14C *392304924-0042*		Peach Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-15A-Plaster *392304924-0043*		White Non-Fibrous Homogeneous		39% Quartz 61% Non-fibrous (Other)	None Detected
1216-15A-Plaster *392304924-0043A*		Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-15B-Plaster *392304924-0044*		White Non-Fibrous Homogeneous		36% Quartz 64% Non-fibrous (Other)	None Detected
1216-15B-Plaster *392304924-0044A*		Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-15C *392304924-0045*		White Non-Fibrous Homogeneous		34% Quartz 66% Non-fibrous (Other)	None Detected
1216-16A *392304924-0046*		Yellow Fibrous Homogeneous	97% Cellulose	3% Non-fibrous (Other)	None Detected
1216-16B *392304924-0047*		Yellow Fibrous Homogeneous	98% Cellulose	2% Non-fibrous (Other)	None Detected
1216-16C *392304924-0048*		Yellow Fibrous Homogeneous	97% Cellulose	3% Non-fibrous (Other)	None Detected

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100 Green Park Industrial Court Saint Louis, MO 63123

Tel/Fax: (314) 577-0150 / (314) 776-3313

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EMSL Order:	392304924
Customer ID:	SCI50
Customer PO:	
Project ID:	

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
1216-17A-Floor Tile *392304924-0049*		Various Non-Fibrous Homogeneous		86% Non-fibrous (Other)	14% Chrysotile
1216-17A-Mastic *392304924-0049A*		Black Non-Fibrous Homogeneous		91% Non-fibrous (Other)	9% Chrysotile
1216-17B-Floor Tile *392304924-0050*					Positive Stop (Not Analyzed)
1216-17B-Mastic *392304924-0050A*					Positive Stop (Not Analyzed)
1216-17C-Floor Tile *392304924-0051*					Positive Stop (Not Analyzed)
1216-17C-Mastic *392304924-0051A*					Positive Stop (Not Analyzed)
1216-18A-Floor Tile *392304924-0052*		Green Non-Fibrous Homogeneous		89% Non-fibrous (Other)	11% Chrysotile
1216-18A-Mastic *392304924-0052A*		Black Non-Fibrous Homogeneous		94% Non-fibrous (Other)	6% Chrysotile
1216-18B-Floor Tile *392304924-0053*					Positive Stop (Not Analyzed)
1216-18B-Mastic *392304924-0053A*					Positive Stop (Not Analyzed)
1216-18C-Floor Tile *392304924-0054*					Positive Stop (Not Analyzed)
1216-18C-Mastic *392304924-0054A*					Positive Stop (Not Analyzed)
1216-19A-Floor Tile *392304924-0055*		Red Non-Fibrous Homogeneous		88% Non-fibrous (Other)	12% Chrysotile
1216-19A-Mastic *392304924-0055A*		Black Non-Fibrous Homogeneous		93% Non-fibrous (Other)	7% Chrysotile
1216-19B-Floor Tile *392304924-0056*					Positive Stop (Not Analyzed)
1216-19B-Mastic *392304924-0056A*					Positive Stop (Not Analyzed)
1216-19C-Floor Tile *392304924-0057*					Positive Stop (Not Analyzed)
1216-19C-Mastic *392304924-0057A*					Positive Stop (Not Analyzed)
1216-20A-Texture *392304924-0058*		Various Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 05/11/2023 11:35:34

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http://www.EMSL.com / saintlouislab@emsl.com

EMSL Order:	392304924
Customer ID:	SCI50
Customer PO:	
Project ID:	

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
1216-20A-Plaster *392304924-0058A*		Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-20A-Plaster *392304924-0058B*		Various Non-Fibrous Homogeneous		18% Quartz 82% Non-fibrous (Other)	None Detected
1216-20B-Texture *392304924-0059*		Various Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-20B-Plaster *392304924-0059A*		Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-20B-Plaster *392304924-0059B*		Various Non-Fibrous Homogeneous		19% Quartz 81% Non-fibrous (Other)	None Detected
1216-20C-Texture *392304924-0060*		Various Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-20C-Plaster *392304924-0060A*		Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-20C-Plaster *392304924-0060B*		Various Non-Fibrous Homogeneous		15% Quartz 85% Non-fibrous (Other)	None Detected
1216-21A *392304924-0061*		Various Fibrous Homogeneous	6% Cellulose 66% Min. Wool	28% Non-fibrous (Other)	None Detected
1216-21B *392304924-0062*		Various Fibrous Homogeneous	7% Cellulose 67% Min. Wool	26% Non-fibrous (Other)	None Detected
1216-21C *392304924-0063*		Various Fibrous Homogeneous	7% Cellulose 67% Min. Wool	26% Non-fibrous (Other)	None Detected
1216-22A *392304924-0064*		Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-22B *392304924-0065*		Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-22C *392304924-0066*		Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-23A *392304924-0067*		Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-23B *392304924-0068*		Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1216-23C *392304924-0069*		Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 05/11/2023 11:35:34

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EMSL Order:	392304924
Customer ID:	SCI50
Customer PO:	
Project ID:	

Analyst(s)

Clayton Summers (27)

Sue Ferrario (67)

Jeff Siria, Laboratory Manager
or Other Approved Signatory

Initial report from: 05/11/2023 11:35:34

3923049 24

BULK ASBESTOS CHAIN OF CUSTODY

130 Point West Boulevard
St. Charles, Missouri 63301
636-949-8200 Fax 636-949-8269
www.sciengineering.com

OrderID: 392304924

Company:	SCI Engineering, Inc.	**Please Provide Results Via:**	☐ Fax ■ Email ☐ Mail
Street:	130 Point West Boulevard	**To:** Brian Lieb	
City/State/Zip:	St. Charles, Missouri 63301	**Telephone #:**	**Fax #:** 636-949-8269
Project Name:	Boonville Correctional Center - 1216 E Morgan Street, Boonville, MO	**Email:**	blieb@sciengineering.com
Project Number:	2015-0405.25		

Turnaround Time (TAT) Options - Please Check One

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ■ Other 5- day

PLM Bulk Analysis	*TEM Bulk Analysis*
■ PLM-EPA 600	☐ TEM EPA NOB - EPA 600/R-93/116 Section 2.5.5.1
☐ PLM-EPA 600 NOB	☐ Chatfield Protocol (semi-quantitative)
☐ PLM-Point Count	

■ Check Box for Stop Positive

Comments: According to Brian Connell, the ceramic tile walls throughout the building were not going to be disturbed during renovation, it was not sampled.

