

PROJECT MANUAL

Renovate Interior

General Headquarters Building

Jefferson City, Missouri

Designed By: OA-FMDC Project Design Unit
301 West High Street, Room 780
Jefferson City, MO 65101

Date Issued: June 18, 2026

Project No.: R2410-01

STATE *of* MISSOURI

OFFICE *of* ADMINISTRATION

Facilities Management, Design and Construction

SECTION 000107 - PROFESSIONAL SEALS AND CERTIFICATIONS

PROJECT TITLE: Renovate Interior, General Headquarters Building

PROJECT LOCATION: 1510 East Elm Street
Jefferson City, Missouri 65101

PROJECT NUMBER: R2410-01

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:



Brad M. Schaefer - Architect
MO# A-2009027294

PROJECT MANUAL DIVISIONS
1, 2, 7, 8, 9, 10, & 12



Tracie L. Siebeneck - Engineer
MO# PE-2013019114

PROJECT MANUAL DIVISIONS
1, 8, 22, 23, & 26

END OF SECTION 000107

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NOTICE TO BIDDERS

The following procurement forms can be found on our website at:
<https://oa.mo.gov/facilities/bid-opportunities/bid-listing-electronic-plans>
 and shall be submitted with your bid to FMDCBids@oa.mo.gov

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SECTION 000115 – LIST OF DRAWINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.1 LIST OF DRAWINGS

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

	<u>TITLE</u>	<u>SHEET #</u>	<u>DATE</u>	<u>CAD #</u>
1.	Cover Sheet	Sheet G-001	06/18/26	G-001.dwg
2.	Sheet Index & Phasing Plans	Sheet G-002	06/18/26	G-002.dwg
3.	GHQ Basement Floor Plan	Sheet A-101	06/18/26	A-101.dwg
4.	GHQ First Floor Plan	Sheet A-102	06/18/26	A-102.dwg
5.	GHQ Second Floor Plan	Sheet A-103	06/18/26	A-103.dwg
6.	Restroom Elevations	Sheet A-201	06/18/26	A-201.dwg
7.	Restroom Elevations	Sheet A-202	06/18/26	A-202.dwg
8.	Restroom Elevations	Sheet A-203	06/18/26	A-203.dwg
9.	First Floor Restroom Elevations	Sheet A-204	06/18/26	A-204.dwg
10.	Second Floor Restroom Elevations	Sheet A-205	06/18/26	A-205.dwg
11.	Second Floor Restroom Elevations	Sheet A-206	06/18/26	A-206.dwg
12.	Basement Restroom Enlarged Plans	Sheet A-401	06/18/26	A-401.dwg
13.	First Floor Restrooms Enlarged Plans	Sheet A-402	06/18/26	A-402.dwg
14.	First Floor Restroom Enlarged Plans	Sheet A-403	06/18/26	A-403.dwg

15.	First Floor Restroom Enlarged Plans	Sheet A-404	06/18/26	A-404.dwg
16.	Second Floor Restroom Enlarged Plans	Sheet A-405	06/18/26	A-405.dwg
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18.	Details	Sheet A-501	06/18/26	A-501.dwg
19.	Schedules	Sheet A-601	06/18/26	A-601.dwg
20.	Plumbing Plan Basement	Sheet P-101	06/18/26	P-101.dwg
21.	Partial Plumbing Plan First Floor	Sheet P-102	06/18/26	P-102.dwg
22.	Partial Plumbing Plan Second Floor	Sheet P-103	06/18/26	P-103.dwg
23.	Partial Plumbing Plan First Floor	Sheet P-104	06/18/26	P-104.dwg
24.	Partial Plumbing Plan First Floor	Sheet P-105	06/18/26	P-105.dwg
25.	Partial Plumbing Plan Second Floor	Sheet P-106	06/18/26	P-106.dwg
26.	Plumbing Schedules and Details	Sheet P-601	06/18/26	P-601.dwg
27.	Mechanical Plan Basement	Sheet M-101	06/18/26	M-101.dwg
28.	Partial Mechanical Plan First Floor	Sheet M-102	06/18/26	M-102.dwg
29.	Partial Mechanical Plan Second Floor	Sheet M-103	06/18/26	M-103.dwg
30.	Partial Mechanical Plan First Floor	Sheet M-104	06/18/26	M-104.dwg
31.	Partial Mechanical Plan First Floor	Sheet M-105	06/18/26	M-105.dwg
32.	Partial Mechanical Plan Second Floor	Sheet M-106	06/18/26	M-106.dwg
33.	Mechanical Schedules and Details	Sheet M-601	06/18/26	M-601.dwg
34.	Electrical Plan Basement	Sheet E-101	06/18/26	E-101.dwg
35.	Partial Electrical Plan First Floor	Sheet E-102	06/18/26	E-102.dwg

36.	Partial Electrical Plan Second Floor	Sheet E-103	06/18/26	E-103.dwg
37.	Partial Electrical Plan First Floor	Sheet E-104	06/18/26	E-104.dwg
38.	Partial Electrical Plan First Floor	Sheet E-105	06/18/26	E-105.dwg
39.	Partial Electrical Plan Second Floor	Sheet E-106	06/18/26	E-106.dwg

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. Renovate Interior
General Headquarters Building
Jefferson City, Missouri
Project No.: R2410-01

3.0 BIDS WILL BE RECEIVED:

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

4.0 DESCRIPTION:

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

5.0 PRE-BID MEETING:

- A. Place/Time: 1:00 PM, August 13, 2026, at MSHP General Headquarters, 1510 East Elm Street, Jefferson City, MO 65101.
- B. Access to State of Missouri property requires presentation of a photo ID by all persons.

6.0 HOW TO GET PLANS & SPECIFICATIONS:

- A. View Only Electronic bid sets are available at no cost or paper bid sets for a **deposit of \$100.00** from American Document Solutions (ADS). MAKE CHECKS PAYABLE TO: American Document Solutions. Mail to: American Document Solutions, 1400 Forum Blvd., Suite 7A, Columbia, Missouri 65203. Phone 573-446-7768, Fax 573-355-5433, <https://www.adsplanroom.net>. NOTE: Prime contractors will be allowed a maximum of two bid sets at the deposit rate shown above. Other requesters will be allowed only one bid set at this rate. Additional bid sets or parts thereof may be obtained by any bidder at the cost of printing and shipping by request to American Document Solutions at the address shown above. Bidder must secure at least one bid set to become a planholder.
- B. **Refunds: Return plans and specifications in unmarked condition within 15 working days of bid opening to American Document Solutions, 1400 Forum Blvd., Suite 7A, Columbia, Missouri 65203. Phone 573-446-7768, Fax 573-355-5433. Deposits for plans not returned within 15 working days shall be forfeited.**
- C. Information for upcoming bids, including downloadable plans, specifications, Invitation for Bid, bid tabulation, award, addenda, and access to the ADS planholders list, is available on the Division of Facilities Management, Design and Construction's web site: <https://oa.mo.gov/facilities/bid-opportunities/bid-listing-electronic-plans>.

7.0 POINT OF CONTACT:

- A. Project Manager: Andy Carroll, 573-291-6086, email: Andy.Carroll@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.

SECTION 002113 – INSTRUCTIONS TO BIDDERS

1.0 - SPECIAL NOTICE TO BIDDERS

- A. If awarded a contract, the Bidder's employees, and the employees of all subcontractors, who perform the work on the project must adhere to requirements in Section 013513 – Site Security and Health Requirements as applicable per Agency.
- B. The Bidder's prices shall include all city, state, and federal sales, excise, and similar taxes that may lawfully be assessed in connection with the performance of work, and the purchased of materials to be incorporated in the work. **THIS PROJECT IS NOT TAX EXEMPT.**

2.0 - BID DOCUMENTS

- A. The number of sets obtainable by one (1) party may be limited in accordance with available supply.
- B. For the convenience of contractors, subcontractors and suppliers, bidding documents are available on the Owner's website at <https://oa.mo.gov/facilities/bid-opportunities/bid-listing-electronic-plans>.

3.0 - BIDDERS' OBLIGATIONS

- A. Bidders must carefully examine the entire site of the work and shall make all reasonable and necessary investigations to inform themselves thoroughly as to the facilities available as well as to all the difficulties involved in the completion of all work in accordance with the specifications and the plans. Bidders are required to examine all maps, plans and data mentioned in the specifications. No plea of ignorance concerning observable existing conditions or difficulties that may be encountered in the execution of the work under this contract will be accepted as an excuse for any failure or omission on the part of the successful Bidder (contractor) to fulfill every detail of the requirements of the contract, nor accepted as a basis for any claims for extra compensation or time extension.
- B. Under no circumstances will Bidders give their plans and specifications to other Bidders. It is highly encouraged, but not required, that all Bidders be on the official planholders list to receive project updates including but not limited to any addenda that are issued during the bidding process.

4.0 - INTERPRETATIONS

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

5.0 - BIDS AND BIDDING PROCEDURE

- A. Bidders shall submit all submission forms and accompanying documents listed in Section 004113 – Bid Form, Article 5.0, Attachments to Bid by the stated time on the bid documents or the bid will be rejected for being non-responsive.
- B. Depending on the specific project requirements, **the following is a GENERIC list** of all possible bid forms that may be due with bid submittals. Bidders must verify each specific project’s requirements in Section 004113 to ensure they have provided all the required documentation with their submission.

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

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

- C. The Bidder shall submit its bid on the forms provided by the Owner in the same file format (PDF) with each space fully and properly completed, typewritten or legibly printed, including all amounts required for alternate bids, unit prices, cost accounting data, etc. The Owner will reject bids that are not on the Owner’s forms or that do not contain all requested information. All forms can be found on the Owner’s website at <https://oa.mo.gov/facilities/bid-opportunities/bid-listing-electronic-plans> and shall be submitted with your bid to FMDCBids@oa.mo.gov.
- D. All bids shall be submitted without additional terms and conditions, modifications, or reservations. The completed forms should not include interlineations, alterations, or erasures. Bids not in compliance with the requirements of this paragraph will be rejected as non-responsive.
- E. All bids shall be accompanied by a bid bond executed by the bidder and a duly authorized surety company, certified check, cashier's check or bank draft made payable to the Division of Facilities Management, Design and Construction, State of Missouri, in the amount indicated in the bid documents in Section 004113. Failure of the Bidder to submit the duly authorized bid bond or the full amount required shall be sufficient cause to reject his bid. The Bidder agrees that the proceeds of the check, draft, or bond shall become the property of the State of Missouri, if for any reason the Bidder withdraws his bid after bid closing or if the Bidder, within ten (10) working days after notification of award, refuses or is unable to 1) execute the tendered contract, 2) provide an acceptable performance and payment bond, or 3) provide evidence of required insurance coverage.
- F. The bid bond check or draft submitted by the successful Bidder will be returned after the receipt of an acceptable performance and payment bond and execution of the formal contract. Checks or drafts of all other Bidders will be returned within a reasonable time after it is determined that the bid represented by same will receive no further consideration by the State of Missouri.

6.0 - SIGNING OF BIDS

- A. A bid should contain the full and correct legal name of the Bidder. If the Bidder is an entity registered with the Missouri Secretary of State, the Bidder’s name on the bid form should appear as shown in the Secretary of State’s records. If the Bidder is an entity organized in a state other than Missouri, the Bidder must provide a Certificate of Authority to do business in the State of Missouri.
- B. If the successful Bidder is doing business in the State of Missouri under a fictitious name, the Bidder shall furnish to Owner, attached to the Bid Form, a properly certified copy of the certificate of Registration of Fictitious Name from the State of Missouri, and such certificate shall remain on file with the Owner.
- C. A bid from an individual shall be signed as noted on the Bid Form.
- D. A bid from a partnership or joint venture shall require only one signature of a partner, an officer of the joint venture authorized to bind the venture, or an attorney-in-fact. If the bid is signed by an officer of

a joint venture or an attorney-in-fact, a document evidencing the individual's authority to execute contracts should be included with the bid form.

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

7.0 - RECEIVING BID SUBMITTALS

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

8.0 - MODIFICATION AND WITHDRAWAL OF BIDS

- A. Bidder may withdraw a bid at any time prior to the scheduled closing time for receipt of bids, but no bidder may withdraw his bid for a period of twenty (20) working days after the scheduled closing time for receipt of bids.
- B. Bidder may modify a bid until the scheduled closing time by sending a revised bid to FMDCBids@oa.mo.gov with a note in the subject line and body of the email that it is a revised bid. All revised bids must be submitted to FMDCBids@oa.mo.gov, revised bids sent any other way will not be considered.

9.0 - AWARD OF CONTRACT

- A. The Owner reserves the right to reject any and/or all bids and further to waive all informalities in bidding when deemed in the best interest of the State of Missouri.
- B. The Owner reserves the right to let other contracts in connection with the work including, but not limited to, contracts for the furnishing and installation of furniture, equipment, machinery, appliances and other apparatuses.
- C. The Owner will award a contract to the lowest, responsive, and responsible Bidder in accordance with Section 8.250, RSMo. No contract will be awarded to any Bidder who has had a contract with the Owner terminated within the preceding twelve months for material breach of contract or who has been suspended or debarred by the Owner.
- D. Award of alternates, if any, will be made in numerical order unless all bids received are such that the order of acceptance of alternates does not affect the determination of the lowest, responsive, responsible bidder.
- E. No award shall be considered binding upon the Owner until the written contract has been properly executed and the following documentation has been provided: 1) performance and payment bond consistent with Article 6.1 of the General Conditions; 2) proof of the required insurance coverage; 3) an executed Section 004541 - Affidavit of Work Authorization form; and 4) documentation evidence enrollment and participation in a federal work authorization program.
- F. Failure to execute and return the contract and associated documents within the prescribed period shall be treated, at the option of the Owner, as a breach of Bidder's obligation and the Owner shall be under no further obligation to Bidder.
- G. Transient employers subject to Sections 285.230 and 285.234, RSMo, (out-of-state employers who temporarily transact any business in the State of Missouri) may be required to file a bond with the

Missouri Department of Revenue. No contract will be awarded by the Owner unless the successful Bidder certifies that he has complied with all applicable provisions of Section 285.230-234.

- H. Sections 285.525 and 285.530, RSMo, require business entities to enroll and participate in a federal work authorization program in order to be eligible to receive award of any state contract in excess of \$5,000. Bidders should submit with their bid an Affidavit of Work Authorization (Section 004541) along with appropriate documentation evidencing such enrollment and participation. Bidders must also submit an E-Verify Memorandum before the Owner may award a contract to the Bidder. Information regarding a E-Verify is located at <https://www.e-verify.gov/employers/enrolling-in-e-verify>. The contractor shall be responsible for ensuring that all subcontractors and suppliers associated with this contract enroll in E-Verify.
- I. The successful Bidder must be registered in MissouriBUYS powered by MOVERS at <https://missouribuyss.mo.gov/supplier-registration#> as an approved vendor prior to being issued a contract.

10.0 - CONTRACT SECURITY

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

11.0 - LIST OF SUBCONTRACTORS

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

12.0 - WORKING DAYS

- A. Contract duration time is stated in working days and will use the following definition in determining the actual calendar date for contract completion:
 - 1. Working days are defined as all calendar days except Saturdays, Sundays and the following State of Missouri observed holidays: New Year's Day, Martin Luther King, Jr. Day, Lincoln Day, Washington's Birthday, Truman Day, Memorial Day, Juneteenth, Independence Day, Labor Day, Columbus Day, Veterans Day, Thanksgiving Day and Christmas Day.

13.0 - AMERICAN AND MISSOURI - MADE PRODUCTS AND FIRMS

- A. By signing the bid form and submitting a bid on this project, the Bidder certifies that it will use American and Missouri products as set forth in Article 1.7 of the General Conditions. Bidders are advised to review those requirements carefully prior to bidding.
- B. A preference shall be given to Missouri firms, corporations or individuals, or firms, corporations or individuals that maintain Missouri offices or places of business, when the quality of performance promised is equal or better and the price quoted is the same or less.
- C. Pursuant to Section 34.076, RSMo, a contractor or Bidder domiciled outside the boundaries of the State of Missouri shall be required, in order to be successful, to submit a bid the same percent less than the lowest bid submitted by a responsible contractor or Bidder domiciled in Missouri as would be required for such a Missouri domiciled contractor or Bidder to succeed over the bidding contractor or Bidder domiciled outside Missouri on a like contract or bid being let in the Bidder's domiciliary state and, further, the contractor or Bidder domiciled outside the boundaries of Missouri shall be required to submit an audited financial statement as would be required of a Missouri domiciled contractor or Bidder on a like contract or bid being let in the domiciliary state of that contractor or Bidder.

14.0 – ANTI-DISCRIMINATION AGAINST ISRAEL ACT CERTIFICATION:

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

15.0 – MBE/WBE/SDVE INSTRUCTIONS

A. Definitions:

1. **“MBE”** means a Minority Business Enterprise.
2. **“MINORITY”** has the same meaning as set forth in 1 C.S.R. 10-17.010.
3. **“MINORITY BUSINESS ENTERPRISE”** has the same meaning as set forth in section 37.020, RSMo.
4. **“WBE”** means a Women’s Business Enterprise.
5. **“WOMEN’S BUSINESS ENTERPRISE”** has the same meaning as set forth in section 37.020, RSMo.
6. **“SDVE”** means a Service-Disabled Veterans Enterprise.
7. **“SERVICE-DISABLED VETERAN”** has the same meaning as set forth in section 34.074, RSMo.
8. **“SERVICE-DISABLED VETERAN ENTERPRISE”** has the same meaning as “Service-Disabled Veteran Business” set forth in section 34.074, RSMo.

B. MBE/WBE/SDVE General Requirements:

1. For all bids greater than \$100,000, the Bidder shall obtain MBE, WBE and SDVE participation in an amount equal to or greater than the percentage goals set forth in the Invitation for Bid and the Bid Form, unless the Bidder is granted a Good Faith Effort waiver by the Director of the Division, as set forth below. If the Bidder does not meet the MBE, WBE and SDVE goals, or make a good faith effort to do so, the Bidder shall be nonresponsive, and its bid shall be rejected.
2. The Bidder should submit with its bid all the information requested in the MBE/WBE/SDVE Compliance Evaluation Form for every MBE, WBE, or SDVE subcontractor or material supplier the Bidder intends to use for the contract work. The Bidder is required to submit all MBE/WBE/SDVE documentation before the stated time and date set forth in the Invitation for Bid. If the Bidder fails to provide such information by the specified date and time, the Owner shall reject the bid.
3. The Director reserves the right to request additional information from a Bidder to clarify the Bidder’s proposed MBE, WBE, and/or SDVE participation. The Bidder shall submit the clarifying information requested by the Owner within two (2) working days of receiving the request for clarification.
4. Pursuant to section 34.074, RSMo, a Prime Bidder that qualifies as an SDVE shall receive a three-percentage point bonus preference in the contract award evaluation process. The bonus preference will be calculated and applied by reducing the bid amount of the eligible SDVE by three percent of the apparent low responsive Bidder’s bid. Based on this calculation, if the eligible SDVE’s evaluation is less than the apparent low responsive Bidder’s bid, the eligible SDVE’s bid will become the apparent low responsive bid. This reduction is for evaluation purposes only and will have no impact on the actual amount(s) of the bid or the amount(s) of any contract awarded. In order to be eligible for the SDVE preference, the Bidder must complete and submit with its bid the Missouri Service-Disabled Veteran Business Form, and any information required by the form.

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

1. A Bidder who is a MBE, WBE, or SDVE may count 100% of the contract towards the MBE, WBE or SDVE goal, less any amounts awarded to another MBE, WBE or SDVE. (NOTE: a MBE firm that bids as general contractor must obtain WBE and SDVE participation; a WBE firm that bids as

a general contractor must obtain MBE and SDVE participation; and a SDVE firm that bids as general contractor must obtain MBE and WBE participation.) For the remaining contract amount to be counted towards the MBE, WBE or SDVE goal, the Bidder must complete the MBE/WBE/SDVE Compliance Evaluation Form (Section 004337) identifying itself as an MBE, WBE or SDVE.

2. The total dollar value of the work granted to a certified MBE, WBE or SDVE by the Bidder shall be counted towards the applicable goal.
3. Expenditures for materials and supplies obtained from a certified MBE, WBE, or SDVE supplier or manufacturer may be counted towards the MBE, WBE and SDVE goals, if the MBE, WBE, or SDVE assumes the actual and contractual responsibility for the provision of the materials and supplies.
4. The total dollar value of the work granted to a second or subsequent tier subcontractor or a supplier may be counted towards a Bidder's MBE, WBE and SDVE goals, if the MBE, WBE, or SDVE properly assumes the actual and contractual responsibility for the work.
5. The total dollar value of work granted to a certified joint venture equal to the percentage of the ownership and control of the MBE, WBE, or SDVE partner in the joint venture may be counted towards the MBE/WBE/SDVE goals.
6. Only expenditures to a MBE, WBE, or SDVE that performs a commercially useful function in the work may be counted towards the MBE, WBE and SDVE goals. A MBE, WBE, or SDVE performs a commercially useful function when it is responsible for executing a distinct element of the work and carrying out its responsibilities by performing, managing and supervising the work or providing supplies or manufactured materials.

D. Certification of MBE/WBE/SDVE Subcontractors:

1. In order to be counted towards the goals, an MBE or WBE must be certified by the State of Missouri Office of Equal Opportunity and an SDVE must be certified by the State of Missouri, Office of Equal Opportunity or by the Federal U.S. Small Business Administration directory.
2. The Bidder may determine the certification status of a proposed MBE or WBE subcontractor or supplier by referring to the Office of Equal Opportunity (OEO)'s online MBE/WBE directory <https://apps1.mo.gov/MWBCertifiedFirms/>. The Bidder may determine the eligibility of a SDVE subcontractor or supplier by referring to the Office of Equal Opportunity online SDVE directory at <https://o eo.mo.gov/sdve-certification-program/> or the Federal U.S. Small Business Administration directory <https://veterans.certify.sba.gov/#search>.
3. Additional information, clarifications, or other information regarding the MBE/WBE/SDVE listings in the directories may be obtained by contacting the Contract Specialist of record as shown in the Supplementary Conditions (Section 007300).

E. Waiver of MBE/WBE/SDVE Participation:

1. If a Bidder has made a good faith effort to secure the required MBE, WBE and/or SDVE participation and has failed, the Bidder shall submit with its bid the information requested in MBE/WBE/SDVE Good Faith Effort (GFE) Determination form. The Director will determine if the Bidder made a good faith effort to meet the applicable goals. If the Director determines that the Bidder did not make a good faith effort, the bid shall be rejected as being nonresponsive to the bid requirements. Bidders who demonstrate that they have made a good faith effort to include MBE, WBE, and/or SDVE participation will be granted a waiver and will be considered to be responsive to the applicable participation goals, regardless of the percent of actual participation obtained, if the bid is otherwise acceptable.
2. In determining whether a Bidder has made a good faith effort to obtain MBE, WBE and/or SDVE participation, the Director may evaluate the factors set forth in 1 CSR 30-5.010(6)(C) and the following:
 - a. The amount of actual participation obtained;

- b. How and when the Bidder contacted potential MBE, WBE, and SDVE subcontractors and suppliers;
- c. The documentation provided by the Bidder to support its contacts, including whether the Bidder provided the names, addresses, phone numbers, and dates of contact for MBE/WBE/SDVE firms contacted for specific categories of work;
- d. If project information, including plans and specifications, were provided to MBE/WBE/SDVE subcontractors;
- e. Whether the Bidder made any attempts to follow-up with MBE, WBE or SDVE firms prior to bid;
- f. Amount of bids received from any of the subcontractors and/or suppliers that the Bidder contacted;
- g. The Bidder's stated reasons for rejecting any bids;

F. Contractor MBE/WBE/SDVE Obligations

- 1. If awarded a contract, the Bidder will be contractually required to subcontract with or obtain materials from the MBE, WBE, and SDVE firms listed in its bid, in amounts equal to or greater than the dollar amount in the bid, unless the amount is modified in writing by the Owner.
- 2. If the Contractor fails to meet or maintain the participation requirements contained in the Contractor's bid, the Contractor must satisfactorily explain to the Director why it cannot comply with the requirement and why failing meeting the requirement was beyond the Contractor's control. If the Director finds the Contractor's explanation unsatisfactory, the Director may take any appropriate action including, but not limited to:
 - a. Declaring the Contractor ineligible to participate in any contracts with the Division for up to twelve (12) months (suspension); and/or
 - b. Declaring the Contractor be nonresponsive to the Invitation for Bid, or in breach of contract and rejecting the bid or terminating the contract.
- 3. If the Contractor replaces an MBE, WBE, or SDVE during the course of the contract, the Contractor shall replace it with another MBE, WBE, or SDVE or make a good faith effort to do so. All MBE, WBE and SDVE substitutions must be approved by the Director in writing.
- 4. The Contractor shall provide the Owner with regular reports on its progress in meeting its MBE/WBE/SDVE obligations. At a minimum, the Contractor shall report the dollar-value of work completed by each MBE, WBE, or SDVE during the preceding month and the cumulative total of work completed by each MBE, WBE or SDVE to date with each monthly application for payment. The Contractor shall also make a final report, which shall include the total dollar-value of work completed by each MBE, WBE, and SDVE during the entire contract.



State of Missouri Construction Contract

THIS AGREEMENT is made (DATE) by and between:

Contractor Name and Address

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

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

ARTICLE 1. STATEMENT OF WORK

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

Project Name: **Renovate Interior
General Headquarters Building
Jefferson City, Missouri**

Project Number: **R2410-01**

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 **200 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: \$

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

TOTAL CONTRACT AMOUNT: (\$CONTRACT AMOUNT)

UNIT PRICES: The Owner accepts the following Unit Prices:

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

ARTICLE 5. PREVAILING WAGE RATE

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

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

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

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

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

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

Total \$

MBE/WBE/SDVE assignments identified above shall not be changed without a contract change signed by the Owner.

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

ARTICLE 7. CONTRACT DOCUMENTS

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

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

ARTICLE 8 – CERTIFICATION

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

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

APPROVED:

Crystal Wessing, Interim 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

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

MBE/WBE/SDVE PROGRESS REPORT

Remit with **ALL** Progress and Final Payments

(Please check appropriate box) ☐CONSULTANT ☐CONSTRUCTION

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

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 06/2023

INSTRUCTIONS FOR MBE/WBE/SDVE PROGRESS REPORT

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

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

At Initial Pay Application fill in the following:

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

For all subsequent Pay Applications fill in the following:

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



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

PROJECT NUMBER

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

State of _____ personally came and appeared _____

(NAME)

of the _____

(POSITION)

(NAME OF THE COMPANY)

(a corporation) (a partnership) (a proprietorship) and after being duly sworn did depose and say that all provisions and requirements set out in Chapter 290, Sections 290.210 through and including 290.340, Missouri Revised Statutes, pertaining to the payment of wages to workmen employed on public works project have been fully satisfied and there has been no exception to the full and completed compliance with said provisions and requirements and with Wage Determination No: _____ issued by the Department of Labor and Industrial Relations, State of Missouri on the _____ day of _____ 20 _____ in carrying out the contract and working in connection with _____

(NAME OF PROJECT)

Located at _____ in _____ County

(NAME OF THE INSTITUTION)

Missouri, and completed on the _____ day of _____ 20 _____

SIGNATURE

NOTARY INFORMATION

NOTARY PUBLIC EMBOSSEY 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

ARTICLE:

1. General Provisions

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

2. Owner/Designer Responsibilities

3. Contractor Responsibilities

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

4. Changes in the Work

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

5. Construction and Completion

- 5.1. Construction Commencement
- 5.2. Project Construction
- 5.3. Project Completion
- 5.4. Payments

6. Bond and Insurance

6.1. Bond

6.2. Insurance

7. Termination or Suspension of Contract

7.1. For Site Conditions

7.2. For Cause

7.3. For Convenience

SECTION 007213 - GENERAL CONDITIONS

- A. These General Conditions apply to each section of these specifications. The Contractor is subject to the provisions contained herein.
- B. The General Conditions are intended to define the relationship of the Owner, the Designer and the Contractor thereby establishing certain rules and provisions governing the operation and performance of the work so that the work may be performed in a safe, orderly, expeditious and workmanlike manner.

ARTICLE 1 – GENERAL PROVISIONS

ARTICLE 1.1 - DEFINITIONS

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

1. **"COMMISSIONER"**: The Commissioner of the Office of Administration.
2. **"CONSTRUCTION DOCUMENTS"**: The "Construction Documents" shall consist of the Project Manual, Drawings and Addenda.
3. **"CONSTRUCTION REPRESENTATIVE"**: Whenever the term "Construction Representative" is used, it shall mean the Owner's Representative at the work site.
4. **"CONTRACTOR"**: Party or parties who have entered into a contract with the Owner to furnish work under these specifications and drawings.
5. **"DESIGNER"**: When the term "Designer" is used herein, it shall refer to the Architect, Engineer, or Consultant of Record specified and defined in Paragraph 2.0 of the Supplemental Conditions, or his duly authorized representative. The Designer may be either a consultant or state employee.
6. **"DIRECTOR"**: Whenever the term "Director" is used, it shall mean the Director of the Division of Facilities Management, Design and Construction or his Designee, representing the Office of Administration, State of Missouri. The Director is the agent of the Owner.
7. **"DIVISION"**: Shall mean the Division of Facilities Management, Design and Construction, State of Missouri.
8. **"INCIDENTAL JOB BURDENS"**: Shall mean those expenses relating to the cost of work, incurred either in the home office or on the job-site, which are necessary in the course of doing business but are incidental to the job. Such costs include office supplies and equipment, postage, courier services, telephone expenses including long distance, water and ice and other similar expenses.
9. **"JOINT VENTURE"**: An association of two (2) or more businesses to carry out a single business enterprise for profit for which purpose they combine their property, capital, efforts, skills and knowledge.
10. **"OWNER"**: Whenever the term "Owner" is used, it shall mean the State of Missouri. Acting by and through the Office of Administration, Division of Facilities Management, Design and Construction.
11. **"PROJECT"**: Wherever the term "Project" is used, it shall mean the work required to be completed by the construction contract.
12. **"PROJECT MANUAL"**: The "Project Manual" shall consist of Introductory Information, Invitation for Bid, Instructions to Bidders, Bid Documents, Additional Information, Standard Forms, General Conditions, Supplemental General Conditions, General Requirements and Technical Specifications.
13. **"SUBCONTRACTOR"**: Party or parties who contract under, or for the performance of part or this entire Contract between the Owner and Contractor. The subcontract may or may not be direct with the Contractor.
14. **"WORK"**: All supervision, labor, materials, tools, supplies, equipment, and any incidental operations and/or activities required by or reasonably inferable from the Contract Documents necessary to construct the Project and to produce the results intended by the Contract Documents in a safe, expeditious, orderly, and workmanlike manner so that the project shall be complete and finished in the best manner known to each respective trade.
15. **"WORKING DAYS"**: are all calendar days except Saturdays, Sundays and the following holidays: New Year's Day, Martin Luther King, Jr. Day, Lincoln Day, Washington's Birthday (observed), Truman Day, Memorial Day, Juneteenth, Independence Day, Labor Day, Columbus Day, Veterans Day (observed), Thanksgiving Day, Christmas Day.

ARTICLE 1.2 DRAWINGS AND SPECIFICATIONS

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

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

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

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

ARTICLE 1.4 - NONDISCRIMINATION IN EMPLOYMENT

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

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

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

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

ARTICLE 1.5 - ANTI-KICKBACK

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

ARTICLE 1.6 - PATENTS AND ROYALTIES

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

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

ARTICLE 1.7 - PREFERENCE FOR AMERICAN AND MISSOURI PRODUCTS AND SERVICES

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

ARTICLE 1.8 - COMMUNICATIONS

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

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

ARTICLE 1.9 - SEPARATE CONTRACTS AND COOPERATION

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

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

ARTICLE 1.10 - ASSIGNMENT OF CONTRACT

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

ARTICLE 1.11 - INDEMNIFICATION

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

ARTICLE 1.12 - DISPUTES AND DISAGREEMENTS

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

ARTICLE 2 -- OWNER/DESIGNER RESPONSIBILITIES

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

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

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

ARTICLE 3 -- CONTRACTOR RESPONSIBILITIES

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

ARTICLE 3.1 -- ACCEPTABLE SUBSTITUTIONS

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

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

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

ARTICLE 3.2 -- SUBMITTALS

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

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

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

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

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

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

ARTICLE 3.3 – AS-BUILT DRAWINGS

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

ARTICLE 3.4 – GUARANTY AND WARRANTIES

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

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

B. Extended Warranty

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

ARTICLE 3.5 -- OPERATION AND MAINTENANCE MANUALS

- A. Immediately after equipment submittals are approved and no later than ten (10) working days prior to the substantial completion inspection, the Contractor shall provide to the Designer three (3) copies of operating instructions and service manuals, containing the following:
1. Start-up and Shut-down Procedures: Provide a step-by-step write up of all major equipment. When manufacturer's printed start-up, trouble shooting and shut-down procedures are available; they may be incorporated into the operating manual for reference.

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

ARTICLE 3.6 – OTHER CONTRACTOR RESPONSIBILITIES

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

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

- B. Contractor shall, at all times, enforce strict discipline and good order among his employees, and shall not employ on the work any unfit person or anyone not skilled in the work assigned to him/her.
- C. The Contractor shall supply sufficient labor, material, plant and equipment and pay when due any laborer, subcontractor or supplier for supplies furnished and otherwise prosecute the work with diligence to prevent work stoppage and ensure completion thereof within the time specified.
- D. The Contractor and each of his subcontractors shall submit to the Construction Representative, through the Designer such schedules of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data as the Owner may request concerning work performed or to be performed under this contract.
- E. The Contractor, subcontractors, and material suppliers shall upon written request, give the Owner access to all time cards, material invoices, payrolls, estimates, profit and loss statements, and all other direct or indirect costs related to this work.
- F. The Contractor shall be responsible for laying out all contract work such as layout of architectural, structural, mechanical and electrical work, which shall be coordinated with layouts of subcontractors for general construction work. The Contractor is also responsible for unloading, uncrating and handling of all materials and equipment to be erected or placed by him/her, whether furnished by Contractor or others. No extra charges or compensation will be allowed as a result of failure to verify dimensions before ordering materials or fabricating items.
- G. The Contractor must notify the Construction Representative at least one working day before placing concrete or burying underground utilities, pipelines, etc.
- H. Contractors shall prearrange time with the Construction Representative for the interruption of any facility operation. Unless otherwise specified in these documents, all connections, alterations or relocations as well as all other portions of the work will be performed during normal working hours.

- I. The Contractor shall coordinate all work so there will not be prolonged interruptions of existing equipment operation. Any existing plumbing, heating, ventilating, air conditioning or electrical disconnections necessary for the project, which affect portions of this construction or building or any other building must be scheduled with the Construction Representative to minimize or avoid any disruption of facility operations. In no case, unless previously approved in writing by the Construction Representative, shall utilities be left disconnected at the end of a work day or over a weekend. Any interruption of utilities either intentionally or accidentally shall not relieve the Contractor responsible for the interruption from the responsibility to repair and restore the utility to normal service. Repairs and restoration shall be made before the workers responsible for the repair and restoration leave the job.
- J. Contractors shall limit operations and storage of materials to the area within the project, except as necessary to connect to existing utilities, and shall not encroach on neighboring property. The Contractor shall be responsible for repair of their damage to property on or off the project site occurring during construction of project. All such repairs shall be made to the satisfaction of the property owner.
- K. Unless otherwise permitted, all materials shall be new and both workmanship and materials shall be of the best quality.
- L. Unless otherwise provided and stipulated within these specifications, the Contractor shall furnish, construct, and/or install and pay for materials, devices, mechanisms, equipment, all necessary personnel, utilities including, but not limited to water, heat, light and electric power, transportation services, applicable taxes of every nature, and all other facilities necessary for the proper execution and completion of the work.
- M. Contractor shall carefully examine the plans and drawings and shall be responsible for the proper fitting of his material, equipment and apparatus into the building.
- N. The Contractor or subcontractors shall not overload, or permit others to overload, any part of any structure during the performance of this contract.
- O. All temporary shoring, bracing, etc., required for the removal of existing work and/or for the installation of new work shall be included in this contract. The Contractor shall make good, at no cost to the Owner, any damage caused by improper support or failure of shoring in any respect. Each Contractor shall be responsible for shoring required to protect his work or adjacent property and improvements of Owner and shall be responsible for shoring or for giving written notice to adjacent property owners. Shoring shall be removed only after completion of permanent supports.
- P. The Contractor shall provide at the proper time such material as is required for support of the work. If openings are required, whether shown on drawings or not, the Contractor shall see that they are properly constructed.
- Q. During the performance of work the Contractor shall be responsible for providing and maintaining warning signs, lights, signal devices, barricades, guard rails, fences and other devices appropriately located on site which will give proper and understandable warning to all persons of danger of entry onto land, structure or equipment.
- R. The Contractor shall be responsible for protection, including weather protection, and proper maintenance of all equipment and materials.
- S. The Contractor shall be responsible for care of the finished work and shall protect same from damage or defacement until substantial completion by the Owner. If the work is damaged by any cause, the Contractor shall immediately begin to make repairs in accordance with the drawings and specifications. Contractor shall be liable for all damage or loss unless attributable to the acts or omissions of the Owner or Designer. Any claim for reimbursement shall be submitted in accordance with Article 4. After substantial completion the Contractor will only be responsible for damage resulting from acts or omissions of the Contractor or subcontractors through final warranty.
- T. In the event the Contractor encounters an unforeseen hazardous material, the Contractor shall immediately stop work in the area affected and report the condition to the Owner and Designer in writing. The Contractor shall not be required, pursuant to Article 4, to perform, any work relating to hazardous materials.
- U. In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 4.
- V. Before commencing work, Contractors shall confer with the Construction Representative and facility representative and review any facility rules and regulations which may affect the conduct of the work.

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

ARTICLE 3.7 -- SUBCONTRACTS

- A. Subcontractor assignments as identified in the bid form shall not be changed without written approval of the Owner. The Owner will not approve changes of a listed subcontractor unless the Contractor documents, to the satisfaction of the Owner that the subcontractor cannot or will not perform the work as specified.
- B. The Contractor is fully responsible to the Owner for the acts and omissions of all subcontractors and of persons either directly or indirectly employed by them.
- C. Every subcontractor shall be bound by the applicable terms and provisions of these contract documents, but no contractual relationship shall exist between any subcontractor and the Owner unless the right of the Contractor to proceed with the work is suspended or this contract is terminated as herein provided, and the Owner in writing elects to assume the subcontract.
- D. The Contractor shall upon receipt of "Notice to Proceed" and prior to submission of the first payment request, notify the Designer and Construction Representative in writing of the names of any subcontractors to be used in addition to those identified in the bid form and all major material suppliers proposed for all parts of the work.

ARTICLE 4 -- CHANGES IN THE WORK

4.1 CHANGES IN THE WORK

- A. The Construction Representative, without giving notice to the surety and without invalidating this contract, may order extra work or make changes by altering, adding to or deducting from the work, this contract sum being adjusted accordingly. All such work shall be executed under the conditions of the original contract. A claim for extension of time caused by any change must be adjusted at the time of ordering such change. No future request for time will be considered.
- B. Each Contract Change shall include all costs required to perform the work including all labor, material, equipment, overheads and profit, delay, disruptions, or other miscellaneous expenses. No subsequent requests for additional compensation including claims for delay, disruption, or reduced efficiency as a result of each change will be considered. Values from the Schedule of Values will not be binding as a basis for additions to or deductions from the contract price.

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

1. By an acceptable fixed price proposal from the Contractor. Breakdowns shall include all takeoff sheets of each Contractor and subcontractor. Breakdown shall include a listing of each item of material with unit prices and number of hours of labor for each task. Labor costs per hour shall be included with labor burden identified, which shall be not less than the prevailing wage rate, etc. Overhead and profit shall be shown separately for each subcontractor and the Contractor.
2. By a cost-plus-fixed-fee (time and material) basis with maximum price, total cost not to exceed said maximum. Breakdown shall include a listing of each item of material with unit prices and number of hours of labor for each task. Labor costs per hour shall be included with labor burden identified, which shall be not less than the prevailing wage rate, etc. Overhead and profit shall be shown separately for each subcontractor and the Contractor.
3. By unit prices contained in Contractor's original bid form and incorporated in the construction contract.

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

1. The overhead and profit charge by the Contractor and all subcontractors shall be considered to include, but is not limited to: incidental job burdens, small truck (under 1 ton) expense, mileage, small hand tools, warranty costs, company benefits and general office overhead. Project supervision including field supervision and job site office expense shall be considered a part of overhead and profit unless a compensable time extension is granted.
2. The percentages for overhead and profit charged on Contract Changes shall be subject to the following limits: (a) the percentage mark-up for the Contractor shall be limited to the Contractor's fee; (b) fifteen percent (15%) maximum for Work directly performed by employees of a subcontractor, or sub-subcontractor; (c) five percent (5%) maximum for the Work performed or passed through to the Owner by the Contractor; (d) five percent (5%) maximum subcontractor's mark-up for

Work performed by a sub-subcontractor and passed through to the Owner by the subcontractor and Contractor; and (e) in no case shall the total overhead and profit paid by the Owner on any Contract Changes exceed twenty-five percent (25%) of the cost of materials, labor and equipment (exclusive of Contractor or any Subcontractor overhead and profit) necessary to put the contract change work in place.

3. The Contractor will be allowed to add the cost of Contractor's payment and performance bonding, builder's risk insurance, and general liability insurance to their cost of work. The above listed bonding and insurance cost shall not exceed two percent (2%) and shall be allowed on the total cost of the added work, including overhead and profit.
 4. On proposals covering both increases and decreases in the amount of this contract, the application of overhead and profit shall be on the net change in the cost of the work.
 5. The percentage(s) for overhead and profit to be credited to the Owner on Contract Changes that are solely decreases in the quantity of work or materials shall be the same as those for additive Contract Changes provided above.
- E. No claim for an addition to this contract sum shall be valid unless authorized as aforesaid in writing by the Owner. In the event that none of the foregoing methods are agreed upon, the Owner may order the Contractor to perform work on a time and material basis. The cost of such work shall be determined by the Contractor's actual labor and material cost to perform the work plus overhead and profit as outlined herein. The Designer and Construction Representative shall approve the Contractor's daily time and material invoices for the work involved.
- F. If the Contractor claims that any instructions involve extra cost under this contract, the Contractor shall give the Owner's Representative written notice thereof within a reasonable time after the receipt of such instructions, and in any event before proceeding to execute the work. No such claim shall be valid unless so made and authorized by the Owner, in writing.
- G. In an emergency affecting the safety of life or of the structure or of adjoining property, the Contractor, without special instruction or authorization from the Construction Representative, is hereby permitted to act at their discretion to prevent such threatened loss or injury. The Contractor shall submit a claim for compensation for such emergency work in writing to the Owner's Representative.

ARTICLE 4.2 – CHANGES IN COMPLETION TIME

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

ARTICLE 5 - CONSTRUCTION AND COMPLETION

ARTICLE 5.1 – CONSTRUCTION COMMENCEMENT

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

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

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

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

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

ARTICLE 5.2 -- PROJECT CONSTRUCTION

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

with the requirements outlined in Section 013200 – Schedules.

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

ARTICLE 5.3 -- PROJECT COMPLETION

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

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

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

3. If the work is not acceptable, and the Owner does not issue a Certificate of Substantial Completion, the Owner shall be entitled to charge the Contractor with the Designer's and Owner's costs of re-inspection, including time and travel.
- B. Partial Occupancy. Contractor agrees that the Owner shall be permitted to occupy and use any completed or partially completed portions of the Project, when such occupancy and use is in the Owner's best interest. Owner shall notify Contractor of its desire and intention to take Partial Occupancy as soon as possible but at least ten (10) working days before the Owner intends to occupy. If the Contractor believes that the portion of the work the Owner intends to occupy is not ready for occupancy, the Contractor shall notify the Owner immediately. The Designer shall inspect the work in accordance with the procedures above. If the Contractor claims increased cost of the project or delay in completion as a result of the occupancy, he shall notify the Owner immediately but in all cases before occupancy occurs.
- C. Final Completion. The Project is finally complete when the Certificate of Substantial Completion has been issued and all work items identified therein as incomplete have been completed, and when all administrative items required by the contract have been completed. Final Completion entitles the Contractor to payment of the outstanding balance of the contract amount including all change orders and retainage. Within five (5) working days of the date of the Certificate of Substantial Completion, the Contractor shall identify the cost to complete any outstanding items of work. The Designer shall review the Contractor's estimate and either approve it or provide an independent estimate for all such items. If the Contractor fails to complete the remaining items within the time specified in the Certificate, the Owner may terminate the contract and go to the surety for project completion in accordance with Article 7.2 or release the contract balance to the Contractor less 150% of the approved estimate to complete the outstanding items. Upon completion of the outstanding items, when a final cost has been established, any monies remaining shall be paid to the Contractor. Failure to complete items of work does not relieve the Contractor from the obligation to complete the administrative requirements of the contract, such as the provisions of Article 5.3 FAILURE TO COMPLETE ALL ITEMS OF WORK UNDER THE CONTRACT SHALL BE CONSIDERED A

DEFAULT AND BE GROUNDS FOR CONTRACT TERMINATION AND DEBARMENT.

- D. Liquidated Damages. Contractor agrees that the Owner may deduct from the contract price and retain as liquidated damages, and not as penalty or forfeiture, the sum stipulated in this contract for each work day after the Contract Completion Day on which work is not Substantially Complete. Assessment of Liquidated Damages shall not relieve the Contractor or the surety of any responsibility or obligation under the Contract. In addition, the Owner may, without prejudice to any other rights, claims, or remedies the Owner may have including the right to Liquidated Damages, charge the Contractor for all additional expenses incurred by the Owner and/or Designer as the result of the extended contract period through Final Completion. Additional Expenses shall include but not be limited to the costs of additional inspections.
- E. Early Completion. The Contractor has the right to finish the work before the contract completion date; however, the Owner assumes no liability for any hindrances to the Contractor unless Owner caused delays result in a time extension to the contract completion date. The Contractor shall not be entitled to any claims for lost efficiencies or for delay if a Certificate of Substantial Completion is given on or before the Contract Completion Date.

ARTICLE 5.4 -- PAYMENT TO CONTRACTOR

- A. Payments on account of this contract will be made monthly in proportion to the work which has been completed. Request for payment must be submitted on the Owner's forms. No other pay request will be processed. Supporting breakdowns must be in the same format as Owner's forms and must provide the same level of detail. The Designer will, within 5 working days from receipt of the contractor's request for payment either issue a Certificate for Payment to the Owner, for such amount as the Designer determines is properly due, or notify the Contractor in writing of reasons for withholding a Certificate. The Owner shall make payment within 30 calendar days after the "Application and Certification for Payment" has been received and certified by the Designer. The following items are to be attached to the contractor's pay request:
 1. Updated construction schedule
 2. Certified payrolls consisting of name, home addresses of all workers, occupation and craft, number of hours worked and actual wages paid for each individual employee, of the Contractor and all subcontractors working on the project

- B. The Owner shall retain 5 percent of the amount of each such payment application, except as allowed by Article 5.4, until final completion and acceptance of all work covered by this contract.
- C. Each payment made to Contractor shall be on account of the total amount payable to Contractor and all material and work covered by paid partial payment shall thereupon become the sole property of Owner. This provision shall not be construed as relieving Contractor from sole responsibility for care and protection of materials and work upon which payments have been made or restoration of any damaged work or as a waiver of the right of Owner to require fulfillment of all terms of this contract.
- D. Materials delivered to the work site and not incorporated in the work will be allowed in the Application and Certification for Payment on the basis of one hundred (100%) percent of value, subject to the 5% retainage providing that they are suitably stored on the site or in an approved warehouse in accordance with the following requirements:
 - 1. Material has previously been approved through submittal and acceptance of shop drawings conforming to requirements of Article 3.2 of General Conditions.
 - 2. Delivery is made in accordance with the time frame on the approved schedule.
 - 3. Materials, equipment, etc., are properly stored and protected from damage and deterioration and remain so - if not, previously approved amounts will be deleted from subsequent pay applications.
 - 4. The payment request is accompanied by a breakdown identifying the material equipment, etc. in sufficient detail to establish quantity and value.
- E. The Contractor shall be allowed to include in the Application and Certification for Payment, one hundred (100%) of the value, subject to retainage, of major equipment and material stored off the site if all of the following conditions are met:
 - 1. The request for consideration of payment for materials stored off site is made at least 15 working days prior to submittal of the Application for Payment including such material. Only materials inspected will be considered for inclusion on Application for Payment requests.
 - 2. Materials stored in one location off site are valued in excess of \$25,000.
 - 3. That a Certificate of Insurance is provided indicating adequate protection from loss, theft

conversion or damage for materials stored off site. This Certificate shall show the State of Missouri as an additional insured for this loss.

- 4. The materials are stored in a facility approved and inspected, by the Construction Representative.
- 5. Contractor shall be responsible for, Owner costs to inspect out of state facilities, and any delays in the completion of the work caused by damage to the material or for any other failure of the Contractor to have access to this material for the execution of the work.
- F. The Owner shall determine the amount, quality and acceptability of the work and materials which are to be paid for under this contract. In the event any questions shall arise between the parties, relative to this contract or specifications, determination or decision of the Owner or the Construction Representative and the Designer shall be a condition precedent to the right of the Contractor to receive any money or payment for work under this contract affected in any manner or to any extent by such question.
- G. Payments Withheld: The Owner may withhold or nullify in whole or part any certificate to such extent as may be necessary to protect the Owner from loss on account of:
 - 1. Defective work not remedied. When a notice of noncompliance is issued on an item or items, corrective action shall be undertaken immediately. Until corrective action is completed, no monies will be paid and no additional time will be allowed for the item or items. The cost of corrective action(s) shall be borne by the Contractor.
 - 2. A reasonable doubt that this contract can be completed for the unpaid balance.
 - 3. Failure of the Contractor to update as-built drawings monthly for review by the Construction Representative.
 - 4. Failure of the Contractor to update the construction schedule.When the Construction Representative is satisfied the Contractor has remedied above deficiencies, payment shall be released.
- H. Final Payment: Upon receipt of written notice from the Contractor to the Designer and Project Representative that the work is ready for final inspection and acceptance, the Designer and Project Representative, with the Contractor, shall promptly make such inspection. If the work is acceptable and the contract fully performed, the Construction Representative shall complete a final acceptance report and the Contractor will be

directed to submit a final Application and Certification for Payment. If the Owner approves the same, the entire balance shall be due and payable, with the exception of deductions as provided for under Article 5.4.

1. Where the specifications provide for the performance by the Contractor of (certain tests for the purpose of balancing and checking the air conditioning and heating equipment and the Contractor shall have furnished and installed all such equipment in accordance with the specifications, but said test cannot then be made because of climatic conditions, such test shall may be considered as required under the provisions of the specifications, Section 013300 and this contract may be substantial Full payment will not be made until the tests have been made and the equipment and system is finally accepted. If the tests are not completed when scheduled, the Owner may deduct 150% of the value of the tests from the final payment.
2. The final payment shall not become due until the Contractor delivers to the Construction Representative:
 - a) A complete file of releases, on the standard form included in the contract documents as "Final Receipt of Payment and Release Form", from subcontractors and material suppliers evidencing payment in full for services, equipment and materials, as the case may require, if the Owner approves, or a consent from the Surety to final payment accepting liability for any unpaid amounts.
 - b) An Affidavit of Compliance with Prevailing Wage Law, in the form as included in this contract specifications, properly executed by each subcontractor, and the Contractor
 - c) Certified copies of all payrolls
 - d) As-built drawings
3. If any claim remains unsatisfied after all payments are made, the Contractor shall refund to the Owner all monies that the latter may be compelled to pay in discharging such a claim including all costs and a reasonable attorney's fee.
4. Missouri statute requires prompt payment from the Owner to the Contractor within thirty calendar days and from the Contractor to his subcontractors within fifteen calendar days. Failure to make payments within the required

time frame entitles the receiving party to charge interest at the rate of one and one half percent per month calculated from the expiration of the statutory time period until paid.

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

ARTICLE 6 -- INSURANCE AND BONDS

ARTICLE 6.1 -- BOND

- A. Contractor shall furnish a performance/payment bond in an amount equal to 100% of the contract price to guarantee faithful performance of the contract and 100% of the contract price to guarantee the payment of all persons performing labor on the project and furnishing materials in connection therewith under this contract as set forth in the standard form of performance and payment bond included in the contract documents. The surety on such bond shall be issued by a surety company authorized by the Missouri Department of Insurance to do business in the state of Missouri.
- B. All Performance/Payment Bonds furnished in response to this provision shall be provided by a bonding company with a rating of B+ or higher as established by A.M. Best Company, Inc. in their most recent publication.

ARTICLE 6.2 – INSURANCE

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

B. Minimum Scope and Extent of Coverage

1. General Liability

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

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

2. Automobile Liability

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

3. Workers' Compensation and Employer's Liability

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

4. Builder's Risk or Installation Floater Insurance

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

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

C. Minimum Limits of Insurance

1. General Liability

Contractor

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

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

Project Manager: Andy Carroll
Division of Facilities Management, Design and Construction
301 West High Street, Room 730
Jefferson City, MO 65101
Telephone: 573-291-6086
Email: Andy.Carroll@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 3 complete sets of drawings and specifications at no charge.
- B. The Owner will furnish the Contractor with approximately 3 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.

USE ONLY FOR PROJECTS WHICH ARE MONG

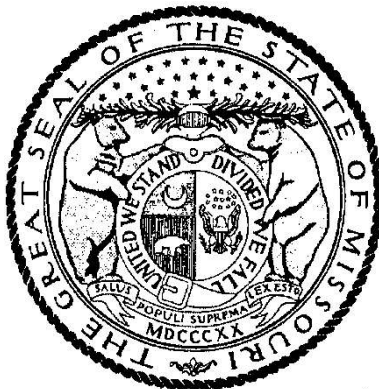
6.0 ENVIRONMENTAL MANAGEMENT SYSTEM (eMS):

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

Missouri

Division of Labor Standards

WAGE AND HOUR SECTION



MIKE KEHOE, Governor

Annual Wage Order No. 33

Section 026
COLE COUNTY

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

Original Signed by _____

Logan Hobbs, Director
Division of Labor Standards

Filed With Secretary of State: _____ **March 10, 2026**

Last Date Objections May Be Filed: **April 9, 2026**

Prepared by Missouri Department of Labor and Industrial Relations

COLE COUNTY

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Asbestos Worker	\$61.67
Boilermaker	\$33.76*
Bricklayer - Stone Mason	\$56.40
Carpenter	\$58.06
Lather	
Linoleum Layers & Cutter	
Millwright	
Pile Driver	
Cement Mason	\$51.32
Plasterer	
Communication Technician	\$64.69
Electrician (Inside Wireman)	\$64.92
Electrician (Outside Lineman)	\$33.76*
Outside - Groundman	
Outside - Groundman Tree Trimmer	
Outside - Lineman Operator	
Outside - Lineman Tree Trimmer	
Elevator Constructor	\$33.76*
Glazier	\$33.76*
Iron Worker	\$74.57
Laborer	\$46.86
Laborer - First Semi-Skilled	
Laborer - General	
Laborer - Second Semi-Skilled	
Laborer - Skilled	
Mason	\$60.77
Marble Finisher	
Marble Mason	
Terrazzo Finisher	
Terrazzo Worker	
Tile Finisher	
Tile Setter	
Operating Engineer	\$70.55
Operating Engineer - Group I	
Operating Engineer - Group II	
Operating Engineer - Group III	
Operating Engineer - Group III - A	
Operating Engineer - Group IV	
Operating Engineer - Group V	
Painter	\$45.79
Plumber	\$75.59
Pipe Fitter	
Roofer/WaterProofer	\$57.87
Sheet Metal Worker	\$62.18
Sprinkler Fitter - Fire Protection	\$72.88
Truck Driver	\$33.76*
Truck Control Service Driver	
Truck Driver, Teamsters Group I	
Truck Driver, Teamsters Group II	
Truck Driver, Teamsters Group III	
Truck Driver, Teamsters Group IV	

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

**The Prevailing Hourly Rate includes any applicable fringe benefit amounts for each occupational title as defined in RSMo Section 290.210.

COLE COUNTY

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Carpenter	\$64.42
Millwright	
Pile Driver	
Electrician (Outside Lineman)	\$87.78
Outside - Groundman	
Outside - Groundman Tree Trimmer	
Outside - Lineman Operator	
Outside - Lineman Tree Trimmer	
Laborer	\$55.27
Laborer - General	
Laborer - Skilled	
Operating Engineer	\$70.85
Operating Engineer - Group I	
Operating Engineer - Group II	
Operating Engineer - Group III	
Operating Engineer - Group IV	
Truck Driver	\$33.76*
Truck Control Service Driver	
Truck Driver, Teamsters Group I	
Truck Driver, Teamsters Group II	
Truck Driver, Teamsters Group III	
Truck Driver, Teamsters Group IV	

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

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

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

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

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

OVERTIME and HOLIDAYS

OVERTIME

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

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

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

HOLIDAYS

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

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

**SECTION 011000
SUMMARY OF WORK**

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Project consists of flooring replacement of offices and corridors, and renovation of restrooms.
 - 1. Project Location: MSHP General Headquarters, 1510 East Elm Street, Jefferson City, MO 65101.
 - 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 65101.
- B. Contract Documents, dated 06/18/2026 were prepared for the Project by OA-FMDC Project Design Unit, 301 West High Street, Room 780, Jefferson City, Missouri 65101.
- C. The Work consists of the following Base Bid and three Alternates:
 - 1. Base Bid Work includes furnishing all labor, materials, and services necessary for selective demolition, selective asbestos remediation, encapsulation of asbestos containing materials, and installation of new flooring, ceiling, wall finishes, restroom fixtures and accessories, plumbing, HVAC, and lighting.
 - 2. Alternate No. 1 includes selective demolition and installation of new restroom fixtures and finishes of select restrooms indicated on the Drawings. Refer to Section 012300 Alternates for additional information.
 - 3. Alternate No. 2 includes selective demolition and installation of new restroom fixtures and finishes of select restrooms indicated on the Drawings. Refer to Section 012300 Alternates for additional information.
 - 4. Alternate No. 3 includes removal of existing carpet and cove base and installation of new carpet and cove base. Location indicated on the Drawings. Refer to Section 012300 Alternates for additional information.
- D. The Work will be constructed under a single prime contract.

1.03 WORK SEQUENCE

- A. The Work will be conducted in nine (9) phases.
 - 1. Phase 1: Flooring and Finishes. Work of this phase shall be substantially complete, ready for occupancy within fifteen (15) days of commencement of construction. Work to be done after business hours. Coordinate with Building Staff
 - 2. Phase 2: Flooring and Finishes. Work of this phase shall be substantially complete, ready for occupancy within fifteen (15) days of commencement of construction. Work to be done after business hours. Coordinate with Building Staff
 - 3. Phase 3: Flooring and Finishes. Work of this phase shall be substantially complete, ready for occupancy within ten (10) days of commencement of construction.
 - 4. Phase 4: Flooring and Finishes. Work of this phase shall be substantially complete, ready for occupancy within ten (10) days of commencement of construction.
 - 5. Phase 5: Flooring and Finishes. Work of this phase shall be substantially complete, ready for occupancy within ten (10) days of commencement of construction.
 - 6. Phase 6: Restroom Renovation. Work of this phase shall be substantially complete, ready for occupancy within fifty (50) days of commencement of construction.
 - 7. Phase 7: Restroom Renovation. Work of this phase shall be substantially complete, ready for occupancy within thirty (25) days of commencement of construction.
 - 8. Phase 8: Restroom Renovation. Work of this phase shall be substantially complete, ready for occupancy within thirty (40) days of commencement of construction.
 - 9. Phase 9: Restroom Renovation. Work of this phase shall be substantially complete, ready for occupancy within forty (25) days of commencement of construction.

1.04 CONTRACTOR USE OF PREMISES

- A. General: During the construction period the Contractor shall have full use of the premises for construction operations, including use of the site. The Contractor's use of the premises limited only by the Owner's right to perform work or to retain other contractors on portions of the Project.
- B. Use of the Site: Limit use of the premises to work in areas indicated. Confine operations to areas within contract limits indicated. Do not disturb portions of the site beyond the areas in which the Work is indicated.
 - 1. Owner Occupancy: Allow for Owner occupancy and use by the public.
 - 2. Driveways and Entrances: Keep driveways and entrances serving the premises clear and available to the Owner, the Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- C. Use of the Existing Building: Maintain the existing building in a weathertight condition throughout the construction period. Repair damage cause by construction operations. Take all precautions necessary to protect the building and its occupants during the construction period.

1.05 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.
- B. Partial Owner Occupancy: The Owner reserves the right to occupy and to place and install equipment in completed areas of the building prior to Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placing of equipment and partial occupancy shall not constitute acceptance of the total Work.
 - 1. The Designer will prepare a Certificate of Partial Occupancy for each specific portion of the Work to be occupied prior to substantial completion.
 - 2. Prior to partial Owner occupancy, mechanical and electrical systems shall be fully operational. Required inspections and tests shall have been successfully completed. Upon occupancy, the Owner will operate and maintain mechanical and electrical systems serving occupied portions for the building.
 - 3. Upon occupancy, the Owner will assume responsibility for maintenance and custodial service for occupied portions for the building.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION 011000

SECTION 012300 ALTERNATES

PART 1 GENERAL

1.01 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.

1.02 SUMMARY

- A. This Section includes administrative and procedural requirements governing Alternates.

1.03 DEFINITIONS

- A. Definition: An alternate is an amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to the Base Bid amount if the Owner decides to accept a corresponding change in either the amount of construction to be completed, or in the products, materials, equipment, systems, or installation methods described in the Contract Documents..
 - 1. The cost for each alternate is the net addition to the Contract Sum to incorporate the Alternate into the Work. No other adjustments are made to the Contract Sum.
- B. No additional time will be allowed for alternate work unless the number of work days is so stated on the bid form.

1.04 PROCEDURES

- A. Coordination: Modify or adjust affected adjacent Work as necessary to completely and fully integrate the Alternate Work into the Project.
 - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not mentioned as part of the Alternate.
- B. Notification: The award of the Contract will indicate whether alternates have been accepted or rejected.
- C. Execute accepted alternates under the same conditions as other Work of this Contract.
- D. Schedule: A "Schedule of Alternates" is included at the end of this Section. Specification Sections referenced in the Schedule contain requirements for materials necessary to achieve the Work described under each alternate.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.01 SCHEDULE OF ALTERNATES

- A. Alternate No.1: Basement Restrooms: Remove and install new fixtures and finishes within basement restrooms MENS 23 and WOMENS 24 as indicated by notes on the drawings labeled "Alternate No. 1." Provide new floor, wall, and ceiling finishes, plumbing, HVAC, and electrical fixtures, and restroom accessories. Divisions 07, 09, 10, 12, 22, 23, and 26 include product and execution requirements.
- B. Alternate No. 2: 2nd Floor South Wing Restrooms: Remove and install new fixtures and finishes within restrooms MENS 43 and WOMENS 44 as indicated by notes on the drawings labeled "Alternate No. 2." Provide new floor, wall, and ceiling finishes; plumbing, HVAC, and electrical fixtures; and restroom accessories. Divisions 07, 09, 10, 12, 22, 23, and 26 include product and execution requirements.
- C. Alternate No. 3: Conference Room Flooring: Remove existing carpet and cove base and install new carpet and cove base within 2nd Floor Conference Room as indicated by notes on the drawings labeled "Alternate No.3." Division 09 includes product and execution requirements.

END OF SECTION 012300

SECTION 012600
CONTRACT MODIFICATION PROCEDURES

PART 1 GENERAL

1.01 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.

1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract Modifications.
- B. Related Sections include the following:
 - 1. Division 1, Section 012100 "Allowances" for procedural requirements for handling and processing Allowances.
 - 2. Division 1, Section 013115 "Project Management Communications" for administrative requirements for communications.
 - 3. Division 0, Section 007213, Article 3.1 "Acceptable Substitutions" for administrative procedures for handling Requests for Substitutions made after Contract award.
 - 4. Division 0, Section 007213, Article 4.0 "Changes in the Work" for Change Order requirements.

