PROJECT MANUAL

Replace Flooring
& Renovate Front Entrance

Missouri Geological Survey -

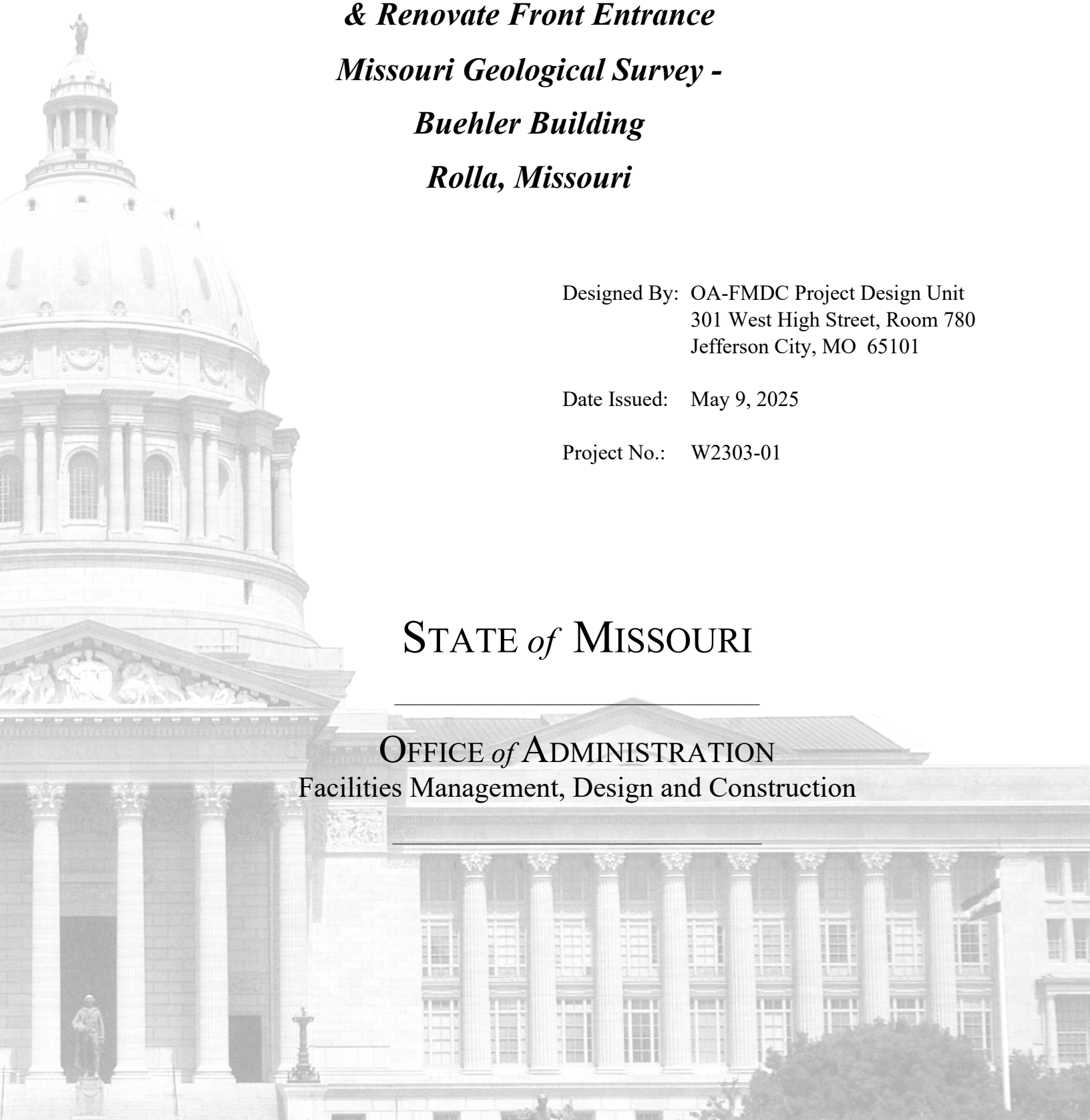
Buehler Building

Rolla, Missouri

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

Date Issued: May 9, 2025

Project No.: W2303-01



STATE *of* MISSOURI

OFFICE *of* ADMINISTRATION

Facilities Management, Design and Construction

SECTION 000107 - PROFESSIONAL SEALS AND CERTIFICATIONS

PROJECT NUMBER: W2303-01

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, 3, 7, 8, 9, & 12

Tracie L. Siebeneck - Engineer
MO# PE-2013019114

PROJECT MANUAL DIVISIONS
1, 21, 23, 26, & 27

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Jessica Coca, MO PE 2022005743, Sheets H101 & H105, Specification Section 028213 - Asbestos Abatement

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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:

	TITLE	SHEET #	DATE	CAD #
1.	Cover Sheet	Sheet G-001	5/9/25	G-001.dwg
2.	Sheet Index & Site Maps	Sheet G-002	5/9/25	G-002.dwg
3.	Asbestos Abatement Plan	Sheet ASB101	5/9/25	
4.	Asbestos Abatement Details	Sheet ASB501	5/9/25	
5.	Demolition Plan – Publications & Graphics Studio	Sheet A-101	5/9/25	A-101.dwg
6.	Demolition Plan – Front Entrance & Galleries	Sheet A-102	5/9/25	A-102.dwg
7.	Renovation Plan – Publications & Graphics Studio	Sheet A-103	5/9/25	A-103.dwg
8.	Renovation Plan – Front Entrance & Galleries	Sheet A-104	5/9/25	A-104.dwg
9.	Reflected Ceiling Plans	Sheet A-105	5/9/25	A-105.dwg
10.	Publications Room Elevations	Sheet A-201	5/9/25	A-201.dwg
11.	Front Entrance Elevations	Sheet A-202	5/9/25	A-202.dwg
12.	Furniture Plan – Publications & Graphics Studio	Sheet A-401	5/9/25	A-401.dwg
13.	Details	Sheet A-501	5/9/25	A-501.dwg
14.	Schedules	Sheet A-601	5/9/25	A-601.dwg

	TITLE	SHEET #	DATE	CAD #
15.	Fire Protection Plan - Main Floor	Sheet F-101	5/9/25	F-101.dwg
16.	Mechanical Plan Main Floor	Sheet M-101	5/9/25	M-101.dwg
17.	Electrical Demolition Plan Main Floor	Sheet E-101	5/9/25	E-101.dwg
18.	Electrical Renovation Plan Main Floor	Sheet E-102	5/9/25	E-102.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. Replace Flooring & Renovate Front Entrance
Missouri Geological Survey, Buehler Building
Rolla, Missouri
Project No.: W2303-01

3.0 BIDS WILL BE RECEIVED:

A. Until: 1:30 PM, August 5, 2025

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 consists of the Base Bid of replacement of flooring, asbestos remediation, removal of existing walls, wood casework, and service window. The Project also consists of installing an interior storefront assembly, installing new metal stud walls, and installation of new service window within an existing wall.

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**:** 10:00 AM, July 22, 2025, at Missouri Geological Survey - Buehler Building, 111 Fairgrounds Road, Rolla, MO 65401.

B. Access to State of Missouri property requires presentation of a photo ID by all persons.

6.0 HOW TO GET PLANS & SPECIFICATIONS:

A. View Only Electronic bid sets are available at no cost or paper bid sets for a deposit of $30.00 from American Document Solutions (ADS). MAKE CHECKS PAYABLE TO: American Document Solutions. Mail to: American Document Solutions, 1400 Forum Blvd., Suite 7A, Columbia, Missouri 65203. Phone 573-446-7768, Fax 573-355-5433, https://www.adsplanroom.net. NOTE: Prime contractors will be allowed a maximum of two bid sets at the deposit rate shown above. Other requesters will be allowed only one bid set at this rate. Additional bid sets or parts thereof may be obtained by any bidder at the cost of printing and shipping by request to American Document Solutions at the address shown above. Bidder must secure at least one bid set to become a planholder.

B. **Refunds: Return plans and specifications in unmarked condition within 15 working days of bid opening to American Document Solutions, 1400 Forum Blvd., Suite 7A, Columbia, Missouri 65203. Phone 573-446-7768, Fax 573-355-5433. Deposits for plans not returned within 15 working days shall be forfeited.**

C. Information for upcoming bids, including downloadable plans, specifications, Invitation for Bid, bid tabulation, award, addenda, and access to the ADS planholders list, is available on the Division of Facilities Management, Design and Construction's web site: https://oa.mo.gov/facilities/bid-opportunities/bid-listing-electronic-plans.