Samplers Name: Anna Mecey	**Samplers Signature:** Anna Mecey	**Date Sampled:** 5/3/2023
Building Use/Description/Features: Education Building	**Age:** 1940s	**Size:** 12,824 sf
Windows: Wood	**Siding:** Brick	**Roof:** Rubber, Foam Ins., Conc.	**Attic:** N/A	**HVAC:** Forced Air

Sample #	Material Location	Material Description	Approx. Quantity	Condition	Comments
1216 - 1ABC	Roof Penetrations and Seams	Black Roofing Tar	100 sf	Good	
1216 - 2ABC	Roof Penetrations	Gray Roofing Tar	100 sf	Good	
1216 - 3ABC	Roof	Roof Core	12,824 sf	Good	
1216 - 4ABC	Roof Penetrations and Ventilator Perimeter	Gray Roof Caulk	30 lf	Good	
1216 - 5ABC	Roof Ventilator	Brown Ventilator Cloth	6 sf	Good	
1216 - 6ABC	Parapet Wall b/w N and S Sections of Roof	White Roof Caulk	117 lf	Good	
1216 - 7ABC	Rubber Seams on Parapet Walls	Black Roof Caulk	100 lf	Good	
1216 - 8ABC	Classrooms and Offices	Tan w/ White Speckled 12x12 F.T. w/ Black Mastic	11,485 sf	Good	on conc.
1216 - 9ABC	Classrooms	Tan Cove Base w/ Tan Mastic	N/A	Good	

Relinquished:	Anna Mecey	**Date:** 5-3-23	**Time:** 7:05pm
Received:	[signature]	**Date:** 5-4-23	**Time:** 8:00a Drop Box

392304924

Project Name/Number Boonville Correctional Center / 2015-0405.25

Sample #	Material Location	Material Description	Approx. Quantity	Condition	Comments
1216 - 10ABC	Room 14-B07	1'x1' Pinhole White Ceiling Tile	1,254 sf	Good	
1216 - 11ABC	Room 14-B07	Black Cove Base w/ Brown Mastic	5 lf	Good	
1216 - 12ABC	Room 14-B07	Brown Cove Base w/ Brown Mastic	10 lf	Good	
1216 - 13ABC	Hallways	Brown w/ Dark Speckled 12x12 F.T. w/ Black Mastic	2,675 sf	Good	on conc.
1216 - 14ABC	Bathrooms	1"x1" Multicolored Ceramic F.T.	100 sf	Good	on conc.
1216 - 15ABC	Throughout	Plaster System	N/A	Good	
1216 - 16ABC	Ceiling of Rooms 14-B15 and 14-B18	Yellow Fireproofing	1,325 sf	Good	
1216 - 17ABC	Rooms 14-124, 14-146, and 14-147	Yellow 9x9 F.T. w/ Black Mastic	548 sf	Good	on conc.
1216 - 18ABC	Rooms 14-146 and 14-147	Green 9x9 F.T. w/ Black Mastic	510 sf	Good	on conc.
1216 - 19ABC	Rooms 14-124, 14-146, and 14-147	Red 9x9 F.T. w/ Black Mastic	225 sf	Good	on conc.
1216 - 20ABC	1st floor Men's Bathroom Ceiling	Plaster System	50 sf	Good	
1216 - 21ABC	1st Floor SE Hall (14-100) and Rooms 14-118/120	1'x1' Ceiling Tile	1,310 sf	Good	
1216 - 22ABC	1st Floor SE Hall (14-100) and Rooms 14-118/120	Gray Mastic Pucks	655 sf	Good	Above 21ABC
1216 - 23ABC	1st Floor SE Hall (14-100) and Rooms 14-118/120	Tan Mastic Pucks	655 sf	Good	Above 21ABC

CERTIFICATION NUMBER:

701106282 2MOIR21750

THIS CERTIFIES

Anna R Mecey

HAS COMPLETED THE CERTIFICATION

REQUIREMENTS FOR

Inspector

APPROVED: **07/20/2022**

EXPIRES: **07/20/2023**

TRAINING DATE: **06/28/2022**

Director of Air Pollution Control Program

APPENDIX B

LEAD-CONTAINING MATERIALS SURVEY REPORT

SCI ENGINEERING, INC.
EARTH • SCIENCE • SOLUTIONS
GEOTECHNICAL
ENVIRONMENTAL
NATURAL RESOURCES
CULTURAL RESOURCES
CONSTRUCTION SERVICES

May 25, 2023

Brian Connell
Connell Architecture, P.C.
2311 East Walnut, Suite B
Columbia, Missouri 65201

RE: Lead-Based Paint Survey Report
Boonville Correctional Center – Replace Roof, Education Building
1216 East Morgan Street
Boonville, Missouri
SCI No. 2015-0405.27

Dear Brian Connell:

INTRODUCTION

SCI Engineering, Inc. (SCI) is pleased to submit this report summarizing lead-based paint (LBP) survey activities performed on May 3, 2023. The purpose of this survey was to determine the presence of lead-based paint within the on-site education building.

LEAD BASED PAINT SURVEY

X-Ray Fluorescence Testing (XRF)

This survey was performed using an XRF that can quickly and nondestructively determine the quantity of lead present in paint coatings on various interior components of the structure. Per the request of the client, the exterior of the structure was not surveyed.

The United States Department of Housing and Urban Development and the Missouri Department of Natural Resources indicates that LBP is any paint, varnish, stain, or other applied coating that has one milligram per square centimeter (mg/cm^2) or 5,000 micrograms per gram (ug/g) by dry weight (0.5 percent by mass) or more of lead. Based upon a review of the XRF results, several of the paint systems analyzed had a lead content greater than 1.0 mg/cm^3. A summary of these LPB systems is included in Table 1 below. Enclosed are photographs depicting the locations of the positive XRF samples. A complete summary of the lead testing results are included with this report.

Table 1 - LBP XRF Results

Sample Number	Sample Location	Sample Description
16	Room 14B02, Side A	Blue Cinder Block Wall
24	Room 14B02, Side A	Blue Cinder Block Wall
28	Room 14B02, Side A	White Concrete Wall
32	Room 14B04, Side A	Black Cinder Block Wall
51	Room 14B10, Side B	Brown Wood Door

Table 1 - LBP XRF Results (continued)

Sample Number	Sample Location	Sample Description
82	Room 14B14, Side D	Green Metal Door (Metal Cage)
84	Room 14B14, Side D	Green Wood Cabinet
107	Room 14B21, Side D	Green Glazed Block Wall
116	Room 14B20, Side D	White Metal Sink
160	Room 14-140, Side D	Green Glazed Block Wall
229	Room 14-124, Side A	Yellow Glazed Block Wall
232	Room 14-124, Side A	Yellow Glazed Block Wall
254	Hallway, Side B	Black Metal Grating
261	Room 14-111, Side B	Green Glazed Block Wall
262	Room 14-111, Side B	White Metal Window

CONCLUSION

As can be seen in Table 1 above, several paint coatings were identified as being LBP coatings. Based on the sample results above, the following components are homogenous and should be considered LBP.

- The blue painted cinder block wall in Room 14B02, near Room 14B03;
- The white painted western concrete wall of Room 14B02;
- The black painted cinderblock wall in the southwest corner of Room 14B04;
- All the brown wood doors throughout the structure;
- The green metal cage in Room 14B14;
- The green wood cabinets in Room 14B14;
- All the green glazed block walls throughout the structure;
- The white metal sink in Room 14B20;
- The yellow glazed block on the south wall of Room 14-124;
- The black metal grating in the hallway near Room 14-111; and
- The white metal windows in Room 14-111.