1.03 REQUESTS FOR INFORMATION

- A. In the event that the Contractor or Subcontractor, at any tier, determines that some portion of the Drawings, Specifications, or other Contract Documents requires clarification or interpretation, the Contractor shall submit a "Request for Information" (RFI) in writing to the Designer. A RFI may only be submitted by the Contractor and shall only be submitted on the RFI forms provided by the Owner. The Contractor shall clearly and concisely set forth the issue for which clarification or interpretation is sought and why a response is needed. In the RFI, the Contractor shall set forth an interpretation or understanding of the requirement along with reasons why such an understanding was reached.
- B. Responses to RFI shall be issued within ten (10) working days of receipt of the Request from the Contractor unless the Designer determines that a longer time is necessary to provide an adequate response. If a longer time is determined necessary by the Designer, the Designer will, within five (5) working days of receipt of the request, notify the Contractor of the anticipated response time. If the Contractor submits a RFI on a time sensitive activity on the current project schedule, the Contractor shall not be entitled to any time extension due to the time it takes the Designer to respond to the request provided that the Designer responds within the ten (10) working days set forth above.
- C. Responses from the Designer will not change any requirement of the Contract Documents. In the event the Contractor believes that a response to a RFI will cause a change to the requirements of the Contract Document, the Contractor shall give written notice to the Designer requesting a Change Order for the work. Failure to give such written notice within ten (10) working days, shall waive the Contractor's right to seek additional time or cost under Article 4, "Changes in the Work" of the General Conditions.

1.04 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).

1.05 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.

1.06 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

1.01 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.

1.02 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.

1.03 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.

1.04 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.

1.05 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

1.01 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

1.02 SUMMARY

- A. Project Management Communications: The Contractor shall use the Internet web-based project management communications tool, Trimble Unity Construct® (Formerly eBuilder) ASP software, and protocols included in that software during this project. The use of project management communications as herein described does not replace or change any contractual responsibilities of the participants.
 - 1. Project management communications is available through Trimble Unity Construct® (Formerly eBuilder) as provided by "Trimble Unity Construct®" in the form and manner required by the Owner.
 - 2. The project communications database is on-line and fully functional. User registration, electronic and computer equipment, and Internet connections are the responsibility of each project participant. The sharing of user accounts is prohibited
- B. Support: Trimble Unity Construct® (Formerly eBuilder) 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/BIM files, processes or design information distributed in this system is intended only for the project specified herein.
- D. Purpose: The intent of using Trimble Unity Construct®(Formerly eBuilder) is to improve project work efforts by promoting timely initial communications and responses. Secondly, to reduce the number of paper documents while providing improved record keeping by creation of electronic document files
- E. Authorized Users: Access to the web site will be by individuals who are authorized users.
 - 1. Individuals shall complete the Trimble Unity Construct (Formerly eBuilder) 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 Trimble Unity Construct® (Formerly eBuilder) 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 Trimble Unity Construct® (Formerly eBuilder) web site by licensed users.
 - 1. The Owner and his representatives, the Designer and his consultants, and the Contractor and his Subcontractors and suppliers at every tier shall respond to documents received in electronic form on the web site and consider them as if received in paper document form.
 - 2. The Owner and his representatives, the Designer and his consultants, and the Contractor and his Subcontractors and suppliers at every tier reserves the right to and shall reply or respond by transmissions in electronic form on the web site to documents actually received in paper document form.
 - 3. The Owner and his representatives, the Designer and his consultants, and the Contractor and his Subcontractors 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 with high-speed Internet access, i.e. DSL, local cable company's Internet connection, or T1 connection.
 - a. The normal work location is the place where the user is assigned for more than one-half of his time working on this project.
 2. Each of the above referenced computer systems shall have the following minimum system and software requirements:
 - a. Desktop configuration (Laptop configurations are similar and should be equal to or exceed desktop system.)
 - 1) Operating System: Windows XP or newer
 - 2) Internet Browser: Internet Explorer 6.01SP2+ (Recommend IE7.0+)
 - 3) Minimum Recommend Connection Speed: 256K or above
 - 4) Processor Speed: 1 Gigahertz and above
 - 5) RAM: 512 mb
 - 6) Operating system and software shall be properly licensed.
 - 7) Internet Explorer version 7 (current version is a free distribution for download). This specification is not intended to restrict the host server or client computers provided that industry standard HTTP clients may access the published content.
 - 8) Adobe Acrobat Reader (current version is a free distribution for download).
 - 9) Users should have the standard Microsoft Office Suite (current version must be purchased) or the equivalent.
 - b. 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 Trimble Unity Construct® (Formerly eBuilder) Documents area.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE.)

END OF SECTION 013115

SECTION 013200
SCHEDULE – BAR CHART

PART 1 GENERAL

1.01 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.

1.02 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

3.01 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.

3.02 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

3.03 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.

3.04 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

1.01 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.

1.02 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.

1.03 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

1.04 SHOP DRAWINGS

- A. Comply with the General Conditions, Article 3.2.
- B. The Contractor shall submit newly prepared information drawn accurately to scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not a Shop Drawing.
- C. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates, and similar drawings including the following information:
 - 1. Dimensions
 - 2. Identification of products and materials included by sheet and detail number
 - 3. Compliance with specified standards
 - 4. Notation of coordination requirements
 - 5. Notation of dimensions established by field measurement
 - 6. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8½"x11" but no larger than 36"x48".

1.05 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.

1.06 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.

1.07 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.

1.08 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

3.01 REQUIRED SUBMITTALS

- A. Contractor shall submit the information for materials and equipment to be provided under this contract, as noted on the following page

SPEC SECTION	TITLE	CATEGORY
013200	Schedules	Construction Schedule
013200	Schedules	Schedule of Values
013200	Schedules	List of Subcontractors
013200	Schedules	Major Material Suppliers
079200	Joint Sealants	Product Data
079200	Joint Sealants	Warranty
081213	Hollow Metal Frames	Product Data
081213	Hollow Metal Frames	Shop Drawings
081416	Flush Wood Doors	Product Data
081416	Flush Wood Doors	Shop Drawings
081416	Flush Wood Doors	Sample
081416	Flush Wood Doors	Warranty
083100	Access Doors and Panels	Product Data
087100	Door Hardware	Product Data
087100	Door Hardware	Shop Drawings
087100	Door Hardware	Warranty
087100	Door Hardware	Operation / Maintenance Manual
092116	Gypsum Board Assemblies	Product Data
092216	Non-Structural Metal Framing	Product Data
092226.23	Metal Suspension Systems	Product Data
092226.23	Metal Suspension Systems	Warranty
093000	Tiling	Product Data
093000	Tiling	Sample
093000	Tiling	Operation / Maintenance Manual
093000	Tiling	Warranty
095100	Acoustical Ceilings	Product Data
095100	Acoustical Ceilings	Sample
095100	Acoustical Ceilings	Operation / Maintenance Manual
096500	Resilient Flooring	Product Data
096500	Resilient Flooring	Sample

SUBMITTALS

SPEC SECTION	TITLE	CATEGORY
096500	Resilient Flooring	Operation / Maintenance Manual
096500	Resilient Flooring	Warranty
096813	Tile Carpeting	Product Data
096813	Tile Carpeting	Sample
096813	Tile Carpeting	Operation / Maintenance Manual
096813	Tile Carpeting	Warranty
099123	Interior Painting	Product Data
099123	Interior Painting	Sample
099123	Interior Painting	Operation / Maintenance Manual
102113.13	Metal Toilet Compartments	Product Data
102113.13	Metal Toilet Compartments	Shop Drawings
102113.13	Metal Toilet Compartments	Sample
102113.13	Metal Toilet Compartments	Operation / Maintenance Manual
102113.13	Metal Toilet Compartments	Warranty
102800	Toilet, Bath, and Laundry Accessories	Product Data
102800	Toilet, Bath, and Laundry Accessories	Operation / Maintenance Manual
123200	Manufactured Wood Casework	Product Data
123200	Manufactured Wood Casework	Shop Drawings
123200	Manufactured Wood Casework	Sample
123200	Manufactured Wood Casework	Operation / Maintenance Manual
123200	Manufactured Wood Casework	Warranty
123600	Countertops	Product Data
123600	Countertops	Shop Drawings
123600	Countertops	Sample
123600	Countertops	Operation / Maintenance Manual
123600	Countertops	Warranty
220523	General-Duty Valves for Plumbing Piping	Product Data
220553	Identification for Plumbing Piping and Equipment	Product Data
220719	Plumbing Piping Insulation	Product Data
221005	Plumbing Piping	Product Data
221006	Plumbing Piping Specialties	Product Data
224000	Plumbing Fixtures	Product Data
224000	Plumbing Fixtures	Operation / Maintenance Manual
224000	Plumbing Fixtures	Warranty
230593	Testing, Adjusting, and Balancing for HVAC	Certification

SUBMITTALS

R2410-01-MSHP General Headquarters - Renovate Interior

013300 -5

SPEC SECTION	TITLE	CATEGORY
230593	Testing, Adjusting, and Balancing for HVAC - Pre-Balancing Report	Test Report
230593	Testing, Adjusting, and Balancing for HVAC - Final Report	Test Report
230713	Duct Insulation	Product Data
233100	HVAC Ducts and Casings	Product Data
233300	Air Duct Accessories	Product Data
233700	Air Outlets and Inlets	Product Data
260533.23	Surface Raceways for Electrical Systems	Product Data
262726	Wiring Devices	Product Data
265100	Interior Lighting	Product Data
265100	Interior Lighting	Operation / Maintenance Manual
265100	Interior Lighting	Warranty

END OF SECTION 013300

SECTION 013513.25
SITE SECURITY AND HEALTH REQUIREMENTS

PART 1 GENERAL

1.01 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.

1.02 SUBMITTALS

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

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.01 ACCESS TO THE SITE

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

3.02 FIRE PROTECTION, SAFETY, AND HEALTH CONTROLS

- A. The Contractor shall take all necessary precautions to guard against and eliminate possible fire hazards.
 - 1. Onsite burning is prohibited.
 - 2. The Contractor shall store all flammable or hazardous materials in proper containers located outside the buildings or offsite, if possible.
 - 3. The Contractor shall provide and maintain, in good order, during construction fire extinguishers as required by the National Fire Protection Association. In areas of flammable liquids, asphalt, or electrical hazards, 15-pound carbon dioxide or 20-pound dry chemical extinguishers shall be provided.
- B. The Contractor shall not obstruct streets or walks without permission from the Owner's Construction Representative and Facility Representatives.
- C. The Contractor's personnel shall not exceed the speed limit of 15 mph while at the Facility unless otherwise posted.
- D. The Contractor shall take all necessary, reasonable measures to reduce air and water pollution by any material or equipment used during construction. The Contractor shall keep volatile wastes in covered containers and shall not dispose of volatile wastes or oils in storm or sanitary drains.
- E. The Contractor shall keep the project site neat, orderly, and in a safe condition at all times. The Contractor shall immediately remove all hazardous waste and shall not allow rubbish to accumulate. The Contractor shall provide onsite containers for collection of rubbish and shall dispose of it at frequent intervals during the progress of the Work.

- F. Fire exits, alarm systems, and sprinkler systems shall remain fully operational at all times, unless written approval is received from the Owner's Construction Representative and the appropriate Facility Representative at least twenty-four (24) hours in advance. The Contractor shall submit a written time schedule for any proposed shutdowns.
- G. For all hazardous materials brought onsite, Material Safety Data Sheets shall be on site and readily available upon request at least a day before delivery.
- H. Alcoholic beverages, Marijuana (Cannabis) in any form, or illegal substances shall not be brought upon the Facility premises. The Contractor's workers shall not be under the influence of any intoxicating substances while on the Facility premises.

3.03 MSHP SECURITY CLEARANCE REQUIREMENTS

- A. Contractor Background Screening Policy: As a normal business activity, the Missouri State Highway Patrol (MSHP) may contract with external companies to perform various duties for the Missouri State Highway Patrol. Any personnel working for a contractor, and who has access to criminal justice information is required to pass a background check prior to beginning work on the contract. A contractor's proposed candidate may also be required to undergo a MSHP approved drug screening. This background check requirement will be included as part of all PAQs or solicitations for bids. The contract/PAQ award is contingent upon the proposed candidate background checks being completed.
- B. This background check will include, but not be limited to, state of residency and national fingerprint-based record checks. If the proposed candidate lives outside the United States, the contractor will submit similar documentation from their respective country. Qualification to work on contract will be based upon the following criteria:
 - 1. A felony conviction or guilty plea will be an automatic disapproval of the candidate.
 - 2. Any conviction whether misdemeanor or felony, involving violence, crimes against children, and all sexual crimes regardless of timeframe will be an automatic disapproval of the candidate.
 - 3. Candidates will be disqualified if it is confirmed there are outstanding arrest warrants for the candidate.
 - 4. Any other misdemeanor convictions and guilty pleas may be considered for automatic disapproval. The State CSO (CJIS Security Officer) has final authority regarding if the nature or severity of the misdemeanor offense(s) does or does not warrant a disqualification.
- C. For misdemeanors, consideration will be given to the relationship between the information obtained in the background check and the responsibilities of the position. Time and severity of crime may also be considered as factors in a disqualification. Candidates may submit a written request for waiver through their contracting company if they have been disapproved and wish to contest the decision. The request will need to explain the circumstances of the crime and justification for a waiver.
- D. Contractors will be required to undergo a background check at a minimum once every five years. If there is a significant gap between contracts, candidates may be required to undergo a background check before working under a new contract.
- E. The CSO or their designee will maintain a list of contractors who have been approved to work at the MSHP.
- F. If a candidate goes through a background check with one contractor and then goes to work at a different contractor, the candidate will not be required to undergo a separate background check unless the timeframe exceeds five-year limit.
- G. The CSO for the MSHP has the right to approve or disapprove any candidate and has the right to revoke a candidate's approval at any time.
- H. The FBI CJIS Security Policy requires the MSHP to conduct background checks on all contractors needing MSHP access.
- I. Contractors working on-site and/or need escorted access are required to provide name, date of birth and social security number to enable the MSHP to run a name-based background check prior to their arrival on-site.

1. The FBI CJIS Security Policy requires the Missouri State Highway Patrol to conduct fingerprint background checks on vendors and contractors who require, or may require, virtual and/or unescorted physical access to criminal justice information. Provided are background check instructions managed by the MSHP CJIS Security Audit and Compliance Unit. For further assistance please email securityaudit@mshp.dps.mo.gov or call 573-526-6153 x2622. 1)Fingerprint Submission - register online at www.machs.mo.gov
 - a. *Fingerprint instructions attached separately*Payment \$43.50 is due at registration*Required fingerprint card information below*
 - b. 4-digit Registration Number: 9120
 - c. Complete Name
 - d. Date of Birth
 - e. Social Security Number
 - f. ORI: MOMHP2300
 - g. OCA Designation: CONTRACTOR
 - h. Agency Name: MSHP-SACU
- J. Security Awareness Certification - take online at www.cjisonline.com
 1. Vendor accounts and Vendor Admin profiles are created by the MSHP SACU, securityaudit@mshp.dps.mo.gov
 2. *Vendor Account - Provide company name, mailing address, and phone number of vendor/contractor.
 3. *Vendor Admin - Provide name, email address, and phone number you want designated as the Vendor Admin to manage user accounts.
- K. Security Addendum Certification - form is attached separately. Signature page may be downloaded to user's account under Certification Details Tab/Documents. If this is not an option, email signature form to securityaudit@mshp.dps.mo.gov.
- L. MSHP Required Security Forms - Forms attached separately. Please return signature pages to securityaudit@mshp.dps.mo.gov.
- M. The Missouri Central Vendor File: As a normal business activity, Missouri law enforcement agencies may contract with external companies to perform various duties for their agency. Any personnel working for a vendor or contractor, and who has access to criminal justice information, is required to pass a background check prior to beginning work on the contract per FBI CJIS Security Policy. To better streamline this process for vendors and contractors performing work at more than one Missouri law enforcement agency, the Missouri State Highway Patrol has implemented a program to manage these background check files centrally called the Missouri Central Vendor File. This allows contractors to perform fingerprint checks and complete security awareness training requirements one time rather than with each contracting agency. Unless otherwise notified, vendors and contractors who submit background checks using the MSHP Background Check Process will automatically be vetted and added to the MO Central Vendor File. Background results can be provided upon request sent to securityaudit@mshp.dps.mo.gov.

3.04 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.

3.05 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 013513.25

SECTION 015000
CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

1.01 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.

1.02 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. Ventilation
 - 4. Sanitary facilities, including drinking water
- C. Support facilities include, but are not limited to, the following:
 - 1. Field offices and storage sheds
 - 2. Temporary enclosures
 - 3. Temporary project identification signs and bulletin boards
 - 4. Waste disposal services
 - 5. 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. Environmental protection

1.03 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.

1.04 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

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

2.02 EQUIPMENT

- A. General: Provide new equipment. If acceptable to the Designer, the Contractor may use undamaged, previously used equipment in serviceable condition. Provide equipment suitable for use intended.
- B. Electrical Outlets: Provide properly configured, NEMA-polarized outlets to prevent insertion of 110 to 120V plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button, and pilot light for connection of power tools and equipment.
- C. Electrical Power Cords: Provide grounded extension cords. Use hard-service cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage rating.
- D. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered-glass enclosures where exposed to breakage. Provide exterior fixture where exposed to moisture.
- E. Fire Extinguishers: Provide hand-carried, portable, UL-rated, Class A fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, Class ABC, dry-chemical extinguishers, or a combination of extinguishers of NFPA-recommended classes for the exposures.
 - 1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

PART 3 EXECUTION

3.01 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.

3.02 TEMPORARY UTILITY INSTALLATION

- A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with company recommendations.
 - 1. Arrange with company and existing users for a time when service can be interrupted, if necessary, to make connections for temporary services.
 - 2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.
 - 3. Obtain easements to bring temporary utilities to the site where the Owner's easements cannot be used for that purpose.
 - 4. Use Charges: Cost or use charges for temporary facilities are not chargeable to the Owner or Designer. Neither the Owner nor Designer will accept cost or use charges as a basis of claims for Change Order.
- B. Temporary Water Service: The Owner will provide water for construction purposes from the existing building system. All required temporary extensions shall be provided and removed by the Contractor. Connection points and methods of connection shall be designated and approved by the Construction Representative.

- C. Temporary Electric Power Service: 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.
- 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. Temporary Toilets: Use of the Owner's existing toilet facilities will be permitted, so long as facilities are cleaned and maintained in a condition acceptable to the Owner. All construction personnel will be allowed access only to those specific facilities designed by the Construction Representative. At substantial completion, restore these facilities to the condition prevalent at the time of initial use.
- F. Wash Facilities: The Owner will provide wash facilities within the building. All construction personnel will be allowed access only to those specific facilities designated by the Construction Representative.
- G. Drinking-Water Facilities: The Owner will provide drinking water facilities within the building. All construction personnel will be allowed access only to those specific facilities designated by the Construction Representative.

3.03 SUPPORT FACILITIES INSTALLATION

- A. General: Locate field offices, storage sheds, and other temporary construction and support facilities for easy access.
 - 1. Maintain support facilities until near Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.
- B. Storage facilities: Install storage sheds sized, furnished, and equipped to accommodate materials and equipment involved, including temporary utility service. Sheds may be open shelters or fully enclosed spaces within the building or elsewhere onsite.
- C. Storage Facilities: Limited areas for storage of building materials are available onsite. Available storage areas are shown on the drawings. The Contractor shall provide his own security. Specific locations for storage and craning operations will be discussed at the Pre-Bid Meeting and the Pre-Construction Meeting.
- D. Storage Facilities: The Owner will provide storage onsite as designated by the Facility Representative or the Construction Representative. Areas for use by the Contractor for storage will be identified at the Pre-Bid Meeting.
- E. Storage Facilities: No areas for storage of building materials can be made available onsite except for on the roof. Loads shall not exceed the loading limits as stated on the drawings. Roofing materials must be craned onto the roof from dedicated parking spaces as arranged by the Contractor with the City; costs of all such arrangements shall be paid by the Contractor. The Contractor shall provide his own security as he finds necessary. Specific locations for storage and craning operations will be discussed at the Pre-Bid Meeting and the Pre-Construction Meeting.
- F. Storage Facilities: No areas for storage of building materials can be made available onsite. The Contractor shall provide for all storage offsite. All off-site storage locations shall be approved by the Construction Representative. The Contractor shall provide his own security as he finds necessary. The Construction Representative shall have access to the off-site storage at all times.
- G. Construction Parking: Parking at the site will be provided in the areas designated at the Pre-Construction Meeting.
- H. Construction Parking: Contractors must be prepared to discuss their storage and parking needs at the Pre-Bid Meeting. Parking for construction personnel cannot be provided onsite. All parking will be offsite. The Contractor will have to park on the street, in city-owned lots, or in commercial lots. Under no circumstances will any vehicle be parked in a fire lane. Parking on lawns shall be prohibited.
- I. 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.
- J. Temporary Elevator Use: The Owner will allow use of elevators within the building. All construction personnel will be allowed access only to those specific elevators designated by the Construction Representative.
- K. 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.
- L. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than seven (7) days during normal weather or three (3) days when the temperature is expected to rise above 80°F (27°C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material lawfully.

3.04 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Except for use of permanent fire protection as soon as available, do not change over from use of temporary security and protection facilities to permanent facilities until Substantial Completion, or longer, as requested by the Designer.
- B. Temporary Fire Protection: Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of the types needed to protect against reasonable predictable and controllable fire losses. Comply with NFPA 10 “Standard for Portable Fire Extinguishers” and NFPA 241 “Standard for Safeguarding Construction, Alterations, and Demolition Operations”.
1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one (1) extinguisher on each floor at or near each usable stairwell.
 2. Store combustible materials in containers in fire-safe locations.
 3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, stairways, and other access routes for fighting fires. Prohibit smoking in hazardous fire-exposure areas.
 4. Provide supervision of welding operations, combustion-type temporary heating units, and similar sources of fire ignition.
- C. Permanent Fire Protection: At the earliest feasible date in each area of the Project complete installation of the permanent fire-protection facility including connected services and place into operation and use. Instruct key personnel on use of facilities.
- D. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed, provide lighting including flashing red or amber lights.
- E. Security Enclosure and Lockup: Install substantial temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.

1. Storage: Where materials and equipment must be stored and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.
- F. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and minimize the possibility that air, waterways, and subsoil might be contaminated or polluted or that other undesirable effects might result. Avoid use of tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms near the site.

3.05 OPERATION, TERMINATION AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
 2. Protection: Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.
- C. Termination and Removal: Unless the Designer requests that it be maintained longer, remove each temporary facility when the need has ended, when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 1. Materials and facilities that constitute temporary facilities are the Contractor's property. The Owner reserves the right to take possession of project identification signs.
 2. Remove temporary paving not intended for or acceptable for integration into permanent paving. Where the area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil in the area. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at the temporary entrances as required by the governing authority.
 3. At Substantial Completion, clean and renovate permanent facilities used during the construction period including, but not limited to, the following:
 - a. Replace air filters and clean inside of ductwork and housing.
 - b. Replace significantly worn parts and parts subject to unusual operating conditions.
 - c. Replace lamps burned out or noticeably dimmed by hours of use.

END OF SECTION 015000

SECTION 017400 CLEANING

PART 1 GENERAL

1.01 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.

1.02 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

2.01 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

3.01 PROGRESS CLEANING

- A. General
 - 1. Retain all stored items in an orderly arrangement allowing maximum access, not impeding drainage or traffic, and providing the required protection of materials.
 - 2. Do not allow the accumulation of scrap, debris, waste material, and other items not required for construction of this Work.
 - 3. At least once each month, and more often if necessary, completely remove all scrap, debris, and waste material from the jobsite.
 - 4. Provide adequate storage for all items awaiting removal from the jobsite, observing all requirements for fire protection and protection of the ecology.
- B. Site
 - 1. Daily, inspect the site and pick up all scrap, debris, and waste material. Remove all such items to the place designated for their storage.
 - 2. Weekly, inspect all arrangements of materials stored onsite. Re-stack, tidy, or otherwise service all material arrangements.
 - 3. Maintain the site in a neat and orderly condition at all times.
- C. Structures
 - 1. Daily, inspect the structures and pick up all scrap, debris, and waste material. Remove all such items to the place designated for their storage.
 - 2. Weekly, sweep all interior spaces clean. "Clean" for the purposes of this paragraph, shall be interpreted as meaning free from dust and other material capable of being removed by use of reasonable effort and handheld broom.
 - 3. In preparation for installation of succeeding materials, clean the structures or pertinent portions thereof to the degree of cleanliness recommended by the manufacturer of the succeeding material, using all equipment and materials required to achieve the required cleanliness.
 - 4. Following the installation of finish floor materials, clean the finish floor daily while work is being performed in the space in which finish materials have been installed. "Clean" for the purposes of this subparagraph, shall be interpreted as meaning free from all foreign material which, in the opinion of the Construction Representative, may be injurious to the finish of the finish floor material.

3.02 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. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid the Project of rodents, insects, and other pests. Comply with regulations of local authorities.
- D. Removal of Protection: Remove temporary protection and facilities installed during construction to protect previously completed installations during the remainder of the construction period.
- E. 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

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section Includes:
 - 1. Demolition and removal of selected portions of interior building elements and materials.
- B. Related Requirements:
 - 1. Section 011000 "Summary of Work" for restrictions on the use of the premises, Owner-occupancy requirements, and phasing requirements.

1.03 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.

1.04 MATERIALS OWNERSHIP

- A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the Owner's property, demolished materials shall become the Contractor's property and shall be removed from the site with further disposition at the Contractor's option.

1.05 PREINSTALLATION MEETINGS

- A. Pre demolition Conference: Conduct conference at Project site
 - 1. Inspect and discuss condition of construction to be selectively demolished.
 - 2. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
 - 3. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
 - 4. Review areas where existing construction is to remain and requires protection.
 - 5. Review Project Phasing for Scope of Work.

1.06 SUBMITTALS

- A. Proposed Protection Measures: Submit report, including drawings, that indicates the measures proposed for protecting individuals and property for dust control and for noise control. Indicate proposed locations and construction of barriers.
- B. Schedule of Selective Demolition Activities: Indicate the following:
 - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
 - 2. Interruption of utility services. Indicate how long utility services will be interrupted.
 - 3. Coordination for shutoff, capping, and continuation of utility services.
 - 4. Use of elevator and stairs.
 - 5. Coordination of Owner's continuing occupancy of portions of existing building.
 - 6. Locations of proposed dust and noise control temporary partitions and means of egress, including for other tenants affected by selective demolition operations.
 - 7. Means of protection for items to remain and items in path of waste removal from building.

- C. Inventory: After selective demolition is complete, submit a list of items that have been removed and salvaged and provide to Owner.
- D. Pre demolition Photographs: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by selective demolition operations. Submit before Work begins.
- E. Project Closeout Submittals:
 - 1. Inventory: Submit a list of items that have been removed and salvaged
 - 2. Record drawings at Project closeout indication as-built conditions.
 - 3. Identify and accurately locate capped utilities and other subsurface structural, electrical, or mechanical conditions.

1.07 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI A10.6 and NFPA 241.
- C. Pre-demolition Conference: Conduct conference at Project site. Review methods and procedures related to selective demolition including, but not limited to, the following:
 - 1. Inspect and discuss condition of construction to be selectively demolished.
 - 2. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
 - 3. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.

1.08 FIELD CONDITIONS

- A. Owner will occupy portions of building adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Owner assumes no responsibility for condition of areas to be selectively demolished.
 - 1. 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. Storage or sale of removed items or materials on-site is not permitted.
- E. 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.

1.09 SCHEDULING

- A. Arrange selective demolition schedule so as not to interfere with Owner's on site operations.

1.10 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

2.01 PERFORMANCE 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.

2.02 REPAIR MATERIALS

- A. Use repair materials identical to existing materials.
 - 1. If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.

2. Use materials whose installed performance equals or surpasses that of existing materials.
- B. Comply with material and installation requirements specified in individual Specification Sections.

PART 3 EXECUTION

3.01 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.
- D. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs.
 1. Inventory and record the condition of items to be removed and salvaged. Provide photographs of conditions that might be misconstrued as damage caused by salvage operations.
 2. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

3.02 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."
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
 1. Arrange to shut off indicated utilities with utility companies.
 2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
 3. Conduit to Be Removed: Remove portion of conduit / piping as necessary for floor restoration and cap or plug remaining piping not to be reused with same or compatible piping material.
 4. Equipment to Be Removed: Disconnect and cap services and remove equipment.

3.03 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
 2. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
 3. Cover and protect furniture, furnishings, and equipment that have not been removed.

3.04 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 1. Proceed with selective demolition systematically, from higher to lower level.

2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 4. Do not use cutting torches.
 5. Maintain adequate ventilation.
 6. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 7. Dispose of demolished items and materials promptly.
- B. Removed and Salvaged Items:
1. Clean salvaged items.
 2. Pack or crate items after cleaning. Identify contents of containers.
 3. Store items in a secure area until delivery to Owner.
 4. Transport items to Owner's storage area on-site as designated by Owner.
 5. Protect items from damage during transport and storage.
- C. 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.
- D. 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.

3.05 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Floor Coverings: Remove floor coverings and adhesive according to industry standard recommendations. Do not use methods requiring solvent-based adhesive strippers.

3.06 PATCHING AND REPAIRS

- A. General: Promptly repair damage to adjacent construction caused by selective demolition operations.
- B. Repairs: Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
1. Completely fill holes and depressions in existing walls that are to remain with an approved patching material applied according to manufacturer's written recommendations.
- C. Finishes: Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.
- D. Floors and Walls: Provide an even surface of uniform finish color, texture, and appearance. Remove existing floor and wall coverings as required for defined Scope of Work and, if necessary, patch or repair deteriorated areas to achieve uniform color and appearance where materials are to remain exposed.
1. Provide materials and comply with installation requirements specified in other Sections of these Specifications.
 2. Where patching occurs in a painted surface, apply primer and intermediate paint coats over patch and apply final paint coat over entire unbroken surface containing patch. Provide additional coats until patch blends with adjacent surfaces.
- E. Ceilings: Patch or repair existing ceilings as necessary to provide an even-plane surface of uniform appearance.

3.07 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
 - 1. Do not allow demolished materials to accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 - 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.08 CLEANING

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

END OF SECTION 024119

SECTION 028200.10
EXISTING HAZARDOUS MATERIAL INFORMATION

1.1 EXISTING HAZARDOUS MATERIAL INFORMATION

- A. This Document with its referenced attachments is part of the Procurement and Contracting Requirements for Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of Bidders' own investigations. They are made available for Bidders' convenience and information but are not a warranty of existing conditions. This Document and its attachments are not part of the Contract Documents.
- B. An existing ACM and LBP Survey Report for this Project, prepared by Professional Environmental Engineers, Inc, dated April 1, 2024, is included in Appendix A in the project manual.
- C. An existing Laboratory Bulk Sampling Analytical Report for this Project, prepared by SanAir Technologies Laboratory, dated March 3, 2024, is included in Appendix B in the project manual.
- D. Related Requirements:
 - 1. Document 002113 "Instructions to Bidders" for the Bidder's responsibilities for examination of Project site and existing conditions.
 - 2. Section 024119 "Selective Demolition" for notification requirements if materials suspected of containing hazardous materials are encountered.
 - 3. Section 028200.11 "Environmental Guidance" for MDNR guidance publications for building demolition.

END OF DOCUMENT 028200.10

SECTION 028200.11
ENVIRONMENTAL GUIDANCE

1.1 REGULATORY COMPLIANCE INFORMATION

- A. The preparation, execution and cleanup of this demolition project shall follow all applicable environmental regulations.
- B. The information in the following attachment is part of the Contract Requirements for this Project. This publication is made available for Bidders' convenience and information, but compliance based on these publications is not a warranty of regulatory compliance.
- C. Attachments:
 - 1. APPENDIX C - Missouri Department of Natural Resources; "Managing Construction and Demolition Waste" (PUB2045) dated 05/2021 is included in the following pages.
 - 2. APPENDIX D - Missouri Department of Natural Resources, "Environmental Regulations for Demolition" (PUB2374) dated 05/2021 is included in the following pages

END OF DOCUMENT 028200.11

SECTION 079200 JOINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Nonsag gunnable joint sealants.

1.02 RELATED REQUIREMENTS

- A. Section 093000 - Tiling: Sealant between tile and plumbing fixtures and at junctions with other materials and changes in plane.

1.03 REFERENCE STANDARDS

- A. ASTM C794 - Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants; 2018 (Reapproved 2022).
- B. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018 (Reapproved 2024).
- C. ASTM C1087 - Standard Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems; 2023.
- D. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2025.
- E. SCAQMD 1168 - Adhesive and Sealant Applications; 1989, with Amendment (2022).

1.04 SUBMITTALS

- A. Product Data: Submit manufacturer's technical datasheets for each product to be used; include the following:
 - 1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
 - 2. List of backing materials approved for use with the specific product.
 - 3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
 - 4. Substrates the product should not be used on.
- B. Executed warranty.

1.05 QUALITY ASSURANCE

- A. Maintain one copy of each referenced document covering installation requirements on site.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- C. Installer Qualifications: Company specializing in performing the work of this section and with at least three years of documented experience.
- D. Preconstruction Laboratory Testing: Arrange for sealant manufacturer(s) to test each combination of sealant, substrate, backing, and accessories.
 - 1. Adhesion Testing: In accordance with ASTM C794.
 - 2. Compatibility Testing: In accordance with ASTM C1087.
 - 3. Allow sufficient time for testing to avoid delaying the work.
 - 4. Deliver sufficient samples to manufacturer for testing.
 - 5. Report manufacturer's recommended corrective measures, if any, including primers or techniques not indicated in product data submittals.

1.06 WARRANTY

- A. Manufacturer Warranty: Provide 2-year manufacturer warranty for installed sealants and accessories that fail to achieve a watertight seal, exhibit loss of adhesion or cohesion, or do not cure. Complete forms in Owner's name and register with manufacturer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Nonsag Sealants:

Joint Sealants

R2410-01-MSHP General Headquarters - Renovate Interior

079200 -1

1. Adfast USA Inc
2. Bostik Inc
3. Hilti, Inc
4. Master Builders Solutions
5. QUIKRETE Companies
6. Sherwin-Williams Company
7. Sika Corporation
8. Tremco Commercial Sealants & Waterproofing
9. W. R. Meadows, Inc

2.02 JOINT SEALANT APPLICATIONS

- A. Scope:
 1. Interior Joints:
 - a. Seal the following joints:
 - 1) Joints between door frames and adjacent construction.
 - 2) Joints between countertops and walls.
 - 3) Joints between tile and plumbing fixtures.
 - B. Interior Joints: Use nonsag polyurethane sealant, unless otherwise indicated.
 1. Joints between Tile in Wet Areas and Floors, Walls, and Ceilings: Mildew-resistant silicone sealant; white.
 - a. See Section 093000 for sealing between tile and plumbing fixtures.
 - C. Interior Wet Areas: restrooms; fixtures in wet areas include plumbing fixtures, countertops, and other similar items.

2.03 JOINT SEALANTS - GENERAL

- A. Sealants and Primers: Provide products having lower volatile organic compound (VOC) content than indicated in SCAQMD 1168.

2.04 NONSAG JOINT SEALANTS

- A. Mildew-Resistant Silicone Sealant: ASTM C920, Grade NS, Uses M and A; single component, mildew resistant; not expected to withstand continuous water immersion or traffic.
 1. Color: Clear.
- B. Type ____ - Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single or multi-component; not expected to withstand continuous water immersion or traffic.
 1. Movement Capability: Plus and minus ____ percent, minimum.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that joints are ready to receive work.
- B. Verify that backing materials are compatible with sealants.

3.02 PREPARATION

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
- B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.
- D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

3.03 INSTALLATION

- A. Install this work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Provide joint sealant installations complying with ASTM C1193.

- C. Install bond breaker backing tape where backer rod cannot be used.
- D. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.
- E. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.
- F. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

3.04 FIELD QUALITY CONTROL

- A. Remove and replace failed portions of sealants using same materials and procedures as indicated for original installation.

END OF SECTION 079200

**SECTION 081213
HOLLOW METAL FRAMES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Non-fire-rated hollow metal frames for non-hollow metal doors.

1.02 RELATED REQUIREMENTS

- A. Section 081416 - Flush Wood Doors: Non-hollow metal door for hollow metal frames.
- B. Section 087100 - Door Hardware: Hardware and silencers.
- C. Section 099123 - Interior Painting: Field painting.

1.03 REFERENCE STANDARDS

- A. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.
- B. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors; 2024.
- C. ANSI/SDI A250.6 - Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames; 2024.
- D. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100); 2023.
- E. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 2025.
- F. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025a.
- G. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable; 2025.
- H. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2025.
- I. BHMA A156.115 - Hardware Preparation in Steel Doors and Frames; 2016.
- J. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.
- K. NAAMM HMMA 830 - Hardware Selection for Hollow Metal Doors and Frames; 2002.
- L. NAAMM HMMA 831 - Hardware Locations for Hollow Metal Doors and Frames; 2024.
- M. NAAMM HMMA 840 - Guide Specifications for Receipt, Storage and Installation of Hollow Metal Doors and Frames; 2024.
- N. NAAMM HMMA 861 - Guide Specifications for Commercial Hollow Metal Doors and Frames; 2014.
- O. SDI 117 - Manufacturing Tolerances for Standard Steel Doors and Frames; 2023.

1.04 SUBMITTALS

- A. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced grade standard.
- B. Shop Drawings: Details of each opening, showing elevations, frame profiles, and identifying location of different finishes, if any.
- C. Manufacturer's qualification statement.
- D. Installer's qualification statement.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

- B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Store in accordance with applicable requirements and in compliance with standards and/or custom guidelines as indicated.
- B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Hollow Metal Frames:
 - 1. Ceco Door, an Assa Abloy Group company
 - 2. Curries, an Assa Abloy Group company
 - 3. Deansteel Manufacturing Company, Inc
 - 4. De La Fontaine
 - 5. Fleming Door Products, an Assa Abloy Group company
 - 6. Premier Steel Doors and Frames
 - 7. Republic Doors, an Allegion brand
 - 8. Steelcraft, an Allegion brand
 - 9. Taylor Entrance Systems

2.02 PERFORMANCE REQUIREMENTS

- A. Hollow Metal Frames: Design and size components to support assembly dead loads, and to withstand live loads caused by positive and negative wind pressure acting normal to plane of side hinged doors.
- B. Refer to Door and Frame Schedule on drawings for frame sizes, fire ratings, sound ratings, finishing, door hardware to be installed, and other variations, if any.
- C. Door Frame Type: Provide hollow metal door frames.
- D. Steel Sheet: Comply with one or more of the following requirements; galvanized steel complying with ASTM A653/A653M, cold-rolled steel complying with ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M, commercial steel (CS) Type B, for each.
- E. Accessibility: Comply with ICC A117.1 and ADA Standards.
- F. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior frame that is also indicated as being sound-rated must comply with the requirements specified for exterior frames and for sound-rated frames; where two requirements conflict, comply with the most stringent.
- G. Hardware Preparations, Selections and Locations: Comply with BHMA A156.115, NAAMM HMMA 830, NAAMM HMMA 831 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
- H. Zinc Coating for Units Subject to Corrosive Conditions: Components zinc-coated (galvanized) and/or zinc-iron alloy-coated (galvanized) by the hot-dip process in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness, unless noted otherwise.

2.03 HOLLOW METAL DOOR FRAMES

- A. Frame Finish: Factory primed and field finished.
- B. Interior Door Frames, Non-Fire Rated: Knock-down type.
 - 1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
 - a. Level 1 - Standard-duty.
 - b. Physical Performance Level C, 250,000 cycles; in accordance with ANSI/SDI A250.4.
 - c. Frame Metal Thickness: 18 gauge, 0.042 inch, minimum.

2.04 FINISHES

- A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

2.05 ACCESSORIES

- A. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Verify that finished walls are in plane to ensure proper door alignment.

3.02 INSTALLATION

- A. Install frames in accordance with manufacturer's instructions and related requirements of specified frame standards or custom guidelines indicated.
- B. Coordinate frame anchor placement with wall construction.
- C. Install door hardware as specified in Section 087100.
 - 1. Comply with recommended practice for hardware placement of doors and frames in accordance with ANSI/SDI A250.6 or NAAMM HMMA 861.

3.03 TOLERANCES

- A. Clearances Between Door and Frame: Comply with related requirements of specified frame standards or custom guidelines indicated in accordance with SDI 117 or NAAMM HMMA 861.
- B. Maximum Diagonal Distortion: 1/16 inch measured with straight edges, crossed corner to corner.

3.04 SCHEDULE

- A. Refer to Door and Frame Schedule on the drawings.

END OF SECTION 081213

**SECTION 081416
FLUSH WOOD DOORS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Flush wood doors; flush configuration; non-rated.

1.02 RELATED REQUIREMENTS

- A. Section 081213 - Hollow Metal Frames.
- B. Section 087100 - Door Hardware.

1.03 REFERENCE STANDARDS

- A. AWI (QCP) - Quality Certification Program; Current Edition.
- B. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards, 2nd Edition; 2014, with Errata (2016).
- C. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards; 2021, with Errata.

1.04 SUBMITTALS

- A. Product Data: Indicate door core materials and construction; veneer species, type and characteristics.
- B. Shop Drawings: Show doors and frames, elevations, sizes, types, swings, undercuts, beveling, blocking for hardware, factory machining, factory finishing, cutouts for glazing and other details.
 - 1. Provide information as required by AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS).
- C. Samples: Submit two samples of door veneer, ___ by ___ inches in size illustrating wood grain, stain color, and sheen.
- D. Certificate: Submit labels and certificates required by quality assurance and quality control programs.
- E. Specimen warranty.
- F. Warranty, executed in Owner's name.

1.05 QUALITY ASSURANCE

- A. Maintain one copy of the specified door quality standard on site for review during installation and finishing.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section, with not less than three years of documented experience.
 - 1. Accredited participant in the specified certification program prior to the commencement of fabrication and throughout the duration of the project.
- C. Installer Qualifications: Company specializing in performing work of the type specified in this section, with not less than three years of documented experience.
- D. Woodwork Quality Assurance Program:
 - 1. Comply with AWI (QCP) woodwork association quality assurance service/program in accordance with requirements for work specified in this section.
 - 2. Provide labels indicating that the installed work complies with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade or grades specified.
 - 3. Provide designated labels on shop drawings as required by quality assurance program.
 - 4. Provide designated labels on installed products as required by quality assurance program.
 - 5. Submit documentation upon completion of installation that verifies this work is in compliance with specified requirements.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Package, deliver and store doors in accordance with specified quality standard.
- B. Accept doors on site in manufacturer's packaging, and inspect for damage.

- C. Protect doors with resilient packaging sealed with heat shrunk plastic; do not store in damp or wet areas or areas where sunlight might bleach veneer; seal top and bottom edges if stored more than one week, and break seal on site to permit ventilation.

1.07 WARRANTY

- A. Manufacturer Warranty: Provide manufacturer's warranty on interior doors for 2 years. Complete forms in Owner's name and register with manufacturer.
 - 1. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Wood Veneer Faced Doors:
 - 1. Haley Brothers
 - 2. Horton Automatics, a division of Overhead Door Corporation
 - 3. Krieger Specialty Products
 - 4. Forte Opening Solutions
 - 5. Oregon Door
 - 6. Vancouver Architectural Doors
 - 7. VT Industries, Inc

2.02 DOORS

- A. Doors: See drawings for locations and additional requirements.
 - 1. Quality Standard: Custom Grade, Heavy Duty performance, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.
 - 2. Wood Veneer Faced Doors: 5-ply unless otherwise indicated.
- B. Interior Doors: 1-3/4 inches thick unless otherwise indicated; flush construction.
 - 1. Provide solid core doors at each location.
 - 2. Wood veneer facing with factory transparent finish.

2.03 DOOR AND PANEL CORES

- A. Non-Rated Solid Core and 20 Minute Rated Doors: Type particleboard core (PC), plies and faces as indicated.

2.04 DOOR FACINGS

- A. Veneer Facing for Transparent Finish: Red oak, veneer grade in accordance with quality standard indicated, plain sliced (flat cut), with book match between leaves of veneer, running match of spliced veneer leaves assembled on door or panel face.
 - 1. Vertical Edges: Any option allowed by quality standard for grade.
- B. Facing Adhesive: Type I - waterproof.

2.05 DOOR CONSTRUCTION

- A. Fabricate doors in accordance with door quality standard specified.
- B. Cores Constructed with stiles and rails:
 - 1. Provide solid blocks at lock edge and top of door for closer for hardware reinforcement.
- C. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.
- D. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.
- E. Provide edge clearances in accordance with the quality standard specified.

2.06 FINISHES - WOOD VENEER DOORS

- A. Finish work in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), Section 5 - Finishing for grade specified and as follows:

Flush Wood Doors

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1. Transparent:
 - a. System - 1, Lacquer, Nitrocellulose.
 - b. Stain: As selected by Architect.
 - c. Sheen: Flat.
- B. Factory finish doors in accordance with approved sample.
- C. Seal door top edge with color sealer to match door facing.

2.07 ACCESSORIES

- A. Hollow Metal Door Frames: See Section 081213.
- B. Door Hardware: See Section 087100.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment.

3.02 INSTALLATION

- A. Install doors in accordance with manufacturer's instructions and specified quality standard.
- B. Factory-Finished Doors: Do not field cut or trim; if fit or clearance is not correct, replace door.
- C. Use machine tools to cut or drill for hardware.
- D. Coordinate installation of doors with installation of frames and hardware.

3.03 TOLERANCES

- A. Comply with specified quality standard for fit and clearance tolerances.
- B. Comply with specified quality standard for telegraphing, warp, and squareness.

3.04 ADJUSTING

- A. Adjust doors for smooth and balanced door movement.
- B. Adjust closers for full closure.

END OF SECTION 081416

SECTION 083100
ACCESS DOORS AND PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Wall-mounted access units.

1.02 SUBMITTALS

- A. See Section 013300 Submittals for submittal procedures.
- B. Product Data: Provide sizes, types, finishes, hardware, scheduled locations, and details of adjoining work.
- C. Project Record Documents: Record actual locations of each access unit.

1.03 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years documented experience.

PART 2 PRODUCTS

2.01 WALL-MOUNTED ACCESS UNITS

- A. Manufacturers:
 - 1. ACUDOR Products Inc: www.acudor.com.
 - 2. BAUCO Access Panel Solutions Inc: www.bauco.com.
 - 3. MIFAB, Inc: www.mifab.com.
- B. Wall-Mounted Units: Factory-fabricated door and frame, fully assembled units with rounded safety corner joints welded, filled and ground flush; square and without rack or warp; coordinate requirements with type of installation assembly being used for each unit.
 - 1. Material: Steel.
 - 2. Style: Frame concealed by door panel.
 - 3. Door Style: Single thickness with rolled or turned in edges.
 - 4. Finish: To be selected by Architect.
 - 5. Door/Panel Size: As indicated on the drawings.
 - 6. Hardware:
 - a. Hinges for Non-Fire-Rated Units: Continuous, concealed.
 - b. Latch/Lock: Stainless steel screw driver slot for quarter turn cam latch.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that rough openings are correctly sized and located.

3.02 PREPARATION

- A. Clean surfaces thoroughly prior to proceeding with this work.
- B. Prepare surfaces using methods recommended by manufacturer for applicable substrates in accordance with project conditions.

3.03 INSTALLATION

- A. Install units in accordance with manufacturer's instructions.
- B. Install frames plumb and level in openings, and secure units rigidly in place.
- C. Position units to provide convenient access to concealed equipment when necessary.

END OF SECTION 083100

**SECTION 087100
DOOR HARDWARE**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Hardware for wood doors.

1.02 RELATED REQUIREMENTS

- A. Section 081213 - Hollow Metal Frames.
- B. Section 081416 - Flush Wood Doors.

1.03 REFERENCE STANDARDS

- A. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.
- B. BHMA A156.1 - Standard for Butts and Hinges; 2021.
- C. BHMA A156.4 - Door Closers and Pivots; 2024.
- D. BHMA A156.5 - Cylinders and Input Devices for Locks; 2020.
- E. BHMA A156.6 - Standard for Architectural Door Trim; 2021.
- F. BHMA A156.7 - Template Hinge Dimensions; 2022.
- G. BHMA A156.8 - Door Controls - Overhead Stops and Holders; 2021.
- H. BHMA A156.18 - Standard for Materials and Finishes; 2020.
- I. BHMA A156.115W - Hardware Preparation in Wood Doors with Wood or Steel Frames; 2006.
- J. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.
- K. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2025.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the manufacture, fabrication, and installation of products that door hardware is installed on.
- B. Furnish templates for door and frame preparation to manufacturers and fabricators of products requiring internal reinforcement for door hardware.
- C. Keying Requirements Meeting:
 - 1. Schedule meeting at project site prior to Contractor occupancy.
 - 2. Attendance Required:
 - a. Contractor.
 - b. Owner.
 - c. Architect.
 - d. Owner's Security Consultant.
 - 3. Agenda:
 - a. Establish keying requirements.
 - b. Verify locksets and locking hardware are functionally correct for project requirements.
 - c. Verify that keying and programming complies with project requirements.
 - 4. Incorporate "Keying Requirements Meeting" decisions into keying submittal upon review of door hardware keying system including, but not limited to, the following:
 - a. Access control requirements.
 - b. Flow of traffic and extent of security required.
 - 5. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.
 - 6. Deliver established keying requirements to manufacturers.

1.05 SUBMITTALS

- A. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project, and includes construction details, material descriptions, finishes, and dimensions and profiles of individual components.
- B. Shop Drawings - Door Hardware Schedule: Submit detailed listing that includes each item of hardware to be installed on each door. Use door numbering scheme as included in Contract Documents.
 - 1. Prepared by or under supervision of Architectural Hardware Consultant (AHC).
 - 2. Provide complete description for each door listed.
 - 3. Provide manufacturer name, product names, and catalog numbers; include functions, types, styles, sizes and finishes of each item.
- C. Keying Schedule:
 - 1. Submit three (3) copies of Keying Schedule in compliance with requirements established during Keying Requirements Meeting unless otherwise indicated.
- D. Specimen warranty.
- E. Maintenance Materials and Tools: Furnish the following for Owner's use in maintenance of project.
 - 1. Lock Cylinders: One for each master keyed group.
 - 2. Tools: One set of each special wrench or tool applicable for each different or special hardware component, whether supplied by hardware component manufacturer or not.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of the type specified for commercial door hardware with at least three years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Package hardware items individually; label and identify each package with door opening code to match door hardware schedule.

1.08 WARRANTY

- A. Manufacturer's Warranty: Provide warranty against defects in material and workmanship for period indicated. Complete forms in Owner's name and register with manufacturer.
 - 1. Closers: Five years, minimum.
 - 2. Locksets and Cylinders: Three years, minimum.
 - 3. Other Hardware: Two years, minimum.

PART 2 PRODUCTS

2.01 DESIGN AND PERFORMANCE CRITERIA

- A. Provide specified door hardware as required to make doors fully functional, compliant with applicable codes, and secure to extent indicated.
- B. Provide individual items of single type, of same model, and by same manufacturer.
- C. Provide door hardware products that comply with the following requirements:
 - 1. Applicable provisions of federal, state, and local codes.
 - 2. Accessibility: ADA Standards and ICC A117.1.
 - 3. Hardware Preparation for Wood Doors with Wood or Steel Frames: BHMA A156.115W.
- D. Fasteners:
 - 1. Provide fasteners of proper type, size, quantity, and finish that comply with commercially recognized standards for proposed applications.
 - a. Aluminum fasteners are not permitted.
 - b. Provide phillips flat-head screws with heads finished to match door surface hardware unless otherwise indicated.
 - 2. Provide machine screws for attachment to reinforced hollow metal and aluminum frames.

- a. Self-drilling (Tek) type screws are not permitted.
- 3. Provide spacers or sex bolts with sleeves for through bolting of hollow metal doors and frames.
- 4. Fire-Rated Applications: Comply with NFPA 80.
 - a. Provide wood or machine screws for hinges mortised to doors or frames, strike plates to frames, and closers to doors and frames.
 - b. Provide steel through bolts for attachment of surface mounted closers, hinges, or exit devices to door panels unless proper door blocking is provided.

2.02 HINGES

- A. Manufacturers:
 - 1. McKinney; an Assa Abloy Group company
 - 2. Hager Companies
 - 3. Pamex, Inc
 - 4. BEST, dormakaba Group
- B. Hinges: Comply with BHMA A156.1, Grade 1.
 - 1. Butt Hinges: Comply with BHMA A156.1 and BHMA A156.7 for templated hinges.
 - a. Provide hinge width required to clear surrounding trim.
 - 2. Provide hinges on every swinging door.
 - 3. Provide following quantity of butt hinges for each door:
 - a. Doors From 60 inches High up to 90 inches High: Three hinges.

2.03 LOCK CYLINDERS

- A. Manufacturers:
 - 1. BEST, dormakaba Group
 - 2. Sargent, an Assa Abloy Group company.
 - 3. Schlage, an Allegion company
- B. Lock Cylinders: Provide key access on outside of each lock, unless otherwise indicated.
 - 1. Provide full size interchangeable core (FSIC) type cylinders, Grade 1, with seven-pin core in compliance with BHMA A156.5 at locations indicated.
 - 2. Provide cylinders from same manufacturer as locking device.
 - 3. Provide cams and/or tailpieces as required for locking devices.

2.04 DOOR PULLS AND PUSH PLATES

- A. Manufacturers:
 - 1. Rockwood; an Assa Abloy Group company
 - 2. Hager Companies
 - 3. Pamex, Inc
 - 4. Trimco
- B. Door Pulls and Push Plates: Comply with BHMA A156.6.
 - 1. Pull Type: Straight, unless otherwise indicated.
 - 2. Push Plate Type: Flat, with square corners, unless otherwise indicated.
 - a. Edges: Beveled, unless otherwise indicated.
 - 3. Material: Aluminum, unless otherwise indicated.

2.05 CLOSERS

- A. Manufacturers; Surface Mounted:
 - 1. BEST, dormakaba Group
 - 2. Corbin Russwin, Norton, Rixson, Sargent, or Yale; an Assa Abloy Group company
 - 3. Hager Companies
 - 4. LCN, an Allegion brand
 - 5. Pamex, Inc
- B. Closers: Comply with BHMA A156.4, Grade 1.
 - 1. Type: Surface mounted to door.

2. At corridor entry doors, mount closer on room side of door.

2.06 OVERHEAD STOPS AND HOLDERS

- A. Manufacturers:
 1. Rixson or Sargent; an Assa Abloy Group company
 2. dormakaba
 3. Glynn-Johnson, an Allegion brand
 4. Pamex, Inc: www.pamexinc.com/#sle.
- B. Overhead Stops and Holders (Door Checks): Comply with BHMA A156.8, Grade 1.
 1. Provide stop for every swinging door, unless otherwise indicated.

2.07 KICK PLATES

- A. Manufacturers:
 1. Hiawatha, Inc, an Activar Construction Products Group company
 2. Ives, an Allegion brand
 3. Standard Metal Hardware Manufacturing Ltd
 4. Trimco
- B. Kick Plates: Provide along bottom edge of push side of every door with closer, except aluminum storefront and glass entry doors, unless otherwise indicated.
 1. Size: 8 inch high by 2 inch less door width (LDW) on push side of door.

2.08 FINISHES

- A. Finishes: Provide door hardware of same finish, unless otherwise indicated.
 1. Finish: 625; bright chromium plated over nickel, with brass or bronze base material (former US equivalent US26); BHMA A156.18.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that doors and frames are ready to receive this work; labeled, fire-rated doors and frames are properly installed, and dimensions are as indicated on shop drawings.

3.02 INSTALLATION

- A. Install hardware in accordance with manufacturer's instructions and applicable codes.
- B. Use templates provided by hardware item manufacturer.
- C. Do not install surface mounted items until application of finishes to substrate are fully completed.
- D. Door Hardware Mounting Heights: Distance from finished floor to center line of hardware item. As indicated in following list; unless noted otherwise in Door Hardware Schedule or on drawings.
 1. Mounting heights in compliance with ADA Standards:
 - a. Locksets: 40-5/16 inch.
 - b. Push Plates/Pull Bars: 42 inch.

3.03 ADJUSTING

- A. Adjust hardware for smooth operation.
- B. Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.

3.04 CLEANING

- A. Clean finished hardware in accordance with manufacturer's written instructions after final adjustments have been made.
- B. Clean adjacent surfaces soiled by hardware installation.

3.05 PROTECTION

- A. Do not permit adjacent work to damage hardware or finish.

END OF SECTION 087100

SECTION 092116
GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Acoustic insulation.
- B. Gypsum wallboard.
- C. Joint treatment and accessories.

1.02 RELATED REQUIREMENTS

- A. Section 092216 - Non-Structural Metal Framing.
- B. Section 092226.23 - Metal Suspension Systems: Gypsum board application to drywall suspension system.

1.03 REFERENCE STANDARDS

- A. AISI S220 - North American Standard for Cold-Formed Steel Nonstructural Framing; 2020.
- B. AISI S240 - North American Standard for Cold-Formed Steel Structural Framing; 2015, with Errata (2020).
- C. ASTM A1003/A1003M - Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members; 2015.
- D. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2017 (Reapproved 2022).
- E. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2024.
- F. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2024.
- G. ASTM C1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base; 2019.
- H. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2024.
- I. ASTM C1658/C1658M - Standard Specification for Glass Mat Gypsum Panels; 2019 (Reapproved 2024).
- J. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2021.
- K. GA-216 - Application and Finishing of Gypsum Panel Products; 2024.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate the installation of gypsum board assemblies with size, location, and installation of service utilities.
- B. Preinstallation Meeting: Conduct a preinstallation meeting one week prior to the start of the work of this section; require attendance by all affected installers.
- C. Sequencing: Install service utilities in an orderly and expeditious manner.

1.05 SUBMITTALS

- A. Product Data:
 - 1. Provide data on gypsum board, accessories, and joint finishing system.

1.06 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Store gypsum products and accessories indoors and keep above freezing. Elevate boards above floor, on nonwicking supports, in accordance with manufacturer's recommendations.
- B. Store metal products to prevent corrosion.

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

- A. Provide completed assemblies complying with ASTM C840 and GA-216.
- B. Grid Suspension Systems: Provide grid suspension systems in accordance with ASTM C840 and GA-216.

2.02 METAL FRAMING MATERIALS

- A. Steel Sheet: ASTM A1003/A1003M, subject to the ductility limitations indicated in AISI S220 or equivalent.
- B. Nonstructural Steel Framing for Application of Gypsum Board: See Section 092216.
- C. Grid Suspension Systems: Steel grid system of main tees and support bars connected to structure using hanging wire. See Section 092226.23.

2.03 BOARD MATERIALS

- A. Manufacturers - Gypsum-Based Board:
 - 1. CertainTeed Corporation
 - 2. Gold Bond Building Products, LLC provided by National Gypsum Company; ____ : www.goldbondbuilding.com/#sle.
 - 3. USG Corporation
- B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
 - 1. Application: Use for vertical surfaces, unless otherwise indicated.
 - 2. Glass mat faced gypsum panels, as defined in ASTM C1658/C1658M, suitable for paint finish, of the same core type and thickness may be substituted for paper-faced board.
 - 3. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
 - 4. Thickness:
 - a. Vertical Surfaces: 5/8 inch.
- C. Ceiling Board: Special sag resistant gypsum ceiling board as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
 - 1. Application: Ceilings, unless otherwise indicated.
 - 2. Thickness: 5/8 inch.
 - 3. Edges: Tapered.

2.04 GYPSUM BOARD ACCESSORIES

- A. Acoustic Insulation: ASTM C665; preformed mineral-fiber, friction fit type, unfaced; thickness 2 inches.
- B. Beads, Joint Accessories, and Other Trim: ASTM C1047, rigid plastic, galvanized steel, or rolled zinc, unless noted otherwise.
 - 1. Corner Beads: Low profile, for 90 degree outside corners.
- C. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that project conditions are appropriate for work of this section to commence.

3.02 ACOUSTIC ACCESSORIES INSTALLATION

- A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.
- B. Acoustic Sealant: Install in accordance with manufacturer's instructions.

3.03 BOARD INSTALLATION

- A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Single-Layer Nonrated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.
- C. Exposed Gypsum Board in Interior Wet Areas: Seal joints, cut edges, and holes with water-resistant sealant.
- D. Installation on Metal Framing: Use screws for attachment of gypsum board.

3.04 JOINT TREATMENT

- A. Paper Faced Gypsum Board: Use paper joint tape, embed with drying type joint compound and finish with drying type joint compound.
- B. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
 - 1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
 - 2. Level 2: On backing board to receive tile finish.
 - 3. Level 1: Fire-resistance-rated wall areas above finished ceilings, whether or not accessible in the completed construction.
- C. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
 - 1. Feather coats of joint compound so that camber is maximum 1/32 inch.

3.05 TOLERANCES

- A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

3.06 PROTECTION

- A. Protect installed gypsum board assemblies from subsequent construction operations.

END OF SECTION 092116

SECTION 092216
NON-STRUCTURAL METAL FRAMING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Metal partition, ceiling, and soffit framing.
- B. Framing accessories.

1.02 RELATED REQUIREMENTS

- A. Section 092116 - Gypsum Board Assemblies: Metal studs for gypsum board partition framing.

1.03 REFERENCE STANDARDS

- A. AISI S220 - North American Standard for Cold-Formed Steel Nonstructural Framing; 2020.
- B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025a.
- C. ASTM C1007 - Standard Specification for Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories; 2020 (Reapproved 2024).
- D. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2020.
- E. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2022.

1.04 SUBMITTALS

- A. Shop Drawings:
 - 1. Indicate prefabricated work, component details, stud layout, framed openings, anchorage to structure, acoustic details, type and location of fasteners, accessories, and items of other related work.
 - 2. Describe method for securing studs to tracks, splicing, and for blocking and reinforcement of framing connections.
- B. Product Data: Provide data describing framing member materials and finish, product criteria, and limitations.
- C. Product Data: Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.
- D. Manufacturer's qualification statement.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing the work of this section with minimum five years documented experience and approved by manufacturer.
- B. Manufacturer Qualifications:
 - 1. Company specializing in manufacturing the types of products specified in this section, and with minimum 3 years of documented experience.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Metal Framing, Connectors, and Accessories:
 - 1. CEMCO
 - 2. ClarkDietrich
 - 3. Jaimes Industries
 - 4. MRI Steel Framing
 - 5. R-stud
 - 6. SCAFCO Corporation
 - 7. Telling Industries

8. The Steel Network, Inc
9. Substitutions: See Section 016000 - Product Requirements.

2.02 FRAMING MATERIALS

- A. Non-Loadbearing Framing System Components: AISI S220; sheet steel, of size and properties necessary for the spacing indicated, with maximum deflection of wall framing of L/240 at 5 psf.
 1. Studs: C-shaped with flat faces.
 2. Runners: U-shaped, sized to match studs.
 3. Ceiling Channels: U-shaped.
 4. Steel Angle: 90-degree angle-shaped sections, minimum leg length of 3/4 inch.
 - a. Thickness: 25 gauge, 0.0209 inch.
- B. Partition Head to Structure Connections: Provide track fastened to structure with legs of sufficient length to accommodate deflection, for friction fit of studs cut short and braced with continuous bridging on both sides.
- C. Non-Loadbearing Framing Accessories:
 1. Ceiling Hangers: Type and size as specified in ASTM C754 for spacing required.
 2. Framing Connectors: ASTM A653/A653M steel clips; secures cold rolled channel to wall studs for lateral bracing.
 3. Fasteners: ASTM C1002 self-piercing self-tapping screws.
 4. Anchorage Devices: Powder actuated.

2.03 FABRICATION

- A. Fabricate assemblies of framed sections to sizes and profiles required.
- B. Fit, reinforce, and brace framing members to suit design requirements.
- C. Fit and assemble in largest practical sections for delivery to site, ready for installation.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that rough-in utilities are in proper location.