7.0 POINT OF CONTACT:

A. Designer: OA-FMDC Project Design Unit, Cara Luttrell, 573-751-6474, email: cara.luttrell@oa.mo.gov

B. Project Manager: Cassie Schmitz, 573-257-7033, email: cassandra.schmitz@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://missouribuys.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://oeo.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: **Replace Flooring & Renovate Front Entrance**
Missouri Geological Survey - Buehler Building
Rolla, Missouri

Project Number: **W2303-01**

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 **160 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.

SAMPLE

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.

SAMPLE

ARTICLE 7. CONTRACT DOCUMENTS

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

1. Division 0 – Procurement and Contracting Information, including, but not limited to:
    a. Invitation for Bid (Section 001116)
    b. Instructions to Bidders (Section 002113)
    c. Supplementary Instructions to Bidders (if applicable) (Section 002213)
    d. The following documents as completed and executed by the Contractor and accepted by the Owner, if applicable:
        i. Bid Form (Section 004113)
        ii. Unit Prices (Section 004322)
        iii. Proposed Contractors Form (Section 004336)
        iv. MBE, WBE, SDVE Compliance Evaluation Form(s) (Section 004337)
        v. MBE, WBE, SDVE Eligibility Determination Form for Joint Ventures (Section 004338)
        vi. MBE, WBE, SDVE Good Faith Effort (GFE) Determination Form (Section 004339)
        vii. Missouri Service Disabled Veteran Business Form (Section 004340)
        viii. Affidavit of Work Authorization (Section 004541)
        ix. Affidavit for Affirmative Action (Section 005414), if applicable
    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:

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

_____
Contractor's Authorized Signature

I, Corporate Secretary, certify that I am Secretary of the corporation named above and that (CONTRACTOR NAME), who signed said contract on behalf of the corporation, was then (TITLE) of said corporation and that said contract was duly signed for and in behalf of the corporation by authority of its governing body, and is within the scope of its corporate powers.

_____
Corporate Secretary

SAMPLE

Bond No._____

SECTION 006113 - PERFORMANCE AND PAYMENT BOND FORM

KNOW ALL MEN BY THESE PRESENTS, THAT we _____

as principal, and _____

_____as Surety, are held and firmly bound unto the

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

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

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

day of_____, 20_____, enter into a contract with the State of Missouri for

_____

_____

_____

(Insert Project Title and Number)

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

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

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

AS APPLICABLE:

AN INDIVIDUAL

Name: _____

Signature: _____

A PARTNERSHIP

Name of Partner: _____

Signature of Partner: _____

Name of Partner: _____

Signature of Partner: _____

CORPORATION

Firm Name: _____

Signature of President: _____

SURETY

Surety Name: _____

Attorney-in-Fact: _____

Address of Attorney-in-Fact: _____

_____

Telephone Number of Attorney-in-Fact: _____

Signature Attorney-in-Fact: _____

NOTE: Surety shall attach Power of Attorney

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

PRODUCT SUBSTITUTION REQUEST

PROJECT NUMBER

PROJECT TITLE AND LOCATION

CHECK APPROPRIATE BOX

☐ SUBSTITUTION PRIOR TO BID OPENING
(Minimum of (5) working days prior to receipt of Bids as per Article 4 – Instructions to Bidders)

☐ SUBSTITUTION FOLLOWING AWARD
(Maximum of (20) working days from Notice to Proceed as per Article 3 – General Conditions)

FROM: BIDDER/CONTRACTOR (PRINT COMPANY NAME)

TO: ARCHITECT/ENGINEER (PRINT COMPANY NAME)

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

SPECIFIED PRODUCT OR SYSTEM

SPECIFICATION SECTION NO.

SUPPORTING DATA

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

☐ Sample ☐ Sample will be sent, if requested

QUALITY COMPARISON

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

PREVIOUS INSTALLATIONS

PROJECT	ARCHITECT/ENGINEER	
LOCATION		DATE INSTALLED

SIGNIFICANT VARIATIONS FROM SPECIFIED PRODUCT

REASON FOR SUBSTITUTION

DOES PROPOSED SUBSTITUTION AFFECT OTHER PARTS OF WORK?

☐ YES ☐ NO

IF YES, EXPLAIN

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

☐ YES ☐ NO

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

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

BIDDER/CONTRACTOR	DATE

REVIEW AND ACTION

☐ Resubmit Substitution Request with the following additional information:

☐ Substitution is accepted.

☐ Substitution is accepted with the following comments:

☐ Substitution is not accepted.

ARCHITECT/ENGINEER	DATE

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

FINAL RECEIPT OF PAYMENT AND RELEASE

PROJECT NUMBER

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

(PROJECT TITLE, PROJECT LOCATION, AND PROJECT NUMBER)

at

(ADDRESS OF PROJECT)

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

DOES HEREBY:

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

DATED this day of , 20 .

NAME OF SUBCONTRACTOR

BY (TYPED OR PRINTED NAME)

SIGNATURE

TITLE

ORIGINAL: FILE/Closeout Documents

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

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

MBE/WBE/SDVE PROGRESS REPORT

Remit with **ALL** Progress and Final Payments

(Please check appropriate box) ☐CONSULTANT ☐CONSTRUCTION

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

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

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

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

FILE: Closeout Documents

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 the Base Bid of replacement of flooring, asbestos remediation, removal of existing walls, wood casework, and service window. The Project also consists of installing an interior storefront assembly, installing new metal stud walls, and installation of new service window within an existing wall.
   1. Project Location: Missouri Geological Survey - Buehler Building, 111 Fairgrounds Road, Rolla, MO 65401.
   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 05/09/2025 were prepared for the Project by OA-FMDC Project Design Unit, 301 West High Street, Room 780, Jefferson City, MO 65101.

C. The Work consists of the following:
   1. Base Bid Work includes furnishing all labor, materials, and services necessary for selective demolition, asbestos remediation, removal and storage of on-site room furnishings. The Work also includes installation of the following: new flooring materials, wall construction, owner furnished systems furniture, ceiling grid and tiles, and interior storefront door assemblies. Work also includes installation of fire sprinklers, air diffusers, data access points, receptacles, occupancy sensors, and light fixtures.
   2. Project contains one Alternate. Alternate No. 1 includes installation of New Stone Flooring. Refer to Section 012300 "Alternates" for additional information.

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

1.03 WORK UNDER OTHER CONTRACTS

A. Cooperate fully with separate contractors so that work under those contracts may be carried out smoothly, without interfering with or delaying work under this Contract.

1.04 WORK SEQUENCE

A. The Work will be conducted in 3 phases.
   1. Phase 1: Area of Work includes rooms labeled 119 Shipping and Receiving, 119A Publications, 119B Storage, 116 Corridor, and 118 Corridor. Work consists of moving furniture out of the areas of work prior to construction and back in after construction, as directed by Owner; demolition of flooring, wood casework and countertop, and interior window, and asbestos abatement; installation of new carpet tiles, concrete floor polish, vinyl wall base, metal stud walls, gypsum board, interior paint, and owner furnished systems furniture; selective modification of ceiling grid, fire protection, thermostat, air diffusers, receptacles, and data access points as needed. This phase shall be substantially complete, ready for occupancy within 35 working days of commencement of construction.

2. Phase 2: Area of Work includes rooms labeled 121 Graphics Studio and 121A Storage. Work consists of moving furniture out of the areas of work prior to construction and back in after construction, as directed by Owner; demolition of flooring, removal of existing electrical floor boxes, and asbestos abatement; installation of new carpet tiles, vinyl wall base, interior paint, owner furnished systems furniture, power and data for systems furniture. Phase 1 and 2 may proceed simultaneously as needed to achieve the most efficient construction schedule to accommodate the asbestos abatement phasing. This phase shall be substantially complete, ready for occupancy within 70 working days of commencement of construction.
3. Phase 3: Area of Work includes rooms labeled 101 Lobby, 101A Gallery, 101B Gallery, 102 Corridor, and 103 Office. Work consists of moving furniture out of the areas of work prior to construction and back in after construction, as directed by Owner; demolition of systems furniture, flooring, metal stud walls, wood doors, and acoustic ceiling tiles; asbestos abatement; installation of new luxury vinyl tile, vinyl wall base, interior paint, service window, acoustic ceiling tile, and suspended grid T-bar; relocation of fire protection, thermostats, receptacles, and light fixtures as needed. Work of Phase 3 shall not commence until Phase 1 and 2 are substantially complete. This phase shall be substantially complete, ready for occupancy within 150 working days of commencement of construction.