During renovation of these areas, care should be taken not to sand, grind or abrade surfaces coated with LBPs. Any disturbance of these painted surfaces must be performed by workers that are renovation, repair and paint program (RRP) trained. If the painted building components are to remain and be refinished, then stripping the paint should be performed by a licensed abatement contractor. If the

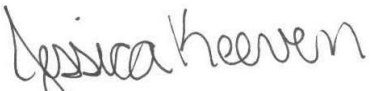
components are to be removed, then they can be removed by RRP-trained workers with appropriate safety training and disposed as construction waste. There are no special disposal considerations in Missouri for disposal of demolition rubble from this structure as long as it is disposed in a licensed solid waste landfill.

We appreciate the opportunity to be of service to you on this project. If you have any questions or comments regarding these results, please feel free to contact us.

Respectfully,

SCI ENGINEERING, INC.

Brian L. Lieb
Project Scientist



Jessica B. Keeven, CHMM
Senior Scientist

BLL/JBK/rah

Enclosures
Photographs of Positive XRF Samples
XRF Results

\\scieng\shared\StCharles\shared\1soils\1NEW\PROJECT FILES\2015 PROJECTS\2015-0405 Boonville Corrections Center Smoke Stack\ES\27\Boonville Corrections Ctr-LBP Survey.doc

Photo 1. 16 & 24 - Blue cinder block wall outside of bathroom (Room 14B02)

Photo 2. 28 - White concrete wall (Room 14B02)

Photo 3. 32 - Black cinder block corner (Room 14B04)