3.02 INSTALLATION OF STUD FRAMING

- A. Install non-structural members in accordance with ASTM C754.
- B. Extend partition framing to structure in all locations.
- C. Partitions Terminating at Structure: Attach top runner to structure, maintain clearance between top of studs and structure, and connect studs to track using specified mechanical devices in accordance with manufacturer's instructions; verify free movement of top of stud connections; do not leave studs unattached to track.
- D. Align and secure top and bottom runners at 24 inches on center.
- E. Fit runners under and above openings; secure intermediate studs to same spacing as wall studs.
- F. Align stud web openings horizontally.
- G. Secure studs to tracks using fastener method. Do not weld.
- H. Fabricate corners using a minimum of three studs.
- I. Install double studs at wall openings, door and window jambs, not more than 2 inches from each side of openings.
- J. Coordinate erection of studs with requirements of door frames; install supports and attachments.
- K. Coordinate installation of bucks, anchors, and blocking with electrical, mechanical, and other work to be placed within or behind stud framing.
- L. Blocking: Use wood blocking secured to studs. Provide blocking for support of plumbing fixtures, toilet partitions, wall cabinets, toilet accessories, hardware, and opening frames.

3.03 TOLERANCES

- A. Maximum Variation From True Position: 1/8 inch in 10 feet.
- B. Maximum Variation From Plumb: 1/8 inch in 10 feet.

END OF SECTION 092216

SECTION 092226.23
METAL SUSPENSION SYSTEMS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Suspension System Framing and Furring for Plaster and Gypsum Board Assemblies.
- B. Main runners, cross tees, framing angles, aluminum trims, steel trims, accessories, hanger wire, finishing trims, and fasteners.

1.02 RELATED REQUIREMENTS

- A. Section 092116 - Gypsum Board Assemblies

1.03 REFERENCE STANDARDS

- A. ASTM B117 - Standard Practice for Operating Salt Spray (Fog) Apparatus; 2019.
- B. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members; 2024.
- C. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2020.
- D. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2022.
- E. ASTM D610 - Standard Practice for Evaluating Degree of Rusting on Painted Steel Surfaces; 2025.
- F. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2024.

1.04 SUBMITTALS

- A. Product Data: Submit manufacturer's technical literature.
- B. Warranty: Submit a written limited warranty executed by the manufacturer, agreeing to repair or replace grid components that are supplied with a hot-dipped galvanized coating or aluminum base material.
 - 1. Warranty Period: Ten years.
 - 2. The Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirement.

1.05 QUALITY ASSURANCE

- A. Single-Source Responsibility: To ensure proper interface, all drywall furring components shall be produced or supplied by a single manufacturer.
- B. All accessory components from other manufacturers shall conform to ASTM standards.
- C. Fire Resistance Ratings: As indicated by reference to design designations in UL Fire Resistance Directory, for types of assemblies in which drywall ceilings function as a fire protective membrane and tested per ASTM E 119. Installation in accordance with the UL Design being referenced.
- D. Coordination of Work:
 - 1. Coordinate drywall furring work with installer of related work including, but not limited to, acoustical ceilings, building insulation, gypsum board, light fixtures, mechanical systems, electrical systems, and sprinklers.
 - 2. All work above the ceiling line should be completed prior to installing the drywall sheet goods. There should be no materials resting against or wrapped around the suspension system, hanger wires, or ties.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Suspension Systems:
 - 1. Armstrong World Industries, Inc.
 - 2. CertainTeed Architectural
 - 3. Rockfon
 - 4. USG Corporation
- B. Basis of Design Product:
 - 1. SimpleSoffit manufactured by Armstrong World Industries, Inc.

2.02 SUSPENSION SYSTEMS

- A. Structural Classification:
 - 1. Main Beam shall be heavy duty per ASTM C 635.
 - 2. Deflection of fastening suspension system supporting light fixtures, ceiling grilles, access doors, verticals and horizontal loads shall have a maximum deflection of 1/360 of the span.
- B. Components:
 - 1. Main Beam: Shall be double-web construction minimum, 0.0179 inch, prior to protective coating, ASTM C645, hot dipped galvanized per ASTM A653.
 - a. SSL Soffit up, 1-1/4 inch web height, 1-1/2 inch flange, custom length, custom routes (up to 7 routes).
 - 2. Drywall Grid Cross Tees: Shall be double-web steel construction, minimum 0.0179 inch, prior to protective coating, ASTM C645, hot dipped galvanized, minimum G40 or G90 per ASTM A653.
 - a. 48 inch, web height 1-1/2 inch with pre-finished 1-1/2 inch knurled flange
 - 3. Wall Molding - Typical Applications:
 - a. 10 foot Knurled Angle molding, 2 inch x 2 inch, knurled surface, pre-punched holes in top flange 4" O.C., 18 mil. (25 ga.)
 - b. 12 foot Locking Angle Molding, 1-1/4 inch x 1-1/4 inch with pre-engineered locking tabs punched 8 inches on center, knurled surface, screw stop hem, pre-punched holes in top flange, 4" O.C., 18 mil. (25ga.)
 - c. 12 foot Locking Angle Molding for Soffits, 1-1/2 inch x 1-1/2 inch with enhanced pre-engineered locking tabs punched 8 inches on center, first tab starting on end of bar, knurled surface, screw stop hem, pre-punched holes in top flange, 4" O.C., 028 mil. (22ga.)
 - 4. Support Hanger
 - a. 144 inch, web height 1-11/16 inch with pre-finished 1-1/2 inch knurled flange
 - b. 4 inch channel beam splice used to suspend main beams to 1-1/2" black iron carrying channels
 - c. 6 inch channel beam splice used to suspend main beams to 1-1/2" black iron carrying channels
 - d. 8 inch channel beam splice used to suspend main beams to 1-1/2" black iron carrying channels
 - e. 10 inch channel beam splice used to suspend main beams to 1-1/2" black iron carrying channels
 - f. 12 inch channel beam splice used to suspend main beams to 1-1/2" black iron carrying channels
 - 5. Clips and Accessories
 - a. 90 Degree Drywall Angle Clip

PART 3 - EXECUTION

3.01 3.01 INSTALLATION - GENERAL

- A. Install suspension system and panels in accordance with the manufacturer's instructions, in compliance with ASTM installation standard, and with applicable codes as required by the authorities having jurisdiction.
- B. To secure to metal clips, concrete inserts, steel bar joist or steel deck, use power actuated fastener, or insert. Coordinate placement for hanger wire spaced as required for expected ceiling loads and layout.

- C. Install hanger wire as required with necessary on center spacing to support expected ceiling load requirements, following local practices, codes and regulations. Provide additional wires at light fixtures, grilles, and access doors where necessary. A pigtail knot shall be used with three tight wraps at top and bottom fastening locations.
- D. Add additional wire as needed when using compatible clips and accessories.
- E. Control Joints: Roll formed zinc alloy, aluminum, or plastic as required for expansion and contraction as shown on drawings.
- F. Expansion Joints: Roll formed zinc alloy, aluminum, or plastic as required for expansion and contraction as shown on drawings.
- G. Main beams shall be suspended from the overhead construction with hanger wire, spaced as required for expected ceiling loads, along the length of the main beams.
- H. Install cross tees at on center spacing as specified by the drywall manufacturer. Typical drywall cross tee spacing:
 - 1. 16 inches on center with 5/8 or 1/2 inch gypsum board
- I. Other items such as wood, sheet metal, or plastic panels should be screwed to comply with deflection limit equivalent to that of the ceiling installation.
- J. Use channel molding or angle molding to interface with Drywall Grid System to provide perimeter attachment or to obtain drop soffits, verticals, or slopes.
- K. To suspend a second ceiling beneath a new or existing drywall ceiling, without breaching the integrity of the upper ceiling, use the Drywall Clip. To form a transition from a drywall ceiling to an acoustical ceiling, use the Drywall Transition Clips spaced as required for expected loads.
- L. For light fixtures (Type G, Type F) use secondary framing cross tees as required to frame opening.
- M. Single cross tees in a route hole to be secured by 7/16 inch framing screw or alternative methods.

END OF SECTION 092226.23

SECTION 093000 TILING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Tile for floor applications.
- B. Tile for wall applications.
- C. Thresholds.
- D. Ceramic trim.

1.02 REFERENCE STANDARDS

- A. ANSI A108/A118/A136 - American National Standard Specifications for the Installation of Ceramic Tile (Compendium); 2024.
- B. ANSI A118.4 - American National Standard Specifications for Modified Dry-Set Cement Mortar; 2023.
- C. ANSI A118.6 - American National Standard Specifications for Standard Cement Grouts for Tile Installation; 2019.
- D. ANSI A118.10 - American National Standard Specifications for Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation; 2023.
- E. ANSI A137.1 - American National Standard Specifications for Ceramic Tile; 2022.
- F. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation; 2025.
- G. TCNA (HB-GP) - Handbook for Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs Installation; 2023.

1.03 SUBMITTALS

- A. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.
- B. Selection Samples: Submit manufacturer's complete set of color samples for Architect's initial selection.
- C. Verification Samples: Submit two samples, full size, illustrating color and pattern for each tile product specified.
- D. Installer's qualification statement.
- E. Maintenance Data: Include recommended cleaning methods, cleaning materials, and stain removal methods.
- F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. Extra Tile: 1 percent of each size, color, and surface finish combination.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the types of products specified in this section, with minimum five years of documented experience.
- B. Installer Qualifications:
 - 1. Company specializing in performing tile installation, with minimum of five years of documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

1.06 FIELD CONDITIONS

- A. Do not install solvent-based products in an unventilated environment.
- B. Maintain ambient and substrate temperature above 50 degrees F and below 100 degrees F during installation and curing of setting materials.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Tile:
 - 1. American Olean Corporation: www.americanolean.com
 - 2. Architessa: www.architessa.com
 - 3. Dal-Tile Corporation: www.daltile.com
 - 4. Source Limitations: Furnish products produced by single manufacturer and obtained from single supplier.
- B. Setting Materials:
 - 1. Custom Building Products: www.custombuildingproducts.com
 - 2. H.B. Fuller Construction Products, Inc; TEC Specialty Products: www.tecspecialty.com
 - 3. Mapei Corporation: www.mapei.com
 - 4. Source Limitations: Furnish products produced by single manufacturer and obtained from single supplier.
- C. Grout:
 - 1. Custom Building Products: www.custombuildingproducts.com
 - 2. H.B. Fuller Construction Products, Inc; TEC Specialty Products: www.tecspecialty.com
 - 3. Mapei Corporation: www.mapei.com
 - 4. Source Limitations: Furnish products produced by single manufacturer and obtained from single supplier.

2.02 TILE

- A. Glazed Wall Tile, Type WT: ANSI A137.1 standard grade.
 - 1. Size: 4 by 12 inch, nominal.
 - 2. Edges: Square.
 - 3. Surface Finish: Semi-gloss.
 - 4. Color: As selected by Architect from manufacturer's standard range.
 - 5. Grout: TEC Specialty Products, 910 Bright White, or approved equal.
 - 6. Installation Pattern: Staggered brick joint.
 - 7. Trim Units: Matching bullnose, cove, and base shapes in sizes coordinated with field tile.
 - 8. Basis of Design Product:
 - a. Dal-Tile Corporation; Color Wheel Linear, Arctic White.
- B. Porcelain Tile, Type FT: ANSI A137.1 standard grade.
 - 1. Size: 12 by 24 inch, nominal.
 - 2. Thickness: 5/16 inch.
 - 3. Edges: Square.
 - 4. Surface Finish: Matte glazed.
 - 5. Color: As selected by Architect from manufacturer's standard range.
 - 6. Grout: TEC Specialty Products, 929 Charcoal Gray, or approved equal.
 - 7. Installation Pattern: Staggered brick joint, as indicated on elevations.
 - 8. Basis of Design Product:
 - a. Dal-Tile Corporation; Articulo, Column Grey

2.03 TRIM AND ACCESSORIES

- A. Ceramic Trim: Matching bullnose and cove base ceramic shapes in sizes matching wall tile.
 - 1. Applications:
 - a. Open Edges: Bullnose.
 - b. Inside Corners: Jointed.
 - c. Floor to Wall Joints: Cove base.
 - 2. Manufacturers: Same as for tile.
- B. Thresholds: 2 inches wide by full width of wall or frame opening; sloped edge on long edge to accommodate change in flooring height; without holes, cracks, or open seams.

1. Thickness: thickness to fit application.
2. Material: Aluminum.
3. Applications:
 - a. At doorways where tile terminates.

2.04 SETTING MATERIALS

- A. Provide setting and grout materials from same manufacturer.
- B. Latex-Portland Cement Mortar Bond Coat: ANSI A118.4.

2.05 GROUTS

- A. Provide setting and grout materials from same manufacturer.
- B. Standard Grout: ANSI A118.6 standard cement grout.
 1. Applications: Use where indicated on drawings and where no other type of grout is indicated.
 2. Use sanded grout for joints 1/8 inch wide and larger; use unsanded grout for joints less than 1/8 inch wide.
 3. Color: As selected by Architect from manufacturer's full line.

2.06 MAINTENANCE MATERIALS

- A. Tile Sealant: Gunnable, silicone, siliconized acrylic, modified silane polymer, or urethane sealant; moisture- and mildew-resistant type.
 1. Applications: Between tile and plumbing fixtures.
 2. Color: As selected by Architect from manufacturer's full line.

2.07 ACCESSORY MATERIALS

- A. Waterproofing Membrane at Floors: Specifically designed for bonding to cementitious substrate under thick mortar bed or thin-set tile; complying with ANSI A118.10.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify subfloor surfaces are smooth and flat within tolerances specified for that type of work and are ready to receive tile.
- B. Verify wall surfaces are smooth and flat within tolerances specified for that type of work, are dust-free, and are ready to receive tile.
- C. Verify that subfloor surfaces are dust free and free of substances that could impair bonding of setting materials to subfloor surfaces.
- D. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

- A. Vacuum clean surfaces and damp clean.
- B. Seal substrate surface cracks with filler.

3.03 INSTALLATION - GENERAL

- A. Install tile and thresholds and grout in accordance with applicable requirements of ANSI A108/A118/A136, manufacturer's instructions, and TCNA (HB) or TCNA (HB-GP) recommendations, as applicable.
- B. Request tile pattern. Do not interrupt tile pattern through openings.
- C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly.
- D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make grout joints without voids, cracks, excess mortar or excess grout, or too little grout.
- E. Form internal angles square and external angles bullnosed.
- F. Install thresholds where indicated on drawings.
- G. Sound tile after setting. Replace hollow sounding units.

- H. Keep control and expansion joints free of mortar, grout, and adhesive.
- I. Prior to grouting, allow installation to completely cure; minimum of 48 hours.
- J. Grout tile joints unless otherwise indicated on drawings.
- K. At changes in plane and tile-to-tile control joints, use tile sealant instead of grout, with either bond breaker tape or backer rod as appropriate to prevent three-sided bonding.

3.04 INSTALLATION - FLOORS - THIN-SET METHODS

- A. Over interior concrete substrates, install in accordance with TCNA (HB) Method F113, dry-set or latex-Portland cement bond coat, on ground, with standard grout, unless otherwise indicated on drawings.

3.05 INSTALLATION - WALL TILE

- A. Over gypsum wallboard on wood or metal studs, install in accordance with TCNA (HB) Method W243, thin-set with dry-set or latex-Portland cement bond coat.

3.06 CLEANING

- A. Clean tile and grout surfaces.

3.07 PROTECTION

- A. Do not permit traffic over finished floor surface for 4 days after installation.

END OF SECTION 093000

SECTION 095100
ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Suspended metal grid ceiling system.
- B. Acoustical units.

1.02 REFERENCE STANDARDS

- A. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.
- B. ASTM C635/C635M - Standard Specification for Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2022.
- C. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels; 2019 (Reapproved 2025).
- D. ASTM E580/E580M - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions; 2024a.
- E. ASTM E1264 - Standard Classification for Acoustical Ceiling Products; 2023.

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.
- B. Do not install acoustical units until after interior wet work is dry.

1.04 SUBMITTALS

- A. Product Data: Provide data on suspension system components and acoustical units.
- B. Samples: Submit two samples 4 by 4 inch in size illustrating material and finish of acoustical units.
- C. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. Extra Acoustical Units: Quantity equal to 5 percent of total installed.

1.05 QUALITY ASSURANCE

- A. Suspension System Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- B. Acoustical Unit Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

1.06 FIELD CONDITIONS

- A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Acoustic Tiles/Panels:
 - 1. Armstrong World Industries, Inc
 - 2. Certainteed Architectural
 - 3. Rockfon
 - 4. USG Corporation
- B. Suspension Systems:
 - 1. Same as for acoustical units.

2.02 ACOUSTICAL UNITS

- A. Acoustical Panels ACT: Mineral fiber with membrane-faced overlay, with the following characteristics:
 - 1. Classification: ASTM E1264 Type A.
 - a. Form: A2.2, wet formed.
 - b. Pattern: E - lightly textured.
 - 2. Size: 24 by 24 inches.
 - 3. Thickness: 3/4 inch.
 - 4. Light Reflectance: 86 percent, in accordance with ASTM E1264.
 - 5. Noise Reduction Coefficient (NRC) Range: up to 0.80, in accordance with ASTM E1264.
 - 6. Ceiling Attenuation Class (CAC): up to 38, in accordance with ASTM E1264.
 - 7. Panel Edge: Square.
 - 8. Color: White.
 - 9. Suspension System: Exposed grid.
 - 10. Basis of Design Product:
 - a. Armstrong World Industries, Inc; Ultima, Health Zone.

2.03 SUSPENSION SYSTEMS

- A. Metal Suspension Systems - General: Complying with ASTM C635/C635M; die cut and interlocking components, with perimeter moldings, hold-down clips, stabilizer bars, clips, and splices as required.
 - 1. Materials:
 - a. Aluminum Grid: Aluminum sheet, ASTM B209/B209M.
- B. Exposed Suspension System: Aluminum grid and cap.
 - 1. Structural Classification: Intermediate-duty, when tested in accordance with ASTM C635/C635M.
 - 2. Profile: Tee; 15/16 inch face width.
 - 3. Finish: Baked enamel, white.

2.04 ACCESSORIES

- A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.
- B. Hanger Wire: 12 gauge, 0.08 inch galvanized steel wire.
- C. Hold-Down Clips: Manufacturer's standard clips to suit application.
- D. Perimeter Moldings: Same metal and finish as grid.
 - 1. Angle Molding: L-shaped, for mounting at same elevation as face of grid.
- E. Touch-up Paint: Type and color to match acoustical and grid units.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that layout of hangers will not interfere with other work.

3.02 PREPARATION

- A. Install after major above-ceiling work is complete.
- B. Coordinate the location of hangers with other work.

3.03 INSTALLATION - SUSPENSION SYSTEM

- A. Install suspension system in accordance with ASTM C636/C636M, ASTM E580/E580M, and manufacturer's instructions, as supplemented in this section.
- B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.
- C. Locate system on room axis according to reflected plan.

- D. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
 - 1. Use longest practical lengths.
 - 2. Overlap corners.
- E. Suspension System, Non-Seismic: Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
- F. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.
- G. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.
- H. Support fixture loads using supplementary hangers located within 6 inches of each corner, or support components independently.
- I. Do not eccentrically load system or induce rotation of runners.

3.04 INSTALLATION - ACOUSTICAL UNITS

- A. Install acoustical units in accordance with manufacturer's instructions.
- B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
- C. Fit border trim neatly against abutting surfaces.
- D. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.
- E. Cutting Acoustical Units:
 - 1. Cut to fit irregular grid and perimeter edge trim.
 - 2. Make field cut edges of same profile as factory edges.

3.05 TOLERANCES

- A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.
- B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

3.06 CLEANING

- A. Clean surfaces.
- B. Replace damaged or abraded components.

END OF SECTION 095100

**SECTION 096500
RESILIENT FLOORING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Resilient tile flooring.
- B. Resilient base.
- C. Resilient stair accessories.
- D. Installation accessories.

1.02 REFERENCE STANDARDS

- A. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source; 2025.
- B. ASTM F1700 - Standard Specification for Solid Vinyl Floor in Modular Format such as Tile(s) or Plank(s); 2025.
- C. ASTM F1861 - Standard Specification for Resilient Wall Base; 2021 (Reapproved 2025).
- D. ASTM F2169 - Standard Specification for Resilient Stair Treads; 2015 (Reapproved 2020).
- E. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source; 2023.

1.03 SUBMITTALS

- A. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.
- B. Selection Samples: Submit manufacturer's complete set of color samples for Architect's initial selection.
- C. Verification Samples: Submit two samples, at least 12 by 12 inch in size illustrating color and pattern for each resilient flooring product specified.
- D. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.
- E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. Extra Flooring Material: Quantity equivalent to 5 percent of each type and color.
 - 2. Extra Wall Base: Quantity equivalent to 5 percent of each type and color.
 - 3. Extra Stair Materials: Quantity equivalent to 5 percent of each type and color.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing specified flooring with minimum three years documented experience.
- B. Installer Qualifications: Company specializing in installing specified flooring with minimum three years documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Upon receipt, immediately remove any shrink-wrap and check materials for damage and the correct style, color, quantity and run numbers.
- B. Store all materials off of the floor in an acclimatized, weather-tight space.
- C. Maintain temperature in storage area between 55 degrees F and 90 degrees F.
- D. Protect roll materials from damage by storing on end.
- E. Do not double stack pallets.

1.06 FIELD CONDITIONS

- A. Store materials for not less than 48 hours prior to installation in area of installation at a temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F.

PART 2 PRODUCTS

2.01 TILE FLOORING

- A. Vinyl Tile - LVT: Solid vinyl with color and pattern throughout thickness.
 - 1. Manufacturers:
 - a. Armstrong Flooring
 - b. Interface, Inc.
 - c. Mannington Commercial
 - d. Shaw Contract
 - e. Tarkett Flooring
 - 2. Minimum Requirements: Comply with ASTM F1700, of Class corresponding to type specified.
 - 3. Square Tile Size: 24 by 24 inch.
 - 4. Total Thickness: 0.197 inch.
 - 5. Installation Pattern: Quarter Turn.
 - 6. Color: To be selected by Architect from manufacturer's full range.
 - 7. Basis of Design Product: Shaw Contract, Compound and Cast collection, Style 4098V, Forum 98535.

2.02 STAIR COVERING

- A. Stair Treads with Integral Risers: Rubber; full height of riser, full width and depth of tread in one piece; tapered thickness.
 - 1. Manufacturers:
 - a. Flexco Corporation
 - b. Mannington Commercial
 - c. Roppe Corporation
 - d. Tarkett Flooring
 - 2. Minimum Requirements: Comply with ASTM F2169, Type TS, rubber, vulcanized thermoset.
 - 3. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E648 or NFPA 253.
 - 4. Nominal Thickness: 0.1875 inch.
 - 5. Nosing: Square.
 - 6. Striping: 2 inch wide contrasting color strips.
 - 7. Tread Texture: Raised.
 - 8. Color: To be selected by Architect from manufacturer's full range.

2.03 RESILIENT BASE

- A. Resilient Base: ASTM F1861, Type TV, vinyl, thermoplastic; Style B, Cove.
 - 1. Manufacturers:
 - a. Flexco Corporation
 - b. Mannington Commercial
 - c. Roppe Corporation
 - d. Tarkett Flooring
 - 2. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E648 or NFPA 253.
 - 3. Height: 4 inches.
 - 4. Thickness: 0.080 inch.
 - 5. Finish: Satin.
 - 6. Length: Roll.
 - 7. Color: To be selected by Architect from manufacturer's full range.
 - 8. Accessories: Premolded external corners and internal corners.
 - 9. Basis-of-Design Product: Tarkett, Johnsonite Traditional Vinyl wall base with toe, 20 Charcoal.

2.04 ACCESSORIES

- A. Primers, Adhesives, and Seam Sealer: Waterproof; types recommended by flooring manufacturer.

- B. Adhesive for Vinyl Flooring:
 - 1. Manufacturers:
 - a. H.B. Fuller Construction Products, Inc
 - b. TEC Specialty Products LLC
 - c. Loba-Wakol, LLC
 - d. Stauf USA, LLC
- C. Moldings, Transition and Edge Strips: Vinyl.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring to substrate.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive resilient base.
- C. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

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

3.03 INSTALLATION - GENERAL

- A. Starting installation constitutes acceptance of subfloor conditions.
- B. Install in accordance with manufacturer's written instructions.
- C. Adhesive-Applied Installation:
 - 1. Spread only enough adhesive to permit installation of materials before initial set.
 - 2. Fit joints and butt seams tightly.
 - 3. Set flooring in place, press with heavy roller to attain full adhesion.
- D. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.
- E. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.
 - 1. Resilient Strips: Attach to substrate using adhesive.
- F. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

3.04 INSTALLATION - TILE FLOORING

- A. Mix tile from container to ensure shade variations are consistent when tile is placed, unless otherwise indicated in manufacturer's installation instructions.
- B. Install square tile to quarter turn pattern. Allow minimum 1/2 full size tile width at room or area perimeter.

3.05 INSTALLATION - RESILIENT BASE

- A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches between joints.
- B. Install base on solid backing. Bond tightly to wall and floor surfaces.
- C. Scribe and fit to door frames and other interruptions.

3.06 INSTALLATION - STAIR COVERINGS

- A. Install stair coverings in one piece for full width and depth of tread.

- B. Adhere over entire surface. Fit accurately and securely.

3.07 CLEANING

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

3.08 PROTECTION

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

END OF SECTION 096500

**SECTION 096813
TILE CARPETING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Carpet tile, fully adhered.
- B. Removal of existing carpet tile.

1.02 SUBMITTALS

- A. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns, colors available, and method of installation.
- B. Selection Samples: Submit manufacturer's complete set of color samples for Architect's initial selection.
- C. Verification Samples: Submit two carpet tiles illustrating color and pattern design for each carpet color selected.
- D. Operation and Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.
- E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. Extra Carpet Tiles: Quantity equal to 5 percent of total installed of each color and pattern installed.

1.03 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing specified carpet tile with minimum three years documented experience.
- B. Installer Qualifications: Company specializing in installing carpet tile with minimum three years documented experience and approved by carpet tile manufacturer.

1.04 FIELD CONDITIONS

- A. Store materials in area of installation for minimum period of 24 hours prior to installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Tile Carpeting:
 - 1. Bentley Mills.
 - 2. Interface, Inc
 - 3. Mannington Commercial
 - 4. Tarkett

2.02 MATERIALS

- A. Tile Carpeting, Type CPT-1: Tufted, manufactured in one color dye lot.
 - 1. Sole Sourced Product: Wind II, Plateau 009229 manufactured by Interface, Inc.
 - 2. Tile Size: 19.69 by 19.69 inch, nominal.
 - 3. Pile Thickness: 0.114 inch.
 - 4. Installation Pattern: Monolithic.
- B. Tile Carpeting, Type CPT-2: Tufted, manufactured in one color dye lot.
 - 1. Color: As selected by Architect from manufacturer's full range.
- C. Walk-Off Tile Carpet, Type CPT-3.
 - 1. Basis of Design Product: Abrasive Action II walk-off system, Midnight Blue 19101 manufactured by Tarkett.
 - 2. Tile Size: 24 by 24 inch.
 - 3. Pile Height: 0.187 inches.
 - 4. Installation Method: Monolithic.

2.03 ACCESSORIES

- A. Edge Strips: Vinyl, color as selected by Architect.
- B. Carpet Tile Adhesive: Recommended by carpet tile manufacturer; releasable type.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that subfloor surfaces are smooth and flat within tolerances specified for that type of work and are ready to receive carpet tile.
- B. Verify that subfloor surfaces are dust-free and free of substances that could impair bonding of adhesive materials to subfloor surfaces.
- C. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

- A. Remove existing carpet tile.
- B. Prepare floor substrates as recommended by flooring and adhesive manufacturers.
- C. Vacuum clean substrate.

3.03 INSTALLATION

- A. Starting installation constitutes acceptance of subfloor conditions.
- B. Install carpet tile in accordance with manufacturer's instructions.
- C. Blend carpet from different cartons to ensure minimal variation in color match.
- D. Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.
- E. Locate change of color or pattern between rooms under door centerline.
- F. Fully adhere carpet tile to substrate.
- G. Trim carpet tile neatly at walls and around interruptions.
- H. Complete installation of edge strips, concealing exposed edges.

3.04 CLEANING

- A. Remove excess adhesive without damage, from floor, base, and wall surfaces.
- B. Clean and vacuum carpet surfaces.

END OF SECTION 096813

SECTION 099123
INTERIOR PAINTING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Field application of paints.
- C. Scope: Finish interior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated.
- D. Do Not Paint or Finish the Following Items:
 - 1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
 - 2. Items indicated to receive other finishes.
 - 3. Items indicated to remain unfinished.
 - 4. Fire rating labels, equipment serial number and capacity labels, bar code labels, and operating parts of equipment.
 - 5. Floors, unless specifically indicated.
 - 6. Ceramic and other tiles.
 - 7. Glass.
 - 8. Concealed pipes, ducts, and conduits.

1.02 REFERENCE STANDARDS

- A. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; Current Edition.
- B. SSPC-SP 1 - Solvent Cleaning; 2015, with Editorial Revision (2016).
- C. SSPC-SP 6/NACE No.3 - Commercial Blast Cleaning; 2006.

1.03 SUBMITTALS

- A. Product Data: Provide complete list of products to be used, with the following information for each:
 - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g., "alkyd enamel").
 - 2. MPI product number (e.g., MPI #47).
 - 3. Cross-reference to specified paint system products to be used in project; include description of each system.
- B. Samples: Submit two paper chip samples, 2 by 8 inch in size illustrating range of colors and textures available for each surface finishing product scheduled.
- C. Maintenance Data: Submit data including finish schedule showing where each product/color/finish was used, product technical data sheets, material safety data sheets (MSDS), care and cleaning instructions, touch-up procedures, repair of painted and finished surfaces, and color samples of each color and finish used.
- D. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. Extra Paint and Finish Materials: 1 gal of each color; from the same product run, store where directed.
 - 2. Label each container with color in addition to the manufacturer's label.

1.04 QUALITY ASSURANCE

- A. Applicator Qualifications: Company specializing in performing the type of work specified with minimum three years experience and approved by manufacturer.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.06 FIELD CONDITIONS

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Do not apply materials when relative humidity exceeds 85 percent, at temperatures less than 5 degrees F above the dew point, or to damp or wet surfaces.
- D. Minimum Application Temperatures for Paints: 50 degrees F for interiors unless required otherwise by manufacturer's instructions.
- E. Provide lighting level of 80 fc measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Provide paints and finishes from the same manufacturer to the greatest extent possible.
- B. Paints:
 - 1. Behr Paint Company: www.behr.com/#sle.
 - 2. Diamond Vogel Paints: www.diamondvogel.com/#sle.
 - 3. Dunn-Edwards Corporation: www.dunndwards.com/#sle.
 - 4. Pittsburgh Paints: www.pittsburghpaintsco.com/#sle.
 - 5. Sherwin-Williams Company: www.sherwin-williams.com/#sle.
 - 6. Vista Paint Corporation: www.vistapaint.com/#sle.
- C. Primer Sealers: Same manufacturer as top coats.

2.02 PAINTS AND FINISHES - GENERAL

- A. Paints and Finishes: Ready-mixed, unless intended to be a field-catalyzed paint.
 - 1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
 - 2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
 - 3. Supply each paint material in quantity required to complete entire project's work from a single production run.
 - 4. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.
- B. Flammability: Comply with applicable code for surface burning characteristics.
- C. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Architect from the manufacturer's full line.
- D. Colors: To be selected from manufacturer's full range of available colors.
 - 1. Selection to be made by Architect after award of contract.
 - 2. Allow for minimum of three colors for each system, unless otherwise indicated, without additional cost to Owner.

2.03 PAINT SYSTEMS - INTERIOR

- A. Interior Surfaces to be Painted, Unless Otherwise Indicated: Including gypsum board and plaster.
 - 1. Two top coats and one coat primer.

2. Top Coat(s): High Performance Architectural Interior Latex.
 3. Primer: As recommended by top coat manufacturer for specific substrate.
- B. Medium Duty Door/Trim: For surfaces subject to frequent contact by occupants, including metals:
1. Medium duty applications include door frames and metal lockers.
 2. Two top coats and one coat primer.
 3. Top Coat(s): High Performance Architectural Interior Latex.
 4. Primer: As recommended by top coat manufacturer for specific substrate.

2.04 PRIMERS

- A. Primers: Provide the following unless other primer is required or recommended by manufacturer of top coats.
1. Interior Drywall Primer Sealer.
 2. Anti-Corrosive Alkyd Primer for Metal; MPI #79.

2.05 ACCESSORY MATERIALS

- A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.
- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin application of paints and finishes until substrates have been adequately prepared.
- B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- D. Test shop-applied primer for compatibility with subsequent cover materials.
- E. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces is below the following maximums:
1. Gypsum Wallboard: 12 percent.
 2. Plaster and Stucco: 12 percent.

3.02 PREPARATION

- A. Clean surfaces thoroughly and correct defects prior to application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or repair existing paints or finishes that exhibit surface defects.
- D. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
- E. Seal surfaces that might cause bleed through or staining of topcoat.
- F. Gypsum Board: Fill minor defects with filler compound. Spot prime defects after repair.
- G. Plaster: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high-alkali surfaces.
- H. Aluminum: Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.
- I. Ferrous Metal:
1. Solvent clean according to SSPC-SP 1.
 2. Remove rust, loose mill scale, and other foreign substances using methods recommended in writing by paint manufacturer and blast cleaning in accordance with SSPC-SP 6/NACE No.3. Protect from corrosion until coated.

3.03 APPLICATION

- A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- B. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".
- C. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.
- D. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- E. Apply each coat to uniform appearance in thicknesses specified by manufacturer.
- F. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- G. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 CLEANING

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.05 PROTECTION

- A. Protect finishes until completion of project.
- B. Touch-up damaged finishes after Substantial Completion.

END OF SECTION 099123

SECTION 102113.13
METAL TOILET COMPARTMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Metal toilet compartments.
- B. Urinal screens.

1.02 REFERENCE STANDARDS

- A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025a.
- B. ASTM A666/A666M - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2024.

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate the work with placement of support framing and anchors in walls and ceilings.

1.04 SUBMITTALS

- A. Shop Drawings: Indicate partition plan, elevation views, dimensions, details of wall, floor, and ceiling supports, door swings.
- B. Product Data: Provide data on panel construction, hardware, and accessories.
- C. Samples: Submit two samples of partition panels, a minimum of 2 x 2 inch in size illustrating panel finish, color, and sheen.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Metal Toilet Compartments:
 - 1. ASI Global Partitions
 - 2. General Partitions Mfg. Corp; _____
 - 3. Hadrian
 - 4. Monarch Toilet Partition Inc
- B. Basis-of-Design Product: Hadrian; Elite Series, Powder Coated.

2.02 MATERIALS

- A. Steel Sheet: Hot-dipped galvanized steel sheet, ASTM A653/A653M, with G60/Z180 coating.

2.03 COMPONENTS

- A. Toilet Compartments: Powder coated steel, mounted as indicated in drawings.
- B. Doors, Panels, and Pilasters: Sheet steel faces, pressure bonded to sound-deadening core, corners made with corner clips or mitered, welded, and ground smooth.
 - 1. Internal Reinforcement: Provide in areas of attached hardware and fittings. Mark locations of reinforcement for partition mounted washroom accessories.
- C. Pilasters: 1-1/4 inch thick, of sizes required to suit compartment width and spacing.
- D. Urinal Screens: Wall mounted with two panel brackets.

2.04 ACCESSORIES

- A. Pilaster Shoes: Formed ASTM A666 Type 304 stainless steel with No.4 finish, 3 inches high, concealing floor and ceiling fastenings.
 - 1. Provide ceiling attachment using two adjustable hanging studs, attached to above-ceiling framing.
- B. Head Rails: Hollow anodized aluminum tube, 1 by 1-5/8 inches in size, with anti-grip strips and cast socket wall brackets.
- C. Brackets: Polished chrome-plated non-ferrous cast metal.

- D. Attachments, Screws, and Bolts: Chrome-plated steel, tamper-proof type.
 - 1. For attaching panels and pilasters to brackets: Through-bolts and nuts ; tamper proof.
- E. Hardware: Polished chrome plated non-ferrous cast metal:
 - 1. Panel-to-pilaster, panel-to-wall, and pilaster-to-wall connection: Full-height channels, finished to match partitions.
 - 2. Fasteners: Zinc plated 12 by 1-3/4 inch and 12 by 5/8 inch TR-27 6-lobe security screws.
 - 3. Chrome plated zinc die cast gravity type hinges on doors, mounted on upper and lower pilaster hinge brackets.
 - 4. Threaded top hinge pin: Metal with a self-lubricating nylon sleeve.
 - 5. Door hinges: Wrap-around style and adjustable to permit door to come to rest at any position when not latched.
 - 6. Latch: concealed, chrom plated zinc die casting with face mortised flush with edge strip of door.
 - 7. Full length aluminum continuous stop and full length aluminum hinge side filler to eliminated sightline gaps between pilasters and doors.
 - 8. Thumb turn or sliding door latch with exterior emergency access feature.
 - 9. Door strike and keeper with rubber bumper; mounted on pilaster in alignment with door latch.
 - 10. Coat hook with rubber bumper; one per compartment, mounted on door.
 - 11. Provide door pull for outswinging doors.
 - 12. Provide door stop with rubber bumper for outswing doors as indicated on drawings.

2.05 FINISHING

- A. Powder-Coated Steel Compartments: Manufacturer's standard process. Clean, degrease, and neutralize.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that field measurements are as indicated.
- C. Verify correct spacing of and between plumbing fixtures.
- D. Verify correct location of built-in framing, anchorage, and bracing.

3.02 INSTALLATION

- A. Install partitions secure, rigid, plumb, and level in accordance with manufacturer's instructions.
- B. Maintain 3/8 to 1/2 inch space between wall and panels and between wall and end pilasters.
- C. Attach panel brackets securely to walls using anchor devices.
- D. Attach panels and pilasters to brackets. Locate head rail joints at pilaster center lines.
- E. Field touch-up of scratches or damaged enamel finish will not be permitted. Replace damaged or scratched materials with new materials.

3.03 TOLERANCES

- A. Maximum Variation From True Position: 1/4 inch.
- B. Maximum Variation From Plumb: 1/8 inch.

3.04 ADJUSTING

- A. Adjust and align hardware to uniform clearance at vertical edge of doors, not exceeding 3/16 inch.
- B. Adjust hinges to position doors in partial opening position when unlatched. Return out swinging doors to closed position.
- C. Adjust adjacent components for consistency of line or plane.

END OF SECTION 102113.13

SECTION 102800
TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Commercial toilet accessories.
- B. Residential toilet, shower, and bath accessories.

1.02 RELATED REQUIREMENTS

- A. Section 224000 - Plumbing Fixtures: Under-lavatory pipe and supply covers.

1.03 REFERENCE STANDARDS

- A. ASTM A269/A269M - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service; 2025.
- B. ASTM A666/A666M - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2024.
- C. ASTM B456 - Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium; 2017 (Reapproved 2022).
- D. ASTM C1036 - Standard Specification for Flat Glass; 2025.
- E. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2025.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the work with the placement of internal wall reinforcement to receive anchor attachments.

1.05 SUBMITTALS

- A. Product Data: Submit data on accessories describing size, finish, details of function, and attachment methods.
- B. Manufacturer's Installation Instructions: Indicate special procedures and conditions requiring special attention.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Commercial Toilet, Shower, and Bath Accessories:
 - 1. American Specialties, Inc
 - 2. Bobrick Washroom Equipment, Inc.
 - 3. Bradley Corporation
- B. Residential Toilet, Shower, and Bath Accessories:
 - 1. American Specialties, Inc.
 - 2. BASCO Inc.
 - 3. Ketcham Medicine Cabinets, a Division of Fred Silver and Company, Inc.
 - 4. Kohler Co.
 - 5. Pamex Inc
 - 6. Seachrome Corporation.
- C. Provide products of each category type by single manufacturer.

2.02 MATERIALS

- A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.
- B. Keys: Provide 2 keys for each accessory to Owner; master key lockable accessories.
- C. Stainless Steel Sheet: ASTM A666/A666M, Type 304.
- D. Stainless Steel Tubing: ASTM A269/A269M, Grade TP304 or TP316.

- E. Mirror Glass: Tempered safety glass, ASTM C1048; and ASTM C1036 Type I, Class 1, Quality Q2, with silvering as required.
- F. Fasteners, Screws, and Bolts: Hot dip galvanized; tamper-proof; security type.

2.03 FINISHES

- A. Stainless Steel: Satin finish, unless otherwise noted.
- B. Chrome/Nickel Plating: ASTM B456, SC 2, polished finish, unless otherwise noted.

2.04 COMMERCIAL TOILET ACCESSORIES

- A. TA-4 - Toilet Paper Dispenser: Double roll, surface mounted bracket type, stainless steel, spindleless type for tension spring delivery designed to prevent theft of tissue roll.
- B. TA-5 - Toilet Paper Dispenser: Four roll, dual side-by-side partition mounting, stainless steel unit with pivot hinge, tumbler lock.
- C. Mirrors: Stainless steel framed, 1/4 inch thick tempered safety glass; ASTM C1048.
 - 1. Size: As indicated on drawings.
 - 2. Frame: 0.05 inch angle shapes, with mitered and welded and ground corners, and tamperproof hanging system; satin finish.
 - 3. Backing: Full-mirror sized, minimum 0.03 inch galvanized steel sheet and nonabsorptive filler material.
- D. TA-3 - Seat Cover Dispenser: Stainless steel, surface-mounted, reloading by concealed opening at base, tumbler lock.
 - 1. Minimum capacity: 250 seat covers.
- E. Grab Bars: Stainless steel, smooth surface.
 - 1. Standard Duty Grab Bars:
 - a. Push/Pull Point Load: 250 pound-force, minimum.
 - b. Dimensions: 1-1/4 inch outside diameter, minimum 0.05 inch wall thickness, exposed flange mounting, 1-1/2 inch clearance between wall and inside of grab bar.
 - c. Finish: Satin.
 - d. Length and Configuration: As indicated on drawings.
- F. TA-7 - Sanitary Napkin Disposal Unit: Stainless steel, surface-mounted, self-closing door, locking bottom panel with full-length stainless steel piano-type hinge, removable receptacle.
- G. TA-8 - Sanitary Napkin Disposal Unit (Dual Access): Stainless steel, back-to-back partition mounting with adjustable flanges, self-closing door, locking bottom panel with full-length stainless steel piano-type hinge, removable receptacle.

2.05 RESIDENTIAL TOILET, SHOWER, AND BATH ACCESSORIES

- A. Medicine Cabinet: Metal cabinet, shelves, and door; surface mounted.
 - 1. Overall Size: As indicated on drawings.
 - 2. Cabinet Construction: Stainless steel, satin finish.
 - 3. Shelves: Adjustable, glass; provide not less than three shelves.
 - 4. Door Type: Mirror with satin finish stainless steel frame.
 - 5. Single Door: Fitted with continuous piano-type hinge, shock-absorbing spring-and-rod door stop, magnetized catch, swing as indicated, reversible type.
- B. Robe Hook: Double-prong, concealed attachment.
 - 1. Material: Stainless steel; bright polished finish.

2.06 UNDER-LAVATORY PIPE AND SUPPLY COVERS

- A. Specified in 224000 - Plumbing Fixtures.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.

- B. Verify exact location of accessories for installation.
- C. Verify that field measurements are as indicated on drawings.

3.02 PREPARATION

- A. Deliver inserts and rough-in frames to site for timely installation.
- B. Provide templates and rough-in measurements as required.

3.03 INSTALLATION

- A. Install accessories in accordance with manufacturers' instructions in locations indicated on drawings.
- B. Install plumb and level, securely and rigidly anchored to substrate.
- C. Mounting Heights: As required by accessibility regulations, unless otherwise indicated.

3.04 PROTECTION

- A. Protect installed accessories from damage due to subsequent construction operations.

END OF SECTION 102800

SECTION 123200
MANUFACTURED WOOD CASEWORK

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Manufactured standard casework, with cabinet hardware.

1.02 RELATED REQUIREMENTS

- A. Section 123600 - Countertops: Additional requirements for countertops.

1.03 REFERENCE STANDARDS

- A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards, 2nd Edition; 2014, with Errata (2016).
- B. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards; 2021, with Errata.

1.04 SUBMITTALS

- A. Product Data: Component dimensions, configurations, construction details, joint details, attachments.
- B. Shop Drawings: Indicate casework types, sizes, and locations, using large scale plans, elevations, and cross sections. Include rough-in and anchors and reinforcements, placement dimensions and tolerances, clearances required, and keying information.
- C. Samples for Finish Selection: Fully finished, for color selection. Minimum sample size: 2 inches by 3 inches.
 - 1. Plastic laminate samples, for color, texture, and finish selection.
- D. Maintenance Data: Manufacturer's recommendations for care and cleaning.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of the type specified in this section, with not less than three years of documented experience and approved by manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect items provided by this section, including finished surfaces and hardware items during handling and installation. For metal surfaces, use polyethylene film or other protective material standard with the manufacturer.
- B. Acceptance at Site:
 - 1. Do not deliver or install casework until the conditions specified under Part 3, Examination Article of this section have been met. Products delivered to sites that are not enclosed and/or improperly conditioned will not be accepted if warping or damage due to unsatisfactory conditions occurs.
- C. Storage:
 - 1. Store casework in the area of installation. If necessary, prior to installation, temporarily store in another area, meeting the environmental requirements specified under Part 3, "Site Verification of Conditions" Article of this section.

1.07 WARRANTY

- A. Correct defective Work within a two year period after Date of Substantial Completion, at no additional cost to Owner. Defects include, but are not limited to:
 - 1. Ruptured, cracked, or stained finish coating.
 - 2. Discoloration or lack of finish integrity.
 - 3. Cracking or peeling of finish.
 - 4. Delamination of components.
 - 5. Failure of adhesives.
 - 6. Failure of hardware.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Plastic Laminate Casework:
 - 1. Case Systems
 - 2. Diversified Fixture
 - 3. Labscape LLC
 - 4. Or approved equal.

2.02 CASEWORK, GENERAL

- A. Quality Standard: AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.
- B. Plastic Laminate Faced Cabinets: Custom Grade.

2.03 FABRICATION

- A. Assembly: Shop assemble casework items for delivery to site in units easily handled and to permit passage through building openings.
- B. Construction: As required for selected grade.
- C. Fittings and Fixture Locations: Cut and drill components for fittings and fixtures.
- D. Hardware Application: Factory-machine casework members for hardware that is not surface applied.
- E. Removable back panels on all base cabinets. Provide partial height back panels at sink cabinets.
- F. Edging: Fit shelves, doors, and exposed edges with specified edging. Do not use more than one piece for any single length.
- G. Scribes and Fillers: Panels of matching construction and finish, for locations where cabinets do not fit tight to adjacent construction.
- H. Matching Wood Grain: Comply with requirements of quality standard for specified grade and as follows:
 - 1. Provide center matched panels at each elevation.
 - 2. Carry figure of cabinet fronts to toe kicks.
- I. Countertop Panel-Type Supports: Materials similar to adjacent casework, 1-1/2 inch in width, with front-to-back and toe space dimensions matching base cabinet. Designed to be secured in a concealed fashion to countertop material. Include two leveling devices per support panel.

2.04 PLASTIC-LAMINATE-CLAD CASEWORK

- A. Plastic-Laminate-Clad Casework: Solid wood and wood panel construction; each unit self-contained and not dependent on adjacent units or building structure for rigidity; in sizes necessary to avoid field cutting except for scribes and filler panels. Include adjustable levelers for base cabinets.
 - 1. Style: Flush overlay. Ease doors and drawer fronts slightly at edges.
 - 2. Cabinet Nominal Dimensions: Unless otherwise indicated, provide cabinets of widths and heights indicated on drawings, and with following front-to-back dimensions:
 - a. Base Cabinets: 24 inches.
 - 3. Plastic Laminate: Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline.
 - a. Finish: Matte or suede, gloss rating of 5 to 20.
 - b. Surface Color and Pattern: As selected by Architect from manufacturer's standard line.
 - c. Exposed Interior Surfaces: Thermally fused laminate.
 - d. Apply laminate backing sheet to reverse side of plastic laminate finished surfaces.
 - 1) Matching Wood Grain Pattern: Comply with requirements of quality standard for specified grade and as follows:
 - (a) Provide center matched panels at each elevation.
 - e. Cap exposed plastic laminate finish edges with material of same finish and pattern.

2.05 COUNTERTOPS

- A. Countertops: See Section 123600.

2.06 CABINET HARDWARE

- A. Manufacturer's standard types, styles and finishes.

2.07 MATERIALS

- A. Wood-Based Materials:
 - 1. Solid Wood: Air-dried to 4.5 percent moisture content, then tempered to 6 percent moisture content before use.

2.08 ACCESSORIES

- A. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application; galvanized or chrome-plated finish in concealed locations and stainless steel or chrome-plated finish in exposed locations.
- B. Concealed Joint Fasteners: Corrosion-resistant, standard with manufacturer.
- C. Sealant for Use in Casework Installation:
 - 1. Manufacturer's recommended type.

PART 3 EXECUTION

3.01 PREPARATION

- A. Large Components: Ensure that large components can be moved into final position without damage to other construction.

3.02 EXAMINATION

- A. Site Verification of Environmental Conditions:
 - 1. Do not deliver casework until the following conditions have been met:
 - a. Building has been enclosed (windows and doors sealed and weather-tight).
 - b. An operational HVAC system that maintains temperature and humidity at occupancy levels has been put in place.
 - c. Ceiling, overhead ductwork, piping, and lighting have been installed.
 - d. Installation areas do not require further "wet work" construction.
- B. For Base Cabinets Installation: Examine floor levelness and flatness of installation space. Do not proceed with installation if encountered floor conditions required more than 1/2 inch leveling adjustment. When installation conditions are acceptable, for each space, establish the high point of the floor. Set and make level and plumb first cabinet in relation to this high point.
- C. Verify adequacy of support framing and anchors.
- D. Verify that service connections are correctly located and of proper characteristics.

3.03 INSTALLATION

- A. Perform installation in accordance with manufacturer's instructions.
- B. Use anchoring devices to suit conditions and substrate materials encountered. Use concealed fasteners to the greatest degree possible. Use exposed fasteners only where allowed by approved shop drawings, or where concealed fasteners are impracticable.
- C. Set casework items plumb and square, securely anchored to building structure.
- D. Align cabinets to adjoining components, install filler and/or scribe panels where necessary to close gaps.
- E. Fasten together cabinets in continuous runs, with joints flush, uniform and tight. Misalignment of adjacent units not to exceed 1/16 inch. In addition, do not exceed the following tolerances:
 - 1. Variation of Tops of Base Cabinets from Level: 1/16 inch in 10 feet.
 - 2. Variation of Faces of Cabinets from a True Plane: 1/8 inch in 10 feet.
 - 3. Variation of Adjacent Surfaces from a True Plane (Lippage): 1/32 inch.
 - 4. Variation in Alignment of Adjacent Door and Drawer Edges: 1/16 inch.

- F. Base Cabinets: Fasten cabinets to service space framing and/or wall substrates, with fasteners spaced not more than 16 inches on center. Bolt adjacent cabinets together with joints flush, tight, and uniform.
- G. Install hardware uniformly and precisely.
- H. Countertops: Install countertops intended and furnished for field installation in one true plane, with ends abutting at hairline joints, and no raised edges.
- I. Replace units that are damaged, including those that have damaged finishes.

3.04 ADJUSTING

- A. Adjust operating parts, including doors, drawers, hardware, and fixtures to function smoothly.

3.05 CLEANING

- A. Clean casework and other installed surfaces thoroughly.

3.06 PROTECTION

- A. Do not permit finished casework to be exposed to continued construction activity.
- B. Protect casework and countertops from ongoing construction activities. Prevent workmen from standing on, or storing tools and materials on casework or countertops.
- C. Repair damage, including to finishes, that occurs prior to Date of Substantial Completion, using methods prescribed by manufacturer; replace units that cannot be repaired to like-new condition.

END OF SECTION 123200

SECTION 123600 COUNTERTOPS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Countertops for manufactured casework.
- B. Wall-hung counters and vanity tops.

1.02 RELATED REQUIREMENTS

- A. Section 123200 - Manufactured Wood Casework.

1.03 REFERENCE STANDARDS

- A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2026.
- B. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards, 2nd Edition; 2014, with Errata (2016).
- C. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards; 2021, with Errata.
- D. ISFA 2-01 - Classification and Standards for Solid Surfacing Material; 2013.
- E. NEMA LD 3 - High-Pressure Decorative Laminates; 2005.
- F. PS 1 - Structural Plywood; 2023.

1.04 SUBMITTALS

- A. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Specimen warranty.
- B. Shop Drawings: Complete details of materials and installation ; combine with shop drawings of cabinets and casework specified in other sections.
- C. Selection Samples: For each finish product specified, color chips representing manufacturer's full range of available colors and patterns.
- D. Maintenance Data: Manufacturer's instructions and recommendations for maintenance and repair of countertop surfaces.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing work of the type specified in this section, with not less than three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.07 FIELD CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2 PRODUCTS

2.01 COUNTERTOPS

- A. Quality Standard: Custom Grade, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.
- B. Solid Surfacing Countertops: Solid surfacing sheet or plastic resin casting over continuous substrate.
 - 1. Flat Sheet Thickness: 1/2 inch, minimum.

2. Solid Surfacing Sheet and Plastic Resin Castings: Complying with ISFA 2-01 and NEMA LD 3; acrylic or polyester resin, mineral filler, and pigments; homogenous, non-porous and capable of being worked and repaired using standard woodworking tools; no surface coating; color and pattern consistent throughout thickness.
 - a. Manufacturers:
 - 1) Avonite Surfaces
 - 2) Dupont; Corian
 - 3) Formica Corporation
 - 4) Wilsonart
 - b. Surface Burning Characteristics: Flame spread index of 25, maximum; smoke developed index of 450, maximum; when tested in accordance with ASTM E84.
 - c. Finish on Exposed Surfaces: Matte, gloss rating of 5 to 20.
 - d. Color and Pattern: As selected by Architect from manufacturer's full line.
3. Other Components Thickness: 1/2 inch, minimum.
4. Exposed Edge Treatment: Built up to minimum 1-1/4 inch thick; radiused edge.
5. Back and End Splashes: Same sheet material, radiused top; minimum 4 inches high.
6. Skirts: As indicated on drawings.
7. Fabricate in accordance with manufacturer's standard requirements.

2.02 MATERIALS

- A. Plywood for Supporting Substrate: PS 1 Exterior Grade, A-C veneer grade, minimum 5-ply; minimum 3/4 inch thick; join lengths using metal splines.
- B. Adhesives: Chemical resistant waterproof adhesive as recommended by manufacturer of materials being joined.
- C. Joint Sealant: Mildew-resistant silicone sealant, white.

2.03 ACCESSORIES

- A. Fixed Top-Mounted Countertop Support Brackets:
 1. Material: Steel.
 2. Finish: Manufacturer's standard, factory-applied, textured powder coat.
 3. Color: White.
- B. Circular Waste Chute:
 1. Circular waste chute for mounting in countertops.
 2. Type-300, 24-gauge stainless steel, with rolled lip and bright polished finish on exposed surfaces.
 3. Inside diameter: 5-7/16 inches.
 4. Install per manufacturer's instructions.
 5. Basis-of-Design product:
 - a. Bobrick; Circular Waste Chute, B-529, or approved equal.

2.04 FABRICATION

- A. Fabricate tops and splashes in the largest sections practicable, with top surface of joints flush.
 1. Join lengths of tops using best method recommended by manufacturer.
 2. Fabricate to overhang fronts and ends of cabinets 1 inch except where top butts against cabinet or wall.
 3. Counter-Mounted Plumbing Fixtures: Prepare countertops in shop for field cutting openings for counter-mounted fixtures and plumbing fittings.
 4. Prepare all cutouts accurately to size; replace tops having improperly dimensioned or unnecessary cutouts or fixture holes.
- B. Provide back/end splash wherever counter edge abuts vertical surface unless otherwise indicated.
 1. Secure to countertop with concealed fasteners and with contact surfaces set in waterproof glue.
 2. Height: 4 inches, unless otherwise indicated.
- C. Solid Surfacing: Fabricate tops up to 144 inches long in one piece; join pieces with adhesive sealant in accordance with manufacturer's recommendations and instructions.

- D. Wall-Mounted Counters: Provide skirts, aprons, brackets, braces, and custom shelves as indicated on drawings.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- C. Verify that wall surfaces have been finished and mechanical and electrical services and outlets are installed in proper locations.

3.02 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

- A. Securely attach countertops to cabinets using concealed fasteners. Make flat surfaces level; shim where required.
- B. Seal joint between back/end splashes and vertical surfaces.

3.04 TOLERANCES

- A. Variation From Horizontal: 1/8 inch in 10 feet, maximum.
- B. Offset From Wall, Countertops: 1/8 inch maximum; 1/16 inch minimum.
- C. Field Joints: 1/8 inch wide, maximum.

3.05 CLEANING

- A. Clean countertops surfaces thoroughly.

3.06 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Date of Substantial Completion.

END OF SECTION 123600

SECTION 220523
GENERAL-DUTY VALVES FOR PLUMBING PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Ball valves.

1.02 REFERENCE STANDARDS

- A. ASME B1.20.1 - Pipe Threads, General Purpose, Inch; 2013 (Reaffirmed 2018).
- B. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; 2021.
- C. MSS SP-110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends; 2010, with Errata .
- D. NSF 61 - Drinking Water System Components - Health Effects; 2024.
- E. NSF 372 - Drinking Water System Components - Lead Content; 2024.

1.03 SUBMITTALS

- A. See Section 013300 Submittals for submittal procedures.
- B. Product Data: Provide data on valves including manufacturers catalog information. Submit performance ratings, rough-in details, weights, support requirements, and piping connections.

1.04 QUALITY ASSURANCE

- A. Manufacturer:
 - 1. Obtain valves for each valve type from single manufacturer.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Use the following precautions during storage:
 - 1. Maintain valve end protection and protect flanges and specialties from dirt.

PART 2 PRODUCTS

2.01 APPLICATIONS

- A. See drawings for specific valve locations.
- B. Listed pipe sizes shown using nominal pipe sizes (NPS) and nominal diameter (DN).

2.02 GENERAL REQUIREMENTS

- A. Valve Pressure and Temperature Ratings: No less than rating indicated; as required for system pressures and temperatures.
- B. Valve Sizes: Match upstream piping unless otherwise indicated.
- C. Valve-End Connections:
 - 1. Threaded End Valves: ASME B1.20.1.
 - 2. Solder Joint Connections: ASME B16.18.
- D. Potable Water Use:
 - 1. Certified: Approved for use in compliance with NSF 61 and NSF 372.
 - 2. Lead-Free Certified: Wetted surface material includes less than 0.25 percent lead content.

2.03 BRONZE, BALL VALVES

- A. General:
 - 1. Fabricate from dezincification resistant material.
 - 2. Copper alloys containing more than 15 percent zinc are not permitted.
- B. Two Piece, Full Port with Bronze Trim:
 - 1. Comply with MSS SP-110.
 - 2. WOG Rating: 400 psi.
 - 3. Body: Forged bronze.

4. Ends Connections: Pipe solder.
5. Seats: PTFE.
6. Stem: Bronze, blowout proof.
7. Ball: 304 stainless steel or chrome plated brass.
8. Operator: Provide lever handle.
9. Manufacturers:
 - a. Apollo Valves: www.apollovalves.com.
 - b. NIBCO INC: www.nibco.com.
 - c. Grinnell Products: www.grinnell.com.
 - d. WATTS, A Watts Water Technologies Company: www.watts.com.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Discard all packing materials and verify that valve interior, including threads and flanges are completely clean without signs of damage or degradation that could result in leakage.
- B. Verify valve parts to be fully operational in all positions from closed to fully open.
- C. Confirm gasket material to be suitable for the service, to be of correct size, and without defects that could compromise effectiveness.
- D. If valve is determined to be defective, replace with new valve.

3.02 INSTALLATION

- A. Provide separate valve support as required and locate valve with stem at or above center of piping, maintaining unimpeded stem movement.

END OF SECTION 220523

SECTION 220553
IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Tags.
- B. Pipe markers.

1.02 REFERENCE STANDARDS

- A. ASME A13.1 - Scheme for the Identification of Piping Systems; 2023.

1.03 SUBMITTALS

- A. See Section 013300 for submittal procedures.
- B. Product Data: Provide manufacturers catalog literature for each product required.

PART 2 PRODUCTS

2.01 PLUMBING COMPONENT IDENTIFICATION GUIDELINE

- A. Tags:
 - 1. Manual operated isolation valves.
- B. Pipe Markers: 3/4 inch diameter and higher.

2.02 TAGS

- A. Flexible: Vinyl with engraved black letters on light contrasting background color with up to three lines of text including room(s) served. Minimum tag size 1-1/2 inch in diameter.

2.03 PIPE MARKERS

- A. Comply with ASME A13.1.
- B. Flexible Tape Marker: Flexible, vinyl film tape with pressure-sensitive adhesive backing and printed markings.
- C. Identification Scheme, ASME A13.1:
 - 1. Primary: External Pipe Diameter, Uninsulated or Insulated.
 - a. 3/4 to 1-1/4 inches: Use 8 inch field-length with 1/2 inch text height.
 - b. 1-1/2 to 2 inches: Use 8 inch field-length with 3/4 inch text height.
 - c. 2-1/2 to 6 inches: Use 12 inch field-length with 1-1/4 inch text height.
 - 2. Secondary: Color scheme per fluid service.
 - a. Domestic Cold Water and Hot Water: White text on green background.
 - 3. Tertiary: Other Details.
 - a. In addition to fluid service identification marker.
 - 1) On all plumbing insulation identified as containing asbestos per Appendix B: Black text on orange background.
 - 2) Label to read: "Asbestos Insulation".

PART 3 EXECUTION

3.01 PREPARATION

- A. Degrease and clean surfaces to receive identification products.

3.02 INSTALLATION

- A. Install tags in clear view and align with axis of piping
- B. Install plastic pipe markers in accordance with manufacturer's instructions.
- C. Install plastic tape pipe marker around pipe in accordance with manufacturer's instructions.
- D. Apply ASME A13.1 Pipe Marking Rules:
 - 1. Place pipe marker adjacent to changes in direction.

2. Place pipe marker at both sides of floor and wall penetrations.
3. Place pipe marker every 25 to 50 feet interval of straight run.

END OF SECTION 220553

SECTION 220719
PLUMBING PIPING INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Glass fiber insulation.
- B. Jacketing and accessories.

1.02 REFERENCE STANDARDS

- A. ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus; 2019, with Editorial Revision (2023).
- B. ASTM C547 - Standard Specification for Mineral Fiber Pipe Insulation; 2022a.
- C. ASTM C795 - Standard Specification for Thermal Insulation for Use in Contact with Austenitic Stainless Steel; 2008 (Reapproved 2023).
- D. ASTM C1423 - Standard Guide for Selecting Jacketing Materials for Thermal Insulation; 2021.
- E. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2026.
- F. ASTM E96/E96M - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials; 2024a.
- G. SAE AMS3779 - Tape, Adhesive, Pressure-Sensitive Thermal Radiation Resistant, Aluminum Coated Glass Cloth; 2016b.
- H. 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 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years of documented experience.
- B. Applicator Qualifications: Company specializing in performing the type of work specified in this section with minimum three years of experience.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Accept materials on site, labeled with manufacturer's identification, product density, and thickness.

1.06 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 GLASS FIBER INSULATION

- A. Manufacturers:
 - 1. Johns Manville Corporation: www.jm.com.
 - 2. Knauf Insulation: www.knaufinsulation.com.
 - 3. Owens Corning Corporation: www.ocbuildingspec.com.

- B. Insulation: ASTM C547 and ASTM C795; rigid molded, noncombustible.
 - 1. K Value: ASTM C177, 0.24 at 75 degrees F.
 - 2. Maximum Service Temperature: 850 degrees F.
 - 3. Maximum Moisture Absorption: 0.2 percent by volume.
- C. Vapor Barrier Jacket: White Kraft paper with glass fiber yarn, bonded to aluminized film; moisture vapor transmission when tested in accordance with ASTM E96/E96M of 0.02 perm.