B. Hazardous Materials Coordination: Coordinate construction schedule with Hazardous materials abatement contractor and Owner.

C. Work of entire project shall be substantially complete, ready for occupancy within 150 workings days of commencement of construction.

1.05 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.

1.06 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.

1.07 OWNER-FURNISHED PRODUCTS

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

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

GENERAL CONDITIONS

INDEX

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 place data, shop drawings and air and water balance reports.

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

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

   b. Belt sizes, types, and lengths.

   c. Wiring diagrams.

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

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

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

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

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

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

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

ARTICLE 3.6 – OTHER CONTRACTOR RESPONSIBILITIES

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

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

C. The Contractor shall supply sufficient labor, material, plant and equipment and pay when due any laborer, subcontractor or supplier for supplies furnished and otherwise prosecute the work with diligence to prevent work stoppage and 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 <u>without</u> 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, occupation and craft, number of hours worked and actual wages paid for each individual employee, of the Contractor and all subcontractors working on the project

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

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

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

1. Material has previously been approved through submittal and acceptance of shop drawings conforming to requirements of Article 3.2 of General Conditions.

2. Delivery is made in accordance with the time frame on the approved schedule.

3. Materials, equipment, etc., are properly stored and protected from damage and deterioration and remain so - if not, previously approved amounts will be deleted from subsequent pay applications.

4. The payment request is accompanied by a breakdown identifying the material equipment, etc. in sufficient detail to establish quantity and value.

E. The Contractor shall be allowed to include in the Application and Certification for Payment, one hundred (100%) of the value, subject to retainage, of major equipment and material stored off the site if all of the following conditions are met:

1. The request for consideration of payment for materials stored off site is made at least 15 working days prior to submittal of the Application for Payment including such material. Only materials inspected will be considered for inclusion on Application for Payment requests.

2. Materials stored in one location off site are valued in excess of $25,000.

3. That a Certificate of Insurance is provided indicating adequate protection from loss, theft conversion or damage for materials stored off site. This Certificate shall show the State of Missouri as an additional insured for this loss.

4. The materials are stored in a facility approved and inspected, by the Construction Representative.

5. Contractor shall be responsible for, Owner costs to inspect out of state facilities, and any delays in the completion of the work caused by damage to the material or for any other failure of the Contractor to have access to this material for the execution of the work.

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

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

1. Defective work not remedied. When a notice of noncompliance is issued on an item or items, corrective action shall be undertaken immediately. Until corrective action is completed, no monies will be paid and no additional time will be allowed for the item or items. The cost of corrective action(s) shall be borne by the Contractor.

2. A reasonable doubt that this contract can be completed for the unpaid balance.

3. Failure of the Contractor to update as-built drawings monthly for review by the Construction Representative.

4. Failure of the Contractor to update the construction schedule.

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

H. Final Payment: Upon receipt of written notice from the Contractor to the Designer and Project Representative that the work is ready for final inspection and acceptance, the Designer and Project Representative, with the Contractor, shall promptly make such inspection. If the work is acceptable and the contract fully performed, the Construction Representative shall complete a final acceptance report and the Contractor will be

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

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

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

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

    c) Certified copies of all payrolls

    d) As-built drawings

3. If any claim remains unsatisfied after all payments are made, the Contractor shall refund to the Owner all monies that the latter may be compelled to pay in discharging such a claim including all costs and a reasonable attorney's fee.
4. Missouri statute requires prompt payment from the Owner to the Contractor within thirty calendar days and from the Contractor to his subcontractors within fifteen calendar days. Failure to make payments within the required time frame entitles the receiving party to charge interest at the rate of one and one half percent per month calculated from the expiration of the statutory time period until paid.
5. The value of all unused unit price allowances and/or 150% of the value of the outstanding work items, and/or liquidated damages may be deducted from the final pay request without executing a Contract Change. Any unit price items which exceed the number of units in the contract may be added by Contract Change.

ARTICLE 6 -- INSURANCE AND BONDS

ARTICLE 6.1 -- BOND

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

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

ARTICLE 6.2 – INSURANCE

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

B. Minimum Scope and Extent of Coverage

1. General Liability

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

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

2. Automobile Liability

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

3. Workers' Compensation and Employer's Liability

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

4. Builder's Risk or Installation Floater Insurance

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

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

C. Minimum Limits of Insurance

1. General Liability

Contractor

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

2. Automobile Liability

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

3. Workers' Compensation and Employers Liability

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

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

D. Deductibles and Self-Insured Retentions

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

payment of losses and related investigations, claims administration, and defense expenses.

E. Other Insurance Provisions and Requirements

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

1. General Liability

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

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

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

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

2. Automobile Insurance

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

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

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

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

3. Workers' Compensation/Employer's Liability

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

4. All Coverages

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

F. Insurer Qualifications and Acceptability

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

G. Verification of Insurance Coverage

Prior to Owner issuing a Notice to Proceed, the Contractor-shall furnish the Owner with Certificate(s) of Insurance and with any applicable original endorsements evidencing the required insurance coverage. The insurance certificates and endorsements are to be signed by a person authorized by that insurer to bind coverage on its behalf. All certificates and endorsements received by the Owner are subject to review and approval by the Owner. The Owner reserves the right to require certified copies of all required policies at any time. If the scope of this contract will exceed one (1) year - or, if any of Contractor's applicable insurance coverage expires prior to completion of the work or services required under this contract -

the Contractor will provide a renewal or replacement certificate before continuing work or services hereunder. If the Contractor fails to provide documentation of required insurance coverage, the Owner may issue a stop work order and no additional contract completion time and/or compensation shall be granted as a result thereof.

ARTICLE 7 – SUSPENSION OR TERMINATION OF CONTRACT

ARTICLE 7.1 - FOR SITE CONDITIONS

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

ARTICLE 7.2 - FOR CAUSE

A. Termination or Suspension for Cause:

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

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

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

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

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

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

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

ARTICLE 7.3 -- FOR CONVENIENCE

A. The Owner may terminate or suspend the Contract or any portion of the Work without cause at any time, and at the Owner's convenience. Notification of a termination or suspension shall be in writing

and shall be given to the Contractor and their surety. If the Contract is suspended, the notice will contain the anticipated duration of the suspension or the conditions under which work will be permitted to resume. If appropriate, the Contractor will be requested to demobilize and re-mobilize and will be reimbursed time and costs associated with the suspension.

B. Upon receipt of notification, the Contractor shall:

1. Cease operations when directed.

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

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

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

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

6. Transfer title and deliver to the Owner, work in progress, completed work, supplies and other material produced or acquire for the work terminated, and completed or partially completed plans, drawings information and other property that, if the Contract had been completed, would be required to be furnished to the Owner.

C. For termination without cause and at the Owner's convenience, in addition to payment for work completed prior to date of termination, the Contractor may be entitled to payment of other documented costs directly associated with the early termination of the contract. Payment for anticipated profit and unapplied overhead will not be allowed.

SECTION 007300 - SUPPLEMENTARY CONDITIONS

1.0 GENERAL:

A. These Supplementary General Conditions clarify, add, delete, or otherwise modify standard terms and conditions of DIVISION 0, BIDDING AND CONTRACTING REQUIREMENTS.