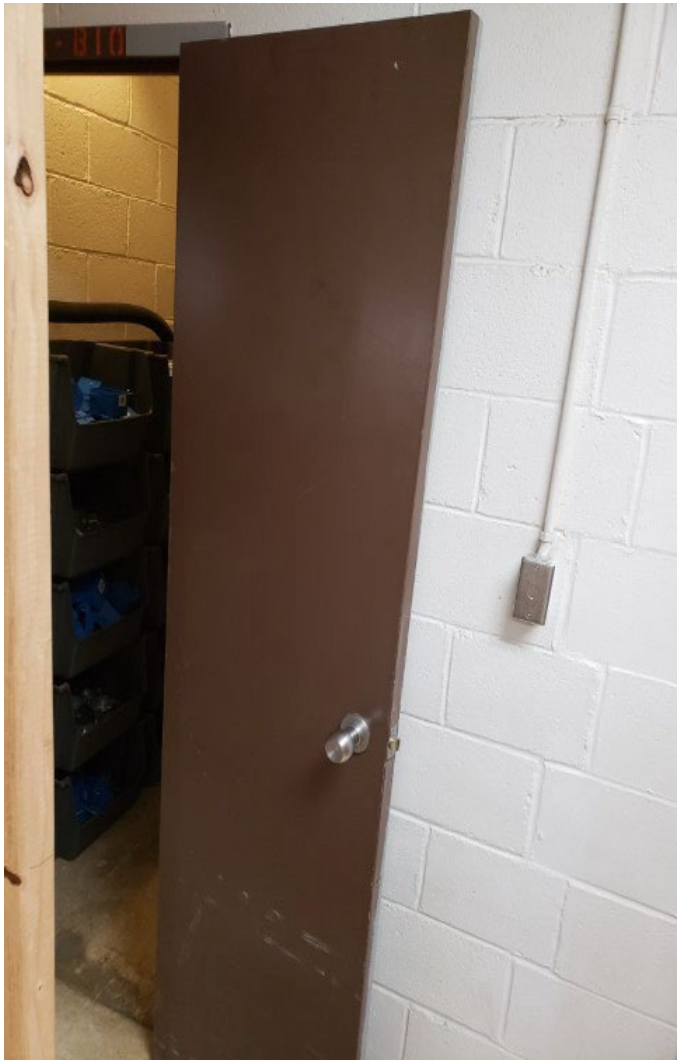


Photo 4. 51 - Brown door in Room 14B10

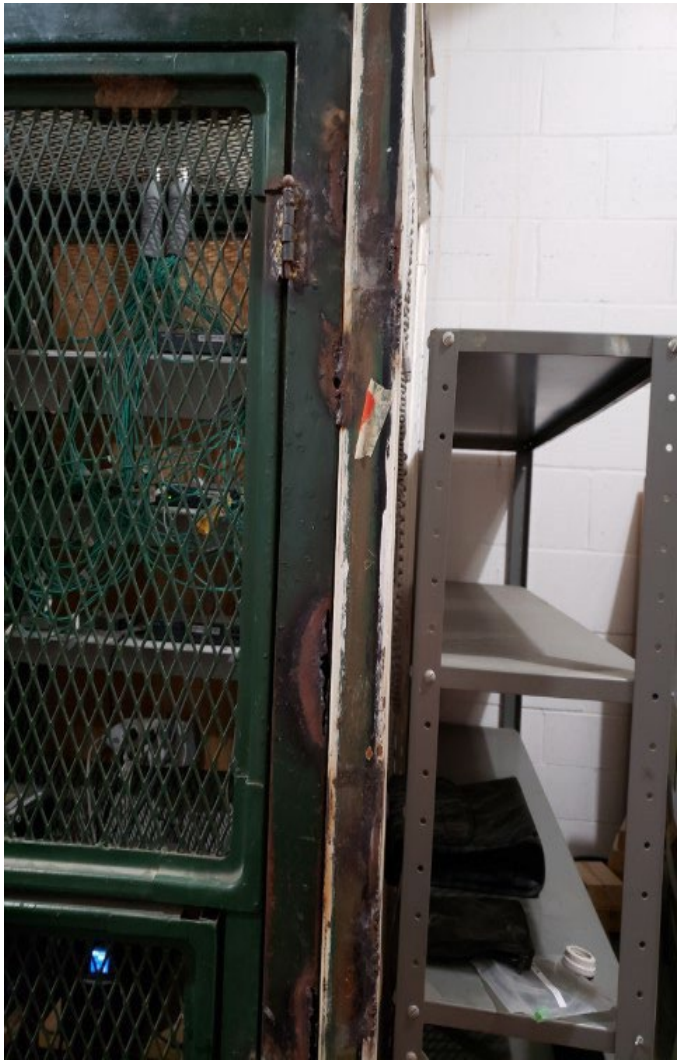


Photo 5. 82 - Green Cage in Room 14B14

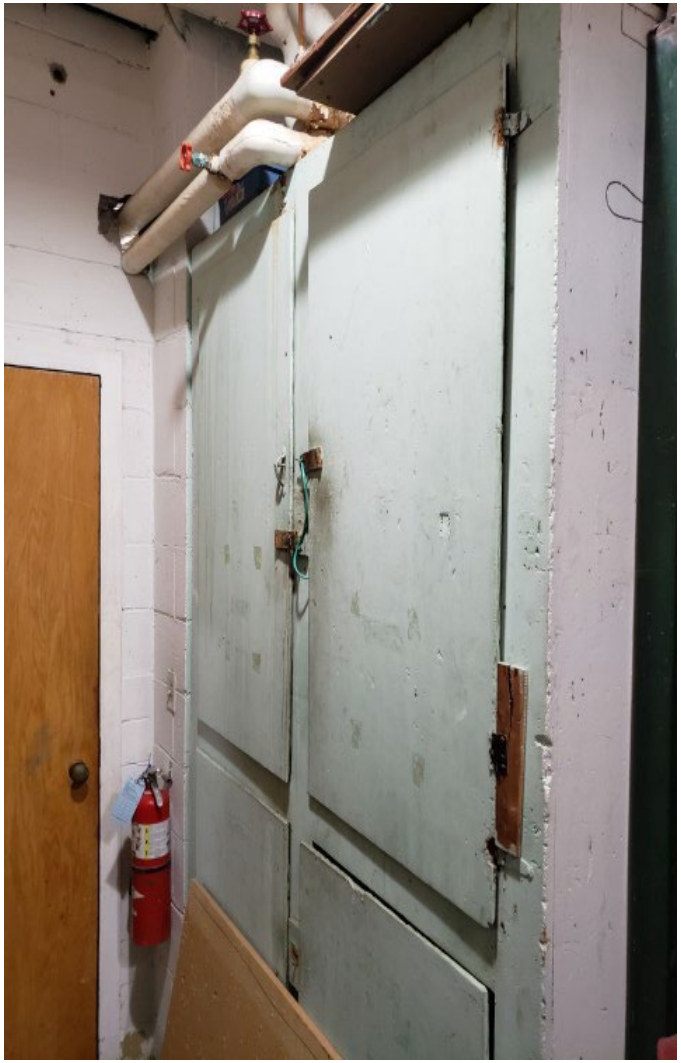


Photo 6.084 - Green wood cabinets in Room 14B14

Photo 7. 107 - Green glazed block in Room 14B21

Photo 8. 116 - Sink in Room 14B20

Photo 9. 160 - Green glazed block in Room 14-140

Photo 10. 229 & 232 - Yellow glazed block in Room 14-124

Photo 11. 254 - Black grate in hallway outside of Room 14-111

Photo 12. 261 - Green glazed in Room 14-111

Photo 13. 262 - Window frame in Room 14-111

XRF Results
Boonville Corrections Center
SCI No. 2015-0405.27

Reading No	Time	Substrate	Component	Room	Side	Color	Results	Pb	Pb Error
6	5/3/2023 12:05		Calibration				Inconclusive	0.98	0.1
7	5/3/2023 12:05		Calibration				Inconclusive		
8	5/3/2023 12:05		Calibration				Positive	2.21	0.7
9	5/3/2023 12:07	Cinder Block	Wall	14B02	C	White	Negative	< LOD	0.21
10	5/3/2023 12:08	Glazed Block	Wall	14B02	C	White	Negative	< LOD	0.13
11	5/3/2023 12:08	Metal	Pipe	14B02	C	White	Negative	< LOD	0.24
12	5/3/2023 12:09	Wood	Door	14B02	D	Blue	Negative	< LOD	0.25
13	5/3/2023 12:09	Wood	Door	14B02	D	Blue	Negative	< LOD	0.32
14	5/3/2023 12:10	Wood	Door	14B02	A	Blue	Inconclusive	< LOD	1.33
15	5/3/2023 12:10	Cinder Block	Wall	14B02	A	White	Inconclusive	< LOD	1.25
16	5/3/2023 12:10	Cinder Block	Wall	14B02	A	Blue	Positive	1.84	0.27
17	5/3/2023 12:12	Cinder Block	Wall	14B02	A	Blue	Negative	< LOD	0.01
18	5/3/2023 12:12	Cinder Block	Wall	14B02	B	Blue	Negative		
19	5/3/2023 12:12	Cinder Block	Wall	14B02	C	Blue	Negative	< LOD	0.12
20	5/3/2023 12:13	Cinder Block	Wall	14B02	D	Blue	Negative	< LOD	0.08
21	5/3/2023 12:13	Wood	Door	14B02	A	Blue	Negative	< LOD	0.11
22	5/3/2023 12:13	Wood	Door	14B02	A	Blue	Negative		
23	5/3/2023 12:13	Concrete	Ceiling	14B02	A	Blue	Inconclusive	< LOD	0.85
24	5/3/2023 12:13	Cinder Block	Wall	14B02	A	Blue	Positive	2.55	0.51
25	5/3/2023 12:14	Cinder Block	Wall	14B02	A	Blue	Negative	< LOD	0.04
27	5/3/2023 12:18	Concrete	Ceiling	14B02	A	White	Inconclusive	0.85	0.1
28	5/3/2023 12:19	Concrete	Wall	14B02	A	White	Positive	3.8	1.12
29	5/3/2023 12:20	Concrete	Window	14B02	A	White	Negative	< LOD	0.31
30	5/3/2023 12:20	Concrete	Window	14B02	A	White	Negative	< LOD	0.1
31	5/3/2023 12:21	Wood	Slats	14B02	A	Brown	Negative	< LOD	0.25
32	5/3/2023 12:24	Cinder Block	Wall	14B04	A	Black	Positive	1.35	0.16
33	5/3/2023 12:25	Cinder Block	Wall	14B04	A	White	Negative	< LOD	0.51
34	5/3/2023 12:26	Wood	Door	14B02	B	Blue	Negative	< LOD	0.22
35	5/3/2023 12:26	Wood	Door	14B02	B	Blue	Negative	< LOD	0.1
36	5/3/2023 12:29	Cinder Block	Wall	14B06	A	White	Negative	< LOD	0.15
37	5/3/2023 12:29	Cinder Block	Wall	14B06	A	White	Negative	< LOD	0.05
38	5/3/2023 12:29	Cinder Block	Wall	14B06	B	White	Negative	< LOD	0.08
39	5/3/2023 12:29	Cinder Block	Wall	14B06	B	White	Negative	< LOD	0.03
40	5/3/2023 12:29	Cinder Block	Wall	14B06	C	White	Negative	< LOD	0.22
41	5/3/2023 12:29	Cinder Block	Wall	14B06	D	White	Negative	0.33	0.17
42	5/3/2023 12:30	Wood	Window	14B06	C	Brown	Negative	0.22	0.11
43	5/3/2023 12:30	Wood	Window	14B06	C	Brown	Negative	< LOD	0.02
44	5/3/2023 12:30	Concrete	Ceiling	14B06	A	White	Negative	0.16	0.08
45	5/3/2023 12:33	Wood	Door	14B06	B	Blue	Negative	0.44	0.22
46	5/3/2023 12:33	Wood	Door	14B06	B	Blue	Negative	0.36	0.18
47	5/3/2023 12:33	Concrete	Window	14B06	C	White	Negative	0.03	0.01
48	5/3/2023 12:33	Concrete	Window	14B06	C	White	Negative	0.12	0.06
49	5/3/2023 12:35	Wood	Door	14B06	B	Brown	Negative	0.57	0.1
50	5/3/2023 12:35	Wood	Door	14B06	B	Brown	Inconclusive	< LOD	1.2
51	5/3/2023 12:35	Wood	Door	14B10	B	Brown	Positive	3.57	1.49
52	5/3/2023 12:39	Cinder Block	Wall	14B25	A	White	Negative	< LOD	0.11
53	5/3/2023 12:39	Cinder Block	Wall	14B25	B	White	Negative	< LOD	0.04
54	5/3/2023 12:40	Cinder Block	Wall	14B25	C	White	Negative	< LOD	0.15
55	5/3/2023 12:40	Cinder Block	Wall	14B25	D	White	Negative	< LOD	0.1
56	5/3/2023 12:40	Wood	Window	14B25	B	Brown	Negative	< LOD	0.07
57	5/3/2023 12:40	Wood	Window	14B25	B	Brown	Negative	< LOD	0.07
58	5/3/2023 12:40	Wood	Door	14B25	D	Blue	Negative	< LOD	0.05
59	5/3/2023 12:40	Wood	Door	14B25	D	Blue	Negative	< LOD	0.06
60	5/3/2023 12:40	Concrete	Window	14B25	B	White	Negative	< LOD	0.05
61	5/3/2023 12:40	Concrete	Window	14B25	B	White	Negative	< LOD	0.05
62	5/3/2023 12:41	Concrete	Ceiling	14B25	A	White	Negative	< LOD	0.07
63	5/3/2023 12:41	Glazed Block	Wall	14B25	B	Tan	Negative	< LOD	0.02
64	5/3/2023 12:41	Glazed Block	Wall	14B25	C	Tan	Negative	< LOD	0.02
65	5/3/2023 12:41	Wood	Door	14B25	C	Blue	Negative	< LOD	0.06
66	5/3/2023 12:41	Wood	Door	14B25	B	Blue	Negative	< LOD	0.03
67	5/3/2023 12:41	Wood	Door	14B25	C	Blue	Negative	< LOD	0.08
68	5/3/2023 12:41	Glazed Block	Wall	14B25	B	Tan	Negative	< LOD	0.07
69	5/3/2023 12:42	Glazed Block	Wall	Hallway	B	Tan	Negative	< LOD	0.01
70	5/3/2023 12:42	Plaster	Wall	Hallway	B	White	Negative	< LOD	0.03
71	5/3/2023 12:43	Wood	Door	14B13	B	Blue	Negative	< LOD	0.09
72	5/3/2023 12:43	Cinder Block	Wall	14B13	C	White	Negative	< LOD	0.03
73	5/3/2023 12:43	Wood	Window	14B13	D	Brown	Negative	< LOD	0.1
74	5/3/2023 12:44	Concrete	Window	14B13	D	White	Negative	< LOD	0.04
75	5/3/2023 12:45	Wood	Door	14B24	B	Blue	Negative	< LOD	0.13
76	5/3/2023 12:45	Metal	Door	14B24	D	White	Negative	< LOD	0.09
77	5/3/2023 12:45	Cinder Block	Wall	14B24	A	White	Negative	< LOD	0.19
78	5/3/2023 12:45	Glazed Block	Wall	14B24	A	Tan	Negative	< LOD	0.12
79	5/3/2023 12:45	Concrete	Ceiling	14B24	A	White	Negative	< LOD	0.01
80	5/3/2023 12:47	Wood	Door	14B14	B	Blue	Negative	< LOD	0.23