2.03 JACKETING AND ACCESSORIES

- A. Reinforced Tape:
 - 1. FSK tape suitable for sealing seams between insulation, insulated pipe bends, and fittings resulting in a tight, smooth surface without wrinkles.
 - 2. Comply with UL 723 or ASTM E84.
 - 3. Moisture Vapor Permeability: 0.00 perm inch, when tested in accordance with ASTM E96/E96M.
 - 4. Finish: Match insulation.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that piping has been tested before applying insulation materials.
- B. Verify that surfaces are clean and dry, with foreign material removed.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install in accordance with North American Insulation Manufacturers Association (NAIMA) National Insulation Standards.
- C. Insulated pipes conveying fluids below ambient temperature: Insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections, pump bodies, and expansion joints.
- D. Inserts and Shields:
 - 1. Application: Piping 1-1/2 inches diameter or larger.
 - 2. Shields: Galvanized steel between pipe hangers or pipe hanger rolls and inserts.
 - 3. Insert Location: Between support shield and piping and under the finish jacket.
 - 4. Insert Configuration: Minimum 6 inches long, of same thickness and contour as adjoining insulation; may be factory fabricated.
 - 5. Insert Material: Hydrous calcium silicate insulation or other heavy density insulating material suitable for the planned temperature range.
- E. Continue insulation through walls, sleeves, pipe hangers, and other pipe penetrations. Finish at supports, protrusions, and interruptions.

3.03 SCHEDULES

- A. Plumbing Systems:
 - 1. Domestic Cold and Hot Water Pipes:
 - a. Glass Fiber:
 - 1) Pipe Size Range: All.
 - 2) Thickness: 1/2 inch.

END OF SECTION 220719

**SECTION 221005
PLUMBING PIPING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Sanitary waste piping, above grade.
- B. Domestic water piping, above grade.
- C. Pipe hangers and supports.

1.02 RELATED REQUIREMENTS

- A. Section 220719 - Plumbing Piping Insulation.

1.03 REFERENCE STANDARDS

- A. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; 2021.
- B. ASME B16.22 - Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings; 2021.
- C. ASME B31.9 - Building Services Piping; 2025.
- D. ASTM A74 - Standard Specification for Cast Iron Soil Pipe and Fittings; 2025.
- E. ASTM B32 - Standard Specification for Solder Metal; 2020.
- F. ASTM B88 - Standard Specification for Seamless Copper Water Tube; 2022.
- G. ASTM B88M - Standard Specification for Seamless Copper Water Tube (Metric); 2020.
- H. ASTM B813 - Standard Specification for Water Flushable Liquid and Paste Fluxes for Soldering of Copper and Copper Alloy Tube; 2024.
- I. ASTM B828 - Standard Practice for Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings; 2023.
- J. ASTM C564 - Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings; 2020a.
- K. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2026.
- L. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation; 2025.
- M. NSF 61 - Drinking Water System Components - Health Effects; 2024.
- N. NSF 372 - Drinking Water System Components - Lead Content; 2024.
- O. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.

1.04 SUBMITTALS

- A. See Section 013300 Submittals for submittal procedures.
- B. Product Data: Provide data on pipe materials, pipe fittings, and accessories. Provide manufacturers catalog information.

1.05 QUALITY ASSURANCE

- A. Perform work in accordance with the IPC-International Plumbing Code; 2018 and all manufacturer guidelines.
- B. Identify pipe with marking including size, ASTM material classification, ASTM specification, potable water certification, water pressure rating.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.
- B. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Potable Water Supply Systems: Provide piping, pipe fittings, solder, and flux (if used), complying with NSF 61 and NSF 372; label pipe and fittings.
- B. Plenum-Installed Piping: Provide piping with flame spread index of 25 or less and smoke developed index of 50 or less when tested in accordance with ASTM E84 or UL 723.

2.02 SANITARY WASTE PIPING, ABOVE GRADE

- A. Cast Iron Pipe: ASTM A74, service weight.
 - 1. Fittings: Cast iron.
 - 2. Joint Seals: ASTM C564 neoprene gaskets, or lead and oakum.

2.03 DOMESTIC WATER PIPING, ABOVE GRADE

- A. Copper Pipe: ASTM B88 (ASTM B88M), Type L (B), Drawn (H).
 - 1. Fittings: ASME B16.18, cast copper, or ASME B16.22, wrought copper.
 - 2. Joints: ASTM B32 solder.

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. Vertical Pipe Support: Steel riser clamp.

PART 3 EXECUTION

3.01 PREPARATION

- A. Ream pipe and tube ends. Remove burrs.
- B. Remove scale and dirt, on inside and outside, before assembly.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Provide non-conducting dielectric connections wherever jointing dissimilar metals.
- C. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.
- D. Group piping whenever practical at common elevations.
- E. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.
 - 1. See Section 220719.
- F. Provide access where valves and fittings are not exposed.
- G. Install vent piping penetrating roofed areas to maintain integrity of roof assembly.
- H. Install bell and spigot pipe with bell end upstream.
- I. Install valves with stems upright or horizontal, not inverted.
- J. Install water piping to ASME B31.9.
- K. Copper Pipe and Tube: Make soldered joints in accordance with ASTM B828, using specified solder, and flux meeting ASTM B813; in potable water systems use flux also complying with NSF 61 and NSF 372.
- L. Pipe Hangers and Supports:
 - 1. Install in accordance with ASME B31.9.
 - 2. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.
 - 3. Place hangers within 12 inches of each horizontal elbow.

4. Use hangers with 1-1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
5. Support vertical piping at every floor. Support riser piping independently of connected horizontal piping.
6. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
7. Provide copper plated hangers and supports for copper piping.

3.03 TOLERANCES

- A. Drainage Piping: Establish invert elevations within 1/2 inch vertically of location indicated and slope to drain at minimum as determined by the IPC-International Plumbing Code (IPC).
- B. Water Piping: Slope at minimum of 1/32 inch per foot and arrange to drain at low points.

3.04 FIELD TESTS AND INSPECTIONS

- A. Verify and inspect systems according to requirements by the Authority Having Jurisdiction. In the absence of specific test and inspection procedures proceed as indicated below.
- B. Domestic Water Systems:
 1. Perform hydrostatic testing for leakage prior to system disinfection.
 2. Test Preparation: Close each fixture valve or disconnect and cap each connected fixture.
 3. General:
 - a. Fill the system with water and raise static head to 10 psi above service pressure. Minimum static head of 50 to 150 psi. As an exception, certain codes allow a maximum static pressure of 80 psi.
- C. Test Results: Document and certify successful results, otherwise repair, document, and retest.

END OF SECTION 221005

**SECTION 221006
PLUMBING PIPING SPECIALTIES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Drains.
- B. Cleanouts.
- C. Water hammer arrestors.
- D. Floor drain trap seals.

1.02 REFERENCE STANDARDS

- A. NSF 61 - Drinking Water System Components - Health Effects; 2024.
- B. NSF 372 - Drinking Water System Components - Lead Content; 2024.
- C. PDI-WH 201 - Water Hammer Arresters; 2017.

1.03 SUBMITTALS

- A. See Section 013300 Submittals for submittal procedures.
- B. Product Data: Provide component sizes, rough-in requirements, service sizes, and finishes.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Accept specialties on site in original factory packaging. Inspect for damage.

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. Manufacturers:
 - 1. MIFAB, Inc: www.mifab.com.
 - 2. WATTS, A Watts Water Technologies Company: <https://www.watts.com>.
 - 3. Zurn Industries, LLC: www.zurn.com.
- B. Light-Duty Floor Drains:
 - 1. Body: Dura-Coated cast iron.
 - 2. Flashing Flange: Provide flashing flange to connect drain to waterproofing membrane.
 - 3. Strainer grate: Removeable, nickel bronze.
 - a. Shape: As indicated on drawings.
 - b. Grate Pattern: Heel proof.
- C. Light-Duty Floor Drain Strainer Top:
 - 1. Body: Strainer only.
 - 2. Strainer grate: Removable, nickel bronze.
 - a. Shape: As indicated on drawings.
 - b. Grate Pattern: Heel proof.

2.03 CLEANOUTS

- A. Manufacturers:
 - 1. Jay R. Smith Manufacturing Company: www.jrsmith.com.
 - 2. MIFAB, Inc: www.mifab.com.

3. Zurn Industries, LLC: www.zurn.com.
- B. Cleanouts at Interior Finished Wall Areas:
 1. Line type with cast iron body and round cast iron plug/cover, and round stainless steel access cover secured with machine screw.

2.04 WATER HAMMER ARRESTORS

- A. Manufacturers:
 1. Watts Regulator Company, a part of Watts Water Technologies: www.wattsregulator.com.
 2. Zurn Industries, LLC: www.zurn.com.
 3. Sioux Chief Manufacturing: www.sioxchief.com.
- B. Water Hammer Arrestors:
 1. Copper construction, piston type sized in accordance with PDI-WH 201, precharged suitable for operation in temperature range 34 to 250 degrees F and maximum 350 psi working pressure.
 2. Certified by ANSI/ASSE 1010.

2.05 FLOOR DRAIN TRAP SEALS

- A. Manufacturers:
 1. Green Drains: www.greendrains.com.
 2. MIFAB, Inc: www.mifab.com.
 3. Zurn Industries, LLC: www.zurn.com.
- B. Description: Push-fit EPDM, ABS, or silicone fitting with a one-way membrane.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Extend cleanouts to finished floor or wall surface. Lubricate threaded cleanout plugs with mixture of graphite and linseed oil. Ensure clearance at cleanout for rodding of drainage system.
- C. Install floor drains at elevation to accommodate finished floor.
- D. Install water hammer arrestors on hot and cold water supply piping to service sinks, lavatory sinks, drinking fountains, urinals, and water closets.

END OF SECTION 221006

**SECTION 224000
PLUMBING FIXTURES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Flush valve water closets.
- B. Tank type water closets.
- C. Wall hung urinals.
- D. Lavatories.
- E. Supply stops.
- F. Under-lavatory pipe supply covers.
- G. Bottle filling stations.
- H. Mop sinks.

1.02 REFERENCE STANDARDS

- A. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.
- B. ASME A112.6.1M - Floor-Affixed Supports for Off-the-Floor Plumbing Fixtures for Public Use; 1997 (Reaffirmed 2017).
- C. ASME A112.18.1 - Plumbing Supply Fittings; 2024.
- D. ASME A112.18.9 - Protectors/Insulators for Exposed Waste and Supplies on Accessible Fixtures; 2011 (Reaffirmed 2022).
- E. ASME A112.19.2 - Ceramic Plumbing Fixtures; 2024.
- F. ASME A112.19.3 - Stainless Steel Plumbing Fixtures; 2022.
- G. ASSE 1037/ASME A112.1037/CSA B125.37 - Performance Requirements for Pressurized Flushing Devices for Plumbing Fixtures; 2020 (Reaffirmed 2025).
- H. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi; 2015, with Editorial Revision (2021).
- I. IAPMO/ANSI Z124.6 - Plastic Sinks; 2007.
- J. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.
- K. NSF 42 - Drinking Water Treatment Units – Aesthetic Effects; 2023.
- L. NSF 53 - Drinking Water Treatment Units – Health Effects; 2023.
- M. NSF 61 - Drinking Water System Components - Health Effects; 2024.
- N. NSF 372 - Drinking Water System Components - Lead Content; 2024.
- O. NSF 401 - Drinking Water Treatment Units – Emerging Compounds / Incidental Contaminants; 2023.
- P. UL (DIR) - Online Certifications Directory; Current Edition.

1.03 SUBMITTALS

- A. See Section 013300 Submittals for submittal procedures.
- B. Product Data: Provide manufacturer's literature and data sheets for each product. Include materials of fabrication, rough-in requirements, location and sizes of connections, configurations, dimensions, finishes, features, and accessories.
- C. Operation and Maintenance Data: Include fixture trim exploded view and replacement parts lists.
- D. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Accept fixtures on-site in factory packaging. Inspect for damage.
- B. Protect installed fixtures from damage by securing areas and by leaving factory packaging in place to protect fixtures and prevent use.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Potable Water Systems: Provide drinking water system components certified as complying with NSF 61 and NSF 372.
- B. ADA: Where indicated to be ADA-compliant, provide fixtures complying with ADA Standards and ICC A117.1.

2.02 REGULATORY REQUIREMENTS

- A. Comply with the IPC - International Plumbing Code; 2018 for installation of plumbing systems.
- B. Comply with UL (DIR) requirements.

2.03 FLUSH VALVE WATER CLOSETS

- A. Water Closets:
 - 1. Vitreous china, ASME A112.19.2, floor mounted, siphon jet flush action.
 - 2. Bowl: ASME A112.19.2; 16.5 inches high with elongated rim.
 - 3. Flush Valve: Exposed (top spud).
 - 4. Flush Operation: Manual, handle.
 - 5. Manufacturers:
 - a. American Standard: www.americanstandard-us.com.
 - b. Kohler Company: www.kohler.com.
 - c. Zurn Industries, LLC: www.zurn.com.
- B. Flush Valves:
 - 1. Valve Supply Size: 1 inch.
 - 2. Valve Outlet Size: 1-1/2 inches.
 - 3. Manufacturers:
 - a. American Standard: www.americanstandard-us.com.
 - b. Kohler Company: www.kohler.com.
 - c. Sloan Valve Company: www.sloanvalve.com.
 - 4. Manual Operated:
 - a. Type: ASSE 1037/ASME A112.1037/CSA B125.37; diaphragm type complete with vacuum breaker stops, and accessories.
 - b. Supplied Volume Capacity: 1.6 gal per flush.
 - 5. Exposed Type: Chrome-plated, escutcheon, integral screwdriver stop.
- C. Toilet Seats:
 - 1. Manufacturers:
 - a. American Standard: www.americanstandard-us.com
 - b. Bemis Manufacturing Company: www.bemismfg.com.
 - c. Zurn Industries, LLC: www.zurn.com.
 - d. Kohler Company: www.kohler.com.
 - 2. Plastic: White finish, open front, extended back, self-sustaining hinge, brass bolts, antimicrobial coating, without cover.

2.04 TANK TYPE WATER CLOSETS

- A. Manufacturers:

1. American Standard: www.americanstandard-us.com.
 2. Kohler Company: www.kohler.com.
 3. Zurn Industries, LLC: www.zurn.com.
- B. Floor-Mounted Bowl:
1. ASME A112.19.2; siphon jet, vitreous china, 16.5 inches high, two piece with elongated rim, insulated vitreous china closet tank with fittings and lever flushing valve, bolt caps.
 2. Water Consumption: 1.28 gal per flush, maximum.
- C. Toilet Seats:
1. Plastic: Solid, white, elongated, open front, without cover, and brass bolts with covers.
 2. Manufacturers:
 - a. American Standard: www.americanstandard-us.com.
 - b. Bemis Manufacturing Company: www.bemismfg.com.
 - c. Zurn Industries, LLC: www.zurn.com.
 - d. Kohler Company: www.kohler.com.

2.05 WALL HUNG URINALS

- A. Manufacturers:
1. American Standard: www.americanstandard-us.com.
 2. Kohler Company: www.kohler.com.
 3. Zurn Industries, LLC: www.zurn.com.
- B. Vitreous china, ASME A112.19.2, wall hung with side shields and concealed carrier.
1. Consumption Volume: 0.5 gal per flush, maximum.
 2. Flush Style: Washout.
 3. Flush Valve: Exposed (top spud).
 4. Flush Operation: Manual, handle.
 5. Trapway Outlet: Integral.
 6. Removable stainless steel strainer.
 7. Outlet Size and Location: 2 inches, rear side.
- C. Flush Valves:
1. Manufacturers:
 - a. American Standard: www.americanstandard-us.com.
 - b. Kohler Company: www.kohler.com.
 - c. Sloan Valve Company: www.sloanvalve.com.
 2. Manual Operated:
 - a. Type: ASSE 1037/ASME A112.1037/CSA B125.37; diaphragm type, complete with vacuum breaker stops, and accessories.
 - b. Supplied Volume Capacity: 0.5 gal per flush.
 3. Exposed Type: Chrome-plated, escutcheon, integral screwdriver stop.
- D. Urinal Carriers:
1. Manufacturers:
 - a. Jay R. Smith Manufacturing Company: www.jrsmith.com.
 - b. JOSAM Company: www.josam.com.
 - c. Zurn Industries, LLC: www.zurn.com.
 2. ASME A112.6.1M; cast iron and steel frame with tubular legs, lugs for floor and wall attachment, threaded fixture studs for fixture hanger, bearing studs.

2.06 LAVATORIES

- A. Manufacturers:
1. American Standard: www.americanstandard-us.com.
 2. Kohler Company: www.kohler.com.
 3. Zurn Industries, LLC: www.zurn.com.

- B. Wall-Hung Basin:

1. Vitreous China: ASME A112.19.2; white, rectangular basin with splash lip, front overflow, and hanger. Size as indicated on drawings with 8-inch centerset spacing.
 - a. Drain: Provide polished chrome grid drain with overflow.
- C. Under-Mount Bathroom Sink:
 1. Vitreous China: ASME A112.19.2; white interior, oval shape, front overflow, seal of putty, caulking, or concealed vinyl gasket, and white exterior finish. Size as indicated on drawings.
 - a. Drain: Provide polished chrome grid drain with overflow.
- D. Supply Faucet:
 1. Deck Mounted Faucet Manufacturers:
 - a. American Standard: www.americanstandard-us.com.
 - b. Kohler Company: www.kohler.com.
 - c. Chicago Faucets: www.chicagofaucets.com.
 2. Two-Lever Handle, Supply Faucet: ASME A112.18.1; deck-mount, washerless ceramic disc valves, and maximum flow of 0.35 gpm. Polished chrome finish.

2.07 SUPPLY STOPS

- A. Manufacturers:
 1. Jones Stephens: www.jonesstephens.com.
 2. PROFLO: www.ferguson.com.
 3. SharkBite, a brand of Reliance Worldwide Corporation: www.sharkbite.com.
- B. Description: ASME A112.18.1, quarter-turn full-port brass ball valve.
- C. Operation: Handwheel or T-handle.
- D. Finish: Polished chrome.
- E. End Connections: Provide supply stops with end connections to match rough-in piping.
- F. Maximum Working Pressure: 125 psi.
- G. Working Temperature Range: 33 to 160 degrees F.

2.08 UNDER-LAVATORY PIPE SUPPLY COVERS

- A. Manufacturers:
 1. Plumberex Specialty Products, Inc: www.plumberex.com.
 2. IPS Corporation: www.ipsplumbingproducts.com.
 3. Oatey: www.oatey.com.
- B. General:
 1. Insulate exposed drainage piping including hot, cold and tempered water supplies under lavatories or sinks per ADA Standards.
 2. Construction: 1/8 inch PVC with antimicrobial, antifungal and UV resistant properties.
 - a. Comply with ASME A112.18.9 for covers on accessible lavatory piping.
 - b. Comply with ICC A117.1.
 - c. Microbial and Fungal Resistance for Interior and Exterior: Comply with ASTM G21.
 3. Color: High gloss white.

2.09 BOTTLE FILLING STATIONS

- A. Manufacturers:
 1. Elkay Manufacturing Company: www.elkay.com.
 2. Haws Corporation: www.hawsco.com.
 3. Halsey Taylor: www.hawsco.com.
- B. Bottle Filler:
 1. Surface mount assembly.
 2. Lead-free waterways.
 3. Hands free operation.
 4. Filter replacement indicator.

5. Mounting type: Surface wall mount.
6. Chilling Capacity: 8.0 GPH.
7. Electrical:
 - a. Factory provided electrical cord with three-prong molded rubber plug for use in 15-amp minimum receptacle.
8. Certifications:
 - a. General: ASME A112.19.3.
 - b. Filter: NSF 42, NSF 53, NSF 372, and NSF 401.

2.10 MOP SINKS

- A. Manufacturers:
 1. Metcraft Industries, Inc: www.metcraftindustries.com.
 2. Zurn Industries, LLC: www.zurn.com.
 3. E. L. Mustee & Sons: www.mustee.com.
- B. Material: Molded high density composite meeting IAPMO/ANSI Z124.6.
- C. Grid Strainer: Stainless steel; integral.
- D. Dimensions: As indicated on drawings.
- E. Supply Faucet:
 1. Wall mounted Faucet Manufacturers:
 - a. American Standard, Inc: www.americanstandard-us.com.
 - b. Kohler Company: www.kohler.com.
 - c. Chicago Faucets: www.chicagofaucets.com.
 2. Two-Lever Handle, Supply Faucet: ASME A112.18.1; wall-mount, 1/4 turn ceramic disc valves, and a maximum flow of 1.8 gpm. Polished chrome finish.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify walls, floors, and finishes are prepared and ready for installation of fixtures.
- B. Verify rough-ins for field connections match sizes and locations shown on drawings.
- C. Verify electric power is available and of the correct characteristics.
- D. Verify casework and countertops are prepared and ready for installation of fixtures.

3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install components level and plumb.
- C. Secure fixtures in place.
- D. Install rigid or flexible supplies to fixtures. Provide supply stops, reducers, and escutcheons.
- E. Install wall-mounted fixtures, trim, and accessories at heights indicated on drawings.

3.03 ADJUSTING

- A. Adjust stops and valves so fixtures operate without splashing, noise, or overflow.

3.04 CLEANING

- A. Clean plumbing fixtures to remove dirt, fingerprints, paint, or other foreign material and restore finishes to match original factory finish.

3.05 CLOSEOUT ACTIVITIES

- A. Instruct Owner's Maintenance Staff
 1. Provide demonstration of automatic flush valve adjustment and operation.
 2. Provide demonstration of maintenance and replacement of parts for bottle filling station.

3.06 PROTECTION

- A. Protect installed products from damage due to subsequent construction operations.
- B. Do not permit use of fixtures by construction personnel.

END OF SECTION 224000

SECTION 230593
TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Testing, adjustment, and balancing of air systems.

1.02 REFERENCE STANDARDS

- A. AABC (NSTSB) - AABC National Standards for Total System Balance, 7th Edition; 2016.
- B. ASHRAE Std 111 - Measurement, Testing, Adjusting, and Balancing of Building HVAC Systems; 2024, with Errata (2025).
- C. SMACNA (TAB) - HVAC Systems Testing, Adjusting and Balancing; 2023.

1.03 SUBMITTALS

- A. See Section 013300 Submittals for submittal procedures.
- B. Installer Qualifications: Submit name of adjusting and balancing agency and TAB supervisor for approval within 30 days after award of Contract.
- C. Pre-Balancing Report:
 - 1. Submit pre-balancing report. Refer to drawings for additional requirements.
- D. Final Report: Indicate deficiencies in systems that would prevent proper testing, adjusting, and balancing of systems and equipment to achieve specified performance.
 - 1. Include actual instrument list, with manufacturer name, serial number, and date of calibration.
 - 2. Form of Test Reports: Where the TAB standard being followed recommends a report format use that; otherwise, follow ASHRAE Std 111.
 - 3. Units of Measure: Report data in I-P (inch-pound) units only.
 - 4. Include the following on the title page of each report:
 - a. Name of Testing, Adjusting, and Balancing Agency.
 - b. Address of Testing, Adjusting, and Balancing Agency.
 - c. Telephone number of Testing, Adjusting, and Balancing Agency.
 - d. Project name.
 - e. Project location.
 - f. Project Engineer.
 - g. Project Contractor.
 - h. Report date.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

- A. Perform total system balance in accordance with one of the following:
 - 1. AABC (NSTSB), AABC National Standards for Total System Balance.
 - 2. ASHRAE Std 111, Practices for Measurement, Testing, Adjusting and Balancing of Building Heating, Ventilation, Air-Conditioning, and Refrigeration Systems.
 - 3. NEBB (TAB) - Procedural Standard for Testing Adjusting and Balancing of Environmental Ssystems; 2019.
 - 4. SMACNA (TAB).
- B. Begin work after completion of systems to be tested, adjusted, or balanced and complete work prior to Substantial Completion of the project.
- C. TAB Agency Qualifications:
 - 1. Company specializing in the testing, adjusting, and balancing of systems specified in this section.
 - 2. Having minimum of three years documented experience.
 - 3. Certified by one of the following:

- a. AABC, Associated Air Balance Council: www.aabc.com/; upon completion submit AABC National Performance Guaranty.
- b. NEBB, National Environmental Balancing Bureau: www.nebb.org.
- c. TABB, The Testing, Adjusting, and Balancing Bureau of National Energy Management Institute: www.tabbcertified.org/.

D. TAB Supervisor and Technician Qualifications: Certified by same organization as TAB agency.

3.02 EXAMINATION

- A. Verify that systems are complete and operable before commencing work. Ensure the following conditions:
 - 1. Systems are started and operating in a safe and normal condition.
 - 2. Duct systems are clean of debris.
 - 3. Air outlets and inlets are installed and connected.
 - 4. Duct system leakage is minimized.
- B. Submit field reports. Report defects and deficiencies that will or could prevent proper system balance.
- C. Beginning of work means acceptance of existing conditions.

3.03 PREPARATION

- A. Prior to demolition, measure and report existing conditions to the Engineer.
- B. Provide additional balancing devices as required.

3.04 ADJUSTMENT TOLERANCES

- A. Air Outlets and Inlets: Adjust total to within plus 10 percent and minus 5 percent of design to space. Adjust outlets and inlets in space to within plus or minus 10 percent of design.

3.05 RECORDING AND ADJUSTING

- A. Ensure recorded data represents actual measured or observed conditions.
- B. Permanently mark settings of valves, dampers, and other adjustment devices allowing settings to be restored. Set and lock memory stops.
- C. Mark on drawings the locations where traverse and other critical measurements were taken and cross reference the location in the final report.
- D. After adjustment, take measurements to verify balance has not been disrupted or that such disruption has been rectified.
- E. Leave systems in proper working order, replacing belt guards, closing access doors, closing doors to electrical switch boxes, and restoring thermostats to specified settings.

3.06 AIR SYSTEM PROCEDURE

- A. Adjust air handling and distribution systems to provide required or design supply and exhaust air quantities.
- B. Make air quantity measurements in ducts by Pitot tube traverse of entire cross sectional area of duct.
- C. Measure air quantities at air inlets and outlets.
- D. Adjust distribution system to obtain uniform space temperatures free from objectionable drafts and noise.
- E. Use volume control devices to regulate air quantities only to extend that adjustments do not create objectionable air motion or sound levels. Effect volume control by duct internal devices such as dampers and splitters.
- F. Provide system schematic with required and actual air quantities recorded at each outlet or inlet.

3.07 SCOPE

- A. Test, adjust, and balance the following:
 - 1. Air Inlets and Outlets.
 - 2. Existing Exhaust Fans.

3.08 MINIMUM DATA TO BE REPORTED

- A. Air Inlets:
 - 1. Location.
 - 2. Associated Exhaust Fan.
 - 3. Air flow, specified and actual.
- B. Air Outlets:
 - 1. Location.
 - 2. Associated HVAC equipment.
 - 3. Airflow, specified and actual.
- C. Existing Exhaust Fans:
 - 1. Location.
 - 2. Manufacturer.
 - 3. Model number.
 - 4. Serial number.
 - 5. Air flow, actual.
 - 6. Total static pressure (total external), actual.
 - 7. Fan RPM.

END OF SECTION 230593

**SECTION 230713
DUCT INSULATION**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Duct insulation.

1.02 RELATED REQUIREMENTS

- A. Section 233100 - HVAC Ducts and Casings.

1.03 REFERENCE STANDARDS

- A. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; 2021.
- B. ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications; 2024.
- C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2026.
- D. ASTM E96/E96M - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials; 2024a.
- E. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.

1.04 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.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified in this section with not less than three years of documented experience.
- B. Applicator Qualifications: Company specializing in performing the type of work specified in this section, documented experience and approved by manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Accept materials on site in original factory packaging, labelled with manufacturer's identification, including product density and thickness.
- B. Protect insulation from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original wrapping.

1.07 FIELD CONDITIONS

- A. Maintain ambient temperatures and conditions required by manufacturers of adhesives, mastics, and insulation cements.
- B. Maintain temperature during and after installation for minimum period 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 GLASS FIBER, FLEXIBLE

- A. Manufacturer:
 - 1. Johns Manville: www.jm.com.
 - 2. Knauf Insulation: www.knaufinsulation.com.
 - 3. Owens Corning Corporation: www.ocbuildingspec.com.

- B. Insulation: ASTM C553; flexible, noncombustible blanket.
 - 1. K value: 0.25 at 75 degrees F, when tested in accordance with ASTM C518.
 - 2. Maximum Service Temperature: 250 degrees F.
 - 3. Maximum Water Vapor Absorption: 5.0 percent by weight.
- C. Vapor Barrier Jacket:
 - 1. Kraft paper with glass fiber yarn and bonded to aluminized film.
 - 2. Moisture Vapor Permeability: 0.02 perm inch, when tested in accordance with ASTM E96/E96M.
 - 3. Secure with pressure-sensitive tape.
- D. Vapor Barrier Tape:
 - 1. Kraft paper reinforced with glass fiber yarn and bonded to aluminized film, with pressure-sensitive rubber-based adhesive.
- E. Indoor Vapor Barrier Mastic:
 - 1. Vinyl emulsion type acrylic or mastic, compatible with insulation, black color.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Test ductwork for design pressure prior to applying insulation materials.
- B. Verify that surfaces are clean, foreign material removed, and dry.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install in accordance with NAIMA National Insulation Standards.
- C. Insulated Ducts Conveying Air Below Ambient Temperature:
 - 1. Provide insulation with vapor barrier jackets.
 - 2. Finish with tape and vapor barrier jacket.
 - 3. Continue insulation through walls, sleeves, hangers, and other duct penetrations.
 - 4. Insulate entire system, including fittings, joints, flanges, fire dampers, flexible connections, and expansion joints.
- D. External Duct Insulation Application:
 - 1. Secure insulation with vapor barrier with wires and seal jacket joints with vapor barrier adhesive or tape to match jacket.
 - 2. Install without sag on underside of duct. Use adhesive or mechanical fasteners where necessary to prevent sagging. Lift duct off trapeze hangers and insert spacers.
 - 3. Seal vapor barrier penetrations by mechanical fasteners with vapor barrier adhesive.
 - 4. Stop and point insulation around access doors and damper operators to allow operation without disturbing wrapping.

3.03 SCHEDULES

- A. Supply Ducts:
 - 1. All: Glass Fiber, Flexible. Minimum Installed R-Value: R-6.0.

END OF SECTION 230713

SECTION 233100
HVAC DUCTS AND CASINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Metal ducts.
- B. Flexible ducts.

1.02 RELATED REQUIREMENTS

- A. Section 230713 - Duct Insulation: External insulation.
- B. Section 233700 - Air Outlets and Inlets.

1.03 REFERENCE STANDARDS

- A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2019.
- B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025a.
- C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2026.
- D. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems; 2024.
- E. NFPA 90B - Standard for the Installation of Warm Air Heating and Air-Conditioning Systems; 2024.
- F. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2020.
- G. UL 181 - Standard for Factory-Made Air Ducts and Air Connectors; Current Edition, Including All Revisions.

1.04 SUBMITTALS

- A. See Section 013300 Submittals for submittal procedures.
- B. Product Data: Provide data for Factory Insulated Flexible Duct.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience, and approved by manufacturer.
- B. Installer Qualifications: Company specializing in performing the type of work specified in this section, with minimum three years of documented experience.

1.06 FIELD CONDITIONS

- A. Do not install duct sealants when temperatures are less than those recommended by sealant manufacturers.
- B. Maintain temperatures within acceptable range during and after installation of duct sealants.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Provide UL Class 1 ductwork, fittings, hangers, supports, and appurtenances in accordance with NFPA 90A and SMACNA (DCS) guidelines unless stated otherwise.
- B. Provide metal duct unless otherwise indicated.
- C. Duct Shape and Material in accordance with Allowed Static Pressure Range:
 - 1. Round: Plus or minus 2 in-wc of galvanized steel.
 - 2. Rectangular: Plus or minus 2 in-wc of galvanized steel.
 - 3. Flexible Duct (Fabric and wire): Plus or minus 1 in-wc; see Section 233700.
- D. Duct Sealing and Leakage in accordance with Static Pressure Class:
 - 1. Duct Pressure Class and Material for Common Mechanical Ventilation Applications:
 - a. Supply Air: 2 in-wc pressure class, galvanized steel.
 - b. General Exhaust Air: 1 in-wc pressure class, galvanized steel.

2. Low Pressure Service: Up to 2 in-wc:
 - a. Seal: Class C, apply to seal off transverse joints.
 - b. Leakage:
 - 1) Rectangular: Class 24 or 24 cfm/100 sq ft.
 - 2) Round: Class 12 or 12 cfm/100 sq ft.
- E. Duct Fabrication Requirements:
 1. Duct and Fitting Fabrication and Support: SMACNA (DCS).
 2. Use reinforced and sealed sheet-metal materials at recommended gauges for indicated operating pressures or pressure class.
 3. Construct tees, bends, and elbows with radius of not less than 1-1/2 times width of duct on centerline.
 4. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30 degrees divergence upstream of equipment and 45 degrees convergence downstream.

2.02 METAL DUCTS

- A. Material Requirements:
 1. Galvanized Steel: Hot-dipped galvanized steel sheet, ASTM A653/A653M FS Type B, with G60/Z180 coating.
- B. Round Metal Ducts:
 1. Round Single Wall Duct: Round lock seam duct with galvanized steel outer wall.
 2. Round Connection System: Interlocking duct connection system in accordance with SMACNA (DCS).
- C. Connectors, Fittings, Sealants, and Miscellaneous:
 1. Joint Sealers and Sealants: Non-hardening, water resistant, mildew and mold resistant.
 - a. Type: Heavy mastic or liquid used alone or with tape, suitable for joint configuration and compatible with substrates, and recommended by manufacturer for pressure class of ducts.
 - b. Surface Burning Characteristics: Flame spread index of zero and smoke developed index of zero, when tested in accordance with ASTM E84.
 - c. For Use with Flexible Ducts: UL labeled.
 2. Hanger Rod: ASTM A36/A36M; steel, galvanized; threaded both ends, threaded one end, or continuously threaded.

2.03 FLEXIBLE DUCTS

- A. Flexible Ducts: UL 181, Class 1, polyethylene film, mechanically fastened and rolled using galvanized steel to form spiral helix.
 1. Insulation: R6.0 insulation with polyethylene vapor barrier film.
 2. Pressure Rating: 6 in-wc positive and 1 in-wc negative.
 3. Maximum Velocity: 5000 fpm.
 4. Temperature Range: -20 to 200 degrees F.
 5. Manufacturers:
 - a. Flexmaster USA, a brand of Masterduct, Inc: www.flexmasterusa.com.
 - b. JP Lamborn Co.: <https://jplflex.com>.
 - c. Thermaflex; a Flex-Tek Group Company: <https://thermaflex.net>.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install, support, and seal ducts in accordance with SMACNA (DCS).
- B. Install products following the manufacturer's instructions.
- C. Comply with safety standards NFPA 90A and NFPA 90B.
- D. During construction, provide temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering the ductwork system.

- E. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30 degrees divergence upstream of equipment and 45 degrees convergence downstream.
- F. Flexible Ducts: Connect to metal ducts with adhesive.
- G. Duct sizes indicated are precise inside dimensions.
- H. Use double nuts and lock washers on threaded rod supports.
- I. Connect diffusers to low-pressure ducts directly or with 5 feet maximum length of flexible duct.
- J. Duct Insulation: Provide duct insulation. See Section 230713.

END OF SECTION 233100

SECTION 233300
AIR DUCT ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Volume control dampers.

1.02 RELATED REQUIREMENTS

- A. Section 233100 - HVAC Ducts and Casings.

1.03 REFERENCE STANDARDS

- A. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems; 2024.
- B. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2020.

1.04 SUBMITTALS

- A. See Section 013300 Submittals for submittal procedures.
- B. Product Data: Provide data for dampers required for the project. Include damper size and quantity.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect dampers from damage to operating linkages and blades.

PART 2 PRODUCTS

2.01 VOLUME CONTROL DAMPERS

- A. Manufacturers:
 - 1. AireTechnologies, Inc, a DMI Company: www.airetechnologies.com.
 - 2. Nailor Industries, Inc: www.nailor.com.
 - 3. Pottorff: www.pottorff.com.
- B. Single Blade Dampers:
 - 1. Fabricate for duct diameter up to 24 inches.
 - 2. Blade: 22 gauge, 0.03 inch, minimum.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install accessories in accordance with manufacturer's instructions, NFPA 90A, and follow SMACNA (DCS). See Section 233100 for duct construction and pressure class.
- B. Provide balancing dampers on duct take-off to diffusers, grilles, and registers.

END OF SECTION 233300

SECTION 233700
AIR OUTLETS AND INLETS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Diffusers:
 - 1. Perforated ceiling diffusers.
 - 2. Rectangular ceiling diffusers.
- B. Registers/grilles:
 - 1. Ceiling/Wall-mounted, exhaust register/grilles.

1.02 REFERENCE STANDARDS

- A. ASHRAE Std 70 - Method of Testing the Performance of Air Outlets and Air Inlets; 2023.

1.03 SUBMITTALS

- A. See Section 013300 Submittals for submittal procedures.
- B. Product Data: Provide data for equipment required for this project. Review outlets and inlets as to size, finish, and type of mounting prior to submission. Submit schedule of outlets and inlets showing type, size, location, application, and noise level.

1.04 QUALITY ASSURANCE

- A. Test and rate air outlet and inlet performance in accordance with ASHRAE Std 70.
- B. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Krueger-HVAC: www.krueger-hvac.com.
- B. Price Industries: www.priceindustries.com.
- C. Titus, a brand of Air Distribution Technologies: www.titus-hvac.com.

2.02 RECTANGULAR CEILING DIFFUSERS

- A. Plaque Type: Provide square formed removable face plaque ceiling diffusers constructed to maintain 360 degree discharge air pattern.
- B. Louvered Type: Provide square formed removable modular louvered face ceiling diffusers constructed to maintain two-way discharge air pattern.
- C. Connections: Round.
- D. Frame:
 - 1. Plaque Type: Provide lay-in type.
 - 2. Louvered Type: Provide surface mount bevelled type.
- E. Fabrication: Steel with baked enamel finish.
- F. Color: White.
- G. Accessories:
 - 1. Louvered Type: Provide square to round adaptor with face operable steel damper.

2.03 PERFORATED FACE CEILING DIFFUSERS

- A. Type: Perforated face.
- B. Connections: Galvanized steel exhaust plenum. Box to match neck size of air device.
- C. Frame: Provide lay-in type.
- D. Fabrication: Steel with steel frame and baked enamel finish.

- E. Color: White.
- F. Accessories:
 - 1. Provide integral opposed blade balance damper.

2.04 CEILING/WALL EXHAUST REGISTERS/GRILLES

- A. Type: Streamlined blades, 3/4 inch minimum depth, 1/2 inch maximum spacing, fixed face.
- B. Frame: 1-1/4 inch margin with countersunk screw mounting.
- C. Fabrication: Steel frames and blades, with factory baked enamel finish.
- D. Color: White.
- E. Accessories:
 - 1. Integral opposed blade balance damper.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Check location of outlets and inlets and make necessary adjustments in position to comply with architectural features, symmetry, and lighting arrangement.

3.02 PROTECTION

- A. Protect installed products until completion of project.
- B. Replace, repair, or touch-up damaged products before Substantial Completion.

END OF SECTION 233700

SECTION 260519
LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Single conductor building wire.
- B. Metal-clad cable.
- C. Wiring connectors.
- D. Electrical tape.
- E. Heat shrink tubing.
- F. Wire pulling lubricant.
- G. Cable ties.

1.02 RELATED REQUIREMENTS

- A. Section 260526 - Grounding and Bonding for Electrical Systems: Additional requirements for grounding conductors and grounding connectors.

1.03 REFERENCE STANDARDS

- A. ASTM B3 - Standard Specification for Soft or Annealed Copper Wire; 2013 (Reapproved 2024).
- B. ASTM B8 - Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft; 2023.
- C. ASTM B33 - Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes; 2010, with Editorial Revision (2020).
- D. ASTM B787/B787M - Standard Specification for 19 Wire Combination Unilay-Stranded Copper Conductors for Subsequent Insulation; 2004 (Reapproved 2020).
- E. ASTM D3005 - Standard Specification for Low-Temperature Resistant Vinyl Chloride Plastic Pressure-Sensitive Electrical Insulating Tape; 2024.
- F. ASTM D4388 - Standard Specification for Nonmetallic Semi-Conducting and Electrically Insulating Rubber Tapes; 2020.
- G. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.
- H. NECA 120 - Standard for Installing Armored Cable (AC) and Type Metal-Clad (MC) Cable; 2018.
- I. NEMA WC 70 - Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy; 2021.
- J. NETA ATS - Standard for Acceptance Testing Specifications for Electrical Power Equipment And Systems; 2025.
- K. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- L. UL 44 - Thermoset-Insulated Wires and Cables; Current Edition, Including All Revisions.
- M. UL 83 - Thermoplastic-Insulated Wires and Cables; Current Edition, Including All Revisions.
- N. UL 267 - Outline of Investigation for Wire-Pulling Compounds; Current Edition, Including All Revisions.
- O. UL 486A-486B - Wire Connectors; Current Edition, Including All Revisions.
- P. UL 486C - Splicing Wire Connectors; Current Edition, Including All Revisions.
- Q. UL 486D - Sealed Wire Connector Systems; Current Edition, Including All Revisions.
- R. UL 510 - Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape; Current Edition, Including All Revisions.
- S. UL 1569 - Metal-Clad Cables; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate sizes of raceways, boxes, and equipment enclosures installed under other sections with the actual conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
 - 2. Coordinate with electrical equipment installed under other sections to provide terminations suitable for use with the conductors to be installed.
 - 3. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store conductors and cables in accordance with manufacturer's instructions.

1.07 FIELD CONDITIONS

- A. Do not install or otherwise handle thermoplastic-insulated conductors at temperatures lower than 14 degrees F, unless otherwise permitted by manufacturer's instructions. When installation below this temperature is unavoidable, notify Engineer and obtain direction before proceeding with work.

PART 2 PRODUCTS

2.01 CONDUCTOR AND CABLE APPLICATIONS

- A. Do not use conductors and cables for applications other than as permitted by NFPA 70 and product listing.
- B. Provide single conductor building wire installed in suitable raceway unless otherwise indicated, permitted, or required.
- C. Metal-clad cable is permitted only as follows:
 - 1. Where not otherwise restricted, may be used:
 - a. Where concealed above accessible ceilings for final connections from junction boxes to luminaires.
 - 1) Maximum Length: 6 feet.
 - b. Where concealed in hollow stud walls and above accessible ceilings for branch circuits up to 20 A.
 - 1) Exception: Provide single conductor building wire in raceway for circuit homerun from first outlet to panelboard.
 - 2. In addition to other applicable restrictions, may not be used:
 - a. Where exposed to damage.
 - b. For damp, wet, or corrosive locations.

2.02 CONDUCTOR AND CABLE GENERAL REQUIREMENTS

- A. Provide products that comply with requirements of NFPA 70.
- B. Provide products listed, classified, and labeled as suitable for the purpose intended.
- C. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, etc. as required for a complete operating system.
- D. Comply with NEMA WC 70.
- E. Thermoplastic-Insulated Conductors and Cables: Listed and labeled as complying with UL 83.
- F. Thermoset-Insulated Conductors and Cables: Listed and labeled as complying with UL 44.
- G. Conductors for Grounding and Bonding: Also comply with Section 260526.
- H. Conductors and Cables Installed Exposed in Spaces Used for Environmental Air (only where specifically permitted): Plenum rated, listed and labeled as suitable for use in return air plenums.
- I. Conductor Material:

1. Provide copper conductors only. Aluminum conductors are not acceptable for this project. Conductor sizes indicated are based on copper.
 2. Copper Conductors: Soft drawn annealed, 98 percent conductivity, uncoated copper conductors complying with ASTM B3, ASTM B8, or ASTM B787/B787M unless otherwise indicated.
 3. Tinned Copper Conductors: Comply with ASTM B33.
- J. Minimum Conductor Size:
1. Branch Circuits: 12 AWG.
 - a. Exceptions:
 - 1) 20 A, 120 V circuits longer than 75 feet: 10 AWG, for voltage drop.
 - 2) 20 A, 120 V circuits longer than 150 feet: 8 AWG, for voltage drop.
- K. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
- L. Conductor Color Coding:
1. Color code conductors as indicated unless otherwise required by the authority having jurisdiction. Maintain consistent color coding throughout project.
 2. Color Coding Method: Integrally colored insulation.
 3. Color Code:
 - a. 208Y/120 V, 3 Phase, 4 Wire System:
 - 1) Phase A: Black.
 - 2) Phase B: Red.
 - 3) Phase C: Blue.
 - 4) Neutral/Grounded: White.
 - b. Equipment Ground, All Systems: Green.
 - c. For modifications or additions to existing wiring systems, comply with existing color code when existing code complies with NFPA 70 and is approved by the authority having jurisdiction.

2.03 SINGLE CONDUCTOR BUILDING WIRE

- A. Manufacturers:
1. Copper Building Wire:
 - a. Cerro Wire LLC: www.cerrowire.com.
 - b. Encore Wire Corporation: www.encorewire.com.
 - c. General Cable Technologies Corporation: www.generalcable.com.
 - d. Southwire Company: www.southwire.com.
- B. Description: Single conductor insulated wire.
- C. Conductor Stranding:
1. Feeders and Branch Circuits:
 - a. Size 10 AWG and Smaller: Solid.
 - b. Size 8 AWG and Larger: Stranded.
- D. Insulation Voltage Rating: 600 V.
- E. Insulation:
1. Copper Building Wire: Type THHN/THWN or THHN/THWN-2.

2.04 METAL-CLAD CABLE

- A. Manufacturers:
1. AFC Cable Systems Inc: www.afcweb.com.
 2. Encore Wire Corporation: www.encorewire.com.
 3. Southwire Company: www.southwire.com.
- B. Description: NFPA 70, Type MC cable listed and labeled as complying with UL 1569, and listed for use in classified firestop systems to be used.
- C. Conductor Stranding:

1. Size 10 AWG and Smaller: Solid.
 2. Size 8 AWG and Larger: Stranded.
- D. Insulation Voltage Rating: 600 V.
- E. Insulation: Type THHN, THHN/THWN, or THHN/THWN-2.
- F. Grounding: Full-size integral equipment grounding conductor.
- G. Armor: Steel, interlocked tape.

2.05 WIRING CONNECTORS

- A. Description: Wiring connectors appropriate for the application, suitable for use with the conductors to be connected, and listed as complying with UL 486A-486B or UL 486C as applicable.
- B. Connectors for Grounding and Bonding: Comply with Section 260526.

2.06 ACCESSORIES

- A. Electrical Tape:
1. Vinyl Insulating Electrical Tape: Complying with ASTM D3005 and listed as complying with UL 510; minimum thickness of 7 mil; resistant to abrasion, corrosion, and sunlight; conformable for application down to 0 degrees F and suitable for continuous temperature environment up to 221 degrees F.
 2. Rubber Splicing Electrical Tape: Ethylene Propylene Rubber (EPR) tape, complying with ASTM D4388; minimum thickness of 30 mil; suitable for continuous temperature environment up to 194 degrees F and short-term 266 degrees F overload service.
 3. Electrical Filler Tape: Rubber-based insulating moldable putty, minimum thickness of 125 mil; suitable for continuous temperature environment up to 176 degrees F.
 4. Varnished Cambric Electrical Tape: Cotton cambric fabric tape, with or without adhesive, oil-primed and coated with high-grade insulating varnish; minimum thickness of 7 mil; suitable for continuous temperature environment up to 221 degrees F.
 5. Moisture Sealing Electrical Tape: Insulating mastic compound laminated to flexible, all-weather vinyl backing; minimum thickness of 90 mil.
- B. Heat Shrink Tubing: Heavy-wall, split-resistant, with factory-applied adhesive; rated 600 V; suitable for direct burial applications; listed as complying with UL 486D.
- C. Wire Pulling Lubricant:
1. Listed and labeled as complying with UL 267.
 2. Suitable for use with conductors/cables and associated insulation/jackets to be installed.
 3. Suitable for use at installation temperature.
- D. Cable Ties: Material and tensile strength rating suitable for application.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that interior of building has been protected from weather.
- B. Verify that work likely to damage wire and cable has been completed.
- C. Verify that raceways, boxes, and equipment enclosures are installed and are properly sized to accommodate conductors and cables in accordance with NFPA 70.
- D. Verify that field measurements are as indicated.
- E. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

- A. Clean raceways thoroughly to remove foreign materials before installing conductors and cables.

3.03 INSTALLATION

- A. Circuiting Requirements:
1. Unless dimensioned, circuit routing indicated is diagrammatic.

2. When circuit destination is indicated without specific routing, determine exact routing required.
- B. Install products in accordance with manufacturer's instructions.
- C. Perform work in accordance with NECA 1 (general workmanship).
- D. Install metal-clad cable (Type MC) in accordance with NECA 120.
- E. Installation in Raceway:
 1. Tape ends of conductors and cables to prevent infiltration of moisture and other contaminants.
 2. Pull all conductors and cables together into raceway at same time.
 3. Do not damage conductors and cables or exceed manufacturer's recommended maximum pulling tension and sidewall pressure.
 4. Use suitable wire pulling lubricant where necessary, except when lubricant is not recommended by the manufacturer.
- F. Paralleled Conductors: Install conductors of the same length and terminate in the same manner.
- G. Secure and support conductors and cables in accordance with NFPA 70 using suitable supports and methods approved by the authority having jurisdiction. Provide independent support from building structure. Do not provide support from raceways, piping, ductwork, or other systems.
 1. Installation Above Suspended Ceilings: Do not provide support from ceiling support system. Do not provide support from ceiling grid or allow conductors and cables to lay on ceiling tiles.
- H. Terminate cables using suitable fittings.
 1. Metal-Clad Cable (Type MC):
 - a. Use listed fittings.
 - b. Cut cable armor only using specialized tools to prevent damaging conductors or insulation. Do not use hacksaw or wire cutters to cut armor.
- I. Install conductors with a minimum of 12 inches of slack at each outlet.
- J. Neatly train and bundle conductors inside boxes, wireways, panelboards and other equipment enclosures.
- K. Group or otherwise identify neutral/grounded conductors with associated ungrounded conductors inside enclosures in accordance with NFPA 70.
- L. Make wiring connections using specified wiring connectors.
 1. Make splices and taps only in accessible boxes. Do not pull splices into raceways or make splices in conduit bodies or wiring gutters.
 2. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors.
 3. Do not remove conductor strands to facilitate insertion into connector.
 4. Clean contact surfaces on conductors and connectors to suitable remove corrosion, oxides, and other contaminants. Do not use wire brush on plated connector surfaces.
- M. Insulate splices and taps that are made with uninsulated connectors using methods suitable for the application, with insulation and mechanical strength at least equivalent to unspliced conductors.
 1. Dry Locations: Use insulating covers specifically designed for the connectors, electrical tape, or heat shrink tubing.
 - a. For taped connections, first apply adequate amount of rubber splicing electrical tape or electrical filler tape, followed by outer covering of vinyl insulating electrical tape.
 2. Damp Locations: Use insulating covers specifically designed for the connectors, electrical tape, or heat shrink tubing.
 - a. For connections with insulating covers, apply outer covering of moisture sealing electrical tape.
 - b. For taped connections, follow same procedure as for dry locations but apply outer covering of moisture sealing electrical tape.
- N. Insulate ends of spare conductors using vinyl insulating electrical tape.
- O. Unless specifically indicated to be excluded, provide final connections to all equipment and devices, including those furnished by others, as required for a complete operating system.

3.04 FIELD QUALITY CONTROL

- A. Inspect and test in accordance with NETA ATS, except Section 4.
- B. Perform inspections and tests listed in NETA ATS, Section 7.3.2. The insulation resistance test is required for all conductors. The resistance test for parallel conductors listed as optional is not required.
- C. Correct deficiencies and replace damaged or defective conductors and cables.

END OF SECTION 260519

SECTION 260526
GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Grounding and bonding requirements.
- B. Conductors for grounding and bonding.
- C. Connectors for grounding and bonding.

1.02 RELATED REQUIREMENTS

- A. Section 260519 - Low-Voltage Electrical Power Conductors and Cables: Additional requirements for conductors for grounding and bonding, including conductor color coding.
- B. Section 260553 - Identification for Electrical Systems: Identification products and requirements.

1.03 REFERENCE STANDARDS

- A. IEEE 81 - IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Grounding System; 2025.
- B. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.
- C. NETA ATS - Standard for Acceptance Testing Specifications for Electrical Power Equipment And Systems; 2025.
- D. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- E. UL 467 - Grounding and Bonding Equipment; Current Edition, Including All Revisions.

1.04 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 GROUNDING AND BONDING REQUIREMENTS

- A. Do not use products for applications other than as permitted by NFPA 70 and product listing.
- B. Unless specifically indicated to be excluded, provide all required components, conductors, connectors, conduit, boxes, fittings, supports, accessories, etc. as necessary for a complete grounding and bonding system.
- C. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
- D. Grounding System Resistance:
 - 1. Achieve specified grounding system resistance under normally dry conditions unless otherwise approved by Engineer. Precipitation within the previous 48 hours does not constitute normally dry conditions.
 - 2. Grounding Electrode System: Not greater than 5 ohms to ground, when tested according to IEEE 81 using "fall-of-potential" method.
 - 3. Between Grounding Electrode System and Major Electrical Equipment Frames, System Neutral, and Derived Neutral Points: Not greater than 0.5 ohms, when tested using "point-to-point" methods.
- E. Grounding Electrode System:
 - 1. Provide connection to required and supplemental grounding electrodes indicated to form grounding electrode system.
 - a. Provide continuous grounding electrode conductors without splice or joint.

- b. Install grounding electrode conductors in raceway where exposed to physical damage. Bond grounding electrode conductor to metallic raceways at each end with bonding jumper.
- 2. Provide additional ground electrode(s) as required to achieve specified grounding electrode system resistance.

2.02 GROUNDING AND BONDING COMPONENTS

- A. General Requirements:
 - 1. Provide products listed, classified, and labeled as suitable for the purpose intended.
 - 2. Provide products listed and labeled as complying with UL 467 where applicable.
- B. Conductors for Grounding and Bonding, in Addition to Requirements of Section 260526:
 - 1. Use insulated copper conductors unless otherwise indicated.
- C. Connectors for Grounding and Bonding:
 - 1. Description: Connectors appropriate for the application and suitable for the conductors and items to be connected; listed and labeled as complying with UL 467.
 - 2. Unless otherwise indicated, use mechanical connectors, compression connectors, or exothermic welded connections for accessible connections.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that work likely to damage grounding and bonding system components has been completed.
- B. Verify that field measurements are as indicated.
- C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Perform work in accordance with NECA 1 (general workmanship).
- C. Make grounding and bonding connections using specified connectors.
 - 1. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors. Do not remove conductor strands to facilitate insertion into connector.
 - 2. Remove nonconductive paint, enamel, or similar coating at threads, contact points, and contact surfaces.
 - 3. Exothermic Welds: Make connections using molds and weld material suitable for the items to be connected in accordance with manufacturer's recommendations.
 - 4. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.
 - 5. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.
- D. Identify grounding and bonding system components in accordance with Section 260553.

3.03 FIELD QUALITY CONTROL

- A. Inspect and test in accordance with NETA ATS except Section 4.
- B. Perform inspections and tests listed in NETA ATS, Section 7.13.
- C. Perform ground electrode resistance tests under normally dry conditions. Precipitation within the previous 48 hours does not constitute normally dry conditions.
- D. Investigate and correct deficiencies where measured ground resistances do not comply with specified requirements.

END OF SECTION 260526

SECTION 260529
HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Support and attachment requirements and components for equipment, conduit, cable, boxes, and other electrical work.

1.02 RELATED REQUIREMENTS

- A. Section 260533.13 - Conduit for Electrical Systems: Additional support and attachment requirements for conduits.
- B. Section 260533.16 - Boxes for Electrical Systems: Additional support and attachment requirements for boxes.
- C. Section 265100 - Interior Lighting: Additional support and attachment requirements for interior luminaires.

1.03 REFERENCE STANDARDS

- A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2024.
- B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.
- C. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel; 2023.
- D. MFMA-4 - Metal Framing Standards Publication; 2004.
- E. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.
- F. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 QUALITY ASSURANCE

- A. Comply with NFPA 70

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 SUPPORT AND ATTACHMENT COMPONENTS

- A. General Requirements:
 - 1. Comply with the following. Where requirements differ, comply with most stringent.
 - a. NFPA 70.
 - b. Applicable building code.
 - c. Requirements of authorities having jurisdiction.
 - 2. Provide required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for complete installation of electrical work.
 - 3. Provide products listed, classified, and labeled as suitable for purpose intended, where applicable.
 - 4. Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer's application criteria as required for load to be supported. Include consideration for vibration, equipment operation, and shock loads where applicable.
 - 5. Do not use products for applications other than as permitted by NFPA 70 and product listing.
 - 6. Steel Components: Use corrosion-resistant materials suitable for environment where installed.
 - a. Indoor Dry Locations: Use zinc-plated steel or approved equivalent unless otherwise indicated.
 - b. Zinc-Plated Steel: Electroplated in accordance with ASTM B633.
 - c. Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.

- B. Conduit and Cable Supports: Straps and clamps suitable for conduit or cable to be supported.
 - 1. Conduit Straps: One-hole or two-hole type; steel or malleable iron.
 - 2. Conduit Clamps: Bolted type unless otherwise indicated.
- C. Outlet Box Supports: Hangers and brackets suitable for boxes to be supported.
- D. Metal Channel/Strut Framing Systems:
 - 1. Description: Factory-fabricated, continuous-slot, metal channel/strut and associated fittings, accessories, and hardware required for field assembly of supports.
 - 2. Comply with MFMA-4.
 - 3. Channel Material:
 - a. Indoor Dry Locations: Use painted steel, zinc-plated steel, or galvanized steel.
- E. Hanger Rods: Threaded, zinc-plated steel unless otherwise indicated.
- F. Anchors and Fasteners:
 - 1. Unless otherwise indicated and where not otherwise restricted, use anchor and fastener types indicated for specified applications.
 - 2. Hollow Stud Walls: Use toggle bolts.
 - 3. Steel: Use beam clamps, machine bolts, or welded threaded studs.
 - 4. Wood: Use wood screws.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that mounting surfaces are ready to receive support and attachment components.
- C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install hangers and supports in accordance with NECA 1.
- C. Install anchors and fasteners in accordance with ICC Evaluation Services, LLC (ICC-ES) evaluation report conditions of use where applicable.
- D. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
- E. Do not provide support from suspended ceiling support system or ceiling grid.
- F. Do not provide support from roof deck.
- G. Do not penetrate or otherwise notch or cut structural members.
- H. Equipment Support and Attachment:
 - 1. Use metal, fabricated supports or supports assembled from metal channel/strut to support equipment as required.
 - 2. Use metal channel/strut secured to studs to support equipment surface mounted on hollow stud walls when wall strength is not sufficient to resist pull-out.
- I. Conduit Support and Attachment: See Section 260533.13 for additional requirements.
- J. Box Support and Attachment: See Section 260533.16 for additional requirements.
- K. Interior Luminaire Support and Attachment: See Section 265100 for additional requirements.
- L. Secure fasteners in accordance with manufacturer's recommended torque settings.
- M. Remove temporary supports.

3.03 FIELD QUALITY CONTROL

- A. Inspect support and attachment components for damage and defects.

- B. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.
- C. Correct deficiencies and replace damaged or defective support and attachment components.

END OF SECTION 260529

SECTION 260533.13
CONDUIT FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Intermediate metal conduit (IMC).
- B. Flexible metal conduit (FMC).
- C. Electrical metallic tubing (EMT).

1.02 RELATED REQUIREMENTS

- A. Section 260519 - Low-Voltage Electrical Power Conductors and Cables: Cable assemblies consisting of conductors protected by integral metal armor.
- B. Section 260526 - Grounding and Bonding for Electrical Systems.
- C. Section 260529 - Hangers and Supports for Electrical Systems.
- D. Section 260533.16 - Boxes for Electrical Systems.
- E. Section 260533.23 - Surface Raceways for Electrical Systems.

1.03 REFERENCE STANDARDS

- A. ANSI C80.3 - American National Standard for Electrical Metallic Tubing -- Steel (EMT-S); 2020.
- B. ANSI C80.6 - American National Standard for Electrical Intermediate Metal Conduit; 2025.
- C. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.
- D. NECA 101 - Standard for Installing Steel Conduits (Rigid, IMC, EMT); 2020.
- E. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable; 2014.
- F. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- G. UL 1 - Flexible Metal Conduit; Current Edition, Including All Revisions.
- H. UL 514B - Conduit, Tubing, and Cable Fittings; Current Edition, Including All Revisions.
- I. UL 797 - Electrical Metallic Tubing-Steel; Current Edition, Including All Revisions.
- J. UL 1242 - Electrical Intermediate Metal Conduit-Steel; Current Edition, Including All Revisions.
- K. UL 2419 - Outline of Investigation for Electrically Conductive Corrosion Resistant Compounds; Current Edition, Including All Revisions.

1.04 QUALITY ASSURANCE

- A. Comply with NFPA 70.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store conduit and fittings in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 CONDUIT APPLICATIONS

- A. Do not use conduit and associated fittings for applications other than as permitted by NFPA 70, manufacturer's instructions, and product listing.
- B. Unless otherwise indicated and where not otherwise restricted, use conduit types indicated for specified applications. Where more than one listed application applies, comply with most restrictive requirements.
- C. Concealed Within Hollow Stud Walls: Use rigid metal conduit (RMC), intermediate metal conduit (IMC), or electrical metallic tubing (EMT).
- D. Concealed Above Accessible Ceilings: Use rigid metal conduit (RMC), intermediate metal conduit (IMC), or electrical metallic tubing (EMT).

- E. Exposed, Interior: Use surface raceway per Section 260533.23.
- F. Flexible Connections to Vibrating Equipment:
 - 1. Maximum Length: 6 feet unless otherwise indicated.
- G. Fished in Existing Walls, Where Necessary: Use flexible metal conduit (FMC) or electrical metallic tubing (EMT).

2.02 CONDUIT - GENERAL REQUIREMENTS

- A. Comply with NFPA 70.
- B. Existing Work: Where existing conduits are indicated to be reused, they may be reused only where they comply with specified requirements, are free from corrosion, and integrity is verified by pulling mandrel through them.
- C. Provide conduit, fittings, supports, and accessories required for complete raceway system.
- D. Provide products listed, classified, and labeled as suitable for purpose intended.
- E. Minimum Conduit Size, Unless Otherwise Indicated:
 - 1. Branch Circuits: 1/2-inch trade size.
 - 2. Branch Circuit Homeruns: 3/4-inch trade size.
- F. Where conduit size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

2.03 INTERMEDIATE METAL CONDUIT (IMC)

- A. Description: NFPA 70, Type IMC intermediate metal conduit complying with ANSI C80.6 and listed and labeled as complying with UL 1242.
- B. Fittings:
 - 1. Nonhazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B or UL 1242.
 - 2. Material: Use steel or malleable iron.
 - 3. Connectors and Couplings: Use threaded type fittings only. Threadless fittings, including set screw and compression/gland types, are not permitted.

2.04 FLEXIBLE METAL CONDUIT (FMC)

- A. Description: NFPA 70, Type FMC standard-wall steel flexible metal conduit listed and labeled as complying with UL 1, and listed for use in classified firestop systems.
- B. Fittings:
 - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 2. Material: Use steel or malleable iron.
 - a. Do not use die cast zinc fittings.

2.05 ELECTRICAL METALLIC TUBING (EMT)

- A. Description: NFPA 70, Type EMT galvanized steel electrical metallic tubing complying with ANSI C80.3 and listed and labeled as complying with UL 797.
- B. Fittings:
 - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 2. Material: Use steel or malleable iron.
 - a. Do not use die cast zinc fittings.
 - 3. Connectors and Couplings: Use compression/gland or set-screw type.
 - a. Do not use indenter type connectors and couplings.

2.06 ACCESSORIES

- A. Conduit Joint Compound: Corrosion-resistant, electrically conductive compound listed as complying with UL 2419; suitable for use with conduit to be installed.