2.0 CONTACTS:

Designer:
Cara Luttrell
OA-FMDC Project Design Unit
301 West High Street, Room 780
Jefferson City, MO 65101
Telephone: 573-751-6474
Email: cara.luttrell@oa.mo.gov

Construction Representative:
Brendan Frazer
Division of Facilities Management, Design and Construction
301 West Hight Street, Room 730
Jefferson City, MO 65101
Telephone: 573-690-4958
Email: brendan.frazer@oa.mo.gov

Project Manager:
Cassie Schmitz
Division of Facilities Management, Design and Construction
301 West High Street, Room 730
Jefferson City, Missouri 65101
Telephone: 573-257-7033
Email: cassandra.schmitz@oa.mo.gov

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

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

4.0 FURNISHING CONSTRUCTION DOCUMENTS:

A. The Owner will furnish the Contractor with approximately 5 complete sets of drawings and specifications at no charge.

B. The Owner will furnish the Contractor with approximately 5 sets of explanatory or change drawings at no charge.

C. The Contractor may make copies of the documents as needed with no additional cost to the Owner.

5.0 SAFETY REQUIREMENTS

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

Missouri
Division of Labor Standards
WAGE AND HOUR SECTION

MICHAEL L. PARSON, Governor

Annual Wage Order No. 31

Section 081
PHELPS COUNTY

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

Original Signed by
Todd Smith, Director
Division of Labor Standards

Filed With Secretary of State: **March 8, 2024**

Last Date Objections May Be Filed: **April 8, 2024**

Prepared by Missouri Department of Labor and Industrial Relations

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Asbestos Worker	$61.37
Boilermaker	$27.46*
Bricklayer-Stone Mason	$55.63
Carpenter	$62.01
Lather	
Linoleum Layer	
Millwright	
Pile Driver	
Cement Mason	$57.93
Plasterer	
Communication Technician	$27.46*
Electrician (Inside Wireman)	$58.12
Electrician Outside Lineman	$27.46*
Lineman Operator	
Lineman - Tree Trimmer	
Groundman	
Groundman - Tree Trimmer	
Elevator Constructor	$27.46*
Glazier	$25.90
Ironworker	$27.46*
Laborer	$46.97
General Laborer	
First Semi-Skilled	
Second Semi-Skilled	
Mason	$27.46*
Marble Mason	
Marble Finisher	
Terrazzo Worker	
Terrazzo Finisher	
Tile Setter	
Tile Finisher	
Operating Engineer	$70.56
Group I	
Group II	
Group III	
Group III-A	
Group IV	
Group V	
Painter	**$48.22**
Plumber	$71.18
Pipe Fitter	
Roofer	$55.31
Sheet Metal Worker	$70.63
Sprinkler Fitter	$65.89
Truck Driver	$27.46*
Truck Control Service Driver	
Group I	
Group II	
Group III	
Group IV	

*The Division of Labor Standards received fewer than 1,000 reportable hours for this occupational title. The public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center.
**The Prevailing Hourly Rate includes any applicable fringe benefit amounts for each occupational title as defined in RSMo Section 290.210.

Heavy Construction Rates for
PHELPS County

Section 081

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Carpenter	$27.46*
Millwright	
Pile Driver	
Electrician (Outside Lineman)	$77.46
Lineman Operator	
Lineman - Tree Trimmer	
Groundman	
Groundman - Tree Trimmer	
Laborer	$48.26
General Laborer	
Skilled Laborer	
Operating Engineer	$63.22
Group I	
Group II	
Group III	
Group IV	
Truck Driver	$27.46*
Truck Control Service Driver	
Group I	
Group II	
Group III	
Group IV	

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

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

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

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

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

OVERTIME
and
HOLIDAYS

OVERTIME

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

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

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

HOLIDAYS

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

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

SECTION 012200
UNIT PRICES

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.

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

1.02 SUMMARY

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

B. Related Sections include the following:
   1. Division 1 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
   2. Division 9 Section "096500 Resilient Flooring" for procedures for measurement and payment for luxury vinyl tile, and resilient base.
   3. Division 26 Section "262726 Wiring Devices" for wall switches, receptacles, and wall plates.
   4. Division 27 Section "271000 Structured Cabling" for data outlets.

1.03 DEFINITIONS

A. Unit Price is a price per unit of measurment for materials or services added to or deducted from the Contract Sum by appropriate modification, or an amount proposed by bidders, stated on the Bid Form Attachment 004322, if estimated quantities of Work required by the Contract Documents are increased or decreased.

1.04 PROCEDURES

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

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

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

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

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 LIST OF UNIT PRICES

A. Unit Price No. 1:
   1. Description: Luxury vinyl tile according to Division 9 Section "096500 Resilient Flooring."
   2. Unit of Measurement: Square Feet
   3. Base Bid Quantity: 1,500 square feet

B. Unit Price No. 2:
   1. Description: Resilient vinyl wall base according to Division 9 Section "096500 Resilient Flooring."
   2. Unit of Measure: Linear Feet
   3. Base Bid Quantity: 180 linear feet

C. Unit Price No. 3:
   1. Description: Wall switch or receptacle with wall plate according to Division 26 Section "262726 Wiring Devices"..

2. Unit of Measure: each wall switch with wall plate or each dublex receptacle with wall plate.
3. Base Bid Quantity: 36

D. Unit Price No. 4:
1. Description: Blank wall plate according to Division 26 Section "262726 Wiring Devices" or data outlet according to Division 27 Section "271000 Structured Cabling".
2. Unit of Measure: single blank wall plate or single data outlet.
3. Base Bid Quantity: 12

END OF SECTION

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: Stone Flooring: Install new stone flooring and stone wall base as indicated by details on the drawings labeled "Alternate No. 1". Provide two types of stone floor and layout in pattern indicated on the drawings. Install new recessed entrance floor mat and frame, and infill existing recessed area as necessary to match new finish floor height. Replace existing aluminum-framed storefront doors to accommodate new finish floor height. Division 08 Sections "Aluminim-Framed Storefronts" and "Glazing," Division 09 Section "Stone Flooring," and Division 12 Section "Entrance Floor Mats and Frames" includes product and execution requirements.
   1. Unit Price No. 1 and Unit Price No. 2 will be deducted from the Contract Sum upon acceptance of Alternate No. 1.

END OF SECTION

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 013115 “Project Management Communications” for administrative requirements for communications.
   2. Division 0, Section 007213, Article 3.1 "Acceptable Substitutions" for administrative procedures for handling Requests for Substitutions made after Contract award.
   3. 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 Contactor submits a RFI on a time sensitive activity on the current project schedule, the Contractor shall not be entitled to any time extension due to the time it takes the Designer to respond to the request provided that the Designer responds within the ten (10) working days set forth above.

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

1.04 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

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

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

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

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

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

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

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

G. Communications: The use of fax, email and courier communication for this project is discouraged in favor of using E-Builder® to send messages. Communication functions are as follows:
   1. Document Integrity and Revisions:
      a. Documents, comments, drawings and other records posted to the system shall remain for the project record. The authorship time and date shall be recorded for each document submitted to the system. Submitting a new document or record with a unique ID, authorship, and time stamp shall be the method used to make modifications or corrections.
      b. The system shall make it easy to identify revised or superseded documents and their predecessors.

c. Server or Client side software enhancements during the life of the project shall not alter or restrict the content of data published by the system. System upgrades shall not affect access to older documents or software.

2. Document Security:
   a. The system shall provide a method for communication of documents. Documents shall allow security group assignment to respect the contractual parties communication except for Administrative Users. DO NOT POST PRIVATE OR YOUR COMPANY CONFIDENTIAL ITEMS IN THE DATABASE!
3. Document Integration:
   a. Documents of various types shall be logically related to one another and discoverable. For example, requests for information, daily field reports, supplemental sketches and photographs shall be capable of reference as related records.
4. Reporting:
   a. The system shall be capable of generating reports for work in progress, and logs for each document type. Summary reports generated by the system shall be available for team members.
5. Notifications and Distribution:
   a. Document distribution to project members shall be accomplished both within the extranet system and via email as appropriate. Project document distribution to parties outside of the project communication system shall be accomplished by secure email of outgoing documents and attachments, readable by a standard email client.
6. Required Document Types:
   a. RFI, Request for Information.
   b. Submittals, including record numbering by drawing and specification section.
   c. Transmittals, including record of documents and materials delivered in hard copy.
   d. Meeting Minutes.
   e. Application for Payments (Draft or Pencil).
   f. Review Comments.
   g. Field Reports.
   h. Construction Photographs.
   i. Drawings.
   j. Supplemental Sketches.
   k. Schedules.
   l. Specifications.
   m. Request for Proposals
   n. Designer’s Supplemental Instructions
   o. Punch Lists

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

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

1. Providing suitable computer systems for each licensed user at the users normal work location 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. The minimum system herein will not be sufficient for many tasks and may not be able to process all documents and files stored in the E-Builder® Documents area.
    b. Desktop configuration (Laptop configurations are similar and should be equal to or exceed desktop system.)
        1) Operating System: Windows XP or newer
        2) Internet Browser: Internet Explorer 6.01SP2+ (Recommend IE7.0+)
        3) Minimum Recommend Connection Speed: 256K or above
        4) Processor Speed: 1 Gigahertz and above
        5) RAM: 512 mb
        6) Operating system and software shall be properly licensed.
        7) Internet Explorer version 7 (current version is a free distribution for download). This specification is not intended to restrict the host server or client computers provided that industry standard HTTP clients may access the published content.
        8) Adobe Acrobat Reader (current version is a free distribution for download).
        9) Users should have the standard Microsoft Office Suite (current version must be purchased) or the equivalent.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE.)