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Reading No	Time	Substrate	Component	Room	Side	Color	Results	Pb	Pb Error
81	5/3/2023 12:47	Cinder Block	Wall	14B14	C	White	Negative	< LOD	0.33
82	5/3/2023 12:47	Metal	Door	14B14	D	Green	Positive	3.11	1.07
83	5/3/2023 12:48	Concrete	Ceiling	14B14	A	White	Negative	< LOD	0.01
84	5/3/2023 12:48	Wood	Cabinet	14B14	D	Green	Positive	8.77	2.66
85	5/3/2023 12:50	Cinder Block	Wall	14B15	A	White	Inconclusive	< LOD	1.01
86	5/3/2023 12:50	Cinder Block	Wall	14B15	B	White	Inconclusive	< LOD	0.96
87	5/3/2023 12:50	Cinder Block	Wall	14B15	C	White	Negative	< LOD	0.58
88	5/3/2023 12:50	Cinder Block	Wall	14B15	D	White	Negative	< LOD	0.01
89	5/3/2023 12:50	Wood	Window	14B15	C	Brown	Negative	< LOD	0.05
90	5/3/2023 12:50	Wood	Window	14B15	A	Brown	Negative	< LOD	0.18
91	5/3/2023 12:50	Concrete	Window	14B15	C	White	Negative	< LOD	0.05
92	5/3/2023 12:50	Concrete	Window	14B15	A	White	Negative	< LOD	0.04
93	5/3/2023 12:50	Wood	Door	14B15	D	Blue	Negative	< LOD	0.1
94	5/3/2023 12:50	Wood	Door	14B15	B	Blue	Negative	< LOD	0.03
95	5/3/2023 12:51	Glazed Block	Wall	14B15	A	Tan	Negative	< LOD	0.01
96	5/3/2023 12:51	Glazed Block	Wall	14B15	B	Tan	Negative	< LOD	0.03
97	5/3/2023 12:51	Wood	Door	14B15	A	Brown	Negative	< LOD	0.01
98	5/3/2023 12:51	Concrete	Ceiling	14B15	A	White	Negative	< LOD	0.2
99	5/3/2023 12:51	Wood	Door	14B15	B	White	Negative	< LOD	0.03
100	5/3/2023 12:53	Cinder Block	Wall	14B21	A	White	Negative	< LOD	0.1
101	5/3/2023 12:53	Cinder Block	Wall	14B21	B	White	Negative	< LOD	0.07
102	5/3/2023 12:53	Cinder Block	Wall	14B21	C	White	Negative	< LOD	0.01
103	5/3/2023 12:54	Glazed Block	Wall	14B21	A	Yellow	Negative	< LOD	0.04
104	5/3/2023 12:54	Glazed Block	Wall	14B21	B	Yellow	Negative	< LOD	0.01
105	5/3/2023 12:54	Glazed Block	Wall	14B21	C	Yellow	Inconclusive	< LOD	0.73
106	5/3/2023 12:54	Glazed Block	Wall	14B21	D	Yellow	Negative	< LOD	0.31
107	5/3/2023 12:55	Glazed Block	Wall	14B21	D	Green	Positive	2.86	0.9
108	5/3/2023 12:58	Wood	Window	14B21	B	Brown	Negative	< LOD	0.01
109	5/3/2023 12:58	Wood	Door	14B21	D	Blue	Negative	< LOD	0.28
110	5/3/2023 12:58	Concrete	Window	14B21	B	White	Negative	< LOD	0.31
111	5/3/2023 13:00	Concrete	Ceiling	14B21	A	White	Negative	< LOD	0.12
112	5/3/2023 13:00	Metal	Stairs	14B20	B	White	Negative	< LOD	0.01
113	5/3/2023 13:00	Metal	Stairs	14B20	C	White	Negative	< LOD	0.14
114	5/3/2023 13:01	Cinder Block	Wall	14B20	A	White	Negative	< LOD	0.01
115	5/3/2023 13:01	Cinder Block	Wall	14B20	D	White	Negative	< LOD	0.12
116	5/3/2023 13:01	Metal	Sink	14B20	D	White	Positive	7.22	2.38
117	5/3/2023 13:05	Concrete	Floor	Hallway	A	White	Inconclusive	< LOD	2.83
118	5/3/2023 13:05	Plaster	Wall	Hallway	B	White	Negative	< LOD	0.01
119	5/3/2023 13:05	Glazed Block	Wall	Hallway	D	Yellow	Negative	< LOD	0.23
120	5/3/2023 13:05	Metal	Stairs	Hallway	C	Blue	Negative	< LOD	0.05
121	5/3/2023 13:05	Metal	Riser	Hallway	C	Blue	Negative	< LOD	0.03
122	5/3/2023 13:31	Metal	Pipe	Sub Basement	A	Orange	Negative	< LOD	0.27
123	5/3/2023 13:32	Metal	Pipe	Sub Basement	A	Orange	Negative	< LOD	0.27
124	5/3/2023 13:32	Metal	Pipe	Sub Basement	A	Orange	Negative	< LOD	0.01
125	5/3/2023 13:32	Metal	Pipe	Sub Basement	A	Orange	Negative	< LOD	0.13
126	5/3/2023 13:32	Metal	Pipe	Sub Basement	C	Black	Negative	< LOD	0.1
127	5/3/2023 13:32	Concrete	Wall	Sub Basement	D	White	Negative	< LOD	0.01
128	5/3/2023 13:32	Metal	Pipe	Sub Basement	D	White	Negative	< LOD	0.01
129	5/3/2023 13:32	Metal	Pipe	Sub Basement	D	Orange	Negative	< LOD	0.01
130	5/3/2023 13:33	Metal	Cover	Sub Basement	B	Orange	Negative	< LOD	0.11
131	5/3/2023 13:33	Metal	Cover	Sub Basement	B	Orange	Negative	< LOD	0.01
132	5/3/2023 13:38	Neg Cal		Neg Cal			Negative	< LOD	0.01
133	5/3/2023 13:38	Pos Cal		Pos Cal			Positive	3.03	0.68
134	5/3/2023 13:40	Cinder Block	Wall	14-146	A	White	Negative	< LOD	0.02
135	5/3/2023 13:40	Cinder Block	Wall	14-146	B	White	Negative	< LOD	0.14
136	5/3/2023 13:40	Cinder Block	Wall	14-146	C	White	Inconclusive	< LOD	1.19
137	5/3/2023 13:40	Cinder Block	Wall	14-146	D	White	Negative	< LOD	0.13
138	5/3/2023 13:40	Glazed Block	Wall	14-146	A	Tan	Negative	< LOD	0.03
139	5/3/2023 13:40	Glazed Block	Wall	14-146	B	Tan	Negative	< LOD	0.05
140	5/3/2023 13:41	Glazed Block	Wall	14-146	C	Tan	Negative	< LOD	0.05
141	5/3/2023 13:41	Glazed Block	Wall	14-146	D	Tan	Negative	< LOD	0.05
142	5/3/2023 13:41	Wood	Window	14-146	B	Brown	Negative	< LOD	0.06
143	5/3/2023 13:41	Wood	Window	14-146	B	Brown	Negative	< LOD	0.38
144	5/3/2023 13:41	Concrete	Window	14-146	B	White	Negative	0.04	0.02
145	5/3/2023 13:41	Concrete	Window	14-146	B	White	Negative	< LOD	0.42
146	5/3/2023 13:41	Wood	Door	14-146	D	Blue	Negative	< LOD	0.1
147	5/3/2023 13:41	Wood	Door	14-146	D	Blue	Negative		
148	5/3/2023 13:41	Concrete	Ceiling	14-146	A	White	Negative	< LOD	0.01
149	5/3/2023 13:42	Metal	Door	14-146	D	White	Negative	< LOD	0.38
150	5/3/2023 13:43	Glazed Block	Wall	14-134	A	Tan	Negative	< LOD	0.04
151	5/3/2023 13:43	Cinder Block	Wall	14-134	A	Tan	Negative	< LOD	0.4
152	5/3/2023 13:44	Metal	Window	14-134	D	Black	Negative	< LOD	0.1
153	5/3/2023 13:44	Wood	Door	14-134	C	White	Negative	0.09	0.04
154	5/3/2023 13:44	Metal	Pipe	14-134	B	Black	Negative	0.02	0.01