- B. Pull Strings: Use nylon or polyester tape with average breaking strength of not less than 1,250 lbf.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that mounting surfaces are ready to receive conduits.
- C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install conduit in accordance with NECA 1.
- C. Intermediate Metal Conduit (IMC): Install in accordance with NECA 101.
- D. Conduit Routing:
 - 1. Unless dimensioned, conduit routing indicated is diagrammatic.
 - 2. When conduit destination is indicated without specific routing, determine exact routing required.
 - 3. Conceal conduits unless specifically indicated to be exposed.
 - 4. Arrange conduit to maintain adequate headroom, clearances, and access.
- E. Conduit Support:
 - 1. Secure and support conduits in accordance with NFPA 70 using suitable supports and methods approved by authorities having jurisdiction; see Section 260529.
 - 2. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
 - 3. Installation Above Suspended Ceilings: Do not provide support from ceiling support system. Do not provide support from ceiling grid or allow conduits to lay on ceiling tiles.
- F. Connections and Terminations:
 - 1. Use approved zinc-rich paint or conduit joint compound on field-cut threads of galvanized steel conduits prior to making connections.
 - 2. Where two threaded conduits must be joined and neither can be rotated, use three-piece couplings or split couplings. Do not use running threads.
 - 3. Use suitable adapters where required to transition from one type of conduit to another.
 - 4. Terminate threaded conduits in boxes and enclosures using threaded hubs or double lock nuts for dry locations and raintight hubs for wet locations.
 - 5. Provide insulating bushings, insulated throats, or listed metal fittings with smooth, rounded edges at conduit terminations to protect conductors.
 - 6. Secure joints and connections to provide mechanical strength and electrical continuity.
- G. Penetrations:
 - 1. Do not penetrate or otherwise notch or cut structural members, including footings and grade beams.
 - 2. Make penetrations perpendicular to surfaces unless otherwise indicated.
 - 3. Provide sleeves for penetrations as indicated or as required to facilitate installation. Set sleeves flush with exposed surfaces unless otherwise indicated or required.
- H. Conduit Movement Provisions: Where conduits are subject to movement, provide expansion and expansion/deflection fittings to prevent damage to enclosed conductors or connected equipment. This includes, but is not limited to:
 - 1. Where conduits cross structural joints intended for expansion, contraction, or deflection.
- I. Conduit Sealing:
 - 1. Where conduits cross barriers between areas of potential substantial temperature differential, use foam conduit sealant at accessible point near penetration to prevent condensation. This includes, but is not limited to:
 - a. Where conduits pass from outdoors into conditioned interior spaces.
 - b. Where conduits pass from unconditioned interior spaces into conditioned interior spaces.

- J. Provide pull string in each empty conduit and in conduits where conductors and cables are to be installed by others. Leave minimum slack of 12 inches at each end.
- K. Provide grounding and bonding; see Section 260526.

3.03 FIELD QUALITY CONTROL

- A. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.
- B. Correct deficiencies and replace damaged or defective conduits.

3.04 CLEANING

- A. Clean interior of conduits to remove moisture and foreign matter.

3.05 PROTECTION

- A. Immediately after installation of conduit, use suitable manufactured plugs to provide protection from entry of moisture and foreign material and do not remove until ready for installation of conductors.

END OF SECTION 260533.13

SECTION 260533.16
BOXES FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Outlet and device boxes up to 100 cubic inches, including those used as junction and pull boxes.

1.02 RELATED REQUIREMENTS

- A. Section 260529 - Hangers and Supports for Electrical Systems.
- B. Section 260533.13 - Conduit for Electrical Systems:
 - 1. Conduit bodies and other fittings.
 - 2. Additional requirements for locating boxes to limit conduit length and/or number of bends between pulling points.
- C. Section 262726 - Wiring Devices:
 - 1. Wall plates.
 - 2. Additional requirements for locating boxes for wiring devices.

1.03 REFERENCE STANDARDS

- A. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.
- B. NECA 130 - Standard for Installing and Maintaining Wiring Devices; 2016.
- C. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable; 2014.
- D. NEMA OS 1 - Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports; 2013 (Reaffirmed 2020).
- E. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- F. UL 514A - Metallic Outlet Boxes; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and working clearances for electrical equipment required by NFPA 70.
 - 2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.
 - 3. Coordinate minimum sizes of boxes with the actual installed arrangement of conductors, clamps, support fittings, and devices, calculated according to NFPA 70.
 - 4. Coordinate minimum sizes of pull boxes with the actual installed arrangement of connected conduits, calculated according to NFPA 70.
 - 5. Coordinate the placement of boxes with millwork, furniture, devices, equipment, etc. installed under other sections or by others.
 - 6. Coordinate the work with other trades to preserve insulation integrity.
 - 7. Coordinate the work with other trades to provide walls suitable for installation of flush-mounted boxes where indicated.
 - 8. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 BOXES

- A. General Requirements:
 - 1. Do not use boxes and associated accessories for applications other than as permitted by NFPA 70 and product listing.
 - 2. Provide all boxes, fittings, supports, and accessories required for a complete raceway system and to accommodate devices and equipment to be installed.
 - 3. Provide products listed, classified, and labeled as suitable for the purpose intended.
 - 4. Where box size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
 - 5. Provide grounding terminals within boxes where equipment grounding conductors terminate.
- B. Outlet and Device Boxes Up to 100 cubic inches, Including Those Used as Junction and Pull Boxes:
 - 1. Use sheet-steel boxes for dry locations unless otherwise indicated or required.
 - 2. Use cast iron boxes or cast aluminum boxes for damp or wet locations unless otherwise indicated or required; furnish with compatible weatherproof gasketed covers.
 - 3. Use raised covers suitable for the type of wall construction and device configuration where required.
 - 4. Use shallow boxes where required by the type of wall construction.
 - 5. Do not use "through-wall" boxes designed for access from both sides of wall.
 - 6. Sheet-Steel Boxes: Comply with NEMA OS 1, and list and label as complying with UL 514A.
 - 7. Cast Metal Boxes: Comply with NEMA FB 1, and list and label as complying with UL 514A; furnish with threaded hubs.
 - 8. Boxes for Supporting Luminaires and Ceiling Fans: Listed as suitable for the type and weight of load to be supported; furnished with fixture stud to accommodate mounting of luminaire where required.
 - 9. Boxes for Ganged Devices: Use multigang boxes of single-piece construction. Do not use field-connected gangable boxes unless specifically indicated or permitted.
 - 10. Minimum Box Size, Unless Otherwise Indicated:
 - a. Wiring Devices (Other Than Communications Systems Outlets): 4 inch square by 1-1/2 inch deep (100 by 38 mm) trade size.
 - b. Communications Systems Outlets: 4 inch square by 2-1/8 inch (100 by 54 mm) trade size.
 - c. Ceiling Outlets: 4 inch octagonal or square by 1-1/2 inch deep (100 by 38 mm) trade size.
 - 11. Wall Plates: Comply with Section 262726.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that mounting surfaces are ready to receive boxes.
- C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install boxes in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130, including mounting heights specified in those standards where mounting heights are not indicated.
- C. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.
- D. Box Locations:
 - 1. Unless dimensioned, box locations indicated are approximate.
 - 2. Locate boxes as required for devices installed under other sections or by others.
 - a. Switches, Receptacles, and Other Wiring Devices: Comply with Section 262726.
 - 3. Locate boxes so that wall plates do not span different building finishes.

4. Locate junction and pull boxes as indicated, as required to facilitate installation of conductors, and to limit conduit length and/or number of bends between pulling points in accordance with Section 260533.13.
- E. Box Supports:
 1. Secure and support boxes in accordance with NFPA 70 and Section 260529 using suitable supports and methods approved by the authority having jurisdiction.
 2. Provide independent support from building structure except for cast metal boxes (other than boxes used for fixture support) supported by threaded conduit connections in accordance with NFPA 70. Do not provide support from piping, ductwork, or other systems.
 3. Installation Above Suspended Ceilings: Do not provide support from ceiling grid or ceiling support system.
- F. Install boxes plumb and level.
- G. Install boxes as required to preserve insulation integrity.
- H. Close unused box openings.
- I. Install blank wall plates on junction boxes and on outlet boxes with no devices or equipment installed or designated for future use.
- J. Provide grounding and bonding in accordance with Section 260526.

3.03 CLEANING

- A. Clean interior of boxes to remove dirt, debris, plaster and other foreign material.

3.04 PROTECTION

- A. Immediately after installation, protect boxes from entry of moisture and foreign material until ready for installation of conductors.

END OF SECTION 260533.16

SECTION 260533.23
SURFACE RACEWAYS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface raceway systems.

1.02 RELATED REQUIREMENTS

- A. Section 260526 - Grounding and Bonding for Electrical Systems.
- B. Section 260529 - Hangers and Supports for Electrical Systems.
- C. Section 260533.13 - Conduit for Electrical Systems.
- D. Section 260533.16 - Boxes for Electrical Systems.

1.03 REFERENCE STANDARDS

- A. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.
- B. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- C. UL 5 - Surface Metal Raceways and Fittings; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the placement of raceways with millwork, furniture, equipment, etc. installed under other sections or by others.
 - 2. Coordinate rough-in locations of outlet boxes provided under Section 260533.16 and conduit provided under Section 260533.13 as required for installation of raceways provided under this section.
 - 3. Verify minimum sizes of raceways with the actual conductors and components to be installed.
 - 4. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.
- B. Sequencing:
 - 1. Do not install raceways until final surface finishes and painting are complete.
 - 2. Do not begin installation of conductors and cables until installation of raceways is complete between outlet, junction and splicing points.

1.05 SUBMITTALS

- A. See Section 013300 Submittals for submittal procedures.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets including dimensions, knockout sizes and locations, materials, fabrication details, finishes, service condition requirements, and accessories.
 - 1. Surface Raceway Systems: Include information on fill capacities for conductors and cables.

1.06 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 RACEWAY REQUIREMENTS

- A. Provide all components, fittings, supports, and accessories required for a complete raceway system.
- B. Provide products listed, classified, and labeled as suitable for the purpose intended.
- C. Do not use raceways for applications other than as permitted by NFPA 70 and product listing.

2.02 SURFACE RACEWAY SYSTEMS

- A. Manufacturers:
 - 1. Hubbell Incorporated: www.hubbell.com.
 - 2. Legrand North America, Inc: www.legrand.us.
 - 3. MonoSystems, Inc: www.monosystems.com.
- B. Surface Metal Raceways: Listed and labeled as complying with UL 5.
- C. Surface Raceway System:
 - 1. Raceway Type: Single channel, painted steel.
 - 2. Color: Provide system rated to receive field painting. Finish to match wall.
 - 3. Accessory Device Boxes: Suitable for the devices to be installed; color to match raceway.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that outlet boxes and conduit terminations are installed in proper locations and are properly sized in accordance with NFPA 70 to accommodate raceways.
- C. Verify that mounting surfaces are ready to receive raceways and that final surface finishes are complete, including painting.
- D. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Perform work in accordance with NECA 1 (general workmanship).
- C. Install raceways plumb and level.
- D. Secure and support raceways in accordance with Section 260529 at intervals complying with NFPA 70 and manufacturer's requirements.
- E. Close unused raceway openings.
- F. Provide grounding and bonding in accordance with Section 260526.

3.03 FIELD QUALITY CONTROL

- A. Inspect raceways for damage and defects.
- B. Correct wiring deficiencies and replace damaged or defective raceways.

3.04 CLEANING

- A. Clean exposed surfaces to remove dirt, paint, or other foreign material and restore to match original factory finish.

3.05 PROTECTION

- A. Protect installed raceways from subsequent construction operations.

END OF SECTION 260533.23

SECTION 262726 WIRING DEVICES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Wall switches.
- B. Receptacles.
- C. Wall plates and covers.

1.02 RELATED REQUIREMENTS

- A. Section 260533.16 - Boxes for Electrical Systems.
- B. Section 260553 - Identification for Electrical Systems: Identification products and requirements.

1.03 REFERENCE STANDARDS

- A. FS W-C-596 - Connector, Electrical, Power, General Specification for; 2014h (Validated 2022).
- B. FS W-S-896 - Switches, Toggle (Toggle and Lock), Flush Mounted (General Specification); 2017g (Validated 2023).
- C. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.
- D. NECA 130 - Standard for Installing and Maintaining Wiring Devices; 2016.
- E. NEMA WD 1 - General Color Requirements for Wiring Devices; 1999 (Reaffirmed 2020).
- F. NEMA WD 6 - Wiring Devices - Dimensional Specifications; 2021.
- G. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- H. UL 20 - General-Use Snap Switches; Current Edition, Including All Revisions.
- I. UL 498 - Attachment Plugs and Receptacles; Current Edition, Including All Revisions.
- J. UL 514D - Cover Plates for Flush-Mounted Wiring Devices; Current Edition, Including All Revisions.
- K. UL 943 - Ground-Fault Circuit-Interrupters; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the placement of outlet boxes with millwork, furniture, equipment, etc. installed under other sections or by others.
 - 2. Coordinate wiring device ratings and configurations with the electrical requirements of actual equipment to be installed.
 - 3. Coordinate the placement of outlet boxes for wall switches with actual installed door swings.
 - 4. Coordinate the installation and preparation of uneven surfaces, such as split face block, to provide suitable surface for installation of wiring devices.
 - 5. Notify Engineer of any conflicts or deviations from Contract Documents to obtain direction prior to proceeding with work.
- B. Sequencing:
 - 1. Do not install wiring devices until final surface finishes and painting are complete.

1.05 SUBMITTALS

- A. See Section 013300 Submittals, for submittal procedures.
- B. Product Data: Provide manufacturer's catalog information showing dimensions, colors, and configurations.

1.06 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.

- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- C. Products: Listed, classified, and labeled as suitable for the purpose intended.

1.07 DELIVERY, STORAGE, AND PROTECTION

- A. Store in a clean, dry space in original manufacturer's packaging until ready for installation.

PART 2 PRODUCTS

2.01 WIRING DEVICES - GENERAL REQUIREMENTS

- A. Provide wiring devices suitable for intended use with ratings adequate for load served.
- B. Wiring Device Applications:
 - 1. Receptacles Installed in Damp or Wet Locations: Use weather-resistant GFCI receptacles with weatherproof covers.
 - 2. Provide GFCI protection for:
 - a. Receptacles installed within 6 feet of sinks.
 - 3. Single Receptacles Installed on Individual Branch Circuits: Provide receptacle ampere rating equal to branch circuit rating.
- C. Wiring Device Finishes:
 - 1. Wiring Devices, Unless Otherwise Indicated: Gray with brushed satin finish, Type 302 stainless steel wall plate.

2.02 WALL SWITCHES

- A. General Requirements: AC only, quiet operating, general-use snap switches with silver alloy contacts, complying with NEMA WD 1 and NEMA WD 6, and listed as complying with UL 20 and where applicable, FS W-S-896; types as indicated on the drawings.
 - 1. Wiring Provisions: Terminal screws for side wiring and screw actuated binding clamp for back wiring with separate ground terminal screw.
- B. Standard Wall Switches: Commercial specification grade, 20 A, 120 V with standard toggle type switch actuator and maintained contacts; single pole single throw as indicated on the drawings.

2.03 RECEPTACLES

- A. General Requirements: Self-grounding, complying with NEMA WD 1 and NEMA WD 6, and listed as complying with UL 498, and where applicable, FS W-C-596; types as indicated on the drawings.
 - 1. Wiring Provisions: Terminal screws for side wiring or screw actuated binding clamp for back wiring with separate ground terminal screw.
 - 2. NEMA configurations specified are according to NEMA WD 6.
- B. Convenience Receptacles:
 - 1. Standard Convenience Receptacles: Industrial specification grade, 20A, 125V, NEMA 5-20R; single or duplex as indicated on the drawings.
- C. GFCI Receptacles:
 - 1. General Requirements: Self-testing, with feed-through protection and light to indicate ground fault tripped condition and loss of protection; listed as complying with UL 943, class A.
 - a. Provide test and reset buttons of same color as device.
 - 2. Standard GFCI Receptacles: Commercial specification grade, duplex, 20A, 125V, NEMA 5-20R, rectangular decorator style.

2.04 WALL PLATES AND COVERS

- A. Wall Plates: Comply with UL 514D.
 - 1. Configuration: One piece cover as required for quantity and types of corresponding wiring devices.
 - 2. Size: Standard.
 - 3. Screws: Metal with slotted heads finished to match wall plate finish.
- B. Stainless Steel Wall Plates: Brushed satin finish, Type 302 stainless steel.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate devices and conductors in accordance with NFPA 70.
- C. Verify that wall openings are neatly cut and will be completely covered by wall plates.
- D. Verify that final surface finishes are complete, including painting.
- E. Verify that branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.
- F. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

- A. Provide extension rings to bring outlet boxes flush with finished surface.
- B. Clean dirt, debris, plaster, and other foreign materials from outlet boxes.

3.03 INSTALLATION

- A. Perform work in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130, including mounting heights specified in those standards unless otherwise indicated.
- B. Coordinate locations of outlet boxes provided under Section 260533.16 as required for installation of wiring devices provided under this section.
 - 1. Mounting Heights: Unless otherwise indicated, as follows:
 - a. Wall Switches: 48 inches above finished floor.
 - b. Receptacles: 6 inches above counter.
 - 2. Orient outlet boxes for vertical installation of wiring devices unless otherwise indicated.
 - 3. Locate wall switches on strike side of door with edge of wall plate 3 inches from edge of door frame. Where locations are indicated otherwise, notify Engineer to obtain direction prior to proceeding with work.
- C. Install wiring devices in accordance with manufacturer's instructions.
- D. Where required, connect wiring devices using pigtails not less than 6 inches long. Do not connect more than one conductor to wiring device terminals.
- E. Connect wiring devices by wrapping conductor clockwise 3/4 turn around screw terminal and tightening to proper torque specified by the manufacturer. Where present, do not use push-in pressure terminals that do not rely on screw-actuated binding.
- F. Unless otherwise indicated, connect wiring device grounding terminal to branch circuit equipment grounding conductor and to outlet box with bonding jumper.
- G. Provide GFCI receptacles with integral GFCI protection at each location indicated. Do not use feed-through wiring to protect downstream devices.
- H. Install wiring devices plumb and level with mounting yoke held rigidly in place.
- I. Install wall switches with OFF position down.
- J. Install vertically mounted receptacles with grounding pole on top and horizontally mounted receptacles with grounding pole on left.
- K. Install wall plates to fit completely flush to wall with no gaps and rough opening completely covered without strain on wall plate. Repair or reinstall improperly installed outlet boxes or improperly sized rough openings. Do not use oversized wall plates in lieu of meeting this requirement.
- L. Install blank wall plates on junction boxes and on outlet boxes with no wiring devices installed or designated for future use.
- M. Identify wiring devices in accordance with Section 260553.

3.04 FIELD QUALITY CONTROL

- A. Inspect each wiring device for damage and defects.
- B. Operate each wall switch with circuit energized to verify proper operation.
- C. Test each receptacle to verify operation and proper polarity.
- D. Test each GFCI receptacle for proper tripping operation according to manufacturer's instructions.
- E. Correct wiring deficiencies and replace damaged or defective wiring devices.

3.05 ADJUSTING

- A. Adjust devices and wall plates to be flush and level.

3.06 CLEANING

- A. Clean exposed surfaces to remove dirt, paint, or other foreign material and restore to match original factory finish.

END OF SECTION 262726

**SECTION 265100
INTERIOR LIGHTING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Interior luminaires.

1.02 RELATED REQUIREMENTS

- A. Section 260529 - Hangers and Supports for Electrical Systems.
- B. Section 260533.16 - Boxes for Electrical Systems.

1.03 REFERENCE STANDARDS

- A. IES LM-79 - Approved Method: Optical and Electrical Measurements of Solid-State Lighting Products; 2024.
- B. IES LM-80 - Approved Method: Measuring Maintenance of Light Output Characteristics of Solid-State Light Sources; 2021.
- C. NECA/IESNA 500 - Standard for Installing Indoor Commercial Lighting Systems; 2025.
- D. NEMA LE 4 - Recessed Luminaires, Ceiling Compatibility; 2023.
- E. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- F. UL 1598 - Luminaires; Current Edition, Including All Revisions.
- G. UL 8750 - Light Emitting Diode (LED) Equipment for Use in Lighting Products; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the installation of luminaires with mounting surfaces installed under other sections or by others. Coordinate the work with placement of supports, anchors, etc. required for mounting. Coordinate compatibility of luminaires and associated trims with mounting surfaces at installed locations.
 - 2. Coordinate the placement of luminaires with structural members, ductwork, piping, equipment, diffusers, fire suppression system components, and other potential conflicts installed under other sections or by others.
 - 3. Notify Engineer of any conflicts or deviations from Contract Documents to obtain direction prior to proceeding with work.

1.05 SUBMITTALS

- A. See Section 013300 Submittals, for submittal procedures.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets including detailed information on luminaire construction, dimensions, ratings, finishes, mounting requirements, listings, service conditions, photometric performance, installed accessories, and ceiling compatibility; include model number nomenclature clearly marked with all proposed features.
 - 1. LED Luminaires:
 - a. Include estimated useful life, calculated based on IES LM-80 test data.
- C. Operation and Maintenance Data: Instructions for each product including information on replacement parts.
- D. Warranty: Provide manufacturer's standard warranty.

1.06 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

1.07 DELIVERY, STORAGE, AND PROTECTION

- A. Receive, handle, and store products according to NECA/IESNA 500 (commercial lighting) and manufacturer's written instructions.
- B. Keep products in original manufacturer's packaging and protect from damage until ready for installation.

1.08 FIELD CONDITIONS

- A. Maintain field conditions within manufacturer's required service conditions during and after installation.

1.09 WARRANTY

- A. Provide 5-year manufacturer warranty for LED luminaires, including drivers.

PART 2 PRODUCTS

2.01 LUMINAIRE TYPES

- A. Furnish products as specified below on luminaire schedule included on project drawings and as described below.
- B. Backlit Flat Panel LED.
 - 1. Housing: Aluminum frame with steel die-formed back enclosure.
 - 2. Ceiling Trim: NEMA type G (grid).
 - 3. Provide with the following features/accessories:
 - a. Selectable Lumens and Color Temperature (CCT).
 - 4. Listings:
 - 5. Mounting: Lay-in, grid ceiling.
- C. Linear Recessed LED.
 - 1. Housing: 22 gauge die-formed, C.R.S., painted white.
 - 2. Shielding: Lift-and-shift flat diffuse matte acrylic, .080" thick.
 - 3. Listings:
 - a. LED Rated Life: L70 at 50,000 hours.
 - 4. Mounting: Drywall flange, recessed, ceiling.
- D. Round Downlight LED.
 - 1. Housing: Aluminum.
 - 2. Trim: Match reflector finish.
 - 3. Provide with the following features/accessories:
 - a. Selectable Lumens and Color Temperature (CCT).
 - b. New construction mounting pan for installation in lay-in ceiling.
 - 4. Mounting: Mounting pan, recessed, lay-in ceiling.
 - 5. Listings:
 - a. LED Rated Life: L70 at 70,000 hours.
- E. Wall Mount Architectural LED.
 - 1. Housing: Extruded Aluminum.
 - 2. Shielding: Frosted acrylic lens.
 - 3. Mounting: Surface, wall.
 - 4. Finish: To be selected by Architect from manufacturer's standard catalog.
 - 5. Listings:
 - a. Lumen Maintenance tested per IES TM-21: L70 at 60,000 hours.

2.02 LUMINAIRES

- A. Manufacturers:
 - 1. Acuity Brands, Inc: www.acuitybrands.com.
 - 2. Cooper Lighting, a division of Cooper Industries: www.cooperindustries.com.
 - 3. Hubbell Lighting, Inc: www.hubbell.com.
 - 4. H.E. Williams, Inc: www.hew.com.

- B. Provide products that comply with requirements of NFPA 70.
- C. Provide products that are listed and labeled as complying with UL 1598, where applicable.
- D. Provide products listed, classified, and labeled as suitable for the purpose intended.
- E. Unless otherwise indicated, provide complete luminaires including lamp(s) and all sockets, ballasts, reflectors, lenses, housings and other components required to position, energize and protect the lamp and distribute the light.
- F. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, hardware, supports, trims, accessories, etc. as necessary for a complete operating system.
- G. Provide products suitable to withstand normal handling, installation, and service without any damage, distortion, corrosion, fading, discoloring, etc.
- H. Recessed Luminaires:
 - 1. Ceiling Compatibility: Comply with NEMA LE 4.
- I. LED Luminaires:
 - 1. Components: UL 8750 recognized or listed as applicable.
 - 2. Tested in accordance with IES LM-79 and IES LM-80.
 - 3. LED Estimated Useful Life: Calculated based on IES LM-80 test data.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate conductors in accordance with NFPA 70.
- C. Verify that suitable support frames are installed where required.
- D. Verify that branch circuit wiring installation is completed, tested, and ready for connection to luminaires.
- E. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

- A. Provide extension rings to bring outlet boxes flush with finished surface.
- B. Clean dirt, debris, plaster, and other foreign materials from outlet boxes.

3.03 INSTALLATION

- A. Coordinate locations of outlet boxes provided under Section 260533.16 as required for installation of luminaires provided under this section.
- B. Install products in accordance with manufacturer's instructions.
- C. Install luminaires securely, in a neat and workmanlike manner, as specified in NECA 500 (commercial lighting).
- D. Provide required support and attachment in accordance with Section 260529.
- E. Install luminaires plumb and square and aligned with building lines and with adjacent luminaires.
- F. Recessed Luminaires:
 - 1. Install trims tight to mounting surface with no visible light leakage.
 - 2. Non-IC Rated Luminaires: Maintain required separation from insulation and combustible materials according to listing.
- G. Install accessories furnished with each luminaire.
- H. Bond products and metal accessories to branch circuit equipment grounding conductor.

3.04 FIELD QUALITY CONTROL

- A. Inspect each product for damage and defects.
- B. Operate each luminaire after installation and connection to verify proper operation.

- C. Correct wiring deficiencies and repair or replace damaged or defective products.

3.05 CLEANING

- A. Clean surfaces according to NECA 500 (commercial lighting) and manufacturer's instructions to remove dirt, fingerprints, paint, or other foreign material and restore finishes to match original factory finish.

3.06 CLOSEOUT ACTIVITIES

- A. Instruct Owner's Maintenance Staff
 - 1. Provide demonstration of lumen and color temperature adjustment features for each luminaire type.

3.07 PROTECTION

- A. Protect installed luminaires from subsequent construction operations.

END OF SECTION 265100

APPENDIX A

ACM AND LBP SURVEY REPORT

April 2024

REPORT OF FINDINGS

ASBESTOS-CONTAINING MATERIALS AND LEAD-BASED PAINT SURVEY

Missouri State Highway Patrol HQ
1501 East Elm Street
Jefferson City, MO

April 2024

Prepared for:

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PE Project # 327.02.002

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APPENDIX C	Laboratory Accreditation
APPENDIX D	Lead XRF Testing Spreadsheet
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1.0 INTRODUCTION

Professional Environmental Engineers, Inc. (PE) was contracted by the Missouri State Highway Patrol to perform an asbestos-containing materials (ACM) and lead-based paint (LBP) survey of the Missouri State Highway Patrol Headquarters building located at 1501 East Elm Street, Jefferson City, MO 65102 (the Site). Mr. Tristan O'Brien of PE, Missouri licensed Lead Risk Assessor and Asbestos Inspector, conducted the survey of the Site from March 4, 2024, to March 7, 2024, and was escorted by various occupants of the site.

1.1 SITE DESCRIPTION

The Site consists of a two-story commercial building, identified as the Missouri State Highway Patrol Headquarters building, which was constructed starting in 1963 and has been owned by the Missouri State Highway Patrol since its construction. The building consists of brick, concrete, and cinderblock construction on a concrete slab with plaster, sheetrock, wood, concrete, and cinderblock on interior walls. The floors are of concrete construction with carpet and tile flooring. Ceilings within the building consist of drop ceilings with various lay-in ceiling tiles.

1.2 SCOPE OF WORK

1.2.1 Asbestos Containing Material Survey

PE performed a suspect ACM survey to determine if any ACMs are present within the Site which could be impacted or disrupted during future construction related activities or be cause for environmental health concerns. PE completed the following scope of work for the project:

1. Reviewed of available building plans and any previous studies/reports to understand the current building conditions.
2. Conducted a reconnaissance of all accessible areas to identify suspect ACM's and obtain representative samples of materials not sampled during the initial report. Any area that may have ACM and not accessible was reported as Assumed ACMs according to the Occupational Safety and Health Administration (OSHA).
3. Conducted sampling in accordance with the Environmental Protection Agency's (EPA's) Guidance for Controlling Asbestos-Containing Material in Building, June 1985, including the following:
 - * Collect at least three bulk samples for each homogeneous area of suspect ACMs.
 - * Perform the work by a state accredited inspector.
 - * Use destructive sampling techniques as needed with prior approval from the client representative.

4. Conducted laboratory analyses for the presence of asbestiform minerals utilizing Polarized Light Microscopy (PLM) coupled with Dispersion Staining as detailed in the EPA's "Interim Method for the Determination of Asbestos in Bulk Insulation Samples" (EPA 40 Code of Federal Regulations (CFR) 763, Subpart F, Appendix A). The analytical procedures for determining the percent of asbestos in bulk samples to permit the use of visual area estimation followed the "National Emission Standard for Hazardous Air Pollutants" (NESHAP) regulations (40 CFR Part 61, dated November 20, 1990).
5. Performed a condition assessment and quantified all suspect ACMs per homogeneous materials.
6. Utilized a Missouri licensed Asbestos Inspector to conduct all site activities in compliance with applicable regulations.
7. Completed ACM Survey report documenting the findings of the survey including any conclusions and recommendations.

1.2.2 Lead Based Paint Survey

PE performed a suspect LBP survey to determine if any LBPs are present within the Site which could be impacted or disrupted during future construction activities or be cause for environmental health concerns. PE completed the following scope of work for the project:

1. Conducted a suspect LBP survey of the building on areas to be impacted during upcoming construction related activities.
2. Utilized any previous sampling data that can be validated to reduce sampling costs.
3. Conducted the suspect LBP survey within the building utilizing an x-ray fluorescence (XRF) analyzer.
4. Performed a comprehensive survey of all painted surfaces in all areas of the building. The survey was not conducted in compliance with the U.S. Housing and Urban Development (HUD) Guidelines.
5. Utilized a Missouri licensed Lead Risk Assessor to conduct all activities in compliance with all applicable regulations.
6. Completed LBP Survey report documenting the findings of the survey including any conclusions and recommendations.

1.3 REGULATORY SUMMARY

1.3.1 Asbestos Containing Materials Regulations

Occupational exposure to asbestos is regulated by OSHA in all industries under 29 CFR 1910.1001 and construction work under 29 CFR 1926.1101. To establish applicability of these regulations, the presence of asbestos must be determined by analytical testing, or for some materials presumed to contain asbestos based on a pre-1981 installation date. Additionally, regulations covering asbestos have also been established by the EPA, the MDNR, as well as local governing bodies. For a material to be considered ACM, it must contain more than one percent asbestos. Facilities with ACM or Presumed Asbestos-Containing Material may be required to comply with the following regulations:

- 29 CFR 1926.1101 OSHA Construction Standard
- 40 CFR Part 61, Subpart M National Emission Standard for Asbestos
- Missouri Revised Code Sections 643.225 to 643.250

Asbestos exposure in the following situations is regulated by the OSHA Construction Standard 29 CFR 1926.1101:

- 1) *Demolition or salvage of structures where asbestos is present;*
- 2) *Removal or encapsulation of materials containing asbestos;*
- 3) *Construction, alteration, repair, maintenance, or renovation of structures, substrates, or portions thereof, that contain asbestos;*
- 4) *Installation of products containing asbestos;*
- 5) *Asbestos spill/emergency cleanup; and*
- 6) *Transportation, disposal, storage, containment of and housekeeping activities involving asbestos or products containing asbestos, on the site or location at which construction activities are performed.*
- 7) *Coverage under this standard shall be based on the nature of the work operation involving asbestos exposure.*

Examples of suspect thermal system insulation materials include pipe and tank insulation. Suspect surfacing materials include items applied to walls, ceilings, and structural beams such as sprayed-on fireproofing. Suspect miscellaneous materials include ceiling and floor tile, sheetrock, plaster, caulking, and brick/mortar.

1.3.2 Lead Based Paint Regulations

The following guidelines and regulations cover the sampling, testing, handling, and disposal of LBP:

- State of Missouri: Missouri Revised Statutes 701.300-701.338.

2.0 SUMMARY OF RESULTS

2.1 ASBESTOS CONTAINING MATERIALS

Mr. Tristan O'Brien, PE licensed Asbestos Inspector in the State of Missouri, performed the suspect ACM survey from March 5, 2024, to March 7, 2024. A copy of Mr. O'Brien's Asbestos Inspector licenses is included in **Appendix A**. Any suspected ACM were sampled in accordance with the below sampling frequency table.

SAMPLING FREQUENCY TABLE

TYPE OF MATERIAL	MINIMUM NUMBER OF SAMPLES
Surfacing Materials	
<1,000 Square Feet	3
1,000 – 5,000 Square Feet	5
>5,000 Square Feet	7 Plus one additional sample for each additional 5,000 square feet, or one from each unit, whichever is greater
Thermal Systems Insulation	3
Miscellaneous Materials	3

Suspect ACMs were sampled in the field by PE and analyzed by SanAir Technologies Laboratory (SanAir) located at 10501 Trade Ct, Suite A in Richmond, Virginia, by PLM coupled with dispersion staining as detailed in the EPA's "Interim Method for the Determination of Asbestos in Bulk Insulation Samples" (EPA 40 CFR 763, Subpart F, Appendix A). SanAir is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) for bulk sample analysis. The bulk sampling analytical report is included in **Appendix B**. A copy of the laboratory accreditation is included in **Appendix C**.

As noted in Section 1.3, EPA classifies ACM as containing greater than 1% asbestos by content (i.e., positive). A summary of the ACM results is presented in **Table 1**.

Table 1
Summary of Suspect Asbestos-Containing Materials Analytical Results
Missouri State Highway Patrol HQ
1501 East Elm Street, Jefferson City, MO 65102

Sample Number	Homogeneous Material (HM)	Sample Locations	Friable/ Non-Friable	Quantity	PLM % Asbestos by Weight
1501-FT1-01	12" x 12" Vinyl Floor Tile - White with Blue Streaks Layer A – Tile Layer B - Mastic	1 st Floor Lobby	Non-Friable	Approx. 2,880 SF	None Detected
1501-FT1-02		Basement Stairwell			<1% Chrysotile in Layer B
1501-FT1-03		1 st Floor Staff Office Lobby			<1% Chrysotile in Layer B
1501-FT2-06	9" x 9" Vinyl Floor Tile – White with Blue Streaks Layer A – Tile Layer B - Mastic	Basement R&D Hall Closet	Non-Friable	Approx. 24,545 SF	3% Chrysotile in Layer A, 5% Chrysotile in Layer B
1501-FT2-07		Deana Schulte's Office			NA/PS
1501-FT2-08		Basement Theatre			NA/PS
1501-FT3-13	12" x 12" Vinyl Floor Tile – White (Green if Discolored) with Gray Splotches Layer A – Tile Layer B - Mastic	1 st Floor Lobby Storage Closet	Non-Friable	Approx. 27,805 SF	2% Chrysotile in Both Layers
1501-FT3-14		1 st Floor Maintenance Hallway			NA/PS
1501-FT3-15		1 st Floor Recruitment Office			NA/PS
1501-FT4-20	12" x 12" Vinyl Floor Tile – Brown with Brown Streaks Layer A – Tile Layer B - Mastic	1 st Floor Break Room	Non-Friable	Approx. 300 SF	None Detected
1501-FT4-21					None Detected
1501-FT4-22					None Detected
1501-FT5-23	12" x 12" Vinyl Floor Tile – Beige with Tan Streaks Layer A – Tile Layer B - Mastic	1 st Floor Break Room	Non-Friable	Approx. 25 SF	None Detected
1501-FT5-24					None Detected
1501-FT5-25					None Detected
1501-FT6-26	12" x 12" Vinyl Floor Tile – Gray with Blue and Red Streaks Layer A – Tile Layer B - Mastic	1 st Floor Staff Hallway	Non-Friable	Approx. 1,325 SF	5% Chrysotile in Layer B
1501-FT6-27					NA/PS
1501-FT6-28					NA/PS

Sample Number	Homogeneous Material (HM)	Sample Locations	Friable/ Non-Friable	Quantity	PLM % Asbestos by Weight
1501-FT7-29	12" x 12" Vinyl Floor Tile – Brown Layer A – Carpet Adhesive Layer B – Tile Layer C - Mastic	Deidra A. Borgmeyer's Office	Non-Friable	Approx. 700 SF	2% Chrysotile in Layer B, 5% Chrysotile in Layer C
1501-FT7-30					NA/PS
1501-FT7-31					NA/PS
1501-WT1-32	12" x 12" Wall Tile – White with Pinholes and Fissures	1 st Floor Insurance Hallway	Friable	Approx. 710 SF	None Detected
1501-WT1-33					None Detected
1501-WT1-34					None Detected
1501-LICT1-35	2' x 2' Lay-in Ceiling Tile – White with Pinholes and Fissures	1 st Floor Lobby	Friable	Approx. 1,680 SF	None Detected
1501-LICT1-36					None Detected
1501-LICT1-37					None Detected
1501-LICT2-41	2' x 4' Lay-in Ceiling Tile – White with Deep Pinholes and Fissures	2 nd Floor Men's Conference Room Restroom Storage	Friable	Approx. 14,545 SF	None Detected
1501-LICT2-42					None Detected
1501-LICT2-43					None Detected
1501-LICT3-48	2' x 4' Lay-in Ceiling Tile – White with Shallow Pinholes and Fissures	2 nd Floor Men's Conference Room Restroom Storage	Friable	Approx. 32,725 SF	None Detected
1501-LICT3-49					None Detected
1501-LICT3-50					None Detected
1501-LICT4-55	2' x 2' Lay-in Ceiling tile – White Textured	Superintendent's Office	Friable	Approx. 985 SF	None Detected
1501-LICT4-56					None Detected
1501-LICT4-57					None Detected
1501-LICT5-58	2' x 4' Lay-in Ceiling Tile – White with Various sized Pinholes	Enclosed Parking Lot	Non-Friable	Approx. 9,660 SF	None Detected
1501-LICT5-59					None Detected
1501-LICT5-60					None Detected

Sample Number	Homogeneous Material (HM)	Sample Locations	Friable/ Non-Friable	Quantity	PLM % Asbestos by Weight
1501-LICT6-61	2' x 2' Lay-in Ceiling Tile – White with Various Sized Pinholes	Basement New Men's Restroom	Friable	Approx. 120 SF	None Detected
1501-LICT6-62					None Detected
1501-LICT6-63					None Detected
1501-LF1-68	Linoleum Flooring – Red Layer A – Flooring Layer B - Mastic	Basement Stairwell	Non-Friable	Approx. 420 SF	None Detected
1501-LF1-69					None Detected
1501-LF1-70					None Detected
1501-LF2-71	Linoleum Flooring – Gray Layer A – Flooring Layer B – Mastic/Leveling Compound	1 st Floor Mailroom	Non-Friable	Approx. 1,160 SF	2% Chrysotile in Layer B
1501-LF2-72					NA/PS
1501-LF2-73					NA/PS
1501-IA1-76	Interior Adhesive - Tan	Deidra Borgmeyer's Office Door Threshold	Friable	Approx. 800 LF	None Detected
1501-IA1-77					None Detected
1501-IA1-78					None Detected
1501-IA2-79	Interior Adhesive - Yellow	1 st Floor Mechanical Room	Friable	Approx. 10 LF	None Detected
1501-IA3-80	Interior Adhesive - Brown	1 st Floor Mechanical Room – Around HVAC Ductwork Joints	Friable	Approx. 15 LF	3% Chrysotile
1501-IA3-81					NA/PS
1501-IA3-82					NA/PS
1501-CA1-83	Carpet Adhesive - Yellow	1 st Floor Staff Services Hallway	Friable	Approx. 5,850 SF	None Detected
1501-CA1-84					None Detected
1501-CA1-85					None Detected
1501-CA2-90	Carpet Adhesive – Dull Green	1 st Floor Fob Rumpus Room	Friable	Approx. 3,610 SF	None Detected
1501-CA2-91					None Detected
1501-CA2-92					None Detected

Sample Number	Homogeneous Material (HM)	Sample Locations	Friable/ Non-Friable	Quantity	PLM % Asbestos by Weight
1501-CA3-97	Carpet Adhesive – Bright Green	Basement R&D Cubicle Area	Friable	Approx. 3,610 SF	None Detected
1501-CA3-98					None Detected
1501-CA3-99					None Detected
1501-VCB1-104	1 st Floor Vinyl Cove Base - Black	1 st Floor Maintenance Hallway	Non-Friable	Approx. 3,130 LF	None Detected
1501-VCB1-105					None Detected
1501-VCB1-106					None Detected
1501-VCB2-111	Basement Vinyl Cove Base - Black	Basement R&D Cubicle Area	Non-Friable	Approx. 940 LF	None Detected
1501-VCB2-112					None Detected
1501-VCB2-113					None Detected
1501-VCB3-114	Basement Vinyl Cove Base - Gray	Kristi Newman's Office	Non-Friable	Approx. 160 LF	None Detected
1501-VCB3-115					None Detected
1501-VCB3-116					None Detected
1501-VCB4-117	Basement Vinyl Cove Base - Tan	Basement Museum	Non-Friable	Approx. 400 LF	None Detected
1501-VCB4-118					None Detected
1501-VCB4-119					None Detected
1501-VCB5-120	2 nd Floor Vinyl Cove Base - Black	2 nd Floor Rear Electrical Room	Non-Friable	Approx. 3,635 LF	None Detected
1501-VCB5-121					None Detected
1501-VCB5-122					None Detected
1501-CT1-127	12" x 12" Ceiling Tile – White with Pinholes and Fissures	1 st Floor HR Break Room Hallway	Friable	Approx. 20 SF	None Detected
1501-CT1-128					None Detected
1501-CT1-129					None Detected

Sample Number	Homogeneous Material (HM)	Sample Locations	Friable/ Non-Friable	Quantity	PLM % Asbestos by Weight
1501-PWS1-130	1 st Floor Plaster Wall System	1 st Floor HR Storage Closet	Non-Friable	Approx. 3,990 SF Observed	None Detected
1501-PWS1-131					None Detected
1501-PWS1-132					None Detected
1501-PWS2-137	Basement Plaster Wall System	Holly Hyde's Storage Closet	Non-Friable	Approx. 520 SF Observed	None Detected
1501-PWS2-138					None Detected
1501-PWS2-139					None Detected
1501-PWS3-140	2 nd Floor Plaster Wall System	Rear 2 nd Floor Janitorial Closet	Non-Friable	Approx. 1,210 SF	None Detected
1501-PWS3-141					None Detected
1501-PWS3-142					None Detected
1501-DWS1-146	1 st Floor Drywall System	1 st Floor Recruitment Office	Non-Friable	Approx. 26,495 SF	None Detected
1501-DWS1-147					None Detected
1501-DWS1-148					None Detected
1501-DWS2-149	Basement Drywall System	Basement Museum Storage	Non-Friable	Approx. 17,405 SF	None Detected
1501-DWS2-150					None Detected
1501-DWS2-151					None Detected
1501-DWS3-159	2 nd Floor Drywall System	2 nd Floor Rear Electrical Room	Non-Friable	Approx. 14,920 SF	None Detected
1501-DWS3-160					None Detected
1501-DWS3-161					None Detected
1501-PI1-166	2" Pipe Insulation	1 st Floor Mechanical Room	Friable	Approx. 200 LF	None Detected
1501-PI1-167					None Detected
1501-PI1-168					None Detected

Sample Number	Homogeneous Material (HM)	Sample Locations	Friable/ Non-Friable	Quantity	PLM % Asbestos by Weight
1501-PI2-169	4" Pipe Insulation	1 st Floor Mechanical Room	Friable	Approx. 140 LF	None Detected
1501-PI3-172	8" Pipe Insulation	1 st Floor Mechanical Room	Friable	Approx. 555 LF	None Detected
1501-PI3-173					None Detected
1501-PI4-175	12" Pipe Insulation	Basement Boiler Room	Friable	Approx. 33 LF	None Detected
1501-PI4-176					None Detected
1501-PI4-177					None Detected
1501-PI5-178	18" Pipe Insulation	Basement Boiler Room	Friable	Approx. 15 LF	None Detected
1501-PI5-179					None Detected
1501-PI5-180					None Detected
1501-PI6-181	36" Pipe Insulation	2 nd Floor Mechanical Room	Friable	Approx. 230 LF	None Detected
1501-PI6-182					None Detected
1501-PI6-183					None Detected
1501-WTR1-184	Black Window Tar	Paul Kerpern's Office Window	Friable	Approx. 15 LF	5% Chrysotile
1501-WTR1-185					NA/PS
1501-WTR1-186					NA/PS
1501-IC1-187	Gray Interior Caulking	Christopher S. Jolly's Office	Non-Friable	Approx. 10 LF	None Detected
1501-IC2-188	Black Window Caulking	D.A. Flannigon's Office	Non-Friable	Approx. 185 LF	None Detected
1501-IC2-189					None Detected
1501-IC2-190					None Detected
1501-EC1-191	Yellow Exterior Caulking	Enclosed Parking Lot Windows	Non-Friable	Approx. 110 LF	None Detected
1501-EC1-192					None Detected
1501-EC1-193					None Detected

Sample Number	Homogeneous Material (HM)	Sample Locations	Friable/ Non-Friable	Quantity	PLM % Asbestos by Weight
1501-EC2-194	Black Exterior Caulking	Enclosed Parking Lot Windows	Non-Friable	Approx. 800 LF	None Detected
1501-EC2-195					None Detected
1501-EC2-196					None Detected
1501-EC3-197	Silver Exterior Caulking	Enclosed Parking Lot Windows	Non-Friable	Approx. 20 LF	None Detected
1501-EC3-198					None Detected
1501-EC3-199					None Detected
1501-EC4-200	Gray/White Exterior Caulking	Enclosed Parking Lot Concrete Joints	Non-Friable	Approx. 3000 LF	None Detected
1501-EC4-201					None Detected
1501-EC4-202					None Detected

Bold denotes positive asbestos containing material;

SF = Square Feet

NA/PS denotes that the material was not analyzed, as the positive stop method was utilized.

LF denotes linear feet.

2.2 LEAD-BASED PAINTS

Mr. Tristan O'Brien, a Professional Environmental Engineers Inc. licensed Lead Risk Assessor in the State of Missouri, performed the suspect LBP survey for the building on March 4, 2024. Mr. O'Brien's Lead Risk Assessor licenses are included in **Appendix A**.

A floor-by-floor assessment of all painted/varnished surfaces was performed, consisting of a minimum of one representative XRF reading collected from each painted/varnished surface component throughout the building.

PE evaluated two-hundred eleven (211) painted surfaces using a Viken Detection Pb200i lead analyzer (direct read out instrument) to perform all testing. During the inspection, sample numbers were listed in numerical order along with room numbers or names, direction, structure, feature, substrate, paint color and result in mg/cm². Calibration checks were conducted at the beginning and end of the building inspection.

During the inspection there were five (5) painted components that tested positive for lead. The EPA and the MDHSS define positive LBP as containing more than 0.5% lead by weight, or more

than one milligram of lead per square centimeter (mg/cm²). A list of all components and surfaces tested for lead-based paint are included in **Appendix D**.

3.0 SUMMARY AND RECOMMENDATIONS

PE completed an ACM and LBP survey for the Site. The conclusions from the investigation are reported below.

3.1 ASBESTOS CONTAINING MATERIALS

The EPA and MDNR classify an asbestos containing material as containing greater than 1% asbestos by content. Suspect ACMs were sampled throughout the building. PE collected a total of one hundred-thirty seven (137) samples/47 homogeneous areas. Of the materials sampled, the following materials were found to be asbestos containing materials:

Table 2
Summary of Asbestos-Containing Materials and Locations
Missouri State Highway Patrol HQ
1501 East Elm Street, Jefferson City, MO 65102

Homogeneous Material	PLM %Asbestos by Weight	Material Location and Quantity (SF or LF)	Total Quantity
9" x 9" Vinyl Floor Tile – White with Blue Streaks	3% Chrysotile in Tile, 5% Chrysotile in Mastic	1st Floor Lobby Conference (150), 1st Floor HR Cubicle Area (3050), Demond Truber's Office (150), Les Thurston's Office (300), Samantha Schulte's Office (200), Christina Rusk's Office (150), Madison Crisp's Office (300), Julie Kerr's Office (260), 1st Floor HR Storage Closet (75), Caitlan Elley's Office (120), 1st Floor Break Room HR Hall Closet (20), Basement Stairwell (60), Basement R&D Hallway (150), Basement R&D Hall Closet (30), Jessica Mealy's Office (80), Basement R&D T-shirt Storage Room (130), Holly Hyde's Office (400), Holly Hyde's Storage Closet (70), Cheryl Cobb's Office (200), Eric F. Brown's Office (210), Deana Schulte's Office (120), Basement Elevator Landing (370), Basement Theatre (850), Basement Theatre Front Storage (50), Basement Museum (7,000), Basement Museum Storage Closet (50)	Approx. 24,545 SF

Homogeneous Material	PLM %Asbestos by Weight	Material Location and Quantity (SF or LF)	Total Quantity
12" x 12" Vinyl Floor Tile – White (Green if Discolored) with Gray Splotches	2% Chrysotile in both Tile and Mastic	1st Floor Lobby Storage Closet (120), 1st Floor Insurance Hallway (800), Insurance Hallway Rear Office (180), Insurance Hallway Middle Office (150), Insurance Hallway Front Office (380), 1st Floor Maintenance Hallway (400), 1st Floor Recruitment Office (400), Colin Stosberg's Office (110), Jason Pace's Office (160), Basement Theatre Rear Storage (200), Rear 2nd Floor Stairwell (200), HR 2nd Floor Stairwell (350), 2nd Floor Conference Room Mens' Restroom Storage (100), 2nd Floor Rear Janitorial Storage (70), 2nd Floor Paint Storage (40), Professional Standards Division Hallway (400), Driver Safety Assistant Director Office (125), Professional Standards Front Left Office (170), Professional Standards Rear Left Office (170), Professional Standards Middle Office (120), Professional Standards Right Office (140), Professional Standards Storage (30), Budget & Procurement Cubicle Area (1700), Budget & Procurement Conference Room (270), Sandy Walter's Office (180), C.R. Kicker's Office (160), BPD Director's Office (160), Michelle Pruitt's Office (290), 2nd Floor Middle Filing Closet (50), 2nd Floor Server Room (140), 2nd Floor Electrical Room (25), Commercial Vehicle Enforcement Cubicle Area (1300), Kevin L. Kelly's Office (200), Jeffrey Sims' Office (200), Brenda McIntyre's Office (140), Commercial Vehicle Enforcement Vacant Office (180), Patrol Services Cubicle Area (5000), Mandy Kleithern's Office (225), Brent J. Drummond's Office (260), Patrol Services Small Cubicle Area (700), Patrol Services Archive Room (170), Jerry Callahan's Office (225), 2nd Floor Rear Electrical Room (100), Lactation Room (50), Driver Safety Cubicle Area (1650), Driver Safety Storage (70), D.L. Hardy's Office (210), Judith Schwaller's Office (150), Brenda Davis's Office (150), 2nd Floor Main Hallway (10000)	Approx. 27,805 SF
12" x 12" Vinyl Floor Tile – Gray with Blue and Red Streaks	5% Chrysotile in Mastic	1st Floor Staff Hallway (25)	Approx. 1,325 SF

12" x 12" Vinyl Floor Tile – Brown	2% Chrysotile in Tile, 5% Chrysotile in Mastic	Deidra A. Borgmeyer's Office (300), Michael A. Turner's Office (230), Basement Statistical Analysis Office (170)	Approx. 700 SF
Linoleum Flooring – Gray Mastic/Leveling Compound	2% Chrysotile in Mastic/Leveling Compound	1st Floor Mailroom (250), 1st Floor Superintendent's Hallway (500), Kristi Newman's Office (120), Thomas Walley's Office (120), Brian Daniel's Office (170)	Approx. 1,160 SF
Interior Adhesive - Brown	3% Chrysotile	1st Floor Mechanical Room (15) – Ductwork Adhesive	Approx. 15 LF
Black Window Tar	5% Chrysotile	Paul Kerpern's Office - Back Window Tar	Approx. 15 LF

The locations of all known ACM are noted within the diagrams provided in **Appendix E**. Please note that the provided drawings do not match the current floorplan, and approximations have been made to accommodate this. Should a contradiction occur between the provided diagram and the table above, the table above should note the correct location for all known ACM.

If any known positive ACM is to be impacted during demolition or renovation activities, it is required that the ACM be abated in accordance with the NESHAP regulations for Asbestos 40 CFR Part 61 Control regulations prior to demolition. A licensed Missouri asbestos abatement contractor is required to perform the abatement activities in compliance with applicable laws and regulations per the EPA and MDNR laws for demolition. A 10-day notification shall be submitted by the contractor to the governing agency prior to any asbestos removal activities. The building owner or the building owner's designee shall have a Missouri air sampling professional perform air monitoring before, during and after the asbestos abatement.

3.2 LEAD-BASED PAINTS

Suspect LBPs were sampled throughout the building. PE identified five (5) painted surfaces at the Site that were considered positive for LBPs as follows:

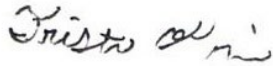
Lead Based Paints	
4" x 4" Ceramic Tile Backsplash: Present within the 1 st floor lobby unisex bathroom (though present in other bathrooms throughout the building)	Stair Riser: 1 st floor HR stairwell stair riser
Stair Stringer: 2 nd floor rear lobby stairwell stair stringer (as well as similar components within the other stairwells)	Fire Escape Handrail: Present within the fire escape of Brent Drummond's office (as well as similar components within the other fire escapes)

Green Brick Wall: Present within the 2 nd floor driver and vehicle safety division's main cubicle area.	
--	--

During any renovations and/or demolition of the Site building, PE recommends that construction crews be notified of the LBP within the Site building and be required to follow OSHA safe work practices during demolition activities. The LBP components should be fully disclosed to any landfill and/or recycling facility destinations.

4.0 SIGNATURE AND QUALIFICATIONS

The Asbestos-Containing Materials and Lead-Based Paint Survey was conducted by Mr. Tristan O'Brien of PE. Specific certifications based on education, training, licensure, and experience to assess this building and property, and to conduct sampling for Mr. O'Brien are provided in **Appendix A**.



Tristan O'Brien
Lead Risk Assessor and Asbestos Inspector

April 1, 2024

Date



Bill Pietroburgo
Project Manager

April 1, 2024

Date

5.0 REFERENCES

National Emission Standard for Asbestos - 40 CFR Part 61, Subpart M

OSHA General Industry Standard - 29 CFR 1910.1001

OSHA Construction Standard - 29 CFR 1926.1101

State of Missouri Department of Health and Senior Services - Lead Occupation License Registration

State of Missouri: Missouri Revised Statutes Sections 643.225 to 643.250

State of Missouri: Missouri Revised Statutes Sections 701.300-701.338

Terracon Consultants, Inc., Asbestos Survey of Simonsen Ninth Grade Center, 501 East Miller, Jefferson City, Missouri, dated November 8, 2019.

APPENDIX A

Asbestos Inspector and Lead Risk Assessor Certifications



**Missouri Department of Health
and Senior Services**

Lead Occupation License - ID Badge

License Number:

220805-300006349

Lead Risk Assessor

Tristan

O'Brien

Expiration Date: **8/8/2024**



STATE OF MISSOURI
DEPARTMENT OF HEALTH AND SENIOR SERVICES

LEAD OCCUPATION LICENSE REGISTRATION

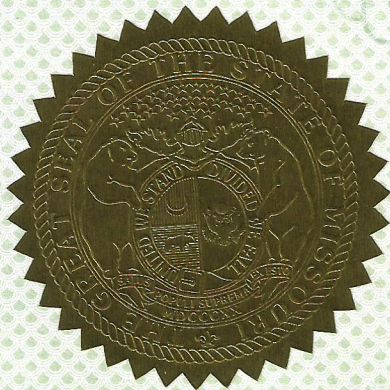
Issued to:

Tristan T. O'Brien

The person, firm or corporation whose name appears on this certificate has fulfilled the requirements for licensure as set forth in the Missouri Revised Statutes 701.300-701.338, as long as not suspended or revoked, and is hereby authorized to engage in the activity listed below.

Lead Risk Assessor
Category of License

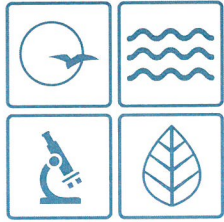
Issuance Date: 8/8/2022
Expiration Date: 8/8/2024
License Number: 220804-300006349



Paula F. Nickelson

Paula F. Nickelson
Acting Director
Department of Health and Senior Services

Lead Licensing Program, PO Box 570, Jefferson City, MO 65102



MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Michael L. Parson
Governor

Dru Buntin
Director

February 9, 2024

Tristan O'Brien
2665 Scott Ave Ste B
St Louis, MO 63103

RE: Missouri Asbestos Occupation Certification Card

Enclosed is your certification card for Asbestos Inspector, as issued by the Asbestos Unit of the Missouri Department of Natural Resources' Air Pollution Control Program.

Missouri Certification Number: 7011020124MOIR22090
Course Training Date: February 01, 2024
Missouri Certification Approval Date: February 09, 2024
Missouri Certification Expiration Date: February 09, 2025

Note:

- All Missouri-certified asbestos personnel must comply with the following statutes and regulations:
 - Sections 643.225 to 643.250, RSMo;
 - 10 CSR 10-6.241 *Asbestos Projects-Registration, Abatement, Notification, Inspection, Demolition, and Performance Requirements*; and
 - 10 CSR 10-6.250 *Asbestos Projects-Certification, Accreditation and Business Exemption Requirements*.
- To keep your occupation certification up-to-date, you must complete an annual refresher course and submit a renewal application each year.
- In order to be eligible to renew your certification, you must successfully complete a refresher course with a Missouri-accredited training provider within 12 months of the expiration date of your current training certificate. If you exceed this grace period, you will be required to retake a Missouri-accredited initial course in order to be eligible for Missouri certification.

To obtain a copy of the certification renewal application, or review regulations and requirements, please visit our website at <http://dnr.mo.gov/env/apcp/asbestos/index.htm>.

If you have any questions please call the Air Pollution Control Program at 573-751-4817.

AIR POLLUTION CONTROL PROGRAM

Director of Air Pollution Control Program

CERTIFICATION NUMBER:
7011020124MOIR22090

THIS CERTIFIES
Tristan O'Brien
HAS COMPLETED THE CERTIFICATION
REQUIREMENTS FOR
Inspector



PO Box 176, Jefferson City, MO 65102-0176



APPROVED: **02/09/2024**
EXPIRES: **02/09/2025**

TRAINING DATE: **02/01/2024**

Director of Air Pollution Control Program

APPENDIX B
Laboratory Bulk Sampling Analytical Report



The Identification Specialists

Analysis Report
prepared for
Professional Environmental Engineers, Inc.

Report Date: 3/15/2024

Project Name: Missouri Highway Patrol HQ

Project #: 327.02.002

SanAir ID#: 24013942



NVLAP LAB CODE 200870-0

10501 Trade Court | North Chesterfield, Virginia 23236
888.895.1177 | 804.897.1177 | fax: 804.897.0070 | IAQ@SanAir.com | SanAir.com



SanAir ID Number

24013942

FINAL REPORT

3/15/2024 5:42:03 PM

Name: Professional Environmental Engineers, Inc.
Address: 2665 Scott Ave
Ste. B
St Louis, MO 63103
Phone: 3145310060

Project Number: 327.02.002
P.O. Number:
Project Name: Missouri Highway Patrol HQ
Collected Date: 3/7/2024
Received Date: 3/8/2024 10:20:00 AM

Dear Tristan O'Brien,

We at SanAir would like to thank you for the work you recently submitted. The 209 sample(s) were received on Friday, March 08, 2024 via UPS. The final report(s) is enclosed for the following sample(s): 1501-FT1-01, 1501-FT1-02, 1501-FT1-03, 1501-FT1-04, 1501-FT1-05, 1501-FT2-06, 1501-FT2-07, 1501-FT2-08, 1501-FT2-09, 1501-FT2-10, 1501-FT2-11, 1501-FT2-12, 1501-FT3-13, 1501-FT3-14, 1501-FT3-15, 1501-FT3-16, 1501-FT3-17, 1501-FT3-18, 1501-FT3-19, 1501-FT4-20, 1501-FT4-21, 1501-FT4-22, 1501-FT5-23, 1501-FT5-24, 1501-FT5-25, 1501-FT6-26, 1501-FT6-27, 1501-FT6-28, 1501-FT7-29, 1501-FT7-30, 1501-FT7-31, 1501-WT1-32, 1501-WT1-33, 1501-WT1-34, 1501-LICT1-35, 1501-LICT1-36, 1501-LICT1-37, 1501-LICT1-38, 1501-LICT1-39, 1501-LICT1-40, 1501-LICT2-41, 1501-LICT2-42, 1501-LICT2-43, 1501-LICT2-44, 1501-LICT2-45, 1501-LICT2-46, 1501-LICT2-47, 1501-LICT3-48, 1501-LICT3-49, 1501-LICT3-50, 1501-LICT3-51, 1501-LICT3-52, 1501-LICT3-53, 1501-LICT3-54, 1501-LICT4-55, 1501-LICT4-56, 1501-LICT4-57, 1501-LICT5-58, 1501-LICT5-59, 1501-LICT5-60, 1501-LICT5-61, 1501-LICT5-62, 1501-LICT5-63, 1501-LICT5-64, 1501-LICT6-65, 1501-LICT6-66, 1501-LICT6-67, 1501-LF1-68, 1501-LF1-69, 1501-LF1-70, 1501-LF2-71, 1501-LF2-72, 1501-LF2-73, 1501-LF2-74, 1501-LF2-75, 1501-IA1-76, 1501-IA1-77, 1501-IA1-78, 1501-IA2-79, 1501-IA3-80, 1501-IA3-81, 1501-IA3-82, 1501-CA1-83, 1501-CA1-84, 1501-CA1-85, 1501-CA1-86, 1501-CA1-87, 1501-CA1-88, 1501-CA1-89, 1501-CA2-90, 1501-CA2-91, 1501-CA2-92, 1501-CA2-93, 1501-CA2-94, 1501-CA2-95, 1501-CA2-96, 1501-CA3-97, 1501-CA3-98, 1501-CA3-99, 1501-CA3-100, 1501-CA3-101, 1501-CA3-102, 1501-CA3-103, 1501-VCB1-104, 1501-VCB1-105, 1501-VCB1-106, 1501-VCB1-107, 1501-VCB1-108, 1501-VCB1-109, 1501-VCB1-110, 1501-VCB2-111, 1501-VCB2-112, 1501-VCB2-113, 1501-VCB3-114, 1501-VCB3-115, 1501-VCB3-116, 1501-VCB4-117, 1501-VCB4-118, 1501-VCB4-119, 1501-VCB5-120, 1501-VCB5-121, 1501-VCB5-122, 1501-VCB5-123, 1501-VCB5-124, 1501-VCB5-125, 1501-VCB5-126, 1501-CT1-127, 1501-CT1-128, 1501-CT1-129, 1501-PWS1-130, 1501-PWS1-131, 1501-PWS1-132, 1501-PWS1-133, 1501-PWS1-134, 1501-PWS1-135, 1501-PWS1-136, 1501-PWS2-137, 1501-PWS2-138, 1501-PWS2-139, 1501-PWS3-140, 1501-PWS3-141, 1501-PWS3-142, 1501-PWS3-143, 1501-PWS3-144, 1501-DWS1-145, 1501-DWS1-146, 1501-DWS1-147, 1501-DWS1-148, 1501-DWS1-149, 1501-DWS1-150, 1501-DWS1-151, 1501-DWS2-152, 1501-DWS2-153, 1501-DWS2-154, 1501-DWS2-155, 1501-DWS2-156, 1501-DWS2-157, 1501-DWS2-158, 1501-DWS3-159, 1501-DWS3-160, 1501-DWS3-162, 1501-DWS3-163, 1501-DWS3-164, 1501-DWS3-165, 1501-PI1-166, 1501-PI1-167, 1501-PI1-168, 1501-PI2-169, 1501-PI2-170, 1501-PI3-173, 1501-PI4-175, 1501-PI4-176, 1501-PI4-177, 1501-PI5-178, 1501-PI5-179, 1501-PI5-180, 1501-PI6-181, 1501-PI6-182, 1501-PI6-183, 1501-WTR1-184, 1501-WTR1-185, 1501-WTR1-186, 1501-IC1-187, 1501-IC2-188, 1501-IC2-189, 1501-IC2-190, 1501-EC1-191, 1501-EC1-192, 1501-EC1-193, 1501-EC2-194, 1501-EC2-195, 1501-EC2-196, 1501-EC3-197, 1501-EC3-198, 1501-EC3-199, 1501-EC4-200, 1501-EC4-201, 1501-EC4-202, 1501-EC4-203, 1501-EC4-204, 1501-EC4-205, 1501-EC4-206, 1501-PI4-175, 1501-PI4-176, 1501-PI4-177. The following sample(s) were unusable and were not tested: 1501-DWS3-161, 1501-PI2-171, 1501-PI3-172, 1501-PI3-174

These results only pertain to this job and should not be used in the interpretation of any other job. This report is only complete in its entirety. Refer to the listing below of the pages included in a complete final report.