END OF SECTION

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

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, noted as follows:

SPEC SECTION	TITLE	CATEGORY
013200	Schedules	Construction Schedule
013200	Schedules	Schedule of Values
013200	Schedules	List of Subcontractors
013200	Schedules	Major Material Suppliers
033511	Concrete Floor Finishes	Product Data
033511	Concrete Floor Finishes	Sample
033511	Concrete Floor Finishes	Operation / Maintenance Manual
033511	Concrete Floor Finishes	Warranty
079200	Joint Sealants	Product Data
079200	Joint Sealants	Warranty
084313	Aluminum-Framed Storefronts	Sample
084313	Aluminum-Framed Storefronts	Product Data
084313	Aluminum-Framed Storefronts	Shop Drawings
084313	Aluminum-Framed Storefronts	Operation / Maintenance Manual
084313	Aluminum-Framed Storefronts	Warranty
085659	Service and Teller Window Units	Product Data
085659	Service and Teller Window Units	Shop Drawings
085659	Service and Teller Window Units	Sample
085659	Service and Teller Window Units	Operation / Maintenance Manual
085659	Service and Teller Window Units	Warranty
088000	Glazing	Product Data
088000	Glazing	Warranty
092116	Gypsum Board Assemblies	Product Data
092216	Non-Structural Metal Framing	Product Data
092216	Non-Structural Metal Framing	Shop Drawings
095100	Acoustical Ceilings	Product Data
095100	Acoustical Ceilings	Sample

SPEC SECTION	TITLE	CATEGORY
095100	Acoustical Ceilings	Operation / Maintenance Manual
096340	Stone Flooring	Product Data
096340	Stone Flooring	Sample
096340	Stone Flooring	Operation / Maintenance Manual
096500	Resilient Flooring	Product Data
096500	Resilient Flooring	Sample
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
099123	Interior Painting	Warranty
124813	Entrance Floor Mats and Frames	Product Data
124813	Entrance Floor Mats and Frames	Sample
124813	Entrance Floor Mats and Frames	Shop Drawings
124813	Entrance Floor Mats and Frames	Operation / Maintenance Manual
211300	Fire-Suppression Sprinkler Systems	Shop Drawings
233700	Air Outlets and Inlets	Product Data
260533.26	Surface Raceways for Electrical Systems	Product Data
260533.26	Surface Raceways for Electrical Systems	Sample
260553	Identification for Electrical Systems	Product Data
260553	Identification for Electrical Systems	Sample
260923	Lighting Control Devices	Product Data
260923	Lighting Control Devices	Operation / Maintenance Manual
271000	Structured Cabling	Product Data

END OF SECTION

SECTION 013513.31 - SITE SECURITY AND HEALTH REQUIREMENTS (DNR)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes general Institution rules.

B. This Section includes requirements for environments that employees are domiciled in, or public participation in program activities in or adjacent to the Scope of Work area:

1. The Contractor shall have the applicable measures specified below in-place any time demolition or construction activities occur in occupied or non-occupied project work areas.
2. The Contractor shall complete all specified cleaning procedures and receive clearance from the Construction Representative prior to removing any barriers and other precautionary measures – even for areas that the employees or public do not occupy during construction.

1.3 SUBMITTALS

A. List of required submittals:

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

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 ACCESS TO THE SITE

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

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

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

D. All construction personnel shall visibly display issued identification badges.

3.2 FIRE PROTECTION, SAFETY, AND HEALTH CONTROLS

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

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

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

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

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

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

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

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

H. Alcoholic beverages or illegal substances shall not be brought upon the Facility premises. The Contractor's workers shall not be under the influence of any intoxicating substances while on the Facility premises.

3.3 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.

3.4 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 013513.31

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

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

D. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities.
   1. 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.

E. Project Identification and Temporary Signs: Prepare project identification and other signs of size indicated. Install signs where indicated to inform the public and persons seeking entrance to the Project. Support on posts or framing of preservative-treated wood or steel. Do not permit installation of unauthorized signs.
   1. Project Identification Signs: Engage an experienced sign painter to apply graphics. Comply with details indicated.
   2. Temporary Signs: Prepare signs to provide directional information to construction personnel and visitors.

F. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than seven (7) days during normal weather or three (3) days when the temperature is expected to rise above 80°F (27°C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material lawfully.

3.04 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. 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

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

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

C. Structures
   1. Daily, inspect the structures and pick up all scrap, debris, and waste material. Remove all such items to the place designated for their storage.
   2. Weekly, sweep all interior spaces clean. “Clean” for the purposes of this paragraph, shall be interpreted as meaning free from dust and other material capable of being removed by use of reasonable effort and handheld broom.
   3. In preparation for installation of succeeding materials, clean the structures or pertinent portions thereof to the degree of cleanliness recommended by the manufacturer of the succeeding material, using all equipment and materials required to achieve the required cleanliness.

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

3.02 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

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 PEFORMANCE REQUIREMENTS

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

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

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

SECTION 028213 - ASBESTOS ABATEMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Perform all operations in connection with asbestos abatement, encapsulation, removal and related work as shown on drawings and/or specified herein.

B. Description of Work:
   1. Removal: All asbestos containing building materials identified to be removed on the drawings and/or specified herein. The EPA NESHAP and OSHA regulations as adopted by the Missouri Department of Natural Resources as well as Missouri Air Conservation Law Sections 643.225 – 643.250 and Missouri State Regulations 10 CSR 10-6.241 and 10-6.250 shall govern these asbestos abatement activities. The work includes all coordination efforts with the State of Missouri, Bueller Building occupants, and other contractors to complete this portion of the project.
   2. Encapsulation: NONE.
   3. Enclosure: NONE.

C. Special Precautions:
   1. Coordinate with the Owners Project Representative for the shutdown and isolation of all electrical circuits and air movement systems within the regulated area from that of the rest of the facility to prevent any inconvenience to building occupants and contamination outside of the regulated area. Refer to Article entitled: "Preparation of Regulated area," of this section relative to shutdown of mechanical and electrical systems.
   2. Significant coordination efforts are expected between the Asbestos Abatement Contractor, Missouri Broadway State Office Building occupants, and other contractors. The lump sum cost shall include all costs associated with any coordination efforts necessary between contractors to complete the entire project.
   3. The building will be occupied during the asbestos abatement activities. Special precautions shall be utilized to coordinate with the Missouri Broadway State Office Building occupants to minimize disruption.
   4. Project to be completed in phases as specified on the drawings and contract documents.

D. Restoration: Contractor is responsible for restoring all existing finish surfaces to their original state, which were damaged as a result of abatement activities. Replacement of removed building materials is not part of the asbestos abatement work.

1.2 REFERENCES

A. General Reference:
   1. All work under this contract shall be done in strict accordance with all applicable Federal, State, and Local regulations, standards and codes governing asbestos abatement and any other trade work done in conjunction with the abatement.
   2. The most recent edition of any relevant regulation in force at the time of bid opening shall be in effect. Where conflict among the laws, rules, and regulations or with these specifications exists the most stringent requirements shall be utilized.

3. The Contractor shall make available, in the clean change area of the worker decontamination system, copies of this specification and all standards, regulations, and codes listed hereinafter.