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Reading No	Time	Substrate	Component	Room	Side	Color	Results	Pb	Pb Error
155	5/3/2023 13:47	Cinder Block	Wall	14-140	A	White	Negative	< LOD	0.12
156	5/3/2023 13:47	Cinder Block	Wall	14-140	C	White	Negative	0.61	0.12
157	5/3/2023 13:47	Concrete	Ceiling	14-140	A	White	Inconclusive	< LOD	1.13
158	5/3/2023 13:48	Wood	Door	14-140	A	White	Inconclusive	0.95	0.1
159	5/3/2023 13:48	Wood	Door	14-140	A	White	Negative	< LOD	0.13
160	5/3/2023 13:48	Glazed Block	Wall	14-140	D	Green	Positive	1.5	0.24
161	5/3/2023 13:48	Wood	Window	14-140	B	Brown	Negative	< LOD	0.33
162	5/3/2023 13:48	Wood	Bulletin Board	14-140	D	White	Negative	< LOD	0.07
163	5/3/2023 13:51	Wood	Window	14-136	C	Brown	Negative	< LOD	0.12
164	5/3/2023 13:51	Wood	Window	14-136	C	Brown	Negative	0.26	0.17
165	5/3/2023 13:52	Wood	Door	14-136	A	White	Negative	< LOD	0.18
166	5/3/2023 13:52	Wood	Door	14-136	A	White	Negative	0.72	0.11
167	5/3/2023 13:52	Concrete	Ceiling	14-136	A	White	Inconclusive	0.72	0.37
168	5/3/2023 13:52	Glazed Block	Wall	14-136	D	White	Positive (False Pos	5.76	2.1
169	5/3/2023 13:52	Glazed Block	Wall	14-136	D	White	Negative	< LOD	0.07
170	5/3/2023 13:52	Glazed Block	Wall	14-136	D	White	Negative	< LOD	0.06
171	5/3/2023 13:52	Glazed Block	Wall	14-136	D	White	Negative	< LOD	0.07
172	5/3/2023 13:54	Glazed Block	Wall	14-136	D	White	Negative	< LOD	0.14
173	5/3/2023 13:55	Wood	Cabinet	14-136	B	White	Negative	< LOD	0.06
174	5/3/2023 13:55	Wood	Door	14-135	B	White	Negative	< LOD	0.06
175	5/3/2023 13:55	Wood	Door	14-135	B	Blue	Negative	< LOD	0.1
176	5/3/2023 13:55	Wood	Door	14-135	C	Blue	Negative	< LOD	0.09
177	5/3/2023 13:55	Wood	Window	14-135	D	Brown	Negative	< LOD	0.01
178	5/3/2023 13:56	Cinder Block	Wall	14-135	A	White	Negative	< LOD	0.06
179	5/3/2023 13:56	Glazed Block	Wall	14-135	A	Tan	Negative	< LOD	0.03
180	5/3/2023 13:56	Concrete	Ceiling	14-135	A	White	Negative	< LOD	0.1
181	5/3/2023 14:00	Glazed Block	Wall	14-131	A	Tan	Negative	< LOD	0.04
182	5/3/2023 14:00	Glazed Block	Wall	14-131	B	Tan	Negative	< LOD	0.03
183	5/3/2023 14:00	Wood	Door	14-131	B	Blue	Negative	< LOD	0.06
184	5/3/2023 14:00	Wood	Door	14-131	B	Blue	Negative	< LOD	0.05
185	5/3/2023 14:00	Wood	Door	14-131	B	Blue	Negative	< LOD	0.05
186	5/3/2023 14:00	Metal	Window	14-131	D	Brown	Negative	< LOD	0.13
187	5/3/2023 14:01	Concrete	Ceiling	14-131	A	White	Negative	< LOD	0.14
188	5/3/2023 14:01	Cinder Block	Wall	14-131	D	White	Negative	< LOD	0.06
189	5/3/2023 14:02	Glazed Block	Wall	Hallway	A	Yellow	Negative	< LOD	0.01
190	5/3/2023 14:02	Glazed Block	Wall	Hallway	A	Yellow	Negative	< LOD	0.14
191	5/3/2023 14:02	Concrete	Floor	Hallway	A	White	Negative	< LOD	0.09
192	5/3/2023 14:02	Plaster	Wall	Hallway	A	White	Negative	< LOD	0.09
193	5/3/2023 14:02	Metal	Stairs	Hallway	C	Blue	Negative	< LOD	0.02
194	5/3/2023 14:02	Metal	Riser	Hallway	C	Blue	Negative	< LOD	0.05
195	5/3/2023 14:04	Wood	Door	14-147	D	Blue	Negative	< LOD	0.13
196	5/3/2023 14:04	Wood	Window	14-147	B	Brown	Negative	< LOD	0.09
197	5/3/2023 14:04	Concrete	Ceiling	14-147	A	White	Negative	< LOD	0.07
198	5/3/2023 14:04	Cinder Block	Wall	14-147	A	White	Negative	< LOD	0.01
199	5/3/2023 14:05	Wood	Door	14-128	A	White	Negative	< LOD	0.06
200	5/3/2023 14:05	Wood	Door	14-128	A	White	Negative	< LOD	0.05
201	5/3/2023 14:05	Wood	Door	14-128	C	Blue	Negative	< LOD	0.05
202	5/3/2023 14:05	Wood	Door	14-128	C	Blue	Negative	< LOD	0.07
203	5/3/2023 14:06	Glazed Block	Wall	14-128	B	Yellow	Negative	< LOD	0.04
204	5/3/2023 14:06	Glazed Block	Wall	14-128	C	Yellow	Negative	< LOD	0.01
205	5/3/2023 14:06	Wood	Door	14-128	D	Blue	Negative	< LOD	0.01
206	5/3/2023 14:06	Wood	Door	14-128	D	Blue	Negative	< LOD	0.05
207	5/3/2023 14:06	Wood	Door	14-128	D	Blue	Negative	< LOD	0.1
208	5/3/2023 14:07	Metal	Shelfing	14-125	B	Brown	Negative	< LOD	0.06
209	5/3/2023 14:07	Metal	Shelfing	14-125	B	Brown	Negative	< LOD	0.01
210	5/3/2023 14:07	Wood	Door	14-125	A	White	Negative	< LOD	0.05
211	5/3/2023 14:07	Wood	Door	14-125	A	White	Negative	< LOD	0.05
212	5/3/2023 14:07	Glazed Block	Wall	14-125	C	Tan	Negative	< LOD	0.07
213	5/3/2023 14:07	Glazed Block	Wall	14-125	D	Tan	Negative	< LOD	0.05
214	5/3/2023 14:07	Concrete	Ceiling	14-125	A	White	Negative	< LOD	0.09
215	5/3/2023 14:07	Metal	Door	14-126	B	Brown	Negative	< LOD	0.01
216	5/3/2023 14:09	Wood	Door	14-106	C	White	Negative	< LOD	0.04
217	5/3/2023 14:09	Wood	Door	14-106	C	White	Negative	< LOD	0.07
218	5/3/2023 14:09	Glazed Block	Wall	14-106	A	Tan	Negative	< LOD	0.09
219	5/3/2023 14:09	Glazed Block	Wall	14-106	D	Tan	Negative	< LOD	0.46
220	5/3/2023 14:09	Wood	Window	14-106	A	Brown	Negative	< LOD	0.01
221	5/3/2023 14:10	Concrete	Ceiling	14-106	A	White	Negative	< LOD	0.05
222	5/3/2023 14:10	Wood	Door	14-106	D	Blue	Negative	< LOD	0.01
223	5/3/2023 14:10	Wood	Door	14-106	D	Blue	Negative	< LOD	0.03
224	5/3/2023 14:11	Wood	Door	14-124	A	White	Negative	< LOD	0.05
225	5/3/2023 14:11	Wood	Door	14-124	A	White	Negative	< LOD	0.04
226	5/3/2023 14:11	Wood	Window	14-124	C	Brown	Negative	< LOD	0.05
227	5/3/2023 14:11	Concrete	Window	14-124	C	Brown	Negative	< LOD	0.05
228	5/3/2023 14:11	Concrete	Ceiling	14-124	A	White	Negative	< LOD	0.01