Sincerely,



SanAir ID Number

24013942

FINAL REPORT

3/15/2024 5:42:03 PM

Name: Professional Environmental Engineers, Inc.
Address: 2665 Scott Ave
Ste. B
St Louis, MO 63103
Phone: 3145310060

Project Number: 327.02.002

P.O. Number:

Project Name: Missouri Highway Patrol HQ

Collected Date: 3/7/2024

Received Date: 3/8/2024 10:20:00 AM

Sandra Sobrino
Asbestos & Materials Laboratory Manager
SanAir Technologies Laboratory

Final Report Includes:

- Cover Letter
- Analysis Pages
- Disclaimers and Additional Information

Sample conditions:

- 136 samples in Good condition.
- 69 samples in Sample Cancelled condition. (#4, #5, #9, #10, #11, #12, #16, #17, #18, #19, #38, #39, #40, #44, #45, #46, #47, #51, #52, #53, #54, #61, #62, #63, #64, #74, #75, #86, #87, #88, #89, #93, #94, #95, #96, #100, #101, #102, #103, #107, #108, #109, #110, #123, #124, #125, #126, #133, #134, #135, #136, #143, #144, #148, #149, #150, #151, #155, #156, #157, #158, #162, #163, #164, #165, #203, #204, #205, #206)
- 4 samples in Sample Not Received condition. (#161, #171, #172, #174)



SanAir ID Number

24013942

FINAL REPORT

3/15/2024 5:42:03 PM

Name: Professional Environmental Engineers, Inc.
Address: 2665 Scott Ave
Ste. B
St Louis, MO 63103
Phone: 3145310060

Project Number: 327.02.002**P.O. Number:****Project Name:** Missouri Highway Patrol HQ**Collected Date:** 3/7/2024**Received Date:** 3/8/2024 10:20:00 AM

Analyst: Sobrino, Sandra | Pisula, Nicholas | Tallert, Jonathan | Mayes, Jean | Williams, Darien | Forman, Sydney

Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic	Components		Asbestos Fibers
	Appearance	% Fibrous	% Non-fibrous	
1501-FT1-01 / 24013942-001 12"x12" Vinyl Floor Tile/1st Floor Lobby, Floor Tile	White Non-Fibrous Homogeneous		100% Other	None Detected
1501-FT1-01 / 24013942-001 12"x12" Vinyl Floor Tile/1st Floor Lobby, Mastic	Black Non-Fibrous Heterogeneous		100% Other	None Detected
1501-FT1-02 / 24013942-002 12"x12" Vinyl Floor Tile/Basement Stairwell, Floor Tile	White Non-Fibrous Homogeneous		100% Other	None Detected
1501-FT1-02 / 24013942-002 12"x12" Vinyl Floor Tile/Basement Stairwell, Mastic	Various Non-Fibrous Heterogeneous		100% Other	< 1% Chrysotile
1501-FT1-03 / 24013942-003 12"x12" Vinyl Floor Tile/1st Floor Staff Office Hallway, Floor Tile	White Non-Fibrous Homogeneous		100% Other	None Detected
1501-FT1-03 / 24013942-003 12"x12" Vinyl Floor Tile/1st Floor Staff Office Hallway, Mastic	Various Non-Fibrous Heterogeneous		100% Other	< 1% Chrysotile
1501-FT2-06 / 24013942-006 9"x9" Vinyl Floor Tile/Basement R&D Hall Closet, Floor Tile	Off-White Non-Fibrous Homogeneous		97% Other	3% Chrysotile
1501-FT2-06 / 24013942-006 9"x9" Vinyl Floor Tile/Basement R&D Hall Closet, Mastic	Black Non-Fibrous Homogeneous		95% Other	5% Chrysotile
1501-FT2-07 / 24013942-007 9"x9" Vinyl Floor Tile/Basement R&D T-Shirt Storage Room				Not Analyzed
1501-FT2-08 / 24013942-008 9"x9" Vinyl Floor Tile/Deana Schulte's Office				Not Analyzed

Analyst:

Approved Signatory:

Analysis Date: 3/15/2024

Date: 3/15/2024



SanAir ID Number

24013942

FINAL REPORT

3/15/2024 5:42:03 PM

Name: Professional Environmental Engineers, Inc.
Address: 2665 Scott Ave
Ste. B
St Louis, MO 63103
Phone: 3145310060

Project Number: 327.02.002**P.O. Number:****Project Name:** Missouri Highway Patrol HQ**Collected Date:** 3/7/2024**Received Date:** 3/8/2024 10:20:00 AM

Analyst: Sobrino, Sandra | Pisula, Nicholas | Tallert, Jonathan | Mayes, Jean | Williams, Darien | Forman, Sydney

Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic	Components		Asbestos Fibers
	Appearance	% Fibrous	% Non-fibrous	
1501-FT3-13 / 24013942-013 12"x12" Vinyl Floor Tile/1st Floor Lobby Storage Closet, Floor Tile	White Non-Fibrous Homogeneous		98% Other	2% Chrysotile
1501-FT3-13 / 24013942-013 12"x12" Vinyl Floor Tile/1st Floor Lobby Storage Closet, Mastic	Black Non-Fibrous Homogeneous		98% Other	2% Chrysotile
1501-FT3-14 / 24013942-014 12"x12" Vinyl Floor Tile/1st Floor Maintenance Hallway				Not Analyzed
1501-FT3-15 / 24013942-015 12"x12" Vinyl Floor Tile/1st Floor Recruitment Office				Not Analyzed
1501-FT4-20 / 24013942-020 12"x12" Vinyl Floor Tile/1st Floor Break Room, Floor Tile	Brown Non-Fibrous Homogeneous		100% Other	None Detected
1501-FT4-20 / 24013942-020 12"x12" Vinyl Floor Tile/1st Floor Break Room, Mastic	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
1501-FT4-21 / 24013942-021 12"x12" Vinyl Floor Tile/1st Floor Break Room, Floor Tile	Brown Non-Fibrous Homogeneous		100% Other	None Detected
1501-FT4-21 / 24013942-021 12"x12" Vinyl Floor Tile/1st Floor Break Room, Mastic	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
1501-FT4-22 / 24013942-022 12"x12" Vinyl Floor Tile/1st Floor Break Room, Floor Tile	Brown Non-Fibrous Homogeneous		100% Other	None Detected
1501-FT4-22 / 24013942-022 12"x12" Vinyl Floor Tile/1st Floor Break Room, Mastic	Yellow Non-Fibrous Homogeneous		100% Other	None Detected

Analyst:

Approved Signatory:

Analysis Date: 3/15/2024

Date: 3/15/2024



SanAir ID Number

24013942

FINAL REPORT

3/15/2024 5:42:03 PM

Name: Professional Environmental Engineers, Inc.
Address: 2665 Scott Ave
Ste. B
St Louis, MO 63103
Phone: 3145310060

Project Number: 327.02.002

P.O. Number:

Project Name: Missouri Highway Patrol HQ

Collected Date: 3/7/2024

Received Date: 3/8/2024 10:20:00 AM

Analyst: Sobrino, Sandra | Pisula, Nicholas | Tallert, Jonathan | Mayes, Jean | Williams, Darien | Forman, Sydney

Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic	Components		Asbestos Fibers
	Appearance	% Fibrous	% Non-fibrous	
1501-FT5-23 / 24013942-023 12"x12" Vinyl Floor Tile/1st Floor Break Room, Floor Tile	Beige Non-Fibrous Homogeneous		100% Other	None Detected
1501-FT5-23 / 24013942-023 12"x12" Vinyl Floor Tile/1st Floor Break Room, Mastic	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
1501-FT5-24 / 24013942-024 12"x12" Vinyl Floor Tile/1st Floor Break Room, Floor Tile	Beige Non-Fibrous Homogeneous		100% Other	None Detected
1501-FT5-24 / 24013942-024 12"x12" Vinyl Floor Tile/1st Floor Break Room, Mastic	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
1501-FT5-25 / 24013942-025 12"x12" Vinyl Floor Tile/1st Floor Break Room, Floor Tile	Beige Non-Fibrous Homogeneous		100% Other	None Detected
1501-FT5-25 / 24013942-025 12"x12" Vinyl Floor Tile/1st Floor Break Room, Mastic	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
1501-FT6-26 / 24013942-026 12"x12" Vinyl Floor Tile/1st Floor Staff Hallway, Floor Tile	Gray Non-Fibrous Homogeneous		100% Other	None Detected
1501-FT6-26 / 24013942-026 12"x12" Vinyl Floor Tile/1st Floor Staff Hallway, Mastic	Black Non-Fibrous Homogeneous		95% Other	5% Chrysotile
1501-FT6-27 / 24013942-027 12"x12" Vinyl Floor Tile/1st Floor Staff Hallway, Floor Tile	Gray Non-Fibrous Homogeneous		100% Other	None Detected
1501-FT6-27 / 24013942-027 12"x12" Vinyl Floor Tile/1st Floor Staff Hallway, Mastic				Not Analyzed

Analyst:

Sandra Sobrino

Approved Signatory:

Jonathan Wilson

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Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic	Components		Asbestos Fibers
	Appearance	% Fibrous	% Non-fibrous	
1501-FT6-28 / 24013942-028 12"x12" Vinyl Floor Tile/1st Floor Staff Hallway, Floor Tile	Gray Non-Fibrous Homogeneous		100% Other	None Detected
1501-FT6-28 / 24013942-028 12"x12" Vinyl Floor Tile/1st Floor Staff Hallway, Mastic				Not Analyzed
1501-FT7-29 / 24013942-029 12"x12" Vinyl Floor Tile/Deidra A. Borgmeyer's Office, Mastic	Various Non-Fibrous Heterogeneous		100% Other	None Detected
1501-FT7-29 / 24013942-029 12"x12" Vinyl Floor Tile/Deidra A. Borgmeyer's Office, Floor Tile	Brown Non-Fibrous Homogeneous		98% Other	2% Chrysotile
1501-FT7-29 / 24013942-029 12"x12" Vinyl Floor Tile/Deidra A. Borgmeyer's Office, Mastic	Black Non-Fibrous Homogeneous		95% Other	5% Chrysotile
1501-FT7-30 / 24013942-030 12"x12" Vinyl Floor Tile/Deidra A. Borgmeyer's Office, Mastic	Various Non-Fibrous Heterogeneous		100% Other	None Detected
1501-FT7-30 / 24013942-030 12"x12" Vinyl Floor Tile/Deidra A. Borgmeyer's Office, Floor Tile				Not Analyzed
1501-FT7-30 / 24013942-030 12"x12" Vinyl Floor Tile/Deidra A. Borgmeyer's Office, Mastic				Not Analyzed
1501-FT7-31 / 24013942-031 12"x12" Vinyl Floor Tile/Deidra A. Borgmeyer's Office, Mastic	Various Non-Fibrous Heterogeneous		100% Other	None Detected
1501-FT7-31 / 24013942-031 12"x12" Vinyl Floor Tile/Deidra A. Borgmeyer's Office, Floor Tile				Not Analyzed

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Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic	Components		Asbestos Fibers
	Appearance	% Fibrous	% Non-fibrous	
1501-FT7-31 / 24013942-031 12"x12" Vinyl Floor Tile/Deidra A. Borgmeyer's Office, Mastic				Not Analyzed
1501-WT1-32 / 24013942-032 12"x12" Wall Tile-With Pinholes And Fissures/1st Floor	White Fibrous Homogeneous	70% Min. Wool 25% Glass	5% Other	None Detected
1501-WT1-33 / 24013942-033 12"x12" Wall Tile-With Pinholes And Fissures/1st Floor	White Fibrous Homogeneous	70% Min. Wool 25% Glass	5% Other	None Detected
1501-WT1-34 / 24013942-034 12"x12" Wall Tile-With Pinholes And Fissures/1st Floor	White Fibrous Homogeneous	70% Min. Wool 25% Glass	5% Other	None Detected
1501-LICT1-35 / 24013942-035 2'x2' Lay-In Ceiling Tile-With Pinholes And Fissures/1st	White Fibrous Homogeneous	30% Cellulose 30% Glass	40% Other	None Detected
1501-LICT1-36 / 24013942-036 2'x2' Lay-In Ceiling Tile-With Pinholes And Fissures/1st	White Fibrous Homogeneous	30% Cellulose 30% Glass	40% Other	None Detected
1501-LICT1-37 / 24013942-037 2'x2' Lay-In Ceiling Tile-With Pinholes And Fissures/1st	White Fibrous Homogeneous	30% Cellulose 30% Glass	40% Other	None Detected
1501-LICT2-41 / 24013942-041 2'x4' Lay-In Ceiling Tile-With Deep Pinholes And Fissures/	White Fibrous Homogeneous	45% Min. Wool 35% Cellulose	20% Other	None Detected
1501-LICT2-42 / 24013942-042 2'x4' Lay-In Ceiling Tile-With Deep Pinholes And Fissures/	White Fibrous Homogeneous	45% Min. Wool 35% Cellulose	20% Other	None Detected
1501-LICT2-43 / 24013942-043 2'x4' Lay-In Ceiling Tile-With Deep Pinholes And Fissures/	White Fibrous Homogeneous	45% Min. Wool 35% Cellulose	20% Other	None Detected

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Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic	Components		Asbestos Fibers
	Appearance	% Fibrous	% Non-fibrous	
1501-LICT3-48 / 24013942-048 2'x4' Lay-In Ceiling Tile-With Shallow Pinholes And Fissures	White Fibrous Homogeneous	60% Cellulose 10% Glass 10% Min. Wool	20% Other	None Detected
1501-LICT3-49 / 24013942-049 2'x4' Lay-In Ceiling Tile-With Shallow Pinholes And Fissures	White Fibrous Homogeneous	60% Cellulose 10% Glass 10% Min. Wool	20% Other	None Detected
1501-LICT3-50 / 24013942-050 2'x4' Lay-In Ceiling Tile-With Shallow Pinholes And Fissures	White Fibrous Homogeneous	60% Cellulose 10% Glass 10% Min. Wool	20% Other	None Detected
1501-LICT4-55 / 24013942-055 2'x2' Lay-In Ceiling Tile- Textured/Superintendent's Office	White Fibrous Homogeneous	30% Cellulose 30% Glass 20% Min. Wool	20% Other	None Detected
1501-LICT4-56 / 24013942-056 2'x2' Lay-In Ceiling Tile- Textured/Superintendent's Office	White Fibrous Homogeneous	30% Cellulose 30% Glass 20% Min. Wool	20% Other	None Detected
1501-LICT4-57 / 24013942-057 2'x2' Lay-In Ceiling Tile- Textured/Superintendent's Office	White Fibrous Homogeneous	30% Cellulose 30% Glass 20% Min. Wool	20% Other	None Detected
1501-LICT5-58 / 24013942-058 2'x4' Lay-In Ceiling Tile-With Various Sized Pinholes/	White Fibrous Homogeneous	15% Cellulose 85% Min. Wool	< 1% Other	None Detected
1501-LICT5-59 / 24013942-059 2'x4' Lay-In Ceiling Tile-With Various Sized Pinholes/	White Fibrous Homogeneous	15% Cellulose 85% Min. Wool	< 1% Other	None Detected
1501-LICT5-60 / 24013942-060 2'x4' Lay-In Ceiling Tile-With Various Sized Pinholes/	White Fibrous Homogeneous	15% Cellulose 85% Min. Wool	< 1% Other	None Detected
1501-LICT6-65 / 24013942-065 2'x2' Lay-In Ceiling Tile-With Various Sized Pinholes/	White Fibrous Homogeneous	30% Cellulose 30% Glass 20% Min. Wool	20% Other	None Detected

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Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic	Components		Asbestos Fibers
	Appearance	% Fibrous	% Non-fibrous	
1501-LICT6-66 / 24013942-066 2'x2' Lay-In Ceiling Tile-With Various Sized Pinholes/	White Fibrous Homogeneous	30% Cellulose 30% Glass 20% Min. Wool	20% Other	None Detected
1501-LICT6-67 / 24013942-067 2'x2' Lay-In Ceiling Tile-With Various Sized Pinholes/	White Fibrous Homogeneous	30% Cellulose 30% Glass 20% Min. Wool	20% Other	None Detected
1501-LF1-68 / 24013942-068 Linoleum Flooring/Basement Stairwell, Linoleum	Red Non-Fibrous Homogeneous		100% Other	None Detected
1501-LF1-68 / 24013942-068 Linoleum Flooring/Basement Stairwell, Mastic	Tan Non-Fibrous Homogeneous	3% Wollastonite	97% Other	None Detected
1501-LF1-69 / 24013942-069 Linoleum Flooring/Basement Stairwell, Linoleum	Red Non-Fibrous Homogeneous		100% Other	None Detected
1501-LF1-69 / 24013942-069 Linoleum Flooring/Basement Stairwell, Mastic	Tan Non-Fibrous Homogeneous	3% Wollastonite	97% Other	None Detected
1501-LF1-70 / 24013942-070 Linoleum Flooring/Basement Stairwell, Linoleum	Red Non-Fibrous Homogeneous		100% Other	None Detected
1501-LF1-70 / 24013942-070 Linoleum Flooring/Basement Stairwell, Mastic	Tan Non-Fibrous Homogeneous	3% Wollastonite	97% Other	None Detected
1501-LF2-71 / 24013942-071 Linoleum Flooring/1st Floor Mailroom, Flooring	Gray Non-Fibrous Homogeneous		100% Other	None Detected
1501-LF2-71 / 24013942-071 Linoleum Flooring/1st Floor Mailroom, Mastic/Leveling Compound	Various Non-Fibrous Heterogeneous		98% Other	2% Chrysotile

Analyst:

Sandra Sobrino

Approved Signatory:

Jonathan Wilson

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Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic	Components		Asbestos Fibers
	Appearance	% Fibrous	% Non-fibrous	
1501-LF2-72 / 24013942-072 Linoleum Flooring/1st Floor Mailroom, Flooring	Gray Non-Fibrous Homogeneous		100% Other	None Detected
1501-LF2-72 / 24013942-072 Linoleum Flooring/1st Floor Mailroom, Mastic/Leveling Compound				Not Analyzed
1501-LF2-73 / 24013942-073 Linoleum Flooring/1st Floor Mailroom, Flooring	Gray Non-Fibrous Homogeneous		100% Other	None Detected
1501-LF2-73 / 24013942-073 Linoleum Flooring/1st Floor Mailroom, Mastic/Leveling Compound				Not Analyzed
1501-IA1-76 / 24013942-076 Interior Adhesive/Deidra Borgmeyer's Office	Tan Non-Fibrous Homogeneous		100% Other	None Detected
1501-IA1-77 / 24013942-077 Interior Adhesive/Deidra Borgmeyer's Office	Tan Non-Fibrous Homogeneous		100% Other	None Detected
1501-IA1-78 / 24013942-078 Interior Adhesive/Deidra Borgmeyer's Office	Tan Non-Fibrous Homogeneous		100% Other	None Detected
1501-IA2-79 / 24013942-079 Interior Adhesive/1st Floor Mechanical Room	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
1501-IA3-80 / 24013942-080 Interior Adhesive/1st Floor Mechanical Room	Brown Non-Fibrous Homogeneous		97% Other	3% Chrysotile
1501-IA3-81 / 24013942-081 Interior Adhesive/1st Floor Mechanical Room				Not Analyzed

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Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic	Components		Asbestos Fibers
	Appearance	% Fibrous	% Non-fibrous	
1501-IA3-82 / 24013942-082 Interior Adhesive/1st Floor Mechanical Room				Not Analyzed
1501-CA1-83 / 24013942-083 Carpet Adhesive/1st Floor Staff Services Hallway	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
1501-CA1-84 / 24013942-084 Carpet Adhesive/1st Floor Staff Services Hallway	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
1501-CA1-85 / 24013942-085 Carpet Adhesive/1st Floor Staff Services Hallway	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
1501-CA2-90 / 24013942-090 Carpet Adhesive/Fob Rumpus Room	Green Non-Fibrous Homogeneous		100% Other	None Detected
1501-CA2-91 / 24013942-091 Carpet Adhesive/Fob Rumpus Room	Green Non-Fibrous Homogeneous		100% Other	None Detected
1501-CA2-92 / 24013942-092 Carpet Adhesive/Fob Rumpus Room	Green Non-Fibrous Homogeneous		100% Other	None Detected
1501-CA3-97 / 24013942-097 Carpet Adhesive/Basement R&D Cubicle Area	Green Non-Fibrous Homogeneous		100% Other	None Detected
1501-CA3-98 / 24013942-098 Carpet Adhesive/Basement R&D Cubicle Area	Green Non-Fibrous Homogeneous		100% Other	None Detected
1501-CA3-99 / 24013942-099 Carpet Adhesive/Basement R&D Cubicle Area	Green Non-Fibrous Homogeneous		100% Other	None Detected

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Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic	Components		Asbestos Fibers
	Appearance	% Fibrous	% Non-fibrous	
1501-VCB1-104 / 24013942-104 1st Floor Vinyl Cove Base/1st Floor Maintenance Hallway, Cove Base	Black Non-Fibrous Homogeneous		100% Other	None Detected
1501-VCB1-104 / 24013942-104 1st Floor Vinyl Cove Base/1st Floor Maintenance Hallway, Mastic	Brown Non-Fibrous Homogeneous		100% Other	None Detected
1501-VCB1-105 / 24013942-105 1st Floor Vinyl Cove Base/1st Floor Maintenance Hallway, Cove Base	Black Non-Fibrous Homogeneous		100% Other	None Detected
1501-VCB1-105 / 24013942-105 1st Floor Vinyl Cove Base/1st Floor Maintenance Hallway, Mastic	Brown Non-Fibrous Homogeneous		100% Other	None Detected
1501-VCB1-106 / 24013942-106 1st Floor Vinyl Cove Base/1st Floor Maintenance Hallway, Cove Base	Black Non-Fibrous Homogeneous		100% Other	None Detected
1501-VCB1-106 / 24013942-106 1st Floor Vinyl Cove Base/1st Floor Maintenance Hallway, Mastic	Brown Non-Fibrous Homogeneous		100% Other	None Detected
1501-VCB2-111 / 24013942-111 Basement Vinyl Cove Base/Basement R&D Cubicle Area, Cove Base	Black Non-Fibrous Homogeneous		100% Other	None Detected
1501-VCB2-111 / 24013942-111 Basement Vinyl Cove Base/Basement R&D Cubicle Area, Mastic	Various Non-Fibrous Heterogeneous		100% Other	None Detected
1501-VCB2-112 / 24013942-112 Basement Vinyl Cove Base/Basement R&D Cubicle Area, Cove Base	Black Non-Fibrous Homogeneous		100% Other	None Detected

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Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic	Components		Asbestos Fibers
	Appearance	% Fibrous	% Non-fibrous	
1501-VCB2-112 / 24013942-112 Basement Vinyl Cove Base/Basement R&D Cubicle Area, Mastic	Various Non-Fibrous Heterogeneous		100% Other	None Detected
1501-VCB2-113 / 24013942-113 Basement Vinyl Cove Base/Basement R&D Cubicle Area, Cove Base	Black Non-Fibrous Homogeneous		100% Other	None Detected
1501-VCB2-113 / 24013942-113 Basement Vinyl Cove Base/Basement R&D Cubicle Area, Mastic	Various Non-Fibrous Heterogeneous		100% Other	None Detected
1501-VCB3-114 / 24013942-114 Basement Vinyl Cove Base/Kristi Newman's Office, Cove Base	Gray Non-Fibrous Homogeneous		100% Other	None Detected
1501-VCB3-114 / 24013942-114 Basement Vinyl Cove Base/Kristi Newman's Office, Mastic	Various Non-Fibrous Heterogeneous		100% Other	None Detected
1501-VCB3-115 / 24013942-115 Basement Vinyl Cove Base/Kristi Newman's Office, Cove Base	Gray Non-Fibrous Homogeneous		100% Other	None Detected
1501-VCB3-115 / 24013942-115 Basement Vinyl Cove Base/Kristi Newman's Office, Mastic	Various Non-Fibrous Heterogeneous		100% Other	None Detected
1501-VCB3-116 / 24013942-116 Basement Vinyl Cove Base/Kristi Newman's Office, Cove Base	Gray Non-Fibrous Homogeneous		100% Other	None Detected
1501-VCB3-116 / 24013942-116 Basement Vinyl Cove Base/Kristi Newman's Office, Mastic	Various Non-Fibrous Heterogeneous		100% Other	None Detected

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Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic	Components		Asbestos Fibers
	Appearance	% Fibrous	% Non-fibrous	
1501-VCB4-117 / 24013942-117 Basement Vinyl Cove Base/Basement Museum, Cove Base	Tan Non-Fibrous Homogeneous		100% Other	None Detected
1501-VCB4-117 / 24013942-117 Basement Vinyl Cove Base/Basement Museum, Mastic	Various Non-Fibrous Heterogeneous		100% Other	None Detected
1501-VCB4-118 / 24013942-118 Basement Vinyl Cove Base/Basement Museum, Cove Base	Tan Non-Fibrous Homogeneous		100% Other	None Detected
1501-VCB4-118 / 24013942-118 Basement Vinyl Cove Base/Basement Museum, Mastic	Various Non-Fibrous Heterogeneous		100% Other	None Detected
1501-VCB4-119 / 24013942-119 Basement Vinyl Cove Base/Basement Museum, Cove Base	Tan Non-Fibrous Homogeneous		100% Other	None Detected
1501-VCB4-119 / 24013942-119 Basement Vinyl Cove Base/Basement Museum, Mastic	Various Non-Fibrous Heterogeneous		100% Other	None Detected
1501-VCB5-120 / 24013942-120 2nd Floor Vinyl Cove Base/2nd Floor Rear Electrical Room, Cove Base	Black Non-Fibrous Homogeneous		100% Other	None Detected
1501-VCB5-120 / 24013942-120 2nd Floor Vinyl Cove Base/2nd Floor Rear Electrical Room, Mastic	Various Non-Fibrous Heterogeneous		100% Other	None Detected
1501-VCB5-121 / 24013942-121 2nd Floor Vinyl Cove Base/2nd Floor Rear Electrical Room, Cove Base	Black Non-Fibrous Homogeneous		100% Other	None Detected

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Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic	Components		Asbestos Fibers
	Appearance	% Fibrous	% Non-fibrous	
1501-VCB5-121 / 24013942-121 2nd Floor Vinyl Cove Base/2nd Floor Rear Electrical Room, Mastic	Brown Non-Fibrous Homogeneous		100% Other	None Detected
1501-VCB5-122 / 24013942-122 2nd Floor Vinyl Cove Base/2nd Floor Rear Electrical Room, Cove Base	Black Non-Fibrous Homogeneous		100% Other	None Detected
1501-VCB5-122 / 24013942-122 2nd Floor Vinyl Cove Base/2nd Floor Rear Electrical Room, Mastic	Brown Non-Fibrous Homogeneous		100% Other	None Detected
1501-CT1-127 / 24013942-127 12"x12" Ceiling Tile-With Pinholes And Fissures/1st Floor HR	White Fibrous Homogeneous	30% Min. Wool 35% Cellulose 20% Glass	15% Other	None Detected
1501-CT1-128 / 24013942-128 12"x12" Ceiling Tile-With Pinholes And Fissures/1st Floor HR	White Fibrous Homogeneous	30% Min. Wool 35% Cellulose 20% Glass	15% Other	None Detected
1501-CT1-129 / 24013942-129 12"x12" Ceiling Tile-With Pinholes And Fissures/1st Floor HR	White Fibrous Homogeneous	30% Min. Wool 35% Cellulose 20% Glass	15% Other	None Detected
1501-PWS1-130 / 24013942-130 1st Floor Plaster Wall System-1st Floor HR Storage Closet, Plaster	Gray Non-Fibrous Heterogeneous		100% Other	None Detected
1501-PWS1-130 / 24013942-130 1st Floor Plaster Wall System-1st Floor HR Storage Closet, Skim Coat	White Non-Fibrous Homogeneous		100% Other	None Detected
1501-PWS1-131 / 24013942-131 1st Floor Plaster Wall System-1st Floor HR Storage Closet, Plaster	Various Non-Fibrous Heterogeneous		100% Other	None Detected
1501-PWS1-131 / 24013942-131 1st Floor Plaster Wall System-1st Floor HR Storage Closet, Skim Coat	White Non-Fibrous Homogeneous		100% Other	None Detected

Analyst:

Sandra Sobrino

Approved Signatory:

Jonathan Williams

Analysis Date: 3/15/2024

Date: 3/15/2024



SanAir ID Number

24013942

FINAL REPORT

3/15/2024 5:42:03 PM

Name: Professional Environmental Engineers, Inc.
Address: 2665 Scott Ave
Ste. B
St Louis, MO 63103
Phone: 3145310060

Project Number: 327.02.002
P.O. Number:
Project Name: Missouri Highway Patrol HQ
Collected Date: 3/7/2024
Received Date: 3/8/2024 10:20:00 AM

Analyst: Sobrino, Sandra | Pisula, Nicholas | Tallert, Jonathan | Mayes, Jean | Williams, Darien | Forman, Sydney

Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic	Components		Asbestos Fibers
	Appearance	% Fibrous	% Non-fibrous	
1501-PWS1-132 / 24013942-132 1st Floor Plaster Wall System-1st Floor HR Storage Closet, Plaster	Various Non-Fibrous Heterogeneous		100% Other	None Detected
1501-PWS1-132 / 24013942-132 1st Floor Plaster Wall System-1st Floor HR Storage Closet, Skim Coat	White Non-Fibrous Homogeneous		100% Other	None Detected
1501-PWS2-137 / 24013942-137 Basement Plaster Wall System- Holly Hyde's Storage Closet, Plaster	Various Non-Fibrous Heterogeneous		100% Other	None Detected
1501-PWS2-137 / 24013942-137 Basement Plaster Wall System- Holly Hyde's Storage Closet, Skim Coat	White Non-Fibrous Homogeneous		100% Other	None Detected
1501-PWS2-138 / 24013942-138 Basement Plaster Wall System- Holly Hyde's Storage Closet, Plaster	Various Non-Fibrous Heterogeneous		100% Other	None Detected
1501-PWS2-138 / 24013942-138 Basement Plaster Wall System- Holly Hyde's Storage Closet, Skim Coat	White Non-Fibrous Homogeneous		100% Other	None Detected
1501-PWS2-139 / 24013942-139 Basement Plaster Wall System- Holly Hyde's Storage Closet, Plaster	Various Non-Fibrous Heterogeneous		100% Other	None Detected
1501-PWS2-139 / 24013942-139 Basement Plaster Wall System- Holly Hyde's Storage Closet, Skim Coat	White Non-Fibrous Homogeneous		100% Other	None Detected
1501-PWS3-140 / 24013942-140 2nd Floor Plaster Wall System- Rear 2nd Floor Janitorial, Plaster	Various Non-Fibrous Heterogeneous		100% Other	None Detected

Analyst:

Sandra Sobrino

Approved Signatory:

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Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic	Components		Asbestos Fibers
	Appearance	% Fibrous	% Non-fibrous	
1501-PWS3-140 / 24013942-140 2nd Floor Plaster Wall System- Rear 2nd Floor Janitorial, Skim Coat	White Non-Fibrous Homogeneous		100% Other	None Detected
1501-PWS3-141 / 24013942-141 2nd Floor Plaster Wall System- Rear 2nd Floor Janitorial, Plaster	Beige Non-Fibrous Heterogeneous		100% Other	None Detected
1501-PWS3-141 / 24013942-141 2nd Floor Plaster Wall System- Rear 2nd Floor Janitorial, Skim Coat	White Non-Fibrous Heterogeneous		100% Other	None Detected
1501-PWS3-142 / 24013942-142 2nd Floor Plaster Wall System- Rear 2nd Floor Janitorial, Plaster	Beige Non-Fibrous Heterogeneous		100% Other	None Detected
1501-PWS3-142 / 24013942-142 2nd Floor Plaster Wall System- Rear 2nd Floor Janitorial, Skim Coat	White Non-Fibrous Heterogeneous		100% Other	None Detected
1501-DWS1-145 / 24013942-145 1st Floor Drywall System-1st Floor Recruitment Closet	White Non-Fibrous Homogeneous		100% Other	None Detected
1501-DWS1-146 / 24013942-146 1st Floor Drywall System-1st Floor Recruitment Closet, Drywall	Various Non-Fibrous Heterogeneous	30% Cellulose	70% Other	None Detected
1501-DWS1-146 / 24013942-146 1st Floor Drywall System-1st Floor Recruitment Closet, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
1501-DWS1-147 / 24013942-147 1st Floor Drywall System-1st Floor Recruitment Closet, Drywall	Various Non-Fibrous Heterogeneous	30% Cellulose	70% Other	None Detected

Analyst:

Sandra Sobrino

Approved Signatory:

Jonathan Wilson

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Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic	Components		Asbestos Fibers
	Appearance	% Fibrous	% Non-fibrous	
1501-DWS1-147 / 24013942-147 1st Floor Drywall System-1st Floor Recruitment Closet, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
1501-DWS2-152 / 24013942-152 Basement Drywall System- Basement Museum Storage	Various Fibrous Heterogeneous	60% Cellulose	40% Other	None Detected
1501-DWS2-153 / 24013942-153 Basement Drywall System- Basement Museum Storage, Drywall	Various Fibrous Heterogeneous	70% Cellulose	30% Other	None Detected
1501-DWS2-153 / 24013942-153 Basement Drywall System- Basement Museum Storage, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
1501-DWS2-154 / 24013942-154 Basement Drywall System- Basement Museum Storage, Drywall	Various Fibrous Heterogeneous	70% Cellulose	30% Other	None Detected
1501-DWS2-154 / 24013942-154 Basement Drywall System- Basement Museum Storage, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
1501-DWS3-159 / 24013942-159 2nd Floor Drywall System-Rear Electrical Room, Drywall	Various Non-Fibrous Heterogeneous	30% Cellulose	70% Other	None Detected
1501-DWS3-160 / 24013942-160 2nd Floor Drywall System-Rear Electrical Room	Various Non-Fibrous Heterogeneous	30% Cellulose	70% Other	None Detected
1501-DWS3-161 / 24013942-161 2nd Floor Drywall System-Rear Electrical Room				Not Submitted

Analyst:

Sandra Sobrino

Approved Signatory:

Jonathan Williams

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Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic	Components		Asbestos Fibers
	Appearance	% Fibrous	% Non-fibrous	
1501-PI1-166 / 24013942-166 2" Pipe Insulation-1st Floor Mechanical Room, Insulation	Yellow Fibrous Homogeneous	98% Glass	2% Other	None Detected
1501-PI1-166 / 24013942-166 2" Pipe Insulation-1st Floor Mechanical Room, Wrap	Various Non-Fibrous Heterogeneous	15% Cellulose 10% Glass	75% Other	None Detected
1501-PI1-167 / 24013942-167 2" Pipe Insulation-1st Floor Mechanical Room, Insulation	Yellow Fibrous Homogeneous	98% Glass	2% Other	None Detected
1501-PI1-167 / 24013942-167 2" Pipe Insulation-1st Floor Mechanical Room, Wrap	Various Non-Fibrous Heterogeneous	15% Cellulose 10% Glass	75% Other	None Detected
1501-PI1-168 / 24013942-168 2" Pipe Insulation-1st Floor Mechanical Room, Insulation	Yellow Fibrous Homogeneous	98% Glass	2% Other	None Detected
1501-PI1-168 / 24013942-168 2" Pipe Insulation-1st Floor Mechanical Room, Wrap	Various Non-Fibrous Heterogeneous	15% Cellulose 10% Glass	75% Other	None Detected
1501-PI2-169 / 24013942-169 4" Pipe Insulation-1st Floor Mechanical Room, Insulation	Yellow Fibrous Homogeneous	98% Glass	2% Other	None Detected
1501-PI2-169 / 24013942-169 4" Pipe Insulation-1st Floor Mechanical Room, Wrap	Various Non-Fibrous Heterogeneous	20% Cellulose 15% Glass	65% Other	None Detected
1501-PI2-170 / 24013942-170 4" Pipe Insulation-1st Floor Mechanical Room, Insulation	Yellow Fibrous Homogeneous	98% Glass	2% Other	None Detected
1501-PI2-170 / 24013942-170 4" Pipe Insulation-1st Floor Mechanical Room, Wrap	Various Non-Fibrous Heterogeneous	20% Cellulose 15% Glass	65% Other	None Detected

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Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic	Components		Asbestos Fibers
	Appearance	% Fibrous	% Non-fibrous	
1501-PI2-171 / 24013942-171 4" Pipe Insulation-1st Floor Mechanical Room				Not Submitted
1501-PI3-172 / 24013942-172 8" Pipe Insulation-1st Floor Mechanical Room				Not Submitted
1501-PI3-173 / 24013942-173 8" Pipe Insulation-1st Floor Mechanical Room, Insulation	Yellow Fibrous Homogeneous	98% Glass	2% Other	None Detected
1501-PI3-173 / 24013942-173 8" Pipe Insulation-1st Floor Mechanical Room, Wrap	Various Non-Fibrous Heterogeneous	20% Cellulose 15% Glass	65% Other	None Detected
1501-PI3-174 / 24013942-174 8" Pipe Insulation-1st Floor Mechanical Room				Not Submitted
1501-PI4-175 / 24013942-175 12" Pipe Insulation-Basement Boiler Room, Insulation	Yellow Fibrous Homogeneous	98% Glass	2% Other	None Detected
1501-PI4-175 / 24013942-175 12" Pipe Insulation-Basement Boiler Room, Wrap	Various Non-Fibrous Heterogeneous	20% Cellulose 15% Glass	65% Other	None Detected
1501-PI4-176 / 24013942-176 12" Pipe Insulation-Basement Boiler Room, Insulation	Yellow Fibrous Homogeneous	98% Glass	2% Other	None Detected
1501-PI4-176 / 24013942-176 12" Pipe Insulation-Basement Boiler Room, Wrap	Various Non-Fibrous Heterogeneous	20% Cellulose 15% Glass	65% Other	None Detected
1501-PI4-177 / 24013942-177 12" Pipe Insulation-Basement Boiler Room, Insulation	Yellow Fibrous Homogeneous	98% Glass	2% Other	None Detected

Analyst:

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Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic	Components		Asbestos Fibers
	Appearance	% Fibrous	% Non-fibrous	
1501-PI4-177 / 24013942-177 12" Pipe Insulation-Basement Boiler Room, Wrap	Various Non-Fibrous Heterogeneous	20% Cellulose 15% Glass	65% Other	None Detected
1501-PI5-178 / 24013942-178 18" Pipe Insulation-Basement Boiler Room, Insulation	Brown Fibrous Homogeneous	95% Glass	5% Other	None Detected
1501-PI5-178 / 24013942-178 18" Pipe Insulation-Basement Boiler Room, Mastic	White Non-Fibrous Homogeneous		100% Other	None Detected
1501-PI5-179 / 24013942-179 18" Pipe Insulation-Basement Boiler Room, Insulation	Brown Fibrous Homogeneous	95% Glass	5% Other	None Detected
1501-PI5-179 / 24013942-179 18" Pipe Insulation-Basement Boiler Room, Mastic	White Non-Fibrous Homogeneous		100% Other	None Detected
1501-PI5-180 / 24013942-180 18" Pipe Insulation-Basement Boiler Room, Insulation	Brown Fibrous Homogeneous	95% Glass	5% Other	None Detected
1501-PI5-180 / 24013942-180 18" Pipe Insulation-Basement Boiler Room, Mastic	White Non-Fibrous Homogeneous		100% Other	None Detected
1501-PI6-181 / 24013942-181 36" Pipe Insulation-2nd Floor Mechanical Room	Various Non-Fibrous Heterogeneous	70% Glass	30% Other	None Detected
1501-PI6-182 / 24013942-182 36" Pipe Insulation-2nd Floor Mechanical Room	Various Non-Fibrous Heterogeneous	70% Glass	30% Other	None Detected
1501-PI6-183 / 24013942-183 36" Pipe Insulation-2nd Floor Mechanical Room, Insulation	Yellow Fibrous Heterogeneous	95% Glass	5% Other	None Detected

Analyst:

Approved Signatory:

Analysis Date: 3/15/2024

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Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic	Components		Asbestos Fibers
	Appearance	% Fibrous	% Non-fibrous	
1501-PI6-183 / 24013942-183 36" Pipe Insulation-2nd Floor Mechanical Room, Wrap	Various Fibrous Heterogeneous	60% Cellulose	40% Other	None Detected
1501-WTR1-184 / 24013942-184 Window Tar/Paul Kerpern's Office Windows	Black Non-Fibrous Homogeneous		95% Other	5% Chrysotile
1501-WTR1-185 / 24013942-185 Window Tar/Paul Kerpern's Office Windows				Not Analyzed
1501-WTR1-186 / 24013942-186 Window Tar/Paul Kerpern's Office Windows				Not Analyzed
1501-IC1-187 / 24013942-187 Interior Caulking/Christopher S. Jolly's Office Windows	Grey Non-Fibrous Homogeneous		100% Other	None Detected
1501-IC2-188 / 24013942-188 Window Caulking/D.A. Flannigon's Office Windows	Black Non-Fibrous Homogeneous		100% Other	None Detected
1501-IC2-189 / 24013942-189 Window Caulking/D.A. Flannigon's Office Windows	Black Non-Fibrous Homogeneous		100% Other	None Detected
1501-IC2-190 / 24013942-190 Window Caulking/D.A. Flannigon's Office Windows	Black Non-Fibrous Homogeneous		100% Other	None Detected
1501-EC1-191 / 24013942-191 Exterior Caulking/Enclosed Parking Lot Venting Windows	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
1501-EC1-192 / 24013942-192 Exterior Caulking/Enclosed Parking Lot Venting Windows	Yellow Non-Fibrous Homogeneous		100% Other	None Detected

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Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic	Components		Asbestos Fibers
	Appearance	% Fibrous	% Non-fibrous	
1501-EC1-193 / 24013942-193 Exterior Caulking/Enclosed Parking Lot Venting Windows	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
1501-EC2-194 / 24013942-194 Exterior Caulking/Enclosed Parking Lot Windows	Black Non-Fibrous Homogeneous		100% Other	None Detected
1501-EC2-195 / 24013942-195 Exterior Caulking/Enclosed Parking Lot Windows	Black Non-Fibrous Homogeneous		100% Other	None Detected
1501-EC2-196 / 24013942-196 Exterior Caulking/Enclosed Parking Lot Windows	Black Non-Fibrous Homogeneous		100% Other	None Detected
1501-EC3-197 / 24013942-197 Exterior Caulking/Enclosed Parking Lot Windows	Gray Non-Fibrous Homogeneous		100% Other	None Detected
1501-EC3-198 / 24013942-198 Exterior Caulking/Enclosed Parking Lot Windows	Gray Non-Fibrous Homogeneous		100% Other	None Detected
1501-EC3-199 / 24013942-199 Exterior Caulking/Enclosed Parking Lot Windows	Gray Non-Fibrous Homogeneous		100% Other	None Detected
1501-EC4-200 / 24013942-200 Exterior Caulking/Enclosed Parking Lot Concrete Joints	Gray Non-Fibrous Homogeneous		100% Other	None Detected
1501-EC4-201 / 24013942-201 Exterior Caulking/Enclosed Parking Lot Concrete Joints	Gray Non-Fibrous Homogeneous		100% Other	None Detected
1501-EC4-202 / 24013942-202 Exterior Caulking/Enclosed Parking Lot Concrete Joints	Gray Non-Fibrous Homogeneous		100% Other	None Detected

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Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic	Components		Asbestos Fibers
	Appearance	% Fibrous	% Non-fibrous	
1501-PI4-175 / 24013942-207 , Insulation	Yellow Fibrous Homogeneous	100% Glass	< 1% Other	None Detected
1501-PI4-175 / 24013942-207 , Wrap	Various Non-Fibrous Heterogeneous	20% Cellulose 15% Glass	65% Other	None Detected
1501-PI4-176 / 24013942-208 , Insulation	Yellow Fibrous Homogeneous	100% Glass	< 1% Other	None Detected
1501-PI4-176 / 24013942-208 , Wrap	Various Non-Fibrous Heterogeneous	20% Cellulose 15% Glass	65% Other	None Detected
1501-PI4-177 / 24013942-209 , Insulation	Yellow Fibrous Homogeneous	100% Glass	< 1% Other	None Detected
1501-PI4-177 / 24013942-209 , Wrap	Various Non-Fibrous Heterogeneous	20% Cellulose 15% Glass	65% Other	None Detected

Analyst:

Sandra Sobrino

Approved Signatory:

Jonathan Wilson

Analysis Date: 3/15/2024

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Disclaimer

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NYELAP Disclaimer:

Polarized- light microscopy is not consistently reliable in detecting asbestos in floor covering and similar non-friable organically bound materials. Quantitative transmission electron microscopy is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos containing.

Asbestos Accreditations

National Voluntary Laboratory Accreditation Program (NVLAP) Lab Code 200870-0
City of Philadelphia Department of Public Health Air Management Services, Certification#ALL-460
Commonwealth of Pennsylvania Department of Environmental Protection Number 68-05397
California State Environmental Laboratory Accreditation Program Certificate Number 2915
Colorado Department of Public Health and Environment Registration Number AL-23143
Connecticut Department of Public Health Environmental Laboratory Registration Number PH-0105
Massachusetts Department of Labor Standards Asbestos Analytical Services License Number: AA000222
State of Maine Department of Environmental Protection License Number: LB-0075, LA-0084
New York State Department of Health Laboratory ID: 11983
State of Rhode Island Department of Health Certification No.: PCM00126, PLM00126, TEM00126
Texas Department of State Health Services License Number: 300440
Commonwealth of Virginia Department of Professional and Occupational Regulation Number: 3333000323
State of Washington Department of Ecology Laboratory ID: C989
State of West Virginia Bureau for Public Health Analytical Laboratory Number: LT000616
Vermont Department of Health License Number: Asb-Co-An-000006
Louisiana Department of Environmental Quality AI Number 212253, Certificate #05088



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Asbestos
Chain of Custody
Form 140, Rev 7, 10/20/2022

SanAir ID Number

24013942

Company	Professional Environmental Engineers, Inc.	Project #	327.02.002	Collected by	Tristan O'Brien
Address	2665 Scott Ave, Suite B	Project Name	Missouri Highway Patrol HQ	Phone #	314-531-0060
City, St., Zip	St. Louis, MO 63103	Date Collected	3/7/2024	Fax #	
State of Collection	MO	Account#	2376	P.O. Number	
				Email	tobrien@pe-engrs.com

Bulk			Air			Soil		
ABB	PLM EPA 600/R-93/116	☒	ABA	PCM NIOSH 7400	☐	ABSE	PLM EPA 600/R-93/116 (Qual.)	☐
	Positive Stop	☒	ABA-2	OSHA w/ TWA*	☐	Vermiculite		
ABEPA	PLM EPA 400 Point Count	☐	ABTEM	TEM AHERA	☐	ABB	PLM EPA 600/R-93/116	☐
ABBIK	PLM EPA 1000 Point Count	☐	ABATN	TEM NIOSH 7402	☐	ABEPA3	PLM EPA 400 Point Count	☐
ABBEN	PLM EPA NOB**	☐	ABT2	TEM Level II	☐	ABCM	Cincinnati Method	☐
ABBCH	TEM Chatfield**	☐	Other:		☐	Dust		
ABBTM	TEM EPA NOB**	☐	New York ELAP			ABWA	TEM Wipe ASTM D-6480	☐
ABQ	PLM Qualitative	☐	ABEPA2	NY ELAP 198.1	☐	ABDMV	TEM Microvac ASTM D-5755	☐
			ABENY	NY ELAP 198.6 PLM NOB	☐	Matrix		
			ABBNY	NY ELAP 198.4 TEM NOB	☐	Other		
				Positive Stop	☐			☐

** Available on 24-hr. to 5-day TAT

Water	
ABHE	EPA 100.2 ☐

Turn Around Times	3 HR (4 HR TEM) ☐	6 HR (8HR TEM) ☐	12 HR ☐	1 Day ☐
	☐ 2 Days	☐ 3 Days	☐ 4 Days	☒ 5 Days

Special Instructions	
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Sample #	Sample Identification/Location	Volume or Area	Sample Date	Flow Rate*	Start - Stop Time*
1501-FT1-01	12"x12" Vinyl Floor Tile - White with Blue Streaks/ 1st Floor Lobby	~2,880 SF	3/7/2024		
1501-FT1-02	12"x12" Vinyl Floor Tile - White with Blue Streaks/ Basement Stairwell	~2,880 SF	3/7/2024		
1501-FT1-03	12"x12" Vinyl Floor Tile - White with Blue Streaks/ 1st Floor Staff Office Hallway	~2,880 SF	3/7/2024		
1501-FT1-04	12"x12" Vinyl Floor Tile - White with Blue Streaks/ FOB Intern's Office	~2,880 SF	3/7/2024		
1501-FT1-05	12"x12" Vinyl Floor Tile - White with Blue Streaks/ Commercial Vehicle Enforcement Storage	~2,880 SF	3/7/2024		
1501-FT2-06	9"x9" Vinyl Floor Tile - White with Blue Streaks/ Basement R&D Hall Closet	~24,545 SF	3/7/2024		
1501-FT2-07	9"x9" Vinyl Floor Tile - White with Blue Streaks/ Basement R&D T-Shirt Storage Room	~24,545 SF	3/7/2024		
1501-FT2-08	9"x9" Vinyl Floor Tile - White with Blue Streaks/ Deana Schulte's Office	~24,545 SF	3/7/2024		
1501-FT2-09	9"x9" Vinyl Floor Tile - White with Blue Streaks/ Basement Theatre	~24,545 SF	3/7/2024		
1501-FT2-10	9"x9" Vinyl Floor Tile - White with Blue Streaks/ 1st Floor Lobby Conference Room	~24,545 SF	3/7/2024		
1501-FT2-11	9"x9" Vinyl Floor Tile - White with Blue Streaks/ 1st Floor HR Hall Closet	~24,545 SF	3/7/2024		
1501-FT2-12	9"x9" Floor Tile - White with Blue Streaks/ 1st Floor HR Closet	~24,545 SF	3/7/2024		

Relinquished by	Date	Time	Received by	Date	Time
Tristan O'Brien	3/7/2024	1700	EPR	3/8/24	10:20 a.m.

If no technician is provided, then the primary contact for your account will be selected. Unless scheduled, the turnaround time for all samples received after 3 pm EST will be logged in the next business day. Weekend or holiday work must be scheduled ahead of time and is charged at 150% of the 3hr TAT or a minimum charge of \$150. A courier charge will be applied for same day and one-day turnaround times for offsite work. SanAir covers Ground and Next Day Air shipping. Shipments billed to SanAir with a faster shipping rate will result in additional charges.

24013942

Form 140, Revision 1, 1/20/2017

Sample #	Sample Identification/Location	Volume or Area	Sample Date	Flow Rate*	Start - Stop Time*
1501-FT3-13	12"x12" Vinyl Floor Tile - White (Green if Discolored) with Gray Splashes/ 1st Floor Lobby Storage Closet	~27,805 SF	3/7/2024		
1501-FT3-14	12"x12" Vinyl Floor Tile - White (Green if Discolored) with Gray Splashes/ 1st Floor Maintenance Hallway	~27,805 SF	3/7/2024		
1501-FT3-15	12"x12" Vinyl Floor Tile - White (Green if Discolored) with Gray Splashes/ 1st Floor Recruitment Office	~27,805 SF	3/7/2024		
1501-FT3-16	12"x12" Vinyl Floor Tile - White (Green if Discolored) with Gray Splashes/ 2nd Floor Rear Electrical Closet	~27,805 SF	3/7/2024		
1501-FT3-17	12"x12" Vinyl Floor Tile - White (Green if Discolored) with Gray Splashes/ 2nd Floor Server Room	~27,805 SF	3/7/2024		
1501-FT3-18	12"x12" Vinyl Floor Tile - White (Green if Discolored) with Gray Splashes/ 2nd Floor Paint Storage	~27,805 SF	3/7/2024		
1501-FT3-19	12"x12" Vinyl Floor Tile - White (Green if Discolored) with Gray Splashes/ 2nd Floor Janitorial Closet	~27,805 SF	3/7/2024		
1501-FT4-20	12"x12" Vinyl Floor Tile - Brown with Brown Streaks/ 1st Floor Break Room	~300 SF	3/7/2024		
1501-FT4-21	12"x12" Vinyl Floor Tile - Brown with Brown Streaks/ 1st Floor Break Room	~300 SF	3/7/2024		
1501-FT4-22	12"x12" Vinyl Floor Tile - Brown with Brown Streaks/ 1st Floor Break Room	~300 SF	3/7/2024		
1501-FT5-23	12"x12" Vinyl Floor Tile - Beige with Tan Streaks/ 1st Floor Break Room	~340 SF	3/7/2024		
1501-FT5-24	12"x12" Vinyl Floor Tile - Beige with Tan Streaks/ 1st Floor Break Room	~340 SF	3/7/2024		
1501-FT5-25	12"x12" Vinyl Floor Tile - Beige with Tan Streaks/ 1st Floor Break Room	~340 SF	3/7/2024		
1501-FT6-26	12"x12" Vinyl Floor Tile - Gray with Blue and Red Streaks/ 1st Floor Staff Hallway	~25 SF	3/7/2024		
1501-FT6-27	12"x12" Vinyl Floor Tile - Gray with Blue and Red Streaks/ 1st Floor Staff Hallway	~25 SF	3/7/2024		
1501-FT6-28	12"x12" Vinyl Floor Tile - Gray with Blue and Red Streaks/ 1st Floor Staff Hallway	~25 SF	3/7/2024		
1501-FT7-29	12"x12" Vinyl Floor Tile - Brown/ Deidra A. Borgmeyer's Office	~700 SF	3/7/2024		
1501-FT7-30	12"x12" Vinyl Floor Tile - Brown/ Deidra A. Borgmeyer's Office	~700 SF	3/7/2024		
1501-FT7-31	12"x12" Vinyl Floor Tile - Brown/ Deidra A. Borgmeyer's Office	~700 SF	3/7/2024		
1501-WT1-32	12"x12" Wall Tile - White with Pinholes and Fissures/ 1st Floor Insurance Hallway	~710 SF	3/7/2024		
1501-WT1-33	12"x12" Wall Tile - White with Pinholes and Fissures/ 1st Floor Insurance Hallway	~710 SF	3/7/2024		
1501-WT1-34	12"x12" Wall Tile - White with Pinholes and Fissures/ 1st Floor Insurance Hallway	~710 SF	3/7/2024		
1501-LICT1-35	2'x2' Lay-in Ceiling Tile - White with Pinholes and Fissures/ 1st Floor Lobby	~1,680 SF	3/7/2024		
1501-LICT1-36	2'x2' Lay-in Ceiling Tile - White with Pinholes and Fissures/ 1st Floor Lobby	~1,680 SF	3/7/2024		
1501-LICT1-37	2'x2' Lay-in Ceiling Tile - White with Pinholes and Fissures/ 1st Floor Lobby	~1,680 SF	3/7/2024		
1501-LICT1-38	2'x2' Lay-in Ceiling Tile - White with Pinholes and Fissures/ 1st Floor Lobby	~1,680 SF	3/7/2024		
1501-LICT1-39	2'x2' Lay-in Ceiling Tile - White with Pinholes and Fissures/ 1st Floor Lobby	~1,680 SF	3/7/2024		
1501-LICT1-40	2'x2' Lay-in Ceiling Tile - White with Pinholes and Fissures/ 1st Floor Lobby	~1,680 SF	3/7/2024		
1501-LICT2-41	2'x4' Lay-in Ceiling Tile - White with Deep Pinholes and Fissures/ 2nd Floor Mens' Conference Room Restroom Storage	~14,545 SF	3/7/2024		
1501-LICT2-42	2'x4' Lay-in Ceiling Tile - White with Deep Pinholes and Fissures/ 2nd Floor Mens' Conference Room Restroom Storage	~14,545 SF	3/7/2024		
1501-LICT2-43	2'x4' Lay-in Ceiling Tile - White with Deep Pinholes and Fissures/ 2nd Floor Mens' Conference Room Restroom Storage	~14,545 SF	3/7/2024		

Special Instructions

Relinquished by	Date	Time	Received by	Date	Time
Tristan O'Brien	3/7/2024	1700	EDR	3/8/24	10:20 a.m.

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Fax 804.897.0070
sanair.com

Asbestos
Chain of Custody
Form 140, Rev 7, 10/20/2022

SanAir ID Number

24013942

Company: Professional Environmental Engineers, Inc.	Project #: 327.02.002	Collected by: Tristan O'Brien
Address: 2665 Scott Ave, Suite B	Project Name: Missouri Highway Patrol HQ	Phone #: 314-531-0060
City, St., Zip: St. Louis, MO 63103	Date Collected: 3/7/2024	Fax #:
State of Collection: MO Account#: 2376	P.O. Number:	Email: tobrien@pe-engrs.com

Bulk			Air			Soil		
ABB	PLM EPA 600/R-93/116	☒	ABA	PCM NIOSH 7400	☐	ABSE	PLM EPA 600/R-93/116 (Qual.)	☐
	Positive Stop	☒	ABA-2	OSHA w/ TWA*	☐	Vermiculite		
ABEPA	PLM EPA 400 Point Count	☐	ABTEM	TEM AHERA	☐	ABB	PLM EPA 600/R-93/116	☐
ABBIK	PLM EPA 1000 Point Count	☐	ABATN	TEM NIOSH 7402	☐	ABEPA3	PLM EPA 400 Point Count	☐
AB BEN	PLM EPA NOB**	☐	ABT2	TEM Level II	☐	ABCM	Cincinnati Method	☐
ABBCH	TEM Chatfield**	☐	Other:		☐	Dust		
ABBTM	TEM EPA NOB**	☐	New York ELAP			ABWA	TEM Wipe ASTM D-6480	☐
ABQ	PLM Qualitative	☐	ABEPA2	NY ELAP 198.1	☐	ABDMV	TEM Microvac ASTM D-5755	☐
			ABENY	NY ELAP 198.6 PLM NOB	☐	Matrix Other		
			ABBNY	NY ELAP 198.4 TEM NOB	☐			
			Positive Stop			☐		
Water								
ABHE	EPA 100.2	☐						

** Available on 24-hr. to 5-day TAT

Turn Around Times	3 HR (4 HR TEM) ☐	6 HR (8HR TEM) ☐	12 HR ☐	1 Day ☐
	☐ 2 Days	☐ 3 Days	☐ 4 Days	☒ 5 Days

Special Instructions	
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Sample #	Sample Identification/Location	Volume or Area	Sample Date	Flow Rate*	Start - Stop Time*
1501-LICT2-44	2'x4' Lay-in Ceiling Tile - White with Deep Pinholes and Fissures/ 2nd Floor Mens' Conference Room Restroom Storage	~14,545 SF	3/7/2024		
1501-LICT2-45	2'x4' Lay-in Ceiling Tile - White with Deep Pinholes and Fissures/ 2nd Floor Mens' Conference Room Restroom Storage	~14,545 SF	3/7/2024		
1501-LICT2-46	2'x4' Lay-in Ceiling Tile - White with Deep Pinholes and Fissures/ 2nd Floor Mens' Conference Room Restroom Storage	~14,545 SF	3/7/2024		
1501-LICT2-47	2'x4' Lay-in Ceiling Tile - White with Deep Pinholes and Fissures/ 2nd Floor Mens' Conference Room Restroom Storage	~14,545 SF	3/7/2024		
1501-LICT3-48	2'x4' Lay-in Ceiling Tile - White with Shallow Pinholes and Fissures/ 2nd Floor Mens Conference Room Restroom Storage	~32,725 SF	3/7/2024		
1501-LICT3-49	2'x4' Lay-in Ceiling Tile - White with Shallow Pinholes and Fissures/ 2nd Floor Mens Conference Room Restroom Storage	~32,725 SF	3/7/2024		
1501-LICT3-50	2'x4' Lay-in Ceiling Tile - White with Shallow Pinholes and Fissures/ 2nd Floor Mens Conference Room Restroom Storage	~32,725 SF	3/7/2024		
1501-LICT3-51	2'x4' Lay-in Ceiling Tile - White with Shallow Pinholes and Fissures/ 2nd Floor Mens Conference Room Restroom Storage	~32,725 SF	3/7/2024		
1501-LICT3-52	2'x4' Lay-in Ceiling Tile - White with Shallow Pinholes and Fissures/ 2nd Floor Mens Conference Room Restroom Storage	~32,725 SF	3/7/2024		
1501-LICT3-53	2'x4' Lay-in Ceiling Tile - White with Shallow Pinholes and Fissures/ 2nd Floor Mens Conference Room Restroom Storage	~32,725 SF	3/7/2024		
1501-LICT3-54	2'x4' Lay-in Ceiling Tile - White with Shallow Pinholes and Fissures/ 2nd Floor Mens Conference Room Restroom Storage	~32,725 SF	3/7/2024		
1501-LICT4-55	2'x2' Lay-in Ceiling Tile - White Textured/ Superintendent's Office	~985 SF	3/7/2024		

Relinquished by	Date	Time	Received by	Date	Time
Tristan O'Brien	3/7/2024	1700	EDR	3/8/24	10:20 a.m.