B. Specific Reference:

1. Occupational Safety and Health Administration (OSHA):
   a. Title 29 Code of Federal Regulations, Section 1910
      1) .20- Access to Employee Exposure and Medical Records.
      2) .134- Respiratory Protection (see also ANSI Z88.2 (1980)).
      3) .1001- Occupational Exposure to Asbestos - General Industry.
      4) .1200 - Hazard Communication.
      5) Subpart D - Walking - Working Surfaces.
      6) Subpart S – Electrical.
   b. Title 29 Code of Federal Regulations, Section 1926.1101 - Construction Industry, including the mandatory appendices:
      1) Appendix A - OSHA Reference Method.
      2) Appendix C - Qualitative and Quantitative Fit Testing Procedures.
      3) Appendix D - Medical Questionnaires.
      4) Appendix E - Interpretation and Classification of Chest Roentgenograms.
      5) Non-mandatory appendices:
      6) Appendix B - Detailed Procedures for Asbestos, Tremolite, Anthrophyllite, and Actinolite Sampling and Analysis.
      7) Appendix F - Work Practices and Engineering Controls for Major Asbestos Removal, Renovation, and Demolition Operations.
      8) Appendix G - Work Practices and Engineering Controls for Small Scale, Short Duration Asbestos Renovation and Maintenance Activities.
      9) Appendix H - Substance Technical Information for Asbestos.
      10) Appendix I - Medical Surveillance Guidelines for Asbestos, Tremolite, Anthrophyllite, and Actinolite.
   c. Title 29 Code of Federal Regulations, Section 1926.59 - Hazard Communication Standard, requires employers to inform their workers of the hazards of any chemicals used on the project and to train their employees in proper safeguards.
      1) Subpart L – Scaffolds.
      2) Subpart X - Stairways and Ladders.
2. Environmental Protection Agency (EPA): Title 40 Code of Federal Regulations (CFR) Part 763 Subpart G - Asbestos Abatement Projects; worker Protection (effective March 27, 1987).
3. Environmental Protection Agency (EPA) Title 40 Code of Federal Regulations (CFR) Part 61 - National Emission Standards for Hazardous Air Pollutants; Asbestos NESHAP Revision; Final Rule effective November 20, 1990.
   a. Subpart A - General Provisions..
   b. Subpart B - National Emission Standard for Asbestos
   c. Subpart M - National Emissions Standard for Asbestos, Asbestos Stripping Work Practices and Disposal of Asbestos Waste.
4. Compressed Gas Association, Inc., New York, Pamphlet G-7, "Compressed Air for Human Respiration", and Specification G-7.1 "Commodity Specification for Air" (1966). See also ANSI 86.1-1973.
5. ASTM E1368-90; "Cleaning Standard".
6. American National Standard Fundamentals Governing the Design and Operation of Local Exhaust Systems, ANSI Z9.2 (1991).

7. National Institute of Occupational Safety and Health, Manual of Analytical Methods (Method 7400 - 1984).
8. Title 49, Code of Federal Regulations, Part 171 & 172, "Hazardous Material Shipping", U.S. Department of Transportation.
9. MO Chapter 643.225 to 643.250 – "Rules for Asbestos Abatement Projects, …", Missouri Department of Natural Resources
10. Missouri State Regulations 10 CSR 10-6.241 "Asbestos Projects – Registration, Notification and Performance Requirements"
11. Missouri State Regulations 10 CSR 10-6.250 "Asbestos Abatement Projects – Certification, Accreditation and Business Exemption Requirements"

1.3 QUALIFICATIONS

A. The prospective Contractor who is proposed to actually perform the asbestos abatement work, shall submit to the Architect/Engineer the data hereinafter requested within ten (10) days after Bid Opening. The proposed asbestos abatement Contractor will be awarded a Contract, only if data submitted is determined to be favorable in all instances, by the Architect/Engineer, and the prospective Contractor further meets the qualifications requirements specified in the Instructions to Bidders.

B. The proposed asbestos abatement Contractor shall, if requested:
   1. Demonstrate prior experience on asbestos abatement projects of similar nature and scope of that being bid, through the submission of letters of reference from building owners including the name, address, and telephone numbers of the contact persons who are specifically familiar with the referenced projects. At least three previous users of this service shall be submitted. Include descriptions of projects and records of all air monitoring data that was generated during the projects.
   2. Submit a description of all major Asbestos Abatement Equipment owned by the prospective Contractor which is available for use on this project such as:
      a. Respiratory protection equipment.
      b. HEPA vacuum equipment.
      c. Negative air pressure equipment.
      d. Spray equipment for amended water.
      e. Equipment used for shower facilities in decontamination enclosure system.
   3. Submit a list of names, work responsibilities and evidence of certification for all employees that will be assigned to this project: At least one firm principal, the firm's "competent person" and any other personnel performing supervisory duties must be certified by the Missouri Department of Natural Resources (MDNR) as having successfully completed a comprehensive 4-day course for Asbestos Abatement Contractors and Supervisors in conformance with MDNR rules and regulations incorporated by reference herein.

C. Contractor's employees who perform asbestos abatement activities must be certified by the MDNR as having successfully completed a comprehensive course for Asbestos Abatement Workers in conformance with MDNR rules and regulations incorporated by reference herein.

1.4 DEFINITIONS

A. *Abatement*: The procedure to control fiber release from asbestos containing building materials. Activities include removal, encapsulation, and enclosure.

B. *ACGIH*: American Conference of Governmental Industrial Hygienists.

C. *Action Level*: Means an airborne concentration of asbestos of 0.1 fiber per cubic centimeter (f/cc) of air, calculated as an eight (8) - hour time - weighted average.

D. *AIHA*: American Industrial Hygiene Association.

E. *Air Lock*: A system for permitting ingress and egress with minimum air movement between a contaminated area and an uncontaminated area.

F. *Air Monitoring*: The process of measuring the fiber content of a known volume of air collected during a specific period of time shall conform with Appendix A to OSHA 29 CFR 1926.1101. The procedure normally utilized for asbestos follows the NIOSH Standard Analytical Method 7400 for Asbestos in Air. For clearance air monitoring, electron microscopy methods may be utilized for lower detectability limit and specific fiber identification.

G. *Air Sampling Professional*: The Professional contacted or employed by the Owner to supervise and conduct air monitoring and analysis schemes. This individual shall not be affiliated in any way other than through this contact with the Contractor performing the abatement work.

H. *Amended Water:* Water to which a surfactant has been added to decrease the surface tension to 29 dynes per square centimeter or less when tested in accordance with ASTM D 1331.

I. *Area Sampling*: Sampling of asbestos fiber concentrations within the asbestos control area (regulated area or containment) and outside the asbestos control area which approximates the concentrations of asbestos fibers in the theoretical breathing zone but is not actually collected in the breathing zone of an employee.

J. *ANSI*: American National standards Institute.

K. *Asbestos*: Means the asbestiform varieties of chrysotile (serpentine); crocidolite (riebeckite); amosite (cummingtonite-grunerite); tremolite; anthrophyllite, and actinolite. Any suspect material identified in the plans or specifications as ACM.

L. *Asbestos Containing Material (ACM)*: Material composed of asbestos of any type and in an amount greater than 1% by area, either alone or mixed with other fibrous or non-fibrous materials.

M. *Asbestos Containing Waste Material*: Asbestos containing material or asbestos contaminated objects requiring disposal.

N. *ASTM*: American Society for Testing and Materials.

O. *Authorized Visitor:* The Building Owner (and designated representatives) and any representative of a regulatory agency having jurisdiction over the project.

P. *Background Concentration*: Ambient air samples collected by the Owner or his (her) representatives prior to commencement of any work in the project area to record the levels of fiber concentrations before abatement. These samples shall be analyzed using the same methodology that will be used for project clearance.

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

R. *Breathing Zone*: A hemisphere forward of the shoulders of a person with radius of approximately six to nine inches.

S. *Certified Industrial Hygienist (CIH)*: An industrial hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene.

T. *Ceiling System*: References to ceiling or ceiling system either written or on the plans shall be construed to mean ceiling system and shall include all layers of and any combination of layers of ceiling materials including but not limited to tiles, panels, gypsum board, mastics, plasters, supporting accessories and debris between the ceiling structure visible from the room and the underside of the facility roof structure.

U. *Clean Room*: An uncontaminated area or room which is part of the worker decontamination enclosure with provisions for storage of worker's street clothes and protective equipment.

V. *Competent Person*: Means one who is capable of identifying existing asbestos hazards in the workplace and who has the authority to take prompt corrective measures to eliminate them.