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Reading No	Time	Substrate	Component	Room	Side	Color	Results	Pb	Pb Error
229	5/3/2023 14:11	Glazed Block	Wall	14-124	A	Yellow	Positive	2	0.49
230	5/3/2023 14:11	Glazed Block	Wall	14-124	B	Yellow	Negative	< LOD	0.01
231	5/3/2023 14:11	Glazed Block	Wall	14-124	C	Yellow	Negative	< LOD	0.06
232	5/3/2023 14:11	Glazed Block	Wall	14-124	A	Yellow	Positive	1.41	0.14
234	5/3/2023 14:14	Wood	Window	14-122	C	Brown	Negative	< LOD	0.15
235	5/3/2023 14:14	Glazed Block	Wall	14-122	B	Yellow	Negative	< LOD	0.08
236	5/3/2023 14:15	Concrete	Ceiling	14-122	A	White	Negative	< LOD	0.06
237	5/3/2023 14:15	Wood	Door	14-122	A	White	Negative	< LOD	0.01
238	5/3/2023 14:15	Wood	Door	14-122	A	White	Negative	< LOD	0.08
239	5/3/2023 14:18	Wood	Door	14-120	B	White	Negative	< LOD	0.01
240	5/3/2023 14:18	Wood	Door	14-120	B	White	Negative	< LOD	0.1
241	5/3/2023 14:18	Glazed Block	Wall	14-120	C	Yellow	Negative	< LOD	0.04
242	5/3/2023 14:18	Glazed Block	Wall	14-120	D	Yellow	Negative	< LOD	0.19
243	5/3/2023 14:18	Metal	Window	14-120	D	Brown	Negative	< LOD	0.01
244	5/3/2023 14:19	Concrete	Ceiling	14-120	A	White	Negative	< LOD	0.07
245	5/3/2023 14:20	Wood	Door	14-118	B	Blue	Negative	< LOD	0.09
246	5/3/2023 14:20	Wood	Door	14-118	B	Blue	Negative	< LOD	0.05
247	5/3/2023 14:20	Glazed Block	Wall	14-118	A	Yellow	Negative	< LOD	0.1
248	5/3/2023 14:20	Glazed Block	Wall	14-118	D	Yellow	Negative	< LOD	0.01
249	5/3/2023 14:20	Concrete	Ceiling	14-118	A	White	Negative	< LOD	0.01
250	5/3/2023 14:20	Wood	Window	14-118	D	Brown	Negative	< LOD	0.07
251	5/3/2023 14:20	Wood	Window	14-118	D	Brown	Negative	< LOD	0.08
252	5/3/2023 14:23	Glazed Block	Wall	Hallway	A	Yellow	Negative	< LOD	0.06
253	5/3/2023 14:23	Glazed Block	Wall	Hallway	C	Yellow	Negative	< LOD	0.07
254	5/3/2023 14:23	Metal	Grating	Hallway	B	Black	Positive	1.42	0.13
255	5/3/2023 14:24	Plaster	Wall	Hallway	A	White	Negative	< LOD	0.1
256	5/3/2023 14:25	Plaster	Wall	Hallway	A	White	Negative	< LOD	0.24
257	5/3/2023 14:25	Plaster	Wall	Hallway	C	White	Negative	< LOD	0.4
258	5/3/2023 14:25	Concrete	Floor	Hallway	A	White	Negative	< LOD	0.09
259	5/3/2023 14:25	Metal	Stairs	Hallway	B	Blue	Negative	< LOD	0.11
260	5/3/2023 14:25	Metal	Riser	Hallway	B	Blue	Negative	< LOD	0.04
261	5/3/2023 14:26	Glazed Block	Wall	14-111	B	Green	Positive	1.29	0.15
262	5/3/2023 14:27	Metal	Window	14-111	D	White	Positive	3.52	1.17
263	5/3/2023 14:28	Wood	Door	14-111	C	White	Inconclusive	< LOD	1.01
264	5/3/2023 14:28	Wood	Door	14-111	C	White	Negative	< LOD	0.01
265	5/3/2023 14:28	Cinder Block	Wall	14-111	C	White	Negative	< LOD	0.1
266	5/3/2023 14:28	Cinder Block	Wall	14-111	C	White	Negative	< LOD	0.08
267	5/3/2023 14:28	Concrete	Ceiling	14-111	A	White	Negative	< LOD	0.05
268	5/3/2023 14:29	Glazed Block	Wall	14-110	A	Tan	Negative	< LOD	0.07
269	5/3/2023 14:29	Glazed Block	Wall	14-110	C	Tan	Negative	< LOD	0.11
270	5/3/2023 14:30	Cinder Block	Wall	14-110	B	White	Negative	< LOD	0.01
271	5/3/2023 14:30	Cinder Block	Wall	14-110	D	White	Negative	< LOD	0.29
272	5/3/2023 14:30	Wood	Door	14-110	C	Blue	Negative	< LOD	0.01
273	5/3/2023 14:30	Wood	Door	14-110	C	Blue	Negative	< LOD	0.05
274	5/3/2023 14:30	Metal	Window	14-110	A	Brown	Negative	< LOD	0.03
275	5/3/2023 14:30	Concrete	Ceiling	14-110	A	White	Negative	< LOD	0.1
276	5/3/2023 14:31	Glazed Block	Wall	14-148	A	Yellow	Negative	< LOD	0.02
277	5/3/2023 14:31	Glazed Block	Wall	14-148	D	Yellow	Negative	< LOD	0.03
278	5/3/2023 14:31	Cinder Block	Wall	14-148	A	White	Negative	< LOD	0.06
279	5/3/2023 14:31	Cinder Block	Wall	14-148	D	White	Negative	< LOD	0.04
280	5/3/2023 14:31	Wood	Window	14-148	C	Brown	Negative	< LOD	0.05
281	5/3/2023 14:31	Concrete	Window	14-148	C	White	Negative	< LOD	0.09
282	5/3/2023 14:32	Wood	Door	14-148	A	Blue	Negative	< LOD	0.05
283	5/3/2023 14:32	Wood	Door	14-148	B	White	Negative	< LOD	0.05
284	5/3/2023 14:32	Neg Cal		Neg Cal			Negative	< LOD	0.01
285	5/3/2023 14:33	Pos Cal		Pos Cal			Positive	2.74	0.44
286	5/4/2023 13:51							< LOD	10.89