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24013942

Form 140, Revision 1, 1/20/2017

Sample #	Sample Identification/Location	Volume or Area	Sample Date	Flow Rate*	Start - Stop Time*
1501-LICT4-56	2'x2' Lay-in Ceiling Tile - White Textured/ Superintendent's Office	~985 SF	3/7/2024		
1501-LICT4-57	2'x2' Lay-in Ceiling Tile - White Textured/ Superintendent's Office	~985 SF	3/7/2024		
1501-LICT5-58	2'x4' Lay-in Ceiling Tile - White with Various Sized Pinholes/ Enclosed Parking Lot	~9,660 SF	3/7/2024		
1501-LICT5-59	2'x4' Lay-in Ceiling Tile - White with Various Sized Pinholes/ Enclosed Parking Lot	~9,660 SF	3/7/2024		
1501-LICT5-60	2'x4' Lay-in Ceiling Tile - White with Various Sized Pinholes/ Enclosed Parking Lot	~9,660 SF	3/7/2024		
1501-LICT5-61	2'x4' Lay-in Ceiling Tile - White with Various Sized Pinholes/ Enclosed Parking Lot	~9,660 SF	3/7/2024		
1501-LICT5-62	2'x4' Lay-in Ceiling Tile - White with Various Sized Pinholes/ Enclosed Parking Lot	~9,660 SF	3/7/2024		
1501-LICT5-63	2'x4' Lay-in Ceiling Tile - White with Various Sized Pinholes/ Enclosed Parking Lot	~9,660 SF	3/7/2024		
1501-LICT5-64	2'x4' Lay-in Ceiling Tile - White with Various Sized Pinholes/ Enclosed Parking Lot	~9,660 SF	3/7/2024		
1501-LICT6-65	2'x2' Lay-in Ceiling Tile - White with Various Sized Pinholes/ Basement New Men's Restroom	~120 SF	3/7/2024		
1501-LICT6-66	2'x2' Lay-in Ceiling Tile - White with Various Sized Pinholes/ Basement New Men's Restroom	~120 SF	3/7/2024		
1501-LICT6-67	2'x2' Lay-in Ceiling Tile - White with Various Sized Pinholes/ Basement New Men's Restroom	~120 SF	3/7/2024		
1501-LF1-68	Linoleum Flooring - Red/ Basement Stairwell	~420 SF	3/7/2024		
1501-LF1-69	Linoleum Flooring - Red/ Basement Stairwell	~420 SF	3/7/2024		
1501-LF1-70	Linoleum Flooring - Red/ Basement Stairwell	~420 SF	3/7/2024		
1501-LF2-71	Linoleum Flooring - Gray/ 1st Floor Mailroom	~1160 SF	3/7/2024		
1501-LF2-72	Linoleum Flooring - Gray/ 1st Floor Mailroom	~1160 SF	3/7/2024		
1501-LF2-73	Linoleum Flooring - Gray/ 1st Floor Mailroom	~1160 SF	3/7/2024		
1501-LF2-74	Linoleum Flooring - Gray/ 1st Floor Mailroom	~1160 SF	3/7/2024		
1501-LF2-75	Linoleum Flooring - Gray/ 1st Floor Mailroom	~1160 SF	3/7/2024		
1501-IA1-76	Interior Adhesive - Tan/ Deidra Borgmeyer's Office	~800 LF	3/7/2024		
1501-IA1-77	Interior Adhesive - Tan/ Deidra Borgmeyer's Office	~800 LF	3/7/2024		
1501-IA1-78	Interior Adhesive - Tan/ Deidra Borgmeyer's Office	~800 LF	3/7/2024		
1501-IA2-79	Interior Adhesive - Yellow/ 1st Floor Mechanical Room	~10 LF	3/7/2024		
1501-IA3-80	Interior Adhesive - Brown/ 1st Floor Mechanical Room	~15 LF	3/7/2024		
1501-IA3-81	Interior Adhesive - Brown/ 1st Floor Mechanical Room	~15 LF	3/7/2024		
1501-IA3-82	Interior Adhesive - Brown/ 1st Floor Mechanical Room	~15 LF	3/7/2024		
1501-CA1-83	Carpet Adhesive - Yellow/ 1st Floor Staff Services Hallway	~5,850 SF	3/7/2024		
1501-CA1-84	Carpet Adhesive - Yellow/ 1st Floor Staff Services Hallway	~5,850 SF	3/7/2024		
1501-CA1-85	Carpet Adhesive - Yellow/ 1st Floor Staff Services Hallway	~5,850 SF	3/7/2024		
1501-CA1-86	Carpet Adhesive - Yellow/ 1st Floor Staff Services Hallway	~5,850 SF	3/7/2024		

Special Instructions

Relinquished by	Date	Time	Received by	Date	Time
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Asbestos
Chain of Custody
Form 140, Rev 7, 10/20/2022

SanAir ID Number

24013942

Company: Professional Environmental Engineers, Inc.	Project #: 327.02.002	Collected by: Tristan O'Brien
Address: 2665 Scott Ave, Suite B	Project Name: Missouri Highway Patrol HQ	Phone #: 314-531-0060
City, St., Zip: St. Louis, MO 63103	Date Collected: 3/7/2024	Fax #:
State of Collection: MO Account#: 2376	P.O. Number:	Email: tobrien@pe-engrs.com

Bulk			Air			Soil		
ABB	PLM EPA 600/R-93/116	☒	ABA	PCM NIOSH 7400	☐	ABSE	PLM EPA 600/R-93/116 (Qual.)	☐
	Positive Stop	☒	ABA-2	OSHA w/ TWA*	☐	Vermiculite		
ABEPA	PLM EPA 400 Point Count	☐	ABTEM	TEM AHERA	☐	ABB	PLM EPA 600/R-93/116	☐
ABBIK	PLM EPA 1000 Point Count	☐	ABATN	TEM NIOSH 7402	☐	ABEPA3	PLM EPA 400 Point Count	☐
AB BEN	PLM EPA NOB**	☐	ABT2	TEM Level II	☐	ABCM	Cincinnati Method	☐
AB BCH	TEM Chatfield**	☐	Other:		☐	Dust		
AB BTM	TEM EPA NOB**	☐	New York ELAP			ABWA	TEM Wipe ASTM D-6480	☐
ABQ	PLM Qualitative	☐	ABEPA2	NY ELAP 198.1	☐	ABDMV	TEM Microvac ASTM D-5755	☐
			ABENY	NY ELAP 198.6 PLM NOB	☐			
			ABBNY	NY ELAP 198.4 TEM NOB	☐			
			Positive Stop			☐		
Water						Matrix Other		
ABHE	EPA 100.2	☐						

** Available on 24-hr. to 5-day TAT

Turn Around Times	3 HR (4 HR TEM) ☐	6 HR (8HR TEM) ☐	12 HR ☐	1 Day ☐
	☐ 2 Days	☐ 3 Days	☐ 4 Days	☒ 5 Days

Special Instructions	
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Sample #	Sample Identification/Location	Volume or Area	Sample Date	Flow Rate*	Start - Stop Time*
1501-CA1-87	Carpet Adhesive - Yellow/ 1st Floor Staff Services Hallway	~5,850 SF	3/7/2024		
1501-CA1-88	Carpet Adhesive - Yellow/ 1st Floor Staff Services Hallway	~5,850 SF	3/7/2024		
1501-CA1-89	Carpet Adhesive - Yellow/ 1st Floor Staff Services Hallway	~5,850 SF	3/7/2024		
1501-CA2-90	Carpet Adhesive - Green/ Fob Rumpus Room	~3,890 SF	3/7/2024		
1501-CA2-91	Carpet Adhesive - Green/ Fob Rumpus Room	~3,890 SF	3/7/2024		
1501-CA2-92	Carpet Adhesive - Green/ Fob Rumpus Room	~3,890 SF	3/7/2024		
1501-CA2-93	Carpet Adhesive - Green/ Fob Rumpus Room	~3,890 SF	3/7/2024		
1501-CA2-94	Carpet Adhesive - Green/ Fob Rumpus Room	~3,890 SF	3/7/2024		
1501-CA2-95	Carpet Adhesive - Green/ Fob Rumpus Room	~3,890 SF	3/7/2024		
1501-CA2-96	Carpet Adhesive - Green/ Fob Rumpus Room	~3,890 SF	3/7/2024		
1501-CA3-97	Carpet Adhesive - Bright Green/ Basement R&D Cubicle Area	~3,610 SF	3/7/2024		
1501-CA3-98	Carpet Adhesive - Bright Green/ Basement R&D Cubicle Area	~3,610 SF	3/7/2024		

Relinquished by	Date	Time	Received by	Date	Time
Tristan O'Brien	3/7/2024	1700	FOR	3/8/24	10:20 a.m.

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240/3942

Form 140, Revision 1, 1/20/2017

Sample #	Sample Identification/Location	Volume or Area	Sample Date	Flow Rate*	Start - Stop Time*
1501-CA3-99	Carpet Adhesive - Bright Green/ Basement R&D Cubicle Area	~3,610 SF	3/7/2024		
1501-CA3-100	Carpet Adhesive - Bright Green/ Basement R&D Cubicle Area	~3,610 SF	3/7/2024		
1501-CA3-101	Carpet Adhesive - Bright Green/ Basement R&D Cubicle Area	~3,610 SF	3/7/2024		
1501-CA3-102	Carpet Adhesive - Bright Green/ Basement R&D Cubicle Area	~3,610 SF	3/7/2024		
1501-CA3-103	Carpet Adhesive - Bright Green/ Basement R&D Cubicle Area	~3,610 SF	3/7/2024		
1501-VCB1-104	1st Floor Vinyl Cove Base - Black/ 1st Floor Maintenance Hallway	~3,130 SF	3/7/2024		
1501-VCB1-105	1st Floor Vinyl Cove Base - Black/ 1st Floor Maintenance Hallway	~3,130 SF	3/7/2024		
1501-VCB1-106	1st Floor Vinyl Cove Base - Black/ 1st Floor Maintenance Hallway	~3,130 SF	3/7/2024		
1501-VCB1-107	1st Floor Vinyl Cove Base - Black/ 1st Floor Maintenance Hallway	~3,130 SF	3/7/2024		
1501-VCB1-108	1st Floor Vinyl Cove Base - Black/ 1st Floor Maintenance Hallway	~3,130 SF	3/7/2024		
1501-VCB1-109	1st Floor Vinyl Cove Base - Black/ 1st Floor Maintenance Hallway	~3,130 SF	3/7/2024		
1501-VCB1-110	1st Floor Vinyl Cove Base - Black/ 1st Floor Maintenance Hallway	~3,130 SF	3/7/2024		
1501-VCB2-111	Basement Vinyl Cove Base - Black/ Basement R&D Cubicle Area	~940 LF	3/7/2024		
1501-VCB2-112	Basement Vinyl Cove Base - Black/ Basement R&D Cubicle Area	~940 LF	3/7/2024		
1501-VCB2-113	Basement Vinyl Cove Base - Black/ Basement R&D Cubicle Area	~940 LF	3/7/2024		
1501-VCB3-114	Basement Vinyl Cove Base - Gray/ Kristi Newman's Office	~160 LF	3/7/2024		
1501-VCB3-115	Basement Vinyl Cove Base - Gray/ Kristi Newman's Office	~160 LF	3/7/2024		
1501-VCB3-116	Basement Vinyl Cove Base - Gray/ Kristi Newman's Office	~160 LF	3/7/2024		
1501-VCB4-117	Basement Vinyl Cove Base - Tan/ Basement Museum	~400 LF	3/7/2024		
1501-VCB4-118	Basement Vinyl Cove Base - Tan/ Basement Museum	~400 LF	3/7/2024		
1501-VCB4-119	Basement Vinyl Cove Base - Tan/ Basement Museum	~400 LF	3/7/2024		
1501-VCB5-120	2nd Floor Vinyl Cove Base - Black/ 2nd Floor Rear Electrical Room	~3,635 LF	3/7/2024		
1501-VCB5-121	2nd Floor Vinyl Cove Base - Black/ 2nd Floor Rear Electrical Room	~3,635 LF	3/7/2024		
1501-VCB5-122	2nd Floor Vinyl Cove Base - Black/ 2nd Floor Rear Electrical Room	~3,635 LF	3/7/2024		
1501-VCB5-123	2nd Floor Vinyl Cove Base - Black/ 2nd Floor Rear Electrical Room	~3,635 LF	3/7/2024		
1501-VCB5-124	2nd Floor Vinyl Cove Base - Black/ 2nd Floor Rear Electrical Room	~3,635 LF	3/7/2024		
1501-VCB5-125	2nd Floor Vinyl Cove Base - Black/ 2nd Floor Rear Electrical Room	~3,635 LF	3/7/2024		
1501-VCB5-126	2nd Floor Vinyl Cove Base - Black/ 2nd Floor Rear Electrical Room	~3,635 LF	3/7/2024		
1501-CT1-127	12"x12" Ceiling Tile - White with Pinholes and Fissures/ 1st Floor HR Break Room Hallway	~20 SF	3/7/2024		
1501-CT1-128	12"x12" Ceiling Tile - White with Pinholes and Fissures/ 1st Floor HR Break Room Hallway	~20 SF	3/7/2024		
1501-CT1-129	12"x12" Ceiling Tile - White with Pinholes and Fissures/ 1st Floor HR Break Room Hallway	~20 SF	3/7/2024		

Special Instructions

Relinquished by	Date	Time	Received by	Date	Time
Tristan O'Brien	3/7/2024	1700	EDK	3/8/24	10:20 a.m.

If no technician is provided, then the primary contact for your account will be selected. Unless scheduled, the turnaround time for all samples received after 3 pm EST will be logged in the next business day. Weekend or holiday work must be scheduled ahead of time and is charged at 150% of the 3hr TAT or a minimum charge of \$150. A courier charge will be applied for same day and one-day turnaround times for offsite work. SanAir covers Ground and Next Day Air shipping. Shipments billed to SanAir with a faster shipping rate will result in additional charges. Page of _____



10501 Trade Ct., Suite 100
N. Chesterfield, VA 23236
804.897.1177 / 888.895.1177
Fax 804.897.0070
sanair.com

Asbestos
Chain of Custody
Form 140, Rev 7, 10/20/2022

SanAir ID Number

24013942

Company: Professional Environmental Engineers, Inc.	Project #: 327.02.002	Collected by: Tristan O'Brien
Address: 2665 Scott Ave, Suite B	Project Name: Missouri Highway Patrol HQ	Phone #: 314-531-0060
City, St., Zip: St. Louis, MO 63103	Date Collected: 3/7/2024	Fax #:
State of Collection: MO Account#: 2376	P.O. Number:	Email: tobrien@pe-engrs.com

Bulk		Air		Soil	
ABB	PLM EPA 600/R-93/116 ☒	ABA	PCM NIOSH 7400 ☐	ABSE	PLM EPA 600/R-93/116 (Qual.) ☐
	Positive Stop ☒	ABA-2	OSHA w/ TWA* ☐	Vermiculite	
ABEPA	PLM EPA 400 Point Count ☐	ABTEM	TEM AHERA ☐	ABB	PLM EPA 600/R-93/116 ☐
ABBIK	PLM EPA 1000 Point Count ☐	ABATN	TEM NIOSH 7402 ☐	ABEPA3	PLM EPA 400 Point Count ☐
ABBEN	PLM EPA NOB** ☐	ABT2	TEM Level II ☐	ABCM	Cincinnati Method ☐
ABBCH	TEM Chatfield** ☐	Other:	☐	Dust	
ABBTM	TEM EPA NOB** ☐	New York ELAP		ABWA	TEM Wipe ASTM D-6480 ☐
ABQ	PLM Qualitative ☐	ABEPA2	NY ELAP 198.1 ☐	ABDMV	TEM Microvac ASTM D-5755 ☐
		ABENY	NY ELAP 198.6 PLM NOB ☐	Matrix	
		ABBNY	NY ELAP 198.4 TEM NOB ☐	Other	
			Positive Stop ☐		☐

** Available on 24-hr. to 5-day TAT

Turn Around Times	3 HR (4 HR TEM) ☐	6 HR (8HR TEM) ☐	12 HR ☐	1 Day ☐
	☐ 2 Days	☐ 3 Days	☐ 4 Days	☒ 5 Days

Special Instructions	
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Sample #	Sample Identification/Location	Volume or Area	Sample Date	Flow Rate*	Start - Stop Time*
1501-PWS1-130	1st Floor Plaster Wall System - 1st Floor HR Storage Closet	~3,990 SF	3/7/2024		
1501-PWS1-131	1st Floor Plaster Wall System - 1st Floor HR Storage Closet	~3,990 SF	3/7/2024		
1501-PWS1-132	1st Floor Plaster Wall System - 1st Floor HR Storage Closet	~3,990 SF	3/7/2024		
1501-PWS1-133	1st Floor Plaster Wall System - 1st Floor HR Storage Closet	~3,990 SF	3/7/2024		
1501-PWS1-134	1st Floor Plaster Wall System - 1st Floor HR Storage Closet	~3,990 SF	3/7/2024		
1501-PWS1-135	1st Floor Plaster Wall System - 1st Floor HR Storage Closet	~3,990 SF	3/7/2024		
1501-PWS1-136	1st Floor Plaster Wall System - 1st Floor HR Storage Closet	~3,990 SF	3/7/2024		
1501-PWS2-137	Basement Plaster Wall System - Holly Hyde's Storage Closet	~520 SF	3/7/2024		
1501-PWS2-138	Basement Plaster Wall System - Holly Hyde's Storage Closet	~520 SF	3/7/2024		
1501-PWS2-139	Basement Plaster Wall System - Holly Hyde's Storage Closet	~520 SF	3/7/2024		
1501-PWS3-140	2nd Floor Plaster Wall System - Rear 2nd Floor Janitorial Closet	~1,210 SF	3/7/2024		
1501-PWS3-141	2nd Floor Plaster Wall System - Rear 2nd Floor Janitorial Closet	~1,210 SF	3/7/2024		

Relinquished by	Date	Time	Received by	Date	Time
Tristan O'Brien	3/7/2024	1700		3/8/24	10:20 a.m.

If no technician is provided, then the primary contact for your account will be selected. Unless scheduled, the turnaround time for all samples received after 3 pm EST will be logged in the next business day. Weekend or holiday work must be scheduled ahead of time and is charged at 150% of the 3hr TAT or a minimum charge of \$150. A courier charge will be applied for same day and one-day turnaround times for offsite work. SanAir covers Ground and Next Day Air shipping. Shipments billed to SanAir with a faster shipping rate will result in additional charges.

24013942

Form 140, Revision 1, 1/20/2017

Sample #	Sample Identification/Location	Volume or Area	Sample Date	Flow Rate*	Start - Stop Time*
1501-PWS3-142	2nd Floor Plaster Wall System - Rear 2nd Floor Janitorial Closet	~1,210 SF	3/7/2024		
1501-PWS3-143	2nd Floor Plaster Wall System - Rear 2nd Floor Janitorial Closet	~1,210 SF	3/7/2024		
1501-PWS3-144	2nd Floor Plaster Wall System - Rear 2nd Floor Janitorial Closet	~1,210 SF	3/7/2024		
1501-DWS1-145	1st Floor Drywall System - 1st Floor Recruitment Closet	~26,495 SF	3/7/2024		
1501-DWS1-146	1st Floor Drywall System - 1st Floor Recruitment Closet	~26,495 SF	3/7/2024		
1501-DWS1-147	1st Floor Drywall System - 1st Floor Recruitment Closet	~26,495 SF	3/7/2024		
1501-DWS1-148	1st Floor Drywall System - 1st Floor Recruitment Closet	~26,495 SF	3/7/2024		
1501-DWS1-149	1st Floor Drywall System - 1st Floor Recruitment Closet	~26,495 SF	3/7/2024		
1501-DWS1-150	1st Floor Drywall System - 1st Floor Recruitment Closet	~26,495 SF	3/7/2024		
1501-DWS1-151	1st Floor Drywall System - 1st Floor Recruitment Closet	~26,495 SF	3/7/2024		
1501-DWS2-152	Basement Drywall System - Basement Museum Storage	~17,405 SF	3/7/2024		
1501-DWS2-153	Basement Drywall System - Basement Museum Storage	~17,405 SF	3/7/2024		
1501-DWS2-154	Basement Drywall System - Basement Museum Storage	~17,405 SF	3/7/2024		
1501-DWS2-155	Basement Drywall System - Basement Museum Storage	~17,405 SF	3/7/2024		
1501-DWS2-156	Basement Drywall System - Basement Museum Storage	~17,405 SF	3/7/2024		
1501-DWS2-157	Basement Drywall System - Basement Museum Storage	~17,405 SF	3/7/2024		
1501-DWS2-158	Basement Drywall System - Basement Museum Storage	~17,405 SF	3/7/2024		
1501-DWS3-159	2nd Floor Drywall System - Rear Electrical Room	~14,920 SF	3/7/2024		
1501-DWS3-160	2nd Floor Drywall System - Rear Electrical Room	~14,920 SF	3/7/2024		
1501-DWS3-161	2nd Floor Drywall System - Rear Electrical Room	~14,920 SF	3/7/2024		
1501-DWS3-162	2nd Floor Drywall System - Rear Electrical Room	~14,920 SF	3/7/2024		
1501-DWS3-163	2nd Floor Drywall System - Rear Electrical Room	~14,920 SF	3/7/2024		
1501-DWS3-164	2nd Floor Drywall System - Rear Electrical Room	~14,920 SF	3/7/2024		
1501-DWS3-165	2nd Floor Drywall System - Rear Electrical Room	~14,920 SF	3/7/2024		
1501-PI1-166	2" Pipe Insulation - 1st Floor Mechanical Room	~200 LF	3/7/2024		
1501-PI1-167	2" Pipe Insulation - 1st Floor Mechanical Room	~200 LF	3/7/2024		
1501-PI1-168	2" Pipe Insulation - 1st Floor Mechanical Room	~200 LF	3/7/2024		
1501-PI2-169	4" Pipe Insulation - 1st Floor Mechanical Room	~140 LF	3/7/2024		
1501-PI2-170	4" Pipe Insulation - 1st Floor Mechanical Room	~140 LF	3/7/2024		
1501-PI2-171	4" Pipe Insulation - 1st Floor Mechanical Room	~140 LF	3/7/2024		
1501-PI3-172	8" Pipe Insulation - 1st Floor Mechanical Room	~555 LF	3/7/2024		

Special Instructions

Relinquished by	Date	Time	Received by	Date	Time
Tristan O'Brien	3/7/2024	1700	CDR	3/8/24	10:20 a.m.

If no technician is provided, then the primary contact for your account will be selected. Unless scheduled, the turnaround time for all samples received after 3 pm EST will be logged in the next business day. Weekend or holiday work must be scheduled ahead of time and is charged at 150% of the 3hr TAT or a minimum charge of \$150. A courier charge will be applied for same day and one-day turnaround times for offsite work. SanAir covers Ground and Next Day Air shipping. Shipments billed to SanAir with a faster shipping rate will result in additional charges. Page of _____



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Asbestos
Chain of Custody
Form 140, Rev 7, 10/20/2022

SanAir ID Number

24013942

Company: Professional Environmental Engineers, Inc.	Project #: 327.02.002	Collected by: Tristan O'Brien
Address: 2665 Scott Ave, Suite B	Project Name: Missouri Highway Patrol HQ	Phone #: 314-531-0060
City, St., Zip: St. Louis, MO 63103	Date Collected: 3/7/2024	Fax #:
State of Collection: MO Account#: 2376	P.O. Number:	Email: tobrien@pe-engrs.com

Bulk			Air			Soil		
ABB	PLM EPA 600/R-93/116	☒	ABA	PCM NIOSH 7400	☐	ABSE	PLM EPA 600/R-93/116 (Qual.)	☐
	Positive Stop	☒	ABA-2	OSHA w/ TWA*	☐	Vermiculite		
ABEPA	PLM EPA 400 Point Count	☐	ABTEM	TEM AHERA	☐	ABB	PLM EPA 600/R-93/116	☐
ABB1K	PLM EPA 1000 Point Count	☐	ABATN	TEM NIOSH 7402	☐	ABEPA3	PLM EPA 400 Point Count	☐
ABBEN	PLM EPA NOB**	☐	ABT2	TEM Level II	☐	ABCM	Cincinnati Method	☐
ABBCH	TEM Chatfield**	☐	Other:		☐	Dust		
ABBTM	TEM EPA NOB**	☐	New York ELAP			ABWA	TEM Wipe ASTM D-6480	☐
ABQ	PLM Qualitative	☐	ABEPA2	NY ELAP 198.1	☐	ABDMV	TEM Microvac ASTM D-5755	☐
			ABENY	NY ELAP 198.6 PLM NOB	☐	Matrix Other		
			ABBNY	NY ELAP 198.4 TEM NOB	☐			☐
			Positive Stop					☐
Water								
ABHE	EPA 100.2	☐						

** Available on 24-hr. to 5-day TAT

Turn Around Times	3 HR (4 HR TEM) ☐	6 HR (8HR TEM) ☐	12 HR ☐	1 Day ☐
	☐ 2 Days	☐ 3 Days	☐ 4 Days	☒ 5 Days

Special Instructions	
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Sample #	Sample Identification/Location	Volume or Area	Sample Date	Flow Rate*	Start - Stop Time*
1501-PI3-173	8" Pipe Insulation - 1st Floor Mechanical Room	~555 LF	3/7/2024		
1501-PI3-174	8" Pipe Insulation - 1st Floor Mechanical Room	~555 LF	3/7/2024		
1501-PI4-175	12" Pipe Insulation - Basement Boiler Room	~33 LF	3/7/2024		
1501-PI4-176	12" Pipe Insulation - Basement Boiler Room	~33 LF	3/7/2024		
1501-PI4-177	12" Pipe Insulation - Basement Boiler Room	~33 LF	3/7/2024		
1501-PI5-178	18" Pipe Insulation - Basement Boiler Room	~15 LF	3/7/2024		
1501-PI5-179	18" Pipe Insulation - Basement Boiler Room	~15 LF	3/7/2024		
1501-PI5-180	18" Pipe Insulation - Basement Boiler Room	~15 LF	3/7/2024		
1501-PI6-181	36" Pipe Insulation - 2nd Floor Mechanical Room	~230 LF	3/7/2024		
1501-PI6-182	36" Pipe Insulation - 2nd Floor Mechanical Room	~230 LF	3/7/2024		
1501-PI6-183	36" Pipe Insulation - 2nd Floor Mechanical Room	~230 LF	3/7/2024		
1501-WTR1-184	Black Window Tar/ Paul Kerper's Office Windows	~15 LF	3/7/2024		

Relinquished by	Date	Time	Received by	Date	Time
Tristan O'Brien	3/7/2024	1700	EDR	3/8/24	10:20 a.m.

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Form 140, Revision 1, 1/20/2017

[illegible]

Special Instructions	
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Relinquished by	Date	Time	Received by	Date	Time
Tristan O'Brien	3/7/2024	1700	EDR	3/8/24	10:20 am

If no technician is provided, then the primary contact for your account will be selected. Unless scheduled, the turnaround time for all samples received after 3 pm EST will be logged in the next business day. Weekend or holiday work must be scheduled ahead of time and is charged at 150% of the 3hr TAT or a minimum charge of \$150. A courier charge will be applied for same day and one-day turnaround times for offsite work. SanAir covers Ground and Next Day Air shipping. Shipments billed to SanAir with a faster shipping rate will result in additional charges. Page of

24013942

ACM Samples - San Air ID# 24013942

Tristan O'Brien <tobrien@pe-engrs.com>

Mon 3/11/2024 11:39 AM

To:IAQ Forward <iaq@sanair.com>;Sandra C. Sobrino <ssobrino@sanair.com>;Stuart Hicks <shicks@sanair.com>
Cc:Bill Pietroburogo <bpietroburogo@pe-engrs.com>;Garrett Westland <gwestland@pe-engrs.com>

EXTERNAL EMAIL: DO NOT CLICK on links or attachments unless you recognize the sender and know the content is safe.

Good Morning,

We'd like to request that for samples received on 3/8, please omit the following samples from analysis:

1501-FT1-04 and -05
1501-FT2- 09 – 12
1501-FT3- 16 – 19
1501-LICT1-38 – 40
1501-LICT2-44 – 47
1501-LICT3-51 - 54
1501-LICT5-61 – 64
1501-LF2-74 – 75
1501-CA1-86 – 89
1501-CA2-93 – 96
1501-CA3-100 – 103
1501-VCB1-107 – 110
1501-VCB5-123 – 126
1501-PWS1-133 – 136
1501-PWS3-143 – 144
1501-DWS1-148 – 151
1501-DWS2-155 – 158
1501-DWS3-162 – 165
1501-EC4-203 – 206

Thanks,



Tristan O'Brien, *Environmental Scientist*
PROFESSIONAL ENVIRONMENTAL ENGINEERS, INC.

800 E. 101st Terrace, Suite 350, Kansas City, MO 64131
816.806.7789 office | 913.256.9186 cell
www.pe-engrs.com | Certified: MBE/WBE/DBE/WOSB
Client Focused. Client Driven.

APPENDIX C

Laboratory Accreditation

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 200870-0

SanAir Technologies Laboratory, Inc.
N. Chesterfield, VA

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

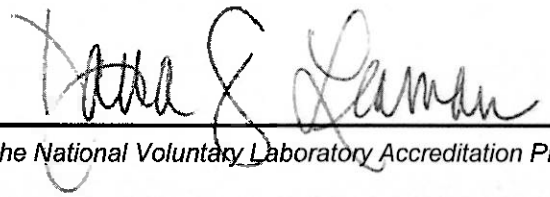
Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2023-04-01 through 2024-03-31

Effective Dates




For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

SanAir Technologies Laboratory, Inc.

10501 Trade Court
N. Chesterfield, VA 23236
Ms. Sandra Sobrino
Phone: 804-897-1177 Fax: 804-897-0070
Email: ssobrino@sanair.com
<http://www.sanair.com>

ASBESTOS FIBER ANALYSIS

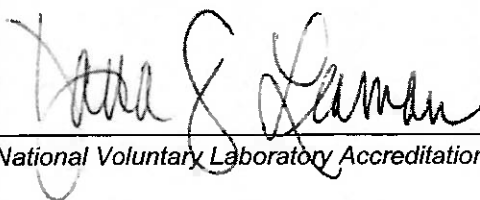
NVLAP LAB CODE 200870-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program

APPENDIX D
Lead XRF Testing Spreadsheet



XRF Spreadsheet
Professional Environmental Engineers, Inc.
2665 Scott Avenue, Suite B
St. Louis, MO 63103

Project No: 327.02.002

Site Name: 1510 East Elm Street, Jefferson City, MO

Number	Room	Component	Side	Substrate	Color	Condition	Reading
1	Calibration						1.0
2	Calibration						1.0
3	Calibration						1.1
4	Elevator	Wall	A	Wood	Black	Intact	0.1
5	Elevator	Wall	A	Wood	Stain	Intact	0.0
6	Basement Theatre	Wall	A	Drywall	Periwinkle	Intact	0.0
7	Basement Theatre	Wall	B	Cinderblock	Periwinkle	Intact	0.0
8	Basement Theatre	Door Case	B	Metal	White	Intact	0.0
9	Basement Theatre	Door	B	Wood	Stain	Intact	0.0
10	Basement Theatre	Wall	B	Plaster	Fuzz Wallpaper	Intact	0.1
11	Basement Storage	Wall	D	Plaster	Cream	Intact	0.0
12	Basement Hallway	Wall	D	Plaster	White	Intact	0.0
13	Basement New Womens' Restroom	Wall	A	Ceramic	White	Intact	0.2
14	Mens' Restroom Closet	Wall	A	Ceramic	Tan	Intact	0.3
15	Mens' Restroom Closet	Shelf	B	Wood	Cream	Poor	0.2
16	Mens' Restroom Closet	Shelf Support	A	Wood	Cream	Poor	0.2
17	Basement Old Womens' Restroom	Floor	Center	Concrete	Gray	Poor	0.1
18	Basement Old Womens' Restroom	Stall Door	A	Metal	Cream	Intact	0.0
19	Basement Hallway	Locker	D	Metal	Cream	Intact	0.1
20	Basement Hallway	Elevator Door	B	Metal	White	Intact	0.1
21	Basement Hallway	Elevator Door Case	B	Wood	White	Intact	0.2
22	Basement Museum	Door Case	A	Metal	Blue	Intact	0.2
23	Basement Museum	Wall	C	Drywall	Tan	Intact	0.0
24	Basement Museum	Countertop	A	Wood	Tan	Intact	0.0
25	Basement Museum	Wall	A	Drywall	Blue	Intact	0.1
26	Basement Museum	Cabinet Door	B	Wood	Brown	Intact	0.2
27	Basement Museum	Exhibit Floor	Center	Wood	Teal	Intact	0.0
28	Basement Museum	Exhibit Shelf	B	Wood	Black	Intact	0.1
29	Basement Museum	Exhibit Handrail	Center	Metal	Black	Intact	0.0
30	Basement Museum	Exhibit Wall	B	Wood	Tan	Intact	0.1
31	Basement Museum	Wall	D	Plaster	Tan	Intact	0.3
32	Basement Museum	Wall	C	Plaster	Brown	Intact	0.1
33	Basement Museum	Door	D	Plastic	Gray	Intact	0.1
34	Basement Museum	Wall	D	Wood	Tan	Intact	0.2
35	Basement Museum	Wall	D	Wood	Blue	Intact	0.1
36	Basement Museum	Window Case	A	Concrete	Cream	Intact	0.2

Number	Room	Component	Side	Substrate	Color	Condition	Reading
37	Basement Museum	Window Sill	A	Concrete	Brown	Intact	0.3
38	Basement Museum	Train Car	C	Metal	Black	Intact	0.1
39	Basement Museum	Train Car	C	Metal	Green	Intact	0.0
40	Basement Museum	HVAC	A	Metal	Tan	Intact	0.0
41	Basement Museum	Door Jamb	B	Metal	Gray	Intact	0.0
42	Basement R&D	Wall	C	Drywall	Gray	Intact	0.0
43	Basement R&D	Wall	C	Drywall	Blue	Intact	0.0
44	Basement R&D	Wall	D	Drywall	Tan	Intact	0.0
45	Basement R&D Fire Escape	Door	C	Metal	Tan	Poor	0.0
46	Basement R&D Fire Escape	Door Case	C	Metal	Tan	Intact	0.0
47	Basement R&D Rear Left Office	Wall	A	Drywall	Beige	Intact	0.1
48	Basement R&D Rear Left Office	Door Case	A	Metal	White	Poor	0.1
49	Basement Office of Margaret Martin	Wall	C	Drywall	Teal	Intact	0.0
50	Basement Rear Left Hall Closet	Wall	A	Drywall	Green-Gray	Intact	0.0
51	Basement Office of Meghan Bosinger	Wall	B	Drywall	Magenta	Intact	0.0
52	Basement Office of Holly Hyde	Door	B	Metal	Black	Intact	0.1
53	Basement Office of Holly Hyde	Wall	A	Concrete	Teal	Intact	0.2
54	Basement Office of Holly Hyde	Window Sill	A	Concrete	Teal	Intact	0.0
55	Basement Office of Holly Hyde	Vent	A	Metal	White	Intact	0.0
56	Basement Office of Cheryl Cobb	Wall	D	Drywall	Green	Intact	0.4
57	Basement Office of Cheryl Cobb	Wall	A	Concrete	White	Intact	0.2
58	Basement Office of Cheryl Cobb	Window Sill	A	Concrete	White	Intact	0.0
59	Basement R&D	Trim	B	Metal	Cream	Intact	0.0
60	Basement R&D	Electrical Panel	B	Metal	White	Intact	0.0
61	Basement 2nd Floor Stairwell	Wall	A	Cinderblock	White	Intact	0.0
62	Basement 2nd Floor Stairwell	Stair Stringer	D	Wood	Brown	Intact	0.1
63	1st Floor Lobby	Wall	A	Plaster	Cream	Intact	0.1
64	1st Floor Lobby	Stair Tread	Center	Vinyl	Red	Poor	0.0
65	1st Floor Lobby	Wall	B	Wood	White	Intact	0.1
66	1st Floor Lobby	Wall	C	Plaster	Gray	Intact	0.4
67	1st Floor Lobby	Wall	C	Cinderblock	White	Intact	0.2
68	1st Floor Lobby	Wall	D	Brick	White	Intact	0.3
69	1st Floor Lobby	Storage Closet	D	Plaster	Green-Gray	Poor	0.4
70	1st Floor Lobby Unisex Bathroom	Door Jamb	B	Metal	White	Poor	0.1
71	1st Floor Lobby Unisex Bathroom	Closet Wall	B	Plaster	Beige	Poor	0.4
72	1st Floor Lobby Unisex Bathroom	Closet Wall	B	Ceramic	Brown	Intact	13.8
73	1st Floor Lobby Unisex Bathroom	Closet Shelf	A	Wood	White	Poor	0.0
74	1st Floor Lobby Unisex Bathroom	Closet Shelf Support	A	Wood	White	Poor	0.0
75	1st Floor Lobby Womens Restroom	Bathroom Stall Door	A	Metal	Magenta	Intact	0.0
76	1st Floor Lobby Mailroom	Panel Door Case	C	Metal	White	Intact	0.1
77	1st Floor Office of Remond Tauber	Wall	C	Drywall	Cream	Intact	0.1
78	1st Floor Office of Remond Tauber	Wall	D	Wood	Cream	Intact	0.1
79	1st Floor HR Wing	Door Case	A	Metal	Cream	Poor	0.4
80	1st Floor HR Wing	Support Pillar	Center	Concrete	Tan	Intact	0.1

Number	Room	Component	Side	Substrate	Color	Condition	Reading
81	1st Floor Office of Samantha Schulte	Wall	B	Drywall	Gray	Intact	0.0
82	1st Floor HR Wing Storage Closet	Pipe	B	Metal	Cream	Intact	0.2
83	1st Floor HR Wing Storage Closet	Wall	D	Drywall	Gray	Intact	0.0
84	1st Floor HR Wing Storage Closet	Door Case	D	Metal	Gray	Poor	0.0
85	1st Floor HR Wing Insurance Hallway	Wall	A	Cellulose	White	Intact	0.0
86	1st Floor HR Wing Insurance Hallway	Wall	B	Drywall	White	Intact	0.0
87	1st Floor HR Wing Insurance Hallway	Vent	B	Metal	Cream	Intact	0.0
88	1st Floor HR Wing Insurance Hallway Rear Right Room	Wall	B	Drywall	Teal	Intact	0.1
89	1st Floor Insurance Room	Wall	C	Cinderblock	White	Intact	0.0
90	1st Floor Insurance Room	Window Case	C	Concrete	Gray	Intact	0.3
91	1st Floor Insurance Room	Window Apron	C	Wood	Gray	Intact	0.2
92	1st Floor HR Break Room	Wall	D	ce	Brown	Intact	0.0
93	1st Floor HR Break Room	Cabinet Door	D	Wood	Tan	Intact	0.1
94	1st Floor HR Stairwell	Wall	D	Plaster	White	Intact	0.0
95	1st Floor HR Stairwell	Stair Riser	A	Wood	Black	Intact	1.2
96	1st Floor HR Stairwell	Stair Stringer	D	Wood	White	Intact	0.7
97	1st Floor HR Stairwell	Door Jamb	D	Metal	White	Intact	0.5
98	1st Floor Elevator	Door	B	Metal	White	Intact	0.0
99	1st Floor Elevator	Door Case	B	Metal	White	Intact	0.4
100	1st Floor Christopher Jolly's Office	Wall	A	Concrete	Blue	Intact	0.0
101	1st Floor Christopher Jolly's Office	Wall	A	Cinderblock	Blue	Intact	0.0
102	1st Floor Staff Hallway	Wall	C	Plaster	Cream	Intact	0.1
103	1st Floor Staff Hallway	Door Case	C	Metal	White	Intact	0.1
104	1st Floor Office of Corey J. Schoenberg	Wall	A	Concrete	White	Intact	0.2
105	1st Floor Office of Corey J. Schoenberg	Wall	A	Cinderblock	White	Intact	0.1
106	1st Floor Office of Corey J. Schoenberg	Window Apron	A	Wood	White	Intact	0.2
107	1st Floor Office of Corey J. Schoenberg	Vent	A	Metal	Cream	Intact	0.0
108	1st Floor Staff Office Mens' Restroom	Stall Door	A	Metal	Blue	Intact	0.0
109	1st Floor Staff Hallway	Vent	C	Metal	Cream	Intact	0.1
110	1st Floor Office of Brian Earll	Wall	D	Wood	Cream	Intact	0.1
111	1st Floor Office of D.A. Flannigan	Wall	D	Drywall	Gray	Intact	0.1
112	1st Floor Office of D.A. Flannigan	Wainscot	D	Drywall	Blue	Intact	0.1
113	1st Floor Colonel's Office	Wainscot	A	Wood	White	Intact	0.1
114	1st Floor Colonel's Office	Vent	A	Metal	Brown	Intact	0.1
115	1st Floor Far Right Attorney Office	Wall	D	Cinderblock	Tan	Intact	0.2
116	1st Floor Middle Rear Attorney Office	Wainscot	C	Drywall	Gray	Intact	0.1
117	1st Floor Office of Paul Kerpin	Wall	D	Plaster	Black	Intact	0.1
118	1st Floor Office of Ben Jones	Wall	D	Plaster	Tan	Intact	0.1
119	1st Floor Office of Ben Jones	Door	D	Metal	Tan	Intact	0.4
120	1st Floor Office of Ben Jones	Door Jamb	D	Metal	Tan	Intact	0.7
121	1st Floor Staff Hallway	Door	C	Wood	Blue	Intact	0.1
122	1st Floor Office of M.A. Turner	Wall	D	Drywall	Teal	Intact	0.0
123	1st Floor Office of M.A. Turner	Column	Center	Concrete	Teal	Intact	0.1
124	1st Floor Office of M.A. Turner	Door Case	D	Metal	White	Poor	0.1

Number	Room	Component	Side	Substrate	Color	Condition	Reading
125	1st Floor Office of M.A. Turner	Wall	A	Wood	White	Intact	0.0
126	1st Floor Office of M.A. Turner	Wainscot	A	Wood	Teal	Intact	0.0
127	1st Floor Office of S.A. Ballard	Wall	B	Drywall	Gray	Intact	0.0
128	1st Floor Office of S.A. Ballard	Column	A	Concrete	White	Intact	0.0
129	1st Floor FOB Intern Office	wa	C	Drywall	Beige	Intact	0.0
130	1st Floor Staff Hallway	Shelf	B	Wood	White	Intact	0.0
131	2nd Floor Rear Lobby Stairwell	Handrail	D	Metal	White	Intact	0.1
132	2nd Floor Rear Lobby Stairwell	Stair Stringer	D	Wood	White	Intact	1.1
133	2nd Floor Rear Lobby Stairwell	Stair Riser	A	Wood	Black	Poor	0.6
134	2nd Floor Rear Lobby Stairwell	Stair Tread	Center	Vinyl	Red	Intact	0.1
135	2nd Floor Rear Lobby Stairwell	Wall	D	Plaster	Beige	Intact	0.0
136	Enclosed Parking Lot	Stair Tread	A	Concrete	Gray	Intact	0.0
137	Enclosed Parking Lot	Stair Riser	A	Concrete	Yellow	Intact	0.0
138	Enclosed Parking Lot	Handrail	B	Metal	White	Intact	0.0
139	Enclosed Parking Lot	Parking Stripe	Center	Concrete	White	Intact	0.1
140	Enclosed Parking Lot	Parking Stripe	Center	Concrete	Yellow	Intact	0.2
141	Enclosed Parking Lot	Transformer	Center	Metal	Green	Intact	0.1
142	Enclosed Parking Lot	Support Beam	Center	Concrete	Beige	Intact	0.3
143	Enclosed Parking Lot	Door	D	Metal	Beige	Intact	0.0
144	Enclosed Parking Lot	Pipe	A	Metal	White	Intact	0.1
145	Enclosed Parking Lot	Window Sill	D	Concrete	Beige	Intact	0.0
146	Enclosed Parking Lot	Wall	C	Concrete	Beige	Intact	0.0
147	Enclosed Parking Lot	Vent	C	Metal	Beige	Intact	0.0
148	1st Floor Rear Hallway	Wall	D	Concrete	Gray	Intact	0.1
149	1st Floor Rear Hallway	Door	D	Metal	White	Intact	0.0
150	1st Floor Rear Hallway	Door Case	D	Metal	White	Intact	0.0
151	1st Floor Standby Generator Room	Floor	Center	Concrete	Gray	Intact	0.1
152	1st Floor Maintenance Office	Wall	C	Drywall	Beige	Intact	0.2
153	1st Floor Maintenance Shop	Floor	Center	Concrete	Beige	Intact	0.2
154	1st Floor Maintenance Shop	Floor	Center	Concrete	Gray	Intact	0.2
155	1st Floor Maintenance Shop	Wall	C	Drywall	Beige	Intact	0.0
156	1st Floor Maintenance Shop	Door	B	Metal	Beige	Intact	0.0
157	1st Floor Maintenance Shop	Door Case	B	Metal	Beige	Intact	0.1
158	1st Floor Recruiting Office	Closet Door Case	B	Wood	White	Intact	0.0
159	1st Floor Recruiting Office	Closet Shelf	B	Wood	White	Poor	0.0
160	2nd Floor Rear Stairwell	Stair Stringer	D	Metal	Black	Intact	0.1
161	2nd Floor Rear Stairwell	Stair Riser	C	Wood	Black	Intact	0.4
162	2nd Floor Hallway	Wall	B	Plaster	Beige	Intact	0.1
163	2nd Floor Hallway	Chair Rail	B	Wood	White	Intact	0.2
164	2nd Floor Hallway	Door Case	D	Metal	White	Intact	0.0
165	2nd Floor Patrol Office	Wall	D	Drywall	Gray	Intact	0.7
166	2nd Floor Patrol Office	Archive Closet Wall	A	Drywall	Cream	Intact	0.0
167	2nd Floor Patrol Office	Storage Closet Wall	D	Drywall	Cream	Intact	0.2
168	2nd Floor Office of Jerry Callahan	Wall	D	Concrete	Gray	Intact	0.0

Number	Room	Component	Side	Substrate	Color	Condition	Reading
169	2nd Floor Office of Jerry Callahan	Wall	D	Cinderblock	Gray	Intact	0.1
170	2nd Floor Patrol Office	Wall	D	Wood	Blue	Intact	0.7
171	2nd Floor Office of Brent Drummond	Wall	D	Concrete	Blue	Intact	0.0
172	2nd Floor Office of Brent Drummond	Wall	D	Cinderblock	Blue	Intact	0.0
173	2nd Floor Office of Brent Drummond	Fire Escape Handrail	D	Metal	White	Poor	1.0
174	2nd Floor Patrol Office	Wall	D	Plaster	Gray	Intact	0.1
175	2nd Floor Hallway	Fire Extinguisher Case	D	Metal	White	Intact	0.1
176	2nd Floor Electrical Closet	Ladder	A	Metal	Cream	Intact	0.7
177	2nd Floor Electrical Closet	Panel Case	D	Metal	Cream	Intact	0.2
178	2nd Floor Electrical Closet	Wall	D	Wood	Green-Gray	Intact	0.0
179	2nd Floor Driver & Vehicle Safety Division	Wall	A	Drywall	Brown	Intact	0.1
180	2nd Floor Driver & Vehicle Safety Division	Wall	A	Drywall	Tan	Intact	0.7
181	2nd Floor Driver & Vehicle Safety Division	Wall	A	Drywall	Beige	Intact	0.6
182	2nd Floor Driver & Vehicle Safety Division	Wall	B	Cinderblock	Beige	Intact	0.3
183	2nd Floor Driver & Vehicle Safety Division	Wall	B	Concrete	Beige	Intact	0.2
184	2nd Floor Driver & Vehicle Safety Division	Wall	C	Brick	Green	Intact	17.8
185	2nd Floor Driver & Vehicle Safety Division	Wall	C	Wood	Gray	Intact	0.7
186	2nd Floor Driver & Vehicle Safety Division	Wall	B	Cinderblock	Gray	Intact	0.3
187	2nd Floor Communications Office	Wall	B	Concrete	Gray	Intact	0.1
188	2nd Floor Communications Office	Panel	A	Metal	Brown	Intact	0.2
189	2nd Floor Budget & Procurement	Wall	A	Drywall	Brown	Intact	0.7
190	2nd Floor Budget & Procurement	Wall	A	Drywall	Beige	Intact	0.1
191	2nd Floor Budget & Procurement Conference Room	Wall	A	Plaster	Beige	Intact	0.0
192	2nd Floor Budget & Procurement Conference Room	Wall	A	Drywall	Gray	Intact	0.0
193	2nd Floor Budget & Procurement	Door Case	A	Metal	White	Intact	0.0
194	2nd Floor Budget & Procurement	BPD Safe	D	Metal	Yellow	Poor	0.7
195	2nd Floor Budget & Procurement	Trim	D	Wood	Beige	Intact	0.5
196	2nd Floor Standards Office	Wall	A	Drywall	Beige	Intact	0.0
197	2nd Floor Standards Office	Wall	C	Cellulose	Cream	Intact	0.0
198	2nd Floor Standards Office	Wall	D	Drywall	Gray	Intact	0.0
199	2nd Floor Standards Front Left Office	Door Case	C	Wood	White	Intact	0.0
200	2nd Floor Standards Front Left Office	Door Jamb	C	Metal	White	Intact	0.0
201	2nd Floor Standards Front Left Office	Wall	C	Plaster	Beige	Intact	0.0
202	2nd Floor Standards Front Left Office	Wall	D	Drywall	Green	Intact	0.0
203	2nd Floor Standards Rear Left Office	Wall	C	Plaster	Gray	Intact	0.0
204	2nd Floor Standards Rear Left Office	Vent	C	Metal	Beige	Intact	0.0
205	2nd Floor Rear Right Mens' Restroom	Wall	B	Ceramic	Cream	Intact	0.1
206	2nd Floor Rear Right Mens' Restroom	Door Case	D	Metal	Brown	Intact	0.8
207	2nd Floor Rear Right Womens' Restroom	Lockers	C	Metal	White	Intact	0.1
208	2nd Floor Conference Room	Window Case	C	Metal	Beige	Intact	0.1
209	2nd Floor Conference Room	Column	Center	Plaster	White	Intact	0.0
210	2nd Floor Office of Sydney Kendrick	Wall	A	Drywall	Blue	Intact	0.0
211	2nd Floor Office of Sydney Kendrick	Wall	D	Wood	Beige	Intact	0.0
212	2nd Floor Office of Sydney Kendrick	Door Case	C	Metal	Gray	Intact	0.0

Number	Room	Component	Side	Substrate	Color	Condition	Reading
213	2nd Floor Office of Catherine Brown	Wall	C	Wood	Blue	Intact	0.0
214	2nd Floor Office of Catherine Brown	Door Case	C	Metal	White	Intact	0.0
215	Calibration						1.0
216	Calibration						0.9
217	Calibration						1.1

APPENDIX E
ACM Location Diagrams

EQUIPMENT NOTES:

- 1
- EXISTING WATER HEATING END SUCTION PUMP TO BE REPLACED WITH SAME. SEE DETAIL 3, DRAWING ME8.
- 2
- 16000 CFM AHU CARRIER 39EB29, (AHU-G) TO REMAIN AS IS, EXCEPT NEW DDC CONTROL TO BE INSTALLED. SEE DRAWING ME10 FOR TEMPERATURE CONTROL SCHEMATICS.
- 3
- EXISTING DOMESTIC WATER HEATER TO REMAIN AS IS.
- 4
- EXISTING WATER HEATING BOILERS TO REMAIN AS IS.

MECHANICAL CONSTRUCTION NOTES:

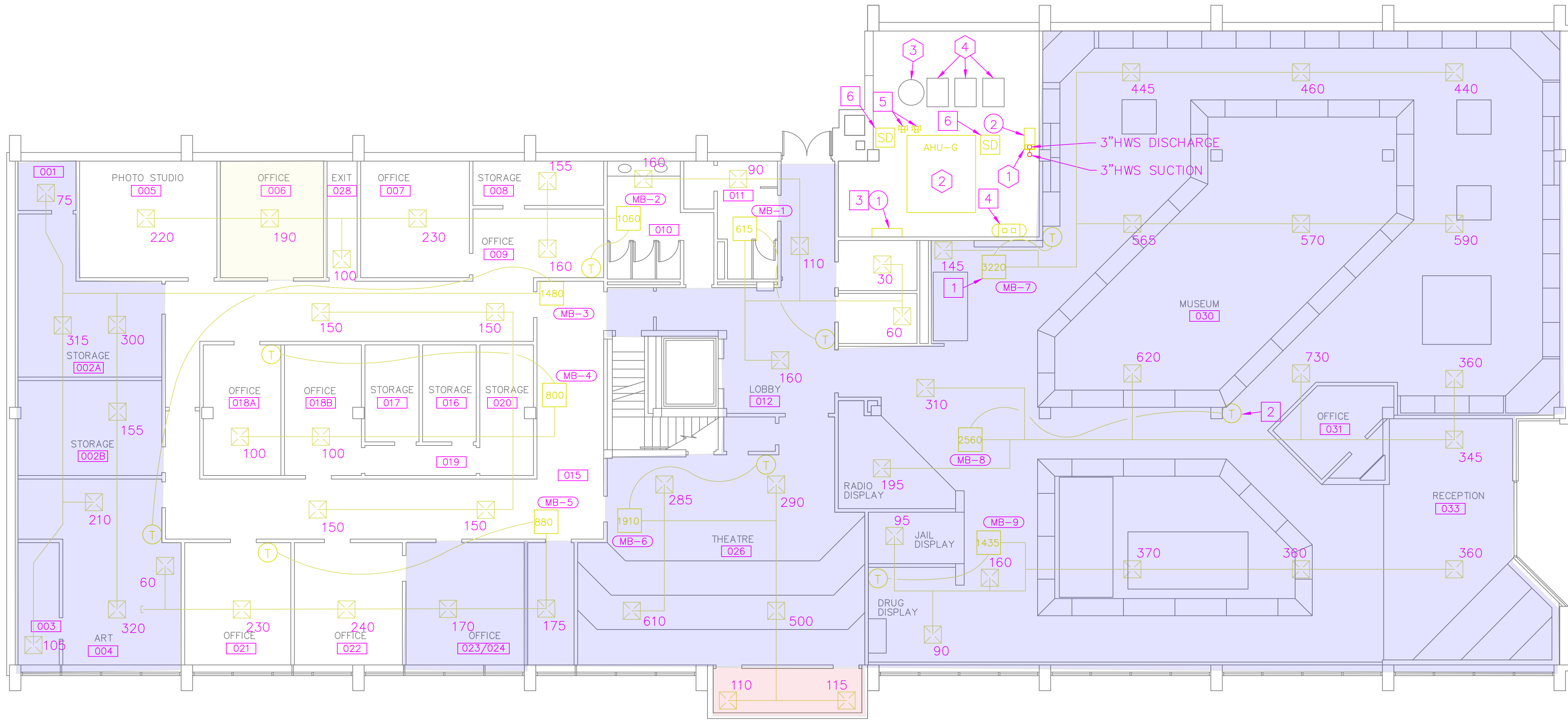
- 1
- EXISTING PNEUMATIC CONTROLLED MIXING BOX TO BE CONVERTED TO ELECTRONIC DDC. SEE DRAWING ME10 FOR SEQUENCE. (TYPICAL 9)
- 2
- EXISTING PNEUMATIC THERMOSTAT TO BE REPLACED WITH ELECTRONIC TEMPERATURE SENSOR, JOHNSON TE-6411W-2110. (TYPICAL OF 9)
- 3
- REMOVE PNEUMATIC TEMPERATURE CONTROL PANEL AND REPLACE WITH NEW DDC PANEL.
- 4
- AFTER NEW BUILDING DDC SYSTEM IS ONLINE, AIR COMPRESSOR SHALL BE REMOVED AND RETURNED TO OWNER.
- 5
- REMOVE PNEUMATIC ACTUATORS ON EXISTING 3-WAY CONTROL VALVES. PROVIDE NEW ELECTRONIC ACTUATORS FOR 3-WAY CONTROL VALVES FOR AHU-G ON BOTH HEATING AND COOLING. FIELD VERIFY SIZE AND TYPE AS WELL AS PIPE ROUTING.
- 6
- MOUNT NEW SMOKE DETECTORS ON SUPPLY AND RETURN DUCT NEAR AHU-G. WIRE TO NEW DDC. SEE DRAWING ME10.

ELECTRICAL CONSTRUCTION NOTES:

- 1
- RECONNECT 120V CIRCUIT FROM EXISTING CONTROL PANEL TO NEW DDC CONTROL PANEL.
- 2
- DISCONNECT ELECTRICAL CIRCUIT FROM EXISTING 3HP PUMP AND RECONNECT TO NEW 3HP PUMP.

LEGEND:

- 1
- SPECIFIC EQUIPMENT NOTES
- 1
- MECHANICAL CONSTRUCTION NOTES
- 1
- ELECTRICAL CONSTRUCTION NOTES
- MB-21
- MIXING BOX DESIGNATION
- 101
- ROOM NUMBER DESIGNATION
- 720
- MIXING BOX WITH CFM FLOW
- T
- THERMOSTAT OR T SENSOR
- 280
- EXISTING DIFFUSER WITH EXISTING CFM FLOW
- SD
- SMOKE DETECTOR
-
- CONNECT NEW TO EXISTING
- AHU-G
- AIR HANDLING UNIT AND DESIGNATION
- CHR
- CHILLED WATER RETURN
- CHS
- CHILLED WATER SUPPLY
- CW
- DOMESTIC COLD WATER
- HW
- DOMESTIC HOT WATER
- HG
- REFRIGERANT HOT GAS
- HWC
- DOMESTIC HOT WATER RECIRCULATION
- HWR
- HOT WATER RETURN
- HWS
- HOT WATER SUPPLY
- RL
- REFRIGERANT LIQUID
- RS
- REFRIGERANT SUCTION
- RTU
- ROOF TOP UNIT



1
ME1

GENERAL HEADQUARTERS
GROUND FLOOR PLAN – NORTH WING

SCALE: 1/8"= 1' – 0"



Legend

- FT2
- FT3
- FT6 (Note: Underlying Mastic, present throughout hallway, is what is the positive material).
- FT7
- LF2
- IA3
- WTR1

DATE: 12/05/03
REVISIONS:
DESIGNED BY: RJS
DRAWN BY: SLR
CHECKED BY: RJS

BUCHER, WILLIS & RATLIFF
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7920 WARD PARKWAY KANSAS CITY, MISSOURI 64114 816-363-2686

ROBERT HOLDEN GOVERNOR

Agency:

MISSOURI STATE
HIGHWAY PATROL

RANDALL G. ALLEN, AIA, DIRECTOR

COLONEL ROGER D. STOTTELMYRE

HVAC RENOVATION
MISSOURI STATE HIGHWAY PATROL
GENERAL HEADQUARTERS
JEFFERSON CITY, MISSOURI

PROJECT NUMBER: R0204-01
LAB SITE: 4751
FACILITY #55101

CADD NUMBER:
000/00000/M1.DWG
SHEET NUMBER:

ME1

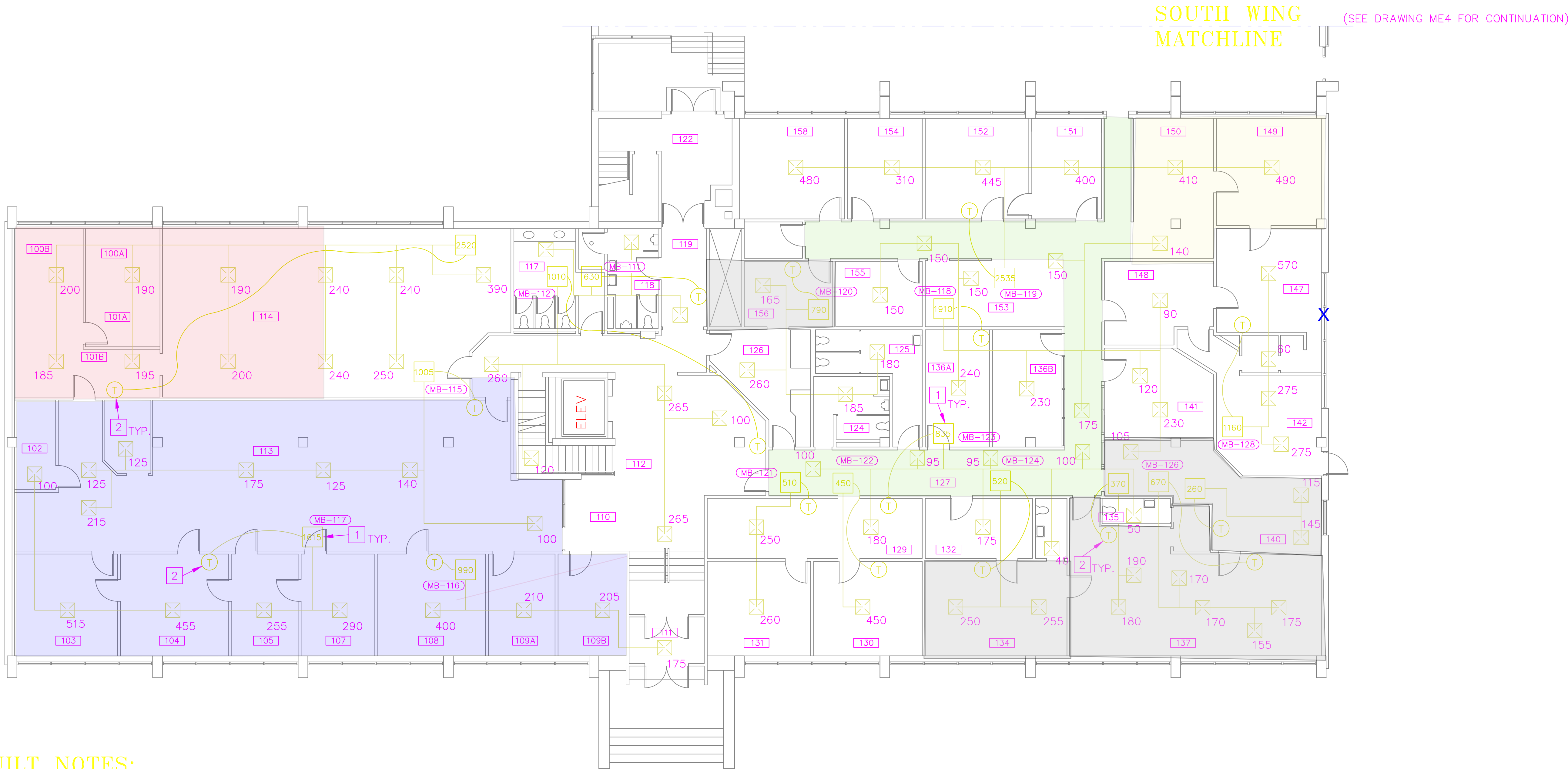
2 OF 13 SHEETS
ISSUE DATE: 12-05-03

AS-BUILTS

PROJECT No: 2001-462.01 PROJECT NAME: HVAC RENOVATION
CADD FILE: 2001-462.MECHANICAL CAD.DWG
LAST EDIT DATE: 5-3-09

Legend

- : FT2
- : FT3
- : FT6 (Note: Underlying Mastic, present throughout hallway, is what is the positive material).
- : FT7
- : LF2
- X : IA3
- X : WTR1



MECHANICAL CONSTRUCTION NOTES:

- EXISTING PNEUMATIC CONTROLLED MIXING BOX TO BE CONVERTED TO ELECTRONIC DDC. SEE DRAWING ME10 FOR SEQUENCE. (TYPICAL ALL BOXES.) FIRST FLOOR IS SUPPLIED BY AHU-2N ON SECOND FLOOR. SEE DRAWING ME3.
- EXISTING PNEUMATIC THERMOSTAT TO BE REPLACED WITH ELECTRONIC TEMPERATURE SENSOR, JOHNSON TE-6411W-2110 (TYPICAL ALL).

AS-BUILT NOTES:

- MB-111 IS NOT OPERATIONAL (ADJUSTABLE DAMPER STUCK - AIR FLOW UNDETERMINED).
- MB-112 IS NOT OPERATIONAL (ADJUSTABLE DAMPER CLOSED).
- MB-113 IS NOT OPERATIONAL (ADJUSTABLE DAMPER STUCK).