W. *Containment*: An air-tight physical barrier used to isolate the work area from non-contaminated areas. The purpose of which is to contain the air and particulates within the work area.

X. *Controlled Area*: The area of the project site identified by barrier tape or within twenty feet of posted warning signs demarcating an abatement area.

Y. *Curtained Doorway*: A device to allow ingress and egress from one room to another while permitting minimal air movement between the rooms, typically constructed by placing three overlapping sheets of plastic over an existing or temporarily framed doorway, securing the vertical edge of one sheet along one vertical side of the doorway, securing the vertical edge of the second sheet along the opposite vertical side of the doorway, and securing the vertical edge of third sheet along the starting vertical side of the doorway.

Z. *Decontamination Enclosure System*: A decontamination system consisting of a clean room, a shower room, and an equipment room separated from each other and from the regulated area by airlocks. This system is used for all workers to enter and exit the regulated area and may also serve as equipment and waste pass out on small jobs.

AA. *Differential Air Pressure Equipment*: A portable local exhaust system equipped with HEPA filtration and capable of maintaining a constant, low velocity air flow into uncontaminated areas from adjacent contaminated areas.

BB. *Encapsulant*: A liquid material which can be applied to asbestos containing materials (and cleaned surfaces from which asbestos containing materials have been removed) and which controls the possible release of asbestos fibers from the material either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding/disintegrating its components together (penetrating/removal encapsulant). (Also sealant).

CC. *Encapsulation*: The application of a bridging or penetrating liquid material to asbestos containing materials to control the release of asbestos fibers into the air. The bridging liquid material creates a membrane over the surface and the penetrating liquid material seeps through the surface and binds all components together.

DD. *Enclosure*: The construction of an airtight, impermeable, permanent barrier around asbestos containing material to control the release of asbestos fibers into the air.

EE. *Equipment Decontamination Enclosure*: That portion of a decontamination enclosure system designed for controlled transfer of materials and equipment, typically consisting of a washroom (shower) and a holding area.

FF. *Equipment Room*: A contaminated area or room which is part of the worker decontamination enclosure with provisions for storage of contaminated clothing and equipment.

GG. *EPA*: U. S. Environmental Protection Agency.

HH. *Final Clearance*: Air sampling taken after final visual inspection and prior to removal of final layer of plastic barriers. Analysis is by Phase Contrast Microscopy (PCM) or Transmission Electron Microscopy (TEM). Results for PCM shall be below 0.01 f/cc or background concentration (whichever is greater). TEM results must be below 70 s/mm^2 to allow removal of final barriers.

II. *Floor Systems*: References to floor, flooring or floor system either written or on the plans shall be construed to mean floor system and shall include all layers and any combination of layers of floor materials including but not limited to carpets, tiles, mastics, leveling compounds, linoleum, felts, baseboard, water proof membranes and other materials placed upon the facility's floor structure.

JJ. *HEPA Filter:* A high efficiency particulate air filter capable of trapping and retaining particles 0.3 microns in mass median aerodynamic equivalent diameter with 99.97% efficiency.

KK. *HEPA Vacuum*: A vacuum system equipped with HEPA filtration.

LL. *Holding Area*: A chamber in the equipment decontamination enclosure located between the washroom (shower) and an uncontaminated area. The holding area comprises an airlock.

MM. *HVAC*: Heating, ventilation, and air conditioning system.

NN. *Log Book*: A notebook or other book containing essential project data, daily project information, and a daily project diary. This book shall be kept up to date and on the project at all times.

OO. *Missouri Department of Natural Resources (MDNR)*: A Missouri state agency that regulates asbestos abatement projects in schools and commercial/public buildings.

PP. *NIOSH*: The National Institute for Occupational Safety and Health.

QQ. *Negative Pressure Respirator:* A respirator in which the air pressure inside the respiratory-inlet covering is positive during exhalation in relation to the air pressure of the outside atmosphere and negative during inhalation in relation to the air pressure of the outside atmosphere.

RR. *OSHA*: The Occupational Safety and Health Administration.

SS. *Outside Air:* The air outside the work area that is used as make up air.

TT. *Permissible Exposure Limits (PELs)*: No personnel associated with asbestos abatement work shall be exposed to an airborne concentration of asbestos in excess of the following limits, as determined by the method prescribed in Appendix A to OSHA 29 CFR 1926.1101, or by an equivalent method:
   1. P.E.L. is 0.1 fiber per cubic centimeter (f/cc) of air as an eight (8) - hour time-weighted average.
   2. Excursion Limit (EL) 1.0 fiber per cubic centimeter of air as averaged over a sampling period of thirty (30) minutes.

UU. *Plasticize*: To cover floors and walls with plastic sheeting as herein specified.

VV. *Powered Air Purifying Respirator (PAPR)*: A respirator in which the air pressure inside the respiratory-inlet covering is positive during exhalation in relation to the air pressure of the outside atmosphere and negative during inhalation in relation to the air pressure of the outside atmosphere.

WW. *Regulated Area*: An area identified by specific boundaries where airborne concentrations of asbestos exceed, or can reasonably be expected to exceed the P.E.L. and/or Excursion Limit. The regulated area may take the form of:
   1. A temporary negative-pressure enclosure.
   2. An area specifically identified and segregated in any manner that minimizes the number of employees exposed to asbestos.

XX. *Removal*: All herein specified procedures necessary to remove asbestos containing building materials from the designated areas in an appropriate manner consistent with applicable regulations and state of the art industry work practices, and to dispose of these materials at an acceptable and approved landfill.

YY. *Shower Room*: A room between the clean room and the equipment room in the worker decontamination enclosure with hot and cold or warm running water and suitably arranged for complete and thorough showering during decontamination.

ZZ. *Surfactant*: A chemical wetting agent added to water to improve penetration.

AAA. *Visible Emissions*: Any emissions containing particulate asbestos material that is visually detectable without the aid of instruments. This does not include condensed uncombined water vapor.

BBB. *Wall System*: References to siding, panels, paneling, siding system, panel system, wall, wallboard, or wall systems either written or on the plans shall be construed to mean wall system and shall include all layers of and any combination of layers of siding/panel materials including but not limited to panels, cement board, cement-asbestos board, gypsum board, mastics, plasters, lathing, base plate, supporting accessories, fasteners and debris between the wall surface visible from the room and the interstitial frame space of the facility wall structure such as materials located on both sides of the wall or beneath the base plate including the studs and accessories.

CCC. *Wash Room*: A room between the work area and the holding area in the equipment decontamination enclosure system. The washroom comprises an airlock.

DDD. *Wet Cleaning*: The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning utensils which have been dampened with water and afterwards thoroughly decontaminated or disposed of as asbestos contaminated waste.

EEE. *Wiping*: Final cleanup stage performed after gross removal where all surfaces are wet cleaned.

FFF. *Work Area*: Designated rooms, spaces, or areas of the project in which asbestos abatement actions are to be undertaken or which may become contaminated as a result of such abatement actions. A contained work area is a work area which has been sealed, plasticized, and equipped with a decontamination enclosure system. A non-contained work area is an isolated controlled access work area which has not been plasticized nor equipped with a decontamination enclosure system.

1.5 SUBMITTALS AND NOTICES

A. Prior to Commencement of Work, Contractor shall:
   1. File a Notice with the MDNR according to the requirements specified on the form. A copy of the partially completed form is appended to this section for reproducing number of copies required. The Architect/Engineer shall be carbon copied on all correspondence and notifications. All notification and inspection fees shall be paid by the Contractor.