APPENDIX C – ROOFING INSTALLER'S WARRANTY FORM

ROOFING INSTALLER'S WARRANTY

A. Whereas <Name> of <Address> herein called the "Roofing Installer", has performed roofing and associated work ("work") on the following project:

1. **Owner:**
2. **Address:**
3. **Building Name / Type:**
4. **Building Address:**
5. **Area of Work:**
6. **Acceptance Date:**
7. **Warranty Period:**
8. **Expiration Date:**

B. **AND WHEREAS** Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period;

C. **NOW THEREFORE** Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.

D. This Warranty is made subject to the following terms and conditions:

1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:
   a. Lightning;
   b. Peak gust wind speed exceeding 72 mph;
   c. Fire;
   d. Failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
   e. Faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
   f. Vapor condensation on bottom of roofing; and
   g. Activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.

2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof has been paid by Owner or by another responsible party so designated.

3. The Roofing Installer is responsible for damage to work covered by this Warranty.

4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations,

Warranty shall not become null and void, unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.

5. The Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and examine evidence of such leaks, defects, or deterioration.

6. This Warranty is recognized to be the installation warranty of Roofing Installer on said work and shall not operate or restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents and to coordinate the Manufacturer's warranty, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this <DAY> day of <MONTH>, 20 <YEAR>.
   1. Authorized Signature:
   2. Name:
   3. Title:

END OF ROOFING INSTALLER'S WARRANTY FORM