Legend

- : FT2
- : FT3
- : FT6 (Note: Underlying Mastic, present throughout hallway, is what is the positive material).
- : FT7
- : LF2
- X : IA3
- X : WTR1

1
ME2

GENERAL HEADQUARTERS
FIRST FLOOR PLAN - NORTH WING

SCALE: 1/8" = 1'



DATE: 12/05/03
REVISIONS:
DESIGNED BY: RUS
DRAWN BY: SLR
CHECKED BY: RUS

BUCHER BUCHER, WILLIS & RATLIFF
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State of Missouri
Office of Administration
Division of Design and Construction
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HVAC RENOVATION
MISSOURI STATE HIGHWAY PATROL
GENERAL HEADQUARTERS
JEFFERSON CITY, MISSOURI
PROJECT NUMBER: R0204-01
LAB SITE: 4751
FACILITY #55101

CADD NUMBER:
000/00000/M2.DWG
SHEET NUMBER:

ME2

3 OF 13 SHEETS
ISSUE DATE: 12-05-03

AS-BUILTS

ELECTRICAL GENERAL NOTES FOR ALL DRAWINGS:

- 1. ALL WORK SHALL BE IN ACCORDANCE WITH THE NEC AND THE AUTHORITY HAVING JURISDICTION.
- 2. INSPECT ALL EXISTING CONDITIONS AFFECTING WORK BEFORE SUBMITTING BID.
- 3. TAKE ALL MEASUREMENTS FOR ELECTRICAL WORK AND BE RESPONSIBLE FOR SAME.
- 4. THIS DRAWING REPRESENTS THE BEST INFORMATION AVAILABLE TO THE ENGINEER. DATA WAS COLLECTED FROM PREVIOUS CONSTRUCTION DRAWINGS, FIELD OBSERVATIONS AND CONVERSATIONS WITH THE OWNER. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND REPORT ALL INTERFERENCES BEFORE WORK IS DONE.
- 5. EXISTING EXPOSED WIRING AND ALL EXPOSED OUTLETS, RECEPTACLES, SWITCHES, DEVICES, BOXES AND OTHER EQUIPMENT THAT ARE NOT TO BE UTILIZED IN THE COMPLETED PROJECT SHALL BE REMOVE OR CAPPED IN THE WALL, CEILING OR FLOOR SO THAT THEY ARE CONCEALED AND WALL, CEILING OR FLOOR SHALL BE PATCHED TO MATCH THE ADJACENT CONSTRUCTION.
- 6. EXISTING EQUIPMENT THAT IS NOT TO BE REUSED SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE OWNER IF HE WISHES TO RETAIN OWNERSHIP OF SAME. IF NOT, EQUIPMENT SHALL BECOME THE PROPERTY OF THIS CONTRACTOR AND SHALL BE REMOVED FROM THE SITE.
- 7. WHEN EXISTING CONDUIT, WIRING OR ANY OUTLET, RECEPTACLE, SWITCH, ETC., THAT IS TO BE UTILIZED IN THE COMPLETED PROJECT CONFLICTS WITH CONSTRUCTION, IT SHALL BE RELOCATED AND RECONNECTED TO MAINTAIN THE DESIRED SERVICE.
- 8. THIS CONTRACTOR SHALL GIVE FULL COOPERATION IN THE SCHEDULING AND PROCEDURE OF WORK. SERVICE SHALL NOT BE INTERRUPTED WITHOUT APPROVAL OF THE OWNER.
- 9. EQUIPMENT INDICATED AS EXISTING SHALL REMAIN EXCEPT AS OTHERWISE NOTED.
- 10. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE. CONTRACTOR SHALL REPAIR DAMAGE AT NO COST TO OWNER.

EQUIPMENT NOTES:

- 1 EXISTING AHU-2N (30000 CFM, 40HP) TO BE REMOVED. REPLACE PER THESE DRAWINGS AND SCHEDULES. SEE DRAWING ME8.
- 2 EXISTING 15 TON RTU TO REMAIN AS IS.
- 3 EXISTING 5 TON RTU TO REMAIN AS IS.

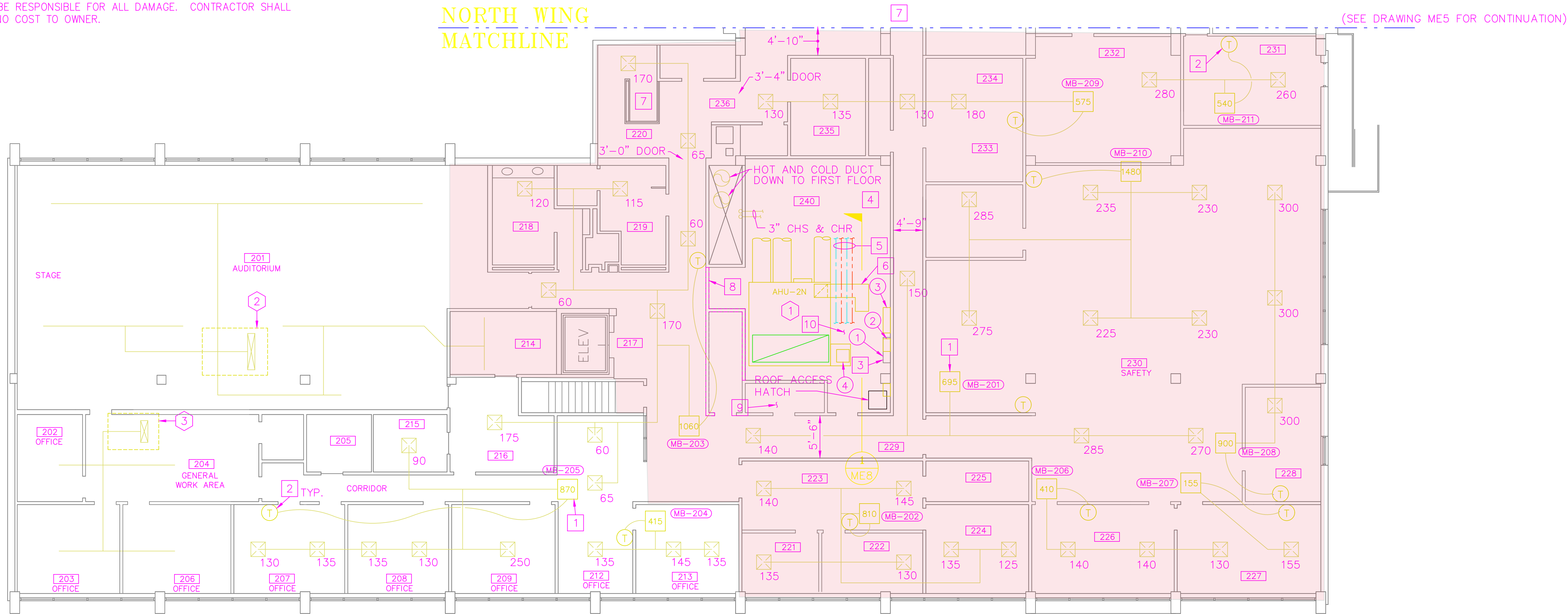
ELECTRICAL CONSTRUCTION NOTES:

- 1 DISCONNECT 120V CIRCUIT FROM EXISTING CONTROL. EXTEND CIRCUIT TO NEW DDC CONTROL PANEL. REFER TO MECHANICAL CONSTRUCTION NOTE 10
- 2 PROVIDE NEMA SIZE 4 MOTOR STARTER IN A NEMA 1 ENCLOSURE FOR CONTROL OF NEW AHU-2N AIR HANDLER MOTOR. THIS IS LOCATED WHERE EXISTING TEMPERATURE CONTROL PANEL IS. SEE MECHANICAL NOTE 10 FOR NEW DDC PANEL. PROVIDE ADDITIONAL CONTROLS AS REQUIRED BY AIR HANDLERS MOTOR MANUFACTURER.
- 3 EXISTING PANEL PHP, 225A MAIN LUG ONLY. REMOVE EXISTING 125A, 3 POLE CIRCUIT BREAKER WHICH FEEDS EXISTING AHU-2N AIR HANDLER MOTOR. PROVIDE NEW 200A 3 POLE CIRCUIT BREAKER IN ITS PLACE TO FEED NEW AHU-2N AIR HANDLER MOTOR. AMPS INTERRUPTING RATING OF NEW CIRCUIT BREAKER SHALL MATCH EXISTING.
- 4 EXISTING AHU-2N AIR HANDLER MOTOR TO BE REPLACED. REMOVE EXISTING MOTOR STARTER, CONDUCTORS AND EXPOSED CONDUIT BACK TO PANEL PHP. PROVIDE 3#2, 1#6G, 1.5"C FROM PANEL PHP TO NEW MOTOR STARTER TO NEW AIR HANDLER MOTOR. REFER TO TYPICAL MOTOR CONNECTION DETAIL, SHEET ME12. REFER TO ELECTRICAL CONSTRUCTION NOTES 2 AND 3.

MECHANICAL CONSTRUCTION NOTES:

- 1 EXISTING PNEUMATIC CONTROLLED MIXING BOX TO BE CONVERTED TO ELECTRONIC DDC. SEE DRAWING ME10 FOR SEQUENCE. (TYPICAL 11).
- 2 EXISTING PNEUMATIC THERMOSTAT TO BE REPLACED WITH ELECTRONIC TEMPERATURE SENSOR, JOHNSON TE-6411W-2110. (TYPICAL 11).
- 3 REMOVE PNEUMATIC TEMPERATURE CONTROL PANEL AND REPLACE WITH NEW MOTOR STARTER. REFER TO ELECTRICAL NOTES THIS DRAWING.
- 4 EXISTING CHILLER AND ELECTRICAL PANELS SPACE TO REMAIN AS IS.
- 5 WATER HEATING AND CHILLED WATER PIPES = 8'-0" TO 9'-0" A.F.F.
- 6 22"x22" HOT DUCT. REMOVE ELBOW AND DUCT. RECONNECT TO NEW UNIT.
- 7 NEW EQUIPMENT MAY ENTER THRU 2ND FLOOR CORRIDOR OR THRU OPEN BACK STAIR.
- 8 MECHANICAL ROOM ACCESS FOR DEMOLITION AND NEW CONSTRUCTION. REMOVE EXISTING BRICK WALL FOR ACCESS TO MECHANICAL ROOM. WALL HAS A FINISH OF 1"x1" PINE (9'-9" LONG) ON 2" CENTERS INDIVIDUALLY NAILED TO A PLYWOOD BACKING. WHEN WORK IS FINISHED CONTRACTOR SHALL REINSTALL WALL TO MATCH.
- 9 AT CONTRACTORS OPTION, ACCESS TO MECHANICAL ROOM MAY ALSO BE ACCOMPLISHED BY REMOVING CLOSET. AFTER CONSTRUCTION THE METAL STUD AND GYP CLOSET SHALL BE REINSTALLED AS IT WAS PRIOR TO CONSTRUCTION. THIS INCLUDES WOOD SHELVING, PAINTING, FINISHING, ETC. DOOR SHALL BE REUSED.
- 10 MOUNT NEW DDC PANEL ON UNISTRUT NEAR AHU-2N TO ALLOW ROOM FOR NEW MOTOR STARTER ON WALL. FIELD LOCATE PER OWNER.

NORTH WING
MATCHLINE



GENERAL HEADQUARTERS
SECOND FLOOR PLAN - NORTH WING

SCALE: 1/8" = 1'



- Legend
- FT2
 - FT3
 - FT6 (Note: Underlying Mastic, present throughout hallway, is what is the positive material).
 - FT7
 - LF2
 - IA3
 - WTR1

12/05/03

DATE:

REVISIONS:

DESIGNED BY: RUS

DRAWN BY: SLR

CHECKED BY: RUS

ROBERT HOLDEN GOVERNOR

Agency

MISSOURI STATE HIGHWAY PATROL

State of Missouri

Office of Administration and Construction

Division of Design

RANDALL G. ALLEN, AIA, DIRECTOR

COLONEL ROGER D. STOTTELMYRE

HVAC RENOVATION

MISSOURI STATE HIGHWAY PATROL

GENERAL HEADQUARTERS

JEFFERSON CITY, MISSOURI

PROJECT NUMBER: R0204-01

LAB SITE: 4751

FACILITY #65101

CADD NUMBER: 000/00000/M3.DWG

SHEET NUMBER:

ME3

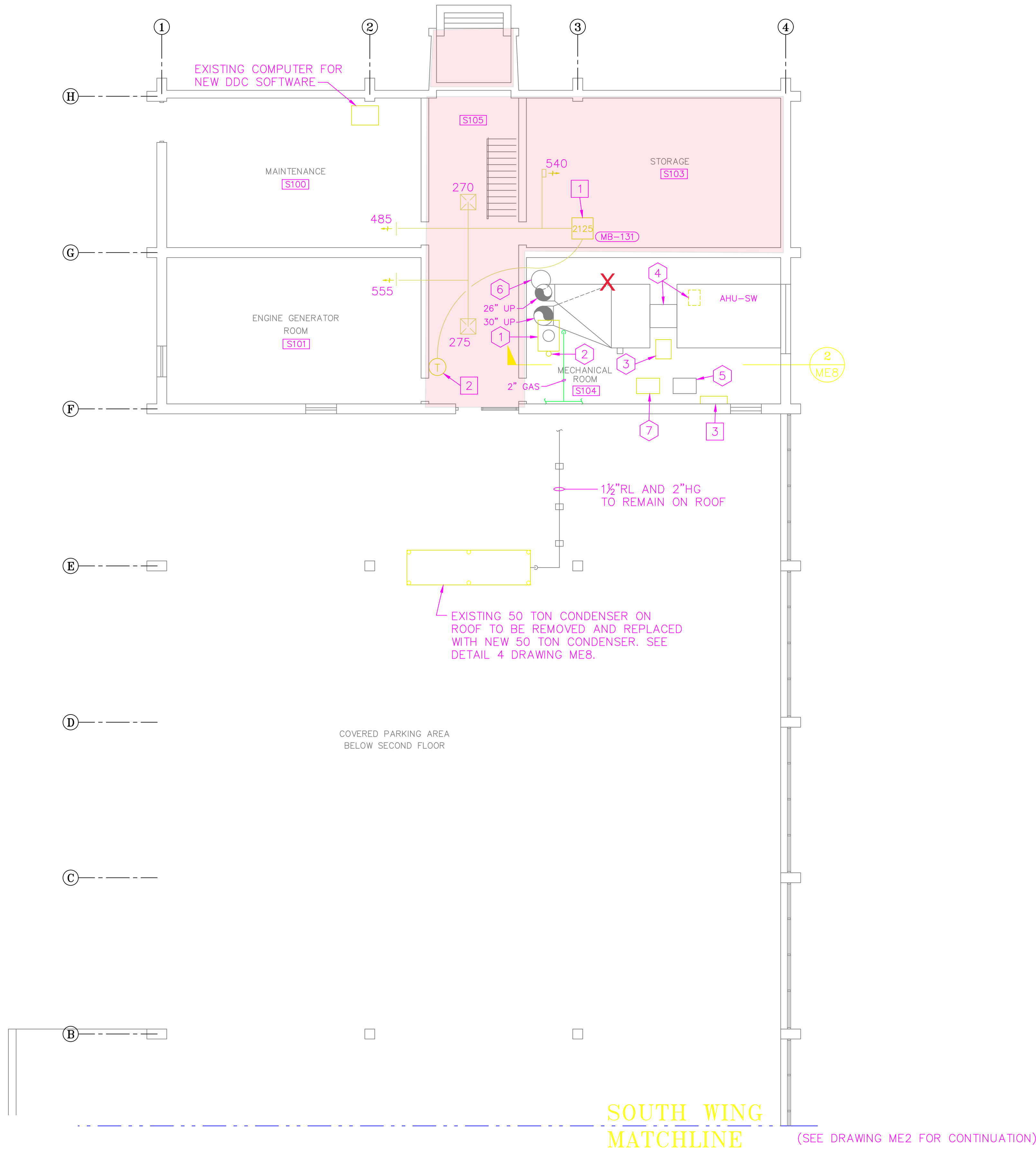
4 OF 13 SHEETS

ISSUE DATE: 12-05-03

AS-BUILTS

PROJECT No.: 2001-462.01 PROJECT NAME: HVAC RENOVATION
DRAW NAME: L:\2001-462\MECHANICAL\AS-BUILTS\08-0416.M4.DWG LAST EDIT DATE: 5-3-02

- Legend
- FT2
 - FT3
 - FT6 (Note: Underlying Mastic, present throughout hallway, is what is the positive material).
 - FT7
 - LF2
 - IA3
 - WTR1



1
ME4

GENERAL HEADQUARTERS FIRST FLOOR PLAN - SOUTH WING

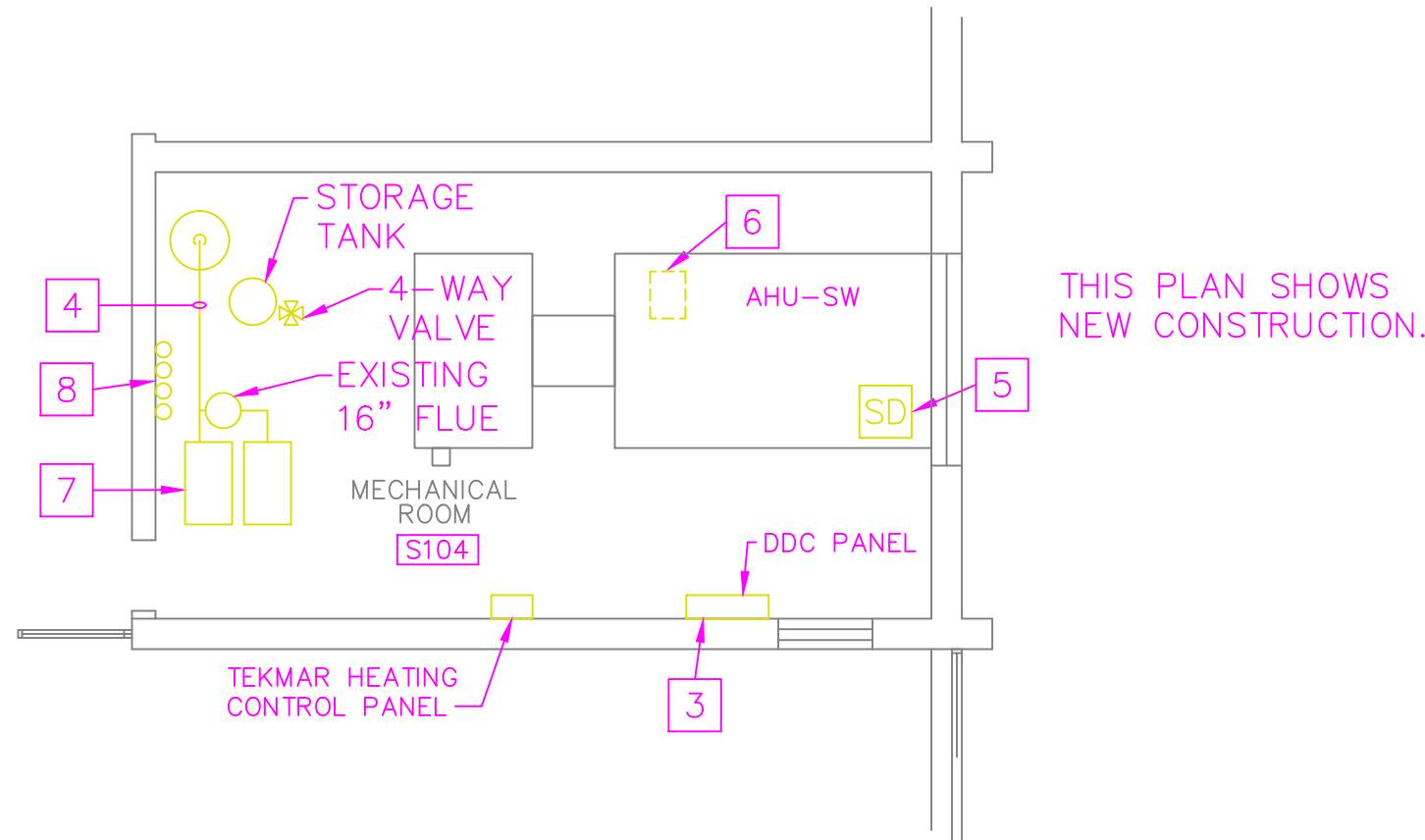
SCALE: 1/8" = 1'



2
ME4

GENERAL HEADQUARTERS PARTIAL PLAN - MECHANICAL ROOM

SCALE: 1/8" = 1'



EQUIPMENT NOTES:

- EXISTING 1200MBH BOILER TO BE REMOVED ALONG WITH ALL ASSOCIATED PUMP, PIPING AND FLUE NECESSARY TO REPLACE WITH NEW HEATING WATER SYSTEM. SEE PARTIAL PLAN THIS DRAWING FOR NEW CONSTRUCTION.
- WATER HEATING INLINE PUMP AND ALL ASSOCIATED PIPING TO COIL SECTION SHALL BE REMOVED AND REPLACED WITH NEW PER THESE DRAWINGS. SEE PIPING SCHEMATIC 5 DRAWING ME8.
- REMOVE 35HP COMPRESSOR (COPELAND 6DPI-3500-TSK) AND ANY REQUIRED REFRIGERANT PIPING FOR COMPRESSOR REPLACEMENT. REPLACE WITH 50 TON COMPRESSOR AND REFRIGERANT PIPING REQUIRED FOR NEW CONNECTION. CONTRACTOR SHALL MAKE ALL NECESSARY REFRIGERANT PIPE MODIFICATIONS TO CONNECT NEW UNIT. SYSTEM WAS ORIGINALLY INSTALLED AS A 50 TON SYSTEM.
- EXISTING AHU-SW, 16000 CFM. REMOVE AND REPLACE MOTOR. SEE NOTE 6 BELOW.
- RETURN AIR FAN TO REMAIN AS IS.
- DOMESTIC WATER HEATER TO REMAIN. 4"Ø FLUE SHALL BE REROUTED PER PARTIAL PLAN BELOW AND DETAIL ON DRAWING ME8.
- EXISTING TEMP CONTROL AIR COMPRESSOR (½HP) TO BE REMOVED AFTER NEW DDC CONTROLS INSTALLED. RETURN COMPRESSOR TO OWNER.

ELECTRICAL CONSTRUCTION NOTES:

- REFER TO DRAWING ME12 FOR DIVISION 16 WORK FOR THIS DRAWING.

MECHANICAL CONSTRUCTION NOTES:

- EXISTING PNEUMATIC CONTROLLED MIXING BOX TO BE CONVERTED TO ELECTRONIC DDC. SEE DRAWING ME10 FOR SEQUENCE.
- EXISTING PNEUMATIC THERMOSTAT TO BE REPLACED WITH ELECTRONIC TEMPERATURE SENSOR, JOHNSON TE-6411W-2110.
- REMOVE PNEUMATIC TEMPERATURE CONTROL PANEL AND REPLACE WITH DDC PANEL.
- REROUTE 4"Ø FLUE FROM EXISTING WATER HEATER TO EXISTING FLUE. ROUTE THE NEW BOILER FLUES UP TO EXISTING FLUE.
- RA SMOKE DETECTOR. SEE DRAWING ME10. MOUNT IN EXISTING RA DUCT. SEE DRAWING ME8 FOR SUPPLY SD.
- NEW 25HP MOTOR FOR AHU-SW. FIELD VERIFY SIZE AND BELT/SHEAVE CONFIGURATION. MECHANICAL CONTRACTOR SHALL REMOVE EXISTING MOTOR, PROVIDE NEW MOTOR AND INSTALL MOTOR. MOTOR SHALL BE WIRED BY DIVISION 16.
- NEW WATER HEATERS AND 100 GALLON STORAGE TANK (600 MBH EACH). SEE DETAIL 5 DRAWING ME8 FOR PIPING SCHEMATIC.
- BOILER PUMPS AND COOLING COIL PUMPS.

HVAC RENOVATION
MISSOURI STATE HIGHWAY PATROL
GENERAL HEADQUARTERS
JEFFERSON CITY, MISSOURI

CADD NUMBER:
000/00000/M4.DWG
SHEET NUMBER:

ME4

5 OF 13 SHEETS
ISSUE DATE: 12-05-03

State of Missouri

Office of Administration and Construction
MISSOURI STATE HIGHWAY PATROL

Agency:

ROBERT HOLDEN GOVERNOR

RANDALL G. ALLEN, AIA, DIRECTOR

COLONEL ROGER D. STOTLEMYRE

DATE: 12/51/03

REVISIONS:

DESIGNED BY: RJS
DRAWN BY: SLR
CHECKED BY: RJS

BUCHER, WILLIS & RATLIFF
CORPORATION
7920 WARD PARKWAY KANSAS CITY, MISSOURI 64114 816-363-2896

AS-BUILTS

(SEE DRAWING ME3 FOR CONTINUATION)

BUK BUCHER, WILLIS & KATLIFT
CORPORATION
7920 WARD PARKWAY KANSAS CITY, MISSOURI 64114 816-363-2696

Office of Administration
Division of Design and Construction

MISSOURI STATE
HIGHWAY PATROL

COLONEL ROGER D. STOUTLEMIERE

RANDALL G. ALLEN, AIA, DIRECTOR

LAB SITE: 4751
FACILITY #55101

5 OF 13 SHEETS
ISSUE DATE: 12-05-03

AS-BUILTS

APPENDIX B

ACM SURVEY REPORT OF WATER LINE FITTINGS October 2025



ENVIRONMENTAL & DEMOLITION CONTRACTORS

P.O. Box 105287, Jefferson City, MO 65110-5287

573.896.0222 ■ www.arsi-mo.com

Service-Disabled Veteran Enterprise (SDVE)

October 28, 2025

Missouri Office of Administration
% Andy Carrol
301 W High Street, Rm 730
Jefferson City, MO 65101

RE: Selective Pre-Renovation Asbestos Inspection, Bathroom Renovation, Missouri State Highway Patrol General Headquarters, 1510 East Elm Street, Jefferson City, MO. ARSI Job # 2560-15

At your request, on 10/23/2025 ARSI conducted a selective pre-renovation survey of restroom areas. which is scheduled for renovation. This inspection was performed in order to comply with the EPA and MDNR NESHAP regulations, which require a "thorough" asbestos inspection prior to renovation or demolition, conducted by accredited inspector. Matthew Roark *MR*, MDNR Asbestos Inspector #7136071025MOIR6862 performed the inspection.

The focused area of inspection was on the water lines in the restroom stacks on 1st, 2nd, 3rd floors. Also, a set of lines that feed the 1st floor in the museum area.

Seven (07) bulk samples (which were separated into fourteen (14) distinct components) of suspected ACM were collected. All of the samples were sent to SanAir Technologies Laboratory, Powhatan, Virginia, an independent NVLAP-accredited laboratory, for analysis by polarized light microscopy.

Two (02) samples tested positive for asbestos, namely:

	Sample Number	Description	Category	Condition	Quantities
1	1007	Basement – Men Restroom – Water Line Fittings	Friable	Good	TBD
2	1008	Basement – Museum – Water Line Fittings	Friable	Good	TBD

All of the other samples tested either negative for asbestos, or less than 1% asbestos, which is below the EPA/DNR regulatory threshold/definition of an asbestos-containing material.

Basement Level Restroom: The fittings on the domestic water lines are positive for asbestos.

Basement Level Water Line Museum: The fittings on the domestic water lines are positive for asbestos.

1st Floor Restrooms: The fittings on the domestic water lines have been previous abated in the areas physically accessible. Asbestos fitting still can be present in chase walls or other concealed areas.

2nd Floor Restrooms: The fittings on the domestic water lines are negative for asbestos.

CLARIFICATIONS & LIMITATION OF INSPECTION

This inspection covered only the water lines in the bathroom areas in the building that were exposed and /or physically accessible to the inspectors. Although reasonable effort was made to survey accessible suspect materials, additional suspect but not-sampled materials could be located in walls, in voids, or other concealed areas.

Enclosed with this document are copies of the laboratory analysis report, chain of custody letter, site work sheets, photographs of portions of the asbestos-containing materials identified by the inspection, and MDNR certification of inspectors performing the inspection. Additional information regarding DNR and EPA asbestos regulations can be found at the following website: www.dnr.mo.gov/pubs/pub2157.htm. Thank you for the opportunity of serving you in this capacity. Don't hesitate to call if you have any questions.

Sincerely,

ARSI, Inc.

Matthew Roark

Matthew Roark, General Manager



ENVIRONMENTAL & DEMOLITION CONTRACTORS

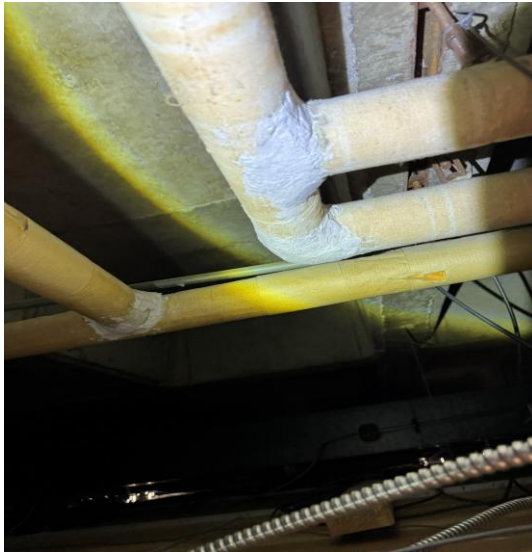
P.O. Box 105287, Jefferson City, MO 65110-5287
573.896.0222 ■ www.arsi-mo.com

Service-Disabled Veteran Enterprise (SDVE)

Basement Restroom



Basement Restroom line Museum



1st Floor Restroom Previously Abated





The Identification Specialists

Analysis Report
prepared for
ARSI, Inc.

Report Date: 10/27/2025

Project Name: MSHP-Headquarters Restrooms

Project #: 2560-10

SanAir ID#: 25071755



NVLAP LAB CODE 200870-0

10501 Trade Court, North Chesterfield, Virginia 23236
888.895.1177 | 804.897.1177 | fax: 804.897.0070 | LabReports@SanAir.com | SanAir.com



SanAir ID Number
25071755
FINAL REPORT
10/27/2025 10:33:09 AM

Name: ARSI, Inc.
Address: PO Box 105287
Jefferson City, MO 65110
Phone: 573-896-0222

Project Number: 2560-10
P.O. Number: 117
Project Name: MSHP-Headquarters Restrooms
Collected Date: 10/23/2025
Received Date: 10/24/2025 10:05:00 AM

Dear Matt Roark,

We at SanAir would like to thank you for the work you recently submitted. The 7 sample(s) were received on Friday, October 24, 2025 via FedEx. The final report(s) is enclosed for the following sample(s): 1006, 1007, 1008, 1009, 1010, 1011, 1012.

These results only pertain to this job and should not be used in the interpretation of any other job. This report is only complete in its entirety. Refer to the listing below of the pages included in a complete final report.

Sincerely,

A handwritten signature in black ink that reads "Sandra Sobrino".

Sandra Sobrino
Asbestos & Materials Laboratory Manager
SanAir Technologies Laboratory

Final Report Includes:

- Cover Letter
- Analysis Pages
- Disclaimers and Additional Information

Sample conditions:

- 7 samples in Good condition.



SanAir ID Number
25071755
FINAL REPORT
10/27/2025 10:33:09 AM

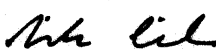
Name: ARSI, Inc.
Address: PO Box 105287
Jefferson City, MO 65110
Phone: 573-896-0222

Project Number: 2560-10
P.O. Number: 117
Project Name: MSHP-Headquarters Restrooms
Collected Date: 10/23/2025
Received Date: 10/24/2025 10:05:00 AM

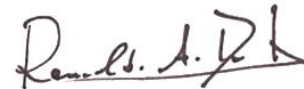
Analyst: Pisula, Nicholas

Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic	Components		Asbestos Fibers
	Appearance	% Fibrous	% Non-fibrous	
1006 / 25071755-001 Basement-Men Restroom-Water Line Straight Run, Insulation	Yellow Fibrous Homogeneous	95% Glass	5% Other	None Detected
1006 / 25071755-001 Basement-Men Restroom-Water Line Straight Run, Tar	Black Non-Fibrous Homogeneous		100% Other	None Detected
1006 / 25071755-001 Basement-Men Restroom-Water Line Straight Run, Wrap	White Fibrous Homogeneous	95% Cellulose	5% Other	None Detected
1007 / 25071755-002 Basement-Men Restroom-Water Line Elbow	Grey Non-Fibrous Homogeneous		91% Other	3% Chrysotile 6% Amosite
1008 / 25071755-003 Basement Museum-Water Line Elbow	Grey Non-Fibrous Homogeneous		91% Other	3% Chrysotile 6% Amosite
1009 / 25071755-004 Basement Museum-Water Line Straight Run, Insulation	Yellow Fibrous Homogeneous	95% Glass	5% Other	None Detected
1009 / 25071755-004 Basement Museum-Water Line Straight Run, Wrap	White Fibrous Homogeneous	90% Cellulose	10% Other	None Detected
1010 / 25071755-005 2nd Floor-Bathroom Chase Wall- Water Line Valve, Insulation	Yellow Fibrous Homogeneous	95% Glass	5% Other	None Detected
1010 / 25071755-005 2nd Floor-Bathroom Chase Wall- Water Line Valve, Wrap	White Non-Fibrous Homogeneous	20% Glass	80% Other	None Detected
1011 / 25071755-006 2nd Floor-Men Restroom-Water Line Straight Run, Insulation	Yellow Fibrous Homogeneous	95% Glass	5% Other	None Detected

Analyst: 

Approved Signatory:



Analysis Date: 10/27/2025

Date: 10/27/2025



SanAir ID Number
25071755
FINAL REPORT
10/27/2025 10:33:09 AM

Name: ARSI, Inc.
Address: PO Box 105287
Jefferson City, MO 65110
Phone: 573-896-0222

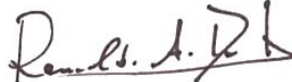
Project Number: 2560-10
P.O. Number: 117
Project Name: MSHP-Headquarters Restrooms
Collected Date: 10/23/2025
Received Date: 10/24/2025 10:05:00 AM

Analyst: Pisula, Nicholas

Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic	Components		Asbestos Fibers
	Appearance	% Fibrous	% Non-fibrous	
1011 / 25071755-006 2nd Floor-Men Restroom-Water Line Straight Run, Tar	Black Non-Fibrous Homogeneous		100% Other	None Detected
1011 / 25071755-006 2nd Floor-Men Restroom-Water Line Straight Run, Wrap	White Fibrous Homogeneous	95% Cellulose	5% Other	None Detected
1012 / 25071755-007 2nd Floor-Men Restroom-Water Line Elbow, Insulation	Yellow Fibrous Homogeneous	95% Glass	5% Other	None Detected
1012 / 25071755-007 2nd Floor-Men Restroom-Water Line Elbow, Wrap	White Non-Fibrous Homogeneous	20% Glass	80% Other	None Detected

Analyst: 

Approved Signatory: 

Analysis Date: 10/27/2025

Date: 10/27/2025

Disclaimer and Additional Information:
Asbestos Bulk PLM EPA 600/R-93/116

This report is the sole property of the client named on the chain-of-custody (COC) submitted to SanAir Technologies Laboratory, Inc. (SanAir). Results in the report are confidential information intended only for the use by the customer listed on the COC. Neither results nor reports will be discussed with or released to any third party without our client's written permission. The final report shall not be reproduced, except in full, without written approval of the laboratory to assure that parts of the report are not taken out of context. This report and any information contained within shall not be edited, altered, or modified in any way by any persons or agencies receiving, viewing, distributing, or otherwise possessing a copy of this final report. The laboratory reserves the right to perform amendments to any finalized report, of which shall supersede and make obsolete any previous editions. Such changes, modifications, additions, or deletions shall be effective immediately upon notice thereof, which may be given by means including but not limited to posting on the SanAir client portal website, electronic or conventional mail, or by any other means.

The information provided in this report applies only to the samples submitted and is relevant only for the date, time, and location of sampling. The accuracy of the results is dependent upon the client's sampling procedure and information provided to the laboratory by the client on the COC. SanAir assumes no responsibility for the sampling procedure and will provide evaluation reports based solely on the sample(s) in the condition received at the laboratory and information provided by the client on the COC, such as: project number, project name, collection dates, P.O. number, special instructions, samples collected by, sample numbers, sample identifications, sample type, selected analysis type, flow rate, total volume or area, and start-stop times that may affect the validity of the results in this report. Samples were received in good condition unless otherwise noted on the report. When the client requires samples to be tested that deviates from a specific method or condition, all reported results may be affected by the deviation. SanAir assumes no responsibility or liability for the manner in which the results are used or interpreted.

This report does not constitute nor shall not be used by the client to claim product, process, system, or person certification, approval, or endorsement by NVLAP, NIST, NELAC, AIHA LAP, LLC or any other U.S. governmental agencies; all or some tests contained in this report may not be accredited by every local, state, and federal regulatory agencies. Refer to the SanAir website at www.sanair.com for copies of current certificates and scopes of various accreditations, certifications, and licenses or contact the laboratory for inquiries regarding the status or scope of an accreditation or certification.

Samples are held for a period of 60 days. Fibers smaller than 5 microns cannot be seen with this method due to scope limitations. For NY state samples, method EPA 600/M4-82-020 is performed.

NYELAP Disclaimer:

Polarized-light microscopy is not consistently reliable in detecting asbestos in floor covering and similar non-friable organically bound materials. Quantitative transmission electron microscopy is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos containing.

Asbestos Accreditations, Certifications, and Licenses

National Voluntary Laboratory Accreditation Program (NVLAP) Lab Code 200870-0

City of Philadelphia Department of Public Health Air Management Services, Certification#ALL-460

Commonwealth of Pennsylvania Department of Environmental Protection Number 68-05397

California State Environmental Laboratory Accreditation Program Certificate Number 2915

Colorado Department of Public Health and Environment Registration Number AL-23143

Connecticut Department of Public Health Environmental Laboratory Registration Number PH-0105

Massachusetts Department of Labor Standards Asbestos Analytical Services License Number:

AA000222

State of Maine Department of Environmental Protection License Number: LB-0075

New York State Department of Health Laboratory ID: 11983

State of Rhode Island Department of Health Certification No.: PLM00126

Texas Department of State Health Services License Number: 300440

Commonwealth of Virginia Department of Professional and Occupational Regulation Number:

3333000323

State of Washington Department of Ecology Laboratory ID: C989

State of West Virginia Bureau for Public Health Analytical Laboratory Number: LT000616

Vermont Department of Health License Number: Asb-Co-An-000006

Louisiana Department of Environmental Quality AI Number 212253, LELAP Lab ID #05088



1551 Oakbridge Dr. STE B
Powhatan, VA 23139
804.897.1177 / 888.895.1177
Fax 804.897.0070
sanair.com

Asbestos
Chain of Custody
Form 140, Rev 1, 1/20/2017

SanAir ID Number

2507 17 55

Company: ARSI, Inc.	Project #: 2560-10	Collect by: Matthew Roark
Address: PO Box 105287	Project Name: MSHP - Headquarters Restrooms	Phone #: 573-896-0222
City, St., Zip: Jefferson City, MO 65110	Date Collected: 10/23/25	Fax #: 573-896-9389
State of Collection: Missouri Account#: 3617	P.O. Number: 117	Email: mattroark@arsi-mo.com

Bulk			Air			Soil		
ABB	PLM EPA 600/R-93/116	☒	ABA	PCM NIOSH 7400	☐	ABSE	PLM EPA 600/R-93/116 (Qual.)	☐
	Positive Stop	☐	ABA-2	OSHA w/ TWA*	☐	Vermiculite & Soil		
ABEPA	PLM EPA 400 Point Count	☐	ABTEM	TEM AHERA	☐	ABSP	PLM CARB 435 (LOD <1%)	☐
ABB1K	PLM EPA 1000 Point Count	☐	ABATN	TEM NIOSH 7402	☐	ABSP1	PLM CARB 435 (LOD 0.25%)	☐
ABBEN	PLM EPA NOB**	☐	ABT2	TEM Level II	☐	ABSP2	PLM CARB 435 (LOD 0.1%)	☐
ABBCH	TEM Chatfield**	☐	Other:		☐	Dust		
ABBTM	TEM EPA NOB**	☐	New York ELAP			ABWA	TEM Wipe ASTM D-6480	☐
ABQ	PLM Qualitative	☐	PLM NY	PLM EPA 600/M4-82-020	☐	ABDMV	TEM Microvac ASTM D-5755	☐
			ABEPA2	NY ELAP 198.1	☐	Matrix Other		
			ABENY	NY ELAP 198.6 PLM NOB	☐			☐
			ABBNY	NY ELAP 198.4 TEM NOB	☐			☐

** Available on 24-hr. to 5-day TAT

Turn Around Times	3 HR (4 HR TEM) ☐	6 HR (8HR TEM) ☐	12 HR ☐	24 HR ☒
	☐ 2 Days	☐ 3 Days	☐ 4 Days	☐ 5 Days

Special Instructions	
----------------------	--

Sample #	Sample Identification/Location	Volume or Area	Sample Date	Flow Rate*	Start - Stop Time*
1006	Basement - Men Restroom - Water line straight run				
1007	Basement - Men Restroom - Water line elbow				
1008	Basement Museum - Water line elbow				
1009	Basement Museum - Water line straight run				
1010	2nd Floor - Bathroom Chase wall - Water line Valve				
1011	2nd Floor - Men Restroom - Water line straight run				
1012	2nd Floor - Men Restroom - Water line elbow				

Relinquished by	Date	Time	Received by	Date	Time
Matthew Roark	10/23/25	10:36	Sn	10/24/25	10:05 AM

If no technician is provided, then the primary contact for your account will be selected. Unless scheduled, the turnaround time for all samples received after 3 pm EST Friday will begin at 8 am Monday morning. Weekend or holiday work must be scheduled ahead of time and is charged for rush turnaround time. SanAir covers Standard Overnight FedEx shipping. Shipments billed to SanAir with a faster shipping rate will result in additional charges.

APPENDIX C

Managing Construction and Demolition Waste -PUB2045

Managing Construction and Demolition Waste - PUB2045

Waste Management Program

05/14/2021

fact sheet

PUB2045

Division of Environmental Quality

Director: Kyra Moore

This guidance is provided primarily for construction, renovation and demolition contractors, roofing contractors, remodeling businesses, waste haulers, homebuilders and homeowners. Cities and counties that issue building permits may also find this fact sheet helpful. The guidance covers only materials and wastes commonly produced during building construction, renovation and demolition. For information on the management of surface coatings removed from bridges, water towers or other similar outdoor structures, refer to the department's fact sheet, **Environmental Regulations for Paint Removal on Outdoor Structures - PUB0118** (</document-search/environmental-regulations-paint-removal-outdoor-structures-pub0118/pub0118>).

Management and Disposal Requirements

During construction, renovation and demolition activities you may produce one or more of the following types of materials. Management and disposal requirements differ for each of them:

Clean fill

Clean fill material is uncontaminated soil, rock, sand, gravel, concrete, asphaltic concrete, cinderblocks, brick, minimal amounts of wood and metal, and inert (non-reactive) solids approved by rule or the department for fill, reclamation or other beneficial use. Minimal amounts of wood and metal means the smallest amount possible. For example, reinforced concrete, which contains wire mesh or rebar, may be used as clean fill, but the exposed rebar must be removed before use. Asphaltic concrete that is planned for use as fill should not be

crushed or ground to minimize leaching of any chemicals and toxic metals from the material. Mixed fill materials containing more than minimal amounts of wood and metal wastes, roofing shingles, sheet rock or other construction and demolition wastes are not considered clean fill.

Placement of clean fill materials may be subject to requirements of the department's Water Protection Branch, particularly if it is placed in contact with surface or subsurface waters of the state or if it would otherwise violate water quality standards. For questions about clean fill material placement, contact the Water Protection Program at **573-751-1300 (tel:573-751-1300)**. Note: Municipalities and county government departments may also have restrictions or requirements concerning the use of clean fill materials; check with these entities before beginning a fill project.

Recovered materials

Recovered materials are those wastes that have been removed for reuse (lumber, doors, windows, ceramic tile and glass) and also items that are removed to be made into new products. Potentially recyclable construction, renovation and demolition wastes may include scrap metals, asphalt shingles, sheet rock, lumber, glass and electrical wire. However, if materials are removed from the property where they were generated, the recovered materials must be reused or repurposed into an item(s) for a different use(s) and not simply dumped or used as fill.

If you plan to remove reusable or recyclable materials from construction and demolition waste, the sorting must take place at the construction or demolition site. The wastes cannot be hauled from the site and dumped for later sorting, except at a permitted processing facility or at a facility that has received an approved permit exemption from the Waste Management Program. Although the department strongly encourages the recovery or recycling of potential waste materials whenever possible, these activities must be conducted legally.

Prior to separating certain wastes out to be reused or recycled into different products, research the materials and determine if there is a demand or market for the product(s) you plan to create from the recycled waste. The department's Waste Management Program has information regarding many recycling facilities in Missouri. You may contact the program at **573-751-5401 (tel:573-751-5401)** or search the **Missouri Materials Management Directory** (<https://recyclesearch.com/profile/mo-directory>) for more information.

Regulated (nonhazardous) construction, renovation and demolition wastes

Regulated nonhazardous construction, renovation and demolition wastes are those that do not meet the definition of clean fill and, for whatever reason, are not able to be recovered for reuse or recycling. Some examples of these wastes are insulation, drywall, wooden paneling, carpet padding, carpeting, linoleum, etc. These construction and demolition wastes must be disposed at a permitted solid waste landfill or processing facility.

Remember these key requirements about regulated non-hazardous construction and demolition wastes:

- In most cases, it is not legal to burn these wastes. Only untreated wood waste may be burned, and this is allowed as long as you apply for and obtain an open burning permit prior to burning the waste. For more information about open burning, review the fact sheet, **Facts on Open Burning Under Missouri Regulations - PUB2047** (</document-search/facts-open-burning-under-missouri-regulations-pub2047/pub2047>). Contact the department's **regional office** (</about-us/division-environmental-quality/regional-office>) nearest to your location for permit information and conditions for burning untreated wood waste. Check with municipal and county government departments in your area to determine any additional burning restrictions and requirements they may have.
- It is not legal to bury the wastes, except in a permitted solid waste landfill
- It is not legal to haul the wastes to private or public property and dump, burn or bury the wastes, even with the landowner's permission

If wastes are burned, buried, or hauled then burned and/ or buried as described in the scenarios above, everyone involved, including the contractor(s), subcontractor(s), waste hauler(s) and the landowner(s) where the burial, dumping, and/or burning occurs may be held liable for these illegal actions (See Sections 260.210, 260.211 and 260.212 RSMo).

Hazardous materials and hazardous wastes

Although you may find a variety of hazardous materials in old buildings, lead-based paint and universal wastes (e.g., mercury-containing equipment and lamps) are usually the most common hazardous wastes that require special handling by demolition contractors. Hazardous wastes resulting from construction, renovation and demolition activities at small and large businesses, institutions, municipalities, churches, schools and other structures not specifically identified must be managed according to the Missouri Hazardous Waste Management Law and Regulations while the waste is on-site, in transport and during final disposal or treatment. Households and farmers are mostly exempt from hazardous waste requirements under Section 260.380.1. RSMo.

It is the generator's responsibility to determine if materials generated during construction, renovation and demolition are hazardous wastes, including any materials believed to be clean fill and planned for use as fill. A hazardous waste determination can be made by applying verifiable historical knowledge of the materials in question or by the analysis of a representative sampling of the waste materials. More information on hazardous waste management in Missouri is provided in the department's, **Handbook for Small Quantity Generators - PUB2174** (</document-search/handbook-small-quantity-generators-pub2174>).

Nonhazardous waste must be taken to a permitted sanitary landfill for proper disposal. The waste may have to be managed by landfill personnel as a "special waste" and require the completion of a special waste disposal form. For more information about managing special wastes, see the department's fact sheet, **Special Waste - PUB2050 (/document-search/special-waste-pub2050/pub2050)**.

Building components commonly encountered during demolition and renovation that can contain contaminants such as lead and other heavy metals include:

- Paint residue – Paint chips, paint scrapings and contaminated blast residue from building renovations or demolition projects.
- Demolition debris – Painted cinder block or bricks. Metal and boards that have been painted with lead-based or other heavy metal-based paint (note: painted metal and boards may not be used as clean fill).
- Scrap metal – Metal objects that contain lead or other heavy metals.
- Universal waste – Mercury-containing equipment and lamps, (e.g., thermostats and fluorescent light bulbs) and batteries.

Paint Residue

Paint residue should be laboratory-tested before disposal unless there is sufficient historical knowledge of the paint types and whether or not they contained heavy metals to make an accurate determination that the residue is either hazardous or nonhazardous. The appropriate test method is the Toxicity Characteristic Leaching Procedure (TCLP), EPA Method 1311, referenced in the Code of Federal Regulations (CFR), 40 CFR Part 261. The test should include the eight metals noted in 40 CFR Part 261.24 (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver). Environmental laboratories capable of conducting a TCLP may be found by conducting an internet search of such companies. If one or more of the analytical limits meet(s) or exceed(s) the regulatory limit, the waste must be managed as a hazardous waste.

Demolition Debris

While it is unlikely that a representative sample of demolition debris, including painted block or brick, would fail the TCLP mentioned above, all solid wastes must receive an accurate hazardous waste determination when they are generated. If generator knowledge of the material is insufficient to make an accurate hazardous waste determination, then testing of the debris is needed. Demolition debris should not be chipped, shredded, milled, ground, mulched or similarly processed in a way that would increase their leachability before disposal.

Scrap Metals

When scrap metals are sent to a salvage yard for recycling, it is not necessary to make a hazardous waste determination on those materials. If recycling is not possible, and the metals must be discarded in a solid waste landfill, the metals are subject to a hazardous waste

determination as described above.

Universal Waste

Universal wastes are commonly generated by a wide variety of establishments and include batteries, pesticides, mercury-containing equipment (e.g., thermostats) and lamps (e.g., fluorescent light bulbs). Managing these wastes under the Universal Waste Rule helps reduce the regulatory burden on the waste generator versus management solely as a hazardous waste. More information on universal waste management is available in **The Universal Waste Rule in Missouri - PUB2058** (</document-search/universal-waste-rule-missouri-pub2058/pub2058>).

Asbestos-containing material

Certain construction, renovation, or demolition wastes, such as asbestos-containing materials, require special handling and disposal procedures at a sanitary landfill. These special procedures mean the waste will be considered a special waste and require additional steps to ensure the waste is managed appropriately during disposal (see the department's fact sheet, **Special Waste - PUB2050** (</document-search/special-waste-pub2050/pub2050>)). The landfill may require submission of a special waste disposal request form, along with test results to prove that the waste is not hazardous, before accepting the waste for disposal.

Before planning a demolition project, bidding a project, letting a bid or beginning the demolition process, it is important to know if the building has any asbestos-containing materials, and who is responsible for removing them. All public, institutional or commercial buildings, and in some instances residential structures, must be inspected for asbestos before renovation or demolition activities. Buildings may contain asbestos in ceiling or floor tile, insulation or soundproofing on ceilings, pipes, ductwork, boilers, on the outside as transite siding or in shingles. The presence of asbestos-containing materials cannot be confirmed just by looking. A sample of the suspected asbestos-containing material must be collected and sent for analysis to determine whether or not asbestos is in a material.

A thorough inspection of any regulated building must be conducted by a Missouri-certified asbestos inspector to determine the presence and condition of asbestos-containing materials. Depending upon the results of the inspection, a registered asbestos abatement contractor may be required to complete the removal and disposal process. For information regarding asbestos demolition, renovation and abatement (removal), please review the department's **Asbestos** (</air/business-industry/asbestos>) webpage. For more specific information about managing asbestos-containing materials, please contact the department's Air Pollution Control Program's Asbestos Unit at **573-751-4817 (tel:573-751-4817)**. If the asbestos-containing materials are to go to a solid waste landfill or transfer station for disposal, contact the facility in advance to see if they will accept these materials and find out what special handling or packaging requirements must be used for them to accept the waste.

Other Requirements

Other legal requirements related to managing construction, renovation and demolition wastes include:

- Anyone engaged in building construction, modification or demolition of structures must maintain a record of all sites used for construction and demolition waste disposal for one year. The records must be made available to department team members upon request (see Section 260.210.7 RSMo).
- Cities and counties issuing building permits are required to notify each permittee in writing of the legal requirements for construction and demolition waste disposal (Section 260.210.8 RSMo).
- A person shall be guilty of conspiracy if he knows or should have known that his agent or employee has violated the civil or criminal provisions of the law related to illegal disposal of construction and demolition waste or other solid waste (Section 260.212.9 RSMo).
- Anyone selling, conveying or transferring property that contains construction and demolition waste or other solid waste on the site (whether buried or not), must disclose the existence and location of the waste disposal site to a potential buyer early in the negotiation process and explain the liability for remediation of the waste may be transferred to the new owner (Section 260.213 RSMo).
- Anyone hauling materials that could fall or blow from a vehicle, including construction and demolition waste, must cover the load and secure it so that none of it can become dislodged and fall from the vehicle (Section 307.010 RSMo). In addition, many landfills and transfer stations in Missouri require all incoming loads to be covered. Some facilities accept open loads, but may charge you an extra fee to dispose of them.
- A person commits the crime of littering if they throw or place, or cause to be thrown or placed, any garbage, trash, refuse or rubbish of any kind on the right-of-way of any public road or highway; in or on any waters of the state or the streambanks; and on any public or private property (owned by another and without their consent) (Section 577.070, RSMo).

Penalties for Illegal Disposal of Construction, Renovation and Demolition Wastes

The Missouri Solid Waste Management Law provides for civil penalties for persons who dispose, or allow the disposal of, regulated construction and demolition wastes in unpermitted areas. The law also contains criminal provisions for certain types of illegal construction, renovation and demolition waste disposal. Illegal waste disposal may also result in additional penalties for violations of air, water and hazardous waste management laws, depending on the situation and means of waste disposal. The Revised Statutes of Missouri and the Code of State Regulations give the department's Waste Management Program and the Air Pollution Control Program the

authority to assess penalties for violations of the Solid Waste Management Law and regulations, the Hazardous Waste Management Law and regulations, and the Missouri Air Conservation Law and regulations.

Additional Information

You may obtain additional information about properly managing construction and demolition wastes from the sources listed below.

On the Web

- **Managing Solid Waste Encountered During Excavation Activities - PUB2192** (</document-search/managing-solid-waste-encountered-during-excavation-activities-pub2192/pub2192>)
- **Asbestos Requirements for Demolition and Renovation Projects - PUB2157** (</document-search/asbestos-requirements-demolition-renovation-projects-pub2157/pub2157>)
- **Environmental Regulations for Demolition Project Checklist - PUB2374** (</document-search/environmental-regulations-demolition-project-checklist-pub2374/pub2374>)

Additional Considerations and Information Sources

- Hazardous waste requirements are available in the Missouri Hazardous Waste Management Law, **Sections 260.350 through 260.575 RSMo** (<https://revisor.mo.gov/main/OneChapter.aspx?chapter=260>) and the **Hazardous Waste Management Commission regulations** (<https://www.sos.mo.gov/adrules/csr/current/10csr/10csr.asp#10-25>). Most of the federal environmental requirements in 40 CFR Part 260 are adopted by reference into the Missouri regulations.
- Solid waste requirements are available in the Solid Waste Management Law in **Sections 260.200 through 260.345 RSMo** (<https://revisor.mo.gov/main/OneChapter.aspx?chapter=260>), and the Solid Waste Management regulations are in **10 CSR 80** (<https://www.sos.mo.gov/adrules/csr/current/10csr/10csr.asp#10-80>)
- **Federal regulations** (ecfr.gov/cgi-bin/ECFR?page=browse) are available at federal depository libraries or may be purchased from a U.S. Government Bookstore, the U.S. Government Printing Office or from a commercial information service such as the Bureau of National Affairs. Federal Regulations.
- Team members from the department's **regional offices** (</about-us/division-environmental-quality/regional-office>) for your location can provide additional information and guidance on the air pollution and solid waste management requirements for your construction, renovation and demolition project.

Other Guidance

The **Missouri Department of Health and Senior Services** (<https://health.mo.gov/>) - Office of Lead Licensing and Accreditation may provide information regarding training, licensure, and work practice standards for lead abatement activities. Disposal is an abatement activity. See Sections 701.300 and 701.338 RSMo.

Please note municipalities and county governments may have their own additional materials and waste management requirements that may be stricter than those discussed above. Check with your local governmental entities before you start your project.

If you have more questions, contact:

Waste Management Program

1730 East Elm Street

PO Box 176

Jefferson City, MO 65102-0176

573-751-5401 (tel:573-751-5401)

Air Pollution Control Program

1659 East Elm Street

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Jefferson City, MO 65102-0176

573-751-4817 (tel:573-751-4817)

Nothing in this document may be used to implement any enforcement action or levy any penalty unless promulgated by rule under chapter 536 or authorized by statute.

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APPENDIX D

Environmental Regulations for Demolition Project Checklist - PUB2374

Environmental Regulations for Demolition Project Checklist - PUB2374

Waste Management Program

05/12/2021

fact sheet

PUB2374

Division of Environmental Quality

Director: Kyra Moore

Project Checklist

Disclaimer: The checklist is intended to help those planning a demolition project in Missouri to comply with various laws and regulations intended to protect human health and the environment. This checklist is not intended, nor can it be relied on, to create any rights enforceable by any party in litigation. It is recommended you contact the county or city of jurisdiction to determine if additional local requirements apply to your situation. Contact information for the Missouri Department of Natural Resources and specific programs referenced in the checklist is found at the end of this document.

Pre-Planning

- All public, commercial, and in some cases residential structures, must be inspected by a Missouri certified asbestos inspector prior to beginning any demolition or renovation project. A listing of currently certified asbestos inspectors is available on the department's **asbestos** ([/air/business-industry/asbestos](#)) webpage or by calling the Air Pollution Control Program at **573-751-4817 (tel:573-751-4817)**.
- Determine if there are hazardous materials in the building such as lead pipes, lead paint, thermostats, fluorescent bulbs, batteries, pesticides, cleaners and other chemicals that would become hazardous wastes if intended for discard. If so, additional regulations may apply. Refer to the guidance document, **Handbook for Small Quantity Generators - PUB2174** ([/document-search/handbook-small-quantity-generators-pub2174](#)) for information on hazardous waste management in Missouri.

- Hazardous fluorescent bulbs, thermostats, pesticides and batteries in good condition may be managed as universal waste. If not managed as universal waste, these materials would need to be characterized to determine if they are hazardous waste for proper on-site management and disposal. For more information review the department's **The Universal Waste Rule in Missouri - PUB2058** (</document-search/universal-waste-rule-missouri-pub2058/pub2058>) fact sheet.
- Are there abandoned cisterns or wells? If so, additional regulations may apply. For more information, review the department's **Abandoned Wells: Locating, Plugging and Reporting - PUB2900** (</document-search/abandoned-wells-locating-plugging-reporting-pub2900/pub2900>) fact sheet.
- Are there above- or underground petroleum storage tanks? If so, additional regulations may apply. For more information about underground storage tanks, visit **Underground Storage Tank Requirements** (</waste-recycling/business-industry/guidance-technical-assistance/underground-storage-tank-requirements>). For information about above-ground storage tanks, please contact the **Missouri Department of Agriculture** (<https://agriculture.mo.gov/weights/petroleum/>) by telephone at **573-751-5636 (tel:573-751-5636)**.
- Are there air conditioning units or refrigeration units with refrigerants such as chlorofluorocarbons, or CFCs? If so, contact the CFC Stratospheric Ozone Hotline at **800-296-1996 (tel:800-296-1996)** about managing CFCs.
- Are there light ballasts that may contain Polychlorinated Biphenyls, or PCBs? If so, visit EPA's **Disposal of Fluorescent Light Ballasts** (<https://www.epa.gov/pcbs/disposal-fluorescent-light-ballasts-flb>) webpage.
- Contact the recycling or waste disposal facility where the recovered materials or demolition waste will be received to ensure the facility can receive the waste and to check for any restrictions or special requirement the facility may have for the waste.

Notifications

- Submit a **Closure Notice for Underground Storage Tanks MO 780-2121** (</document-search/closure-notice-underground-storage-tanks-mo-780-2121>) form 30-days before beginning an underground storage tank closure and notify the department's **Underground Storage Tanks Section** (</content/underground-storage-tanks-section>) three days before beginning closure activities.
- Register with the department as a hazardous waste generator if generating or accumulating 220 pounds or more of hazardous waste per month. Refer to the department's **Handbook for Small Quantity Generators - PUB2174** (</document-search/handbook-small-quantity-generators-pub2174>) guidance document for more information, including how to register as a hazardous waste generator.
- Submit an **Asbestos NESHAP Notification of Demolition and Renovation MO 780-1923** (</document-search/asbestos-neshap-notification-demolition-renovation-mo-780-1923>)

form to the department's Air Pollution Control Program at least 10 business days before demolition start date of any regulated structure (public, commercial and in some cases residential). Include a copy of the asbestos inspection report by a Missouri certified asbestos inspector. Submission is required for regulated structures, regardless of whether asbestos is found. Note that local health departments may have stricter requirements.

- If removal or disturbance of greater than 160 square feet, 260 linear feet, or 35 cubic feet of regulated asbestos-containing materials will occur during the demolition project, submit an **Asbestos Project Notification MO 780-1226** ([/document-search/asbestos-project-notification-mo-780-1226](#)) form to the department's Air Pollution Control Program at least 10 business days before the start of the abatement project. Note that local health departments may have stricter requirements.
- Submit an **Water Well/ Heat Pump Plugging Registration Report MO 780-1603** ([/document-search/water-well-heat-pump-plugging-registration-report-mo-780-1603](#)) to the department's Wellhead Protection Section for plugging an abandoned well.

Demolition and Post Demolition Activities

- Recovered materials that can be reused or be made into new products must be used in some way to remain exempt from regulation as solid waste. Potentially recoverable materials include clean fill, metals, plastics, glass, electrical wire, asphalt shingles and wood.
- If light ballasts were manufactured before 1979, or manufactured after 1979 and do not have labels stating they do not contain PCBs, assume they contain PCBs. Carefully remove light ballasts to prevent PCB leaks and remove and contain leaking ballasts in a manner that minimizes contamination. Use a **licensed hazardous waste transporter** ([/waste-recycling/sites-regulated-facilities/hazardous-infectious-transporters](#)) to transport PCB waste to a disposal facility.
- Universal wastes must be transported to a universal waste handler or destination facility. For more information, review the department's **The Universal Waste Rule in Missouri - PUB2058** ([/document-search/universal-waste-rule-missouri-pub2058/pub2058](#)) fact sheet.
- Hazardous wastes must be appropriately packaged, marked and labeled and transported to a treatment, storage and disposal facility or certified resource recovery facility. The transporter must have a valid EPA generator identification number and active Missouri hazardous waste transporter license. An EPA identification number can be obtained after submitting a completed **Notice of Regulated Waste Activity MO 780-1164** ([/document-search/notification-regulated-waste-activity-mo-780-1164](#)) form. To apply for a hazardous waste transporter license visit the Missouri Department of Transportation's **Motor Carrier Services** (<https://www.modot.org/HazWaste>) webpage.
- Properly close petroleum storage tanks in-place or by removal.
- Asbestos-containing materials must be removed by a Missouri registered asbestos contractor prior to demolition if the amount of regulated asbestos containing material is

greater than 160 square feet, 260 linear feet or 35 cubic feet.

- Manage remaining asbestos-containing material in the structure in a manner that will keep it from being broken-up, made friable or becoming regulated asbestos containing material.
- Minimize dust during demolition and prevent dust from leaving property boundaries.
- Intentional burning and other training activities for the purpose of training and instructing fire protection, law enforcement or emergency personnel are exempt from Missouri open burning regulations as long as the exercise conforms to the limitation described in the regulation, doesn't cause hazards to air or vehicular traffic and doesn't cause a violation of any other regulation. This exemption is intended only for fire training exercises and is not for allowing the intentional burning of a structure as a method of disposal. If a structure is already knocked down, it does not meet the conditions for the exemption and the option to be burned as a part of a fire training exercise. The knocked-down structure must instead be taken to a permitted solid waste facility for disposal. Also, structures used for training exercises are still subject to state and federal asbestos regulations.
- All regulated asbestos-containing material and all petroleum-based products (in the case of fire training) such as asphalt shingles and vinyl tile must be removed before beginning the training exercise.
- Properly plug abandoned wells and cisterns.
- Clean fill is uncontaminated soil, rock, sand, gravel, concrete, asphaltic concrete, cinderblock and brick with very small amounts of wood and metal, and other inert solids approved by the department. These materials may be used as fill on-site, with the permission of the property owner. If clean fill will come in contact with surface water or subsurface water, contact the department's Water Protection Program at **573-751-1300 (tel:573-751-1300)** for guidance.
- Major appliances except for microwaves cannot be disposed of in landfills and must be salvaged.
- Demolition debris deemed non-hazardous must be transported to a permitted solid waste landfill or processing facility.
- All asbestos-containing materials must be disposed of in a permitted landfill. Contact the landfill before transporting the materials to obtain special handling requirements.

Additional Resources

- **Managing Construction and Demolition Waste - PUB2045** (/document-search/managing-construction-demolition-waste-pub2045/pub2045)
- **Missouri Code of State Regulations - Title 10**
(<https://www.sos.mo.gov/adrules/csr/current/10csr/10csr.asp>)
- **Lead Licensing** (<http://health.mo.gov/safety/leadlicensing/index.php>) - DHSS

Additional fact sheets and publications are available at **Publications and Fact Sheets** (/publications-fact-sheets).

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