B. Submit the following documentation to the Owners Project Representative:
   1. Required permits, site location and arrangements for transport and disposal of asbestos containing waste materials.
   2. Documentation that all employees or agents who may be exposed to airborne asbestos in excess of action level have been medically determined to be physically capable of working while wearing the respirator required without suffering adverse health effects.
   3. A fully completed and signed copy of the "Certificate of Worker's Release" form for each employee of the Contractor that will be on the project site. A copy of the form is appended to this section for reproducing number of copies required.
   4. Shop drawings for layout and construction of decontamination enclosure systems and barriers for isolation of the regulated area as detailed in this specification and required by applicable regulations. If work is to be phased, a phasing schedule shall also be submitted.
   5. Manufacturer's certification that HEPA vacuums, negative pressure ventilation units and other local exhaust ventilation equipment conform to ANSI Z9.2-79. Also, submit manufacturer's information on water filtration unit(s) to be used.
   6. Written notification of rental equipment to be used in abatement areas or to transport asbestos contaminated waste must be provided to the rental agency with a copy submitted to the Construction Representative.
   7. Document NIOSH approvals for all respiratory protective devices utilized on site. Include manufacturer certification of HEPA filtration capabilities for all cartridges and filters.
   8. Documentation of respirator fit-testing for all Contractor employees and agents who must enter the regulated area. This fit-testing shall be in accordance with procedures as detailed in Title 29 CFR 1926.1101, Appendix C, Qualitative and Quantitative Fit Testing procedures.
   9. A written hazard communication program indicating how the contractor plans to meet the requirements of OSHA 29 CFR 1926.59 relative to labeling, handling of material safety data sheets and training of employees.
   10. Written emergency plan - (See details on following page).
   11. All approved documents will be on file with the Owners Project Representative.

C. During Abatement Activities, Contractor shall submit to the Owners Project Representative:
   1. Weekly (or as required) job progress reports detailing abatement activities. Include review of major problems and action taken, injury reports, equipment breakdown.
   2. Copies of all completed "Transportation and Disposal Manifest" forms for all asbestos waste materials removed from the regulated area during the abatement process.
   3. Copies of daily work site entry log books with information on worker and visitor access.
   4. Logs documenting filter changes on respirators, HEPA vacuums, negative pressure ventilation units, local exhaust ventilation systems, and other engineering controls.
   5. Results of bulk material analysis and air sampling data collected during the course of the abatement including OSHA compliance air monitoring results.
   6. Results of materials testing conducted during the abatement for purposes of utilization during abatement activities (e. g., testing of encapsulant for depth of penetration, testing of materials for adherence to encapsulated surfaces).
   7. Any new asbestos abatement employee hired, who has not been previously reported, and complete data must be submitted, consisting of: experience, certification, assigned job responsibilities, respirator test fitting, physician’s determination of employee's ability to work while wearing respirator and evidence of medical monitoring.
   8. Contractor shall post at the entrance to the regulated area a list containing the names, addresses, and telephone numbers of the Contractor, Fire Department and any other personnel who may be required to be contracted during abatement activities.

1.6 SITE SECURITY

A. Contractor shall be responsible for the security of the regulated area(s) during abatement operations in order to protect work efforts and equipment.

B. The regulated area shall be restricted to only authorized, trained, and protected personnel. These may include the Contractor's employees, employees of subcontractors, state representatives, and any other designated individuals. A list of authorized personnel shall be established prior to job start and posted in the clean room of the decontamination facility.

C. Contractor shall immediately decontaminate (if required) and evict any unauthorized individual entering the regulated area and notify the Construction Representative of action taken and identity of the unauthorized individual.

D. A log book shall be maintained in the clean room area of the decontamination system. Anyone who enters the regulated area must record name, affiliation, time in, and time out for each entry.

E. Access to the regulated area shall be through a single decontamination system located where shown on approved Shop Drawings. All other means of access (doors, windows, hallways, etc.) shall be blocked or locked so as to prevent entry to or exit from the regulated area. The only exceptions to this rule are the waste pass-out air lock which shall be sealed except during the removal of containerized asbestos waste from the regulated area, and emergency exits in case of fire or accident. Emergency exits shall not be locked from the inside; however, they shall be sealed with polyethylene sheeting and tape until needed.

1.7 EMERGENCY PLANNING

A. Written emergency plan shall be submitted through the Owners Project Representative and approved by the Architect/Engineer prior to the initiation of abatement activities.

B. Emergency procedures shall be in written form and prominently posted in the clean change area and equipment room of the worker decontamination area. Everyone prior to entering the regulated area must read and sign these procedures to acknowledge receipt and understanding of work site layout, location of emergency exits and emergency procedures.

C. Emergency planning shall include notification of police, fire and emergency medical personnel of planned abatement activities, work schedule and layout of regulated area, particularly barriers that may affect response capabilities.

D. Emergency planning shall include considerations of fire, explosion, toxic atmospheres, electrical hazards, slips, trips and falls, confined spaces and heat related injury. Written procedures shall be developed and employee training in procedures shall be provided.

E. Employees shall be trained in evacuation procedures in the event of workplace emergencies under the following conditions:

F. For non-life-threatening situations, employees injured or otherwise incapacitated shall decontaminate following normal procedures with assistance from fellow workers if necessary, before exiting the workplace to obtain proper medical treatment.

G. For life-threatening injury or illness, worker decontamination shall take least priority, after measures to stabilize the injured worker, remove the worker from the workplace and secure proper medical treatment.

H. Telephone numbers of all emergency response personnel shall be prominently posted in the clean change area and equipment room, along with the location of the nearest telephone.

1.8 PRECONSTRUCTION MEETING

A. The Contractor shall attend a pre-construction meeting to be conducted at a time and place designated by the Owners Project Representative. All parties having an active roll in asbestos abatement will be in attendance.

B. The Contractor, Contractor's competent person and other supervisory personnel who will provide on-site direction of the abatement activities must attend.

C. At this meeting the Contractor shall provide all documentation as required by Article entitled: "Submittals and Notices," herein. In addition, the Contractor shall be prepared to provide detailed information concerning:
   1. Preparation of regulated area.
   2. Personal protective equipment including respiratory protection and protective clothing.
   3. Employees who will participate in the project, including delineation of experience, training, certification, and assigned responsibilities during the project.
   4. Decontamination procedures for personnel, regulated area and equipment.
   5. Abatement methods and procedures to be utilized.

6. Required air monitoring procedures.
7. Procedures for handling and disposing of waste materials.
8. Procedures for final decontamination and cleanup.
9. A sequence of work and performance schedule.
10. Procedures for dealing with heat stress.
11. Emergency procedures.
12. Methods of adhering plastic sheeting to the surfaces to be covered.

1.9 DELIVERY, STORAGE AND HANDLING

A. Deliver all materials in the original packages, containers or bundles bearing the name of the manufacturer and the brand name.

B. Damaged, deteriorating or previously used materials shall not be used and shall be removed from the work site and disposed of properly.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Polyethylene sheeting for walls and stationary objects shall be a minimum of four (4) mil thick. For floors and all other uses sheeting of at least six (6) mil thickness shall be used in widths selected to minimize the frequency of joints.

B. Polyethylene sheeting utilized for decontamination enclosure shall be opaque white or black in color.

C. Hardboard or plywood, minimum 1/4 inch thick shall be furnished to protect finished floor surfaces such as carpet or hardwood floors to prevent damage from scaffolds or falling objects. Such protection shall also be provided for polyethylene sheeting under the scaffold area if the material being removed has sharp projections which could readily puncture the enclosure material.

D. Disposal bags shall be of six (6) mil polyethylene, pre-printed with labels as required by OSHA Requirement 29 CFR 1926.1101 (k) (8).

E. Disposal drums for transporting disposal bags shall be metal or fiberboard with locking ring tops.

F. Stick-on labels as per EPA, OSHA or DNR requirements for disposal drums.

G. Surfactant (Wetting Agent):
1. For use with materials containing asbestos identified as "Amosite", shall be a 50/50 mixture of polyoxyethylene ether and polyoxyethylene ester, mixed in a proportion of one (1) fluid ounce to five (5) gallons of water or as specified by manufacturer.
2. For all materials containing asbestos identified as "chrysotile", "crocidolite", or types other than Amosite, shall consist of soapy water mixed in a proportion of two (2) fluid ounces of liquid soap to five (5) gallons of water.

3. Where regulated area temperature may cause freezing of the amended water solution, the addition of ethylene glycol in amounts sufficient to prevent freezing is permitted.

H. Asbestos Removal Encapsulant (substitute for surfactant): In lieu of using a wetting agent in water to control airborne fibers, and asbestos removal encapsulant may be used. Products that meet these needs are: Serpiflex Shield manufactured by International Protective Coatings Carol 725 Carol Ave., Ocean, NJ 07710; and BWE 5000, by Better Working Environments, Inc., 3716 Scripps Way, Las Vegas, NV 89103; or an approved equal.

I. Surfaces exposed as a result of removing asbestos containing material shall be coated with a nonpermanent sodium silicate material which shall act as a temporary sealant, pending application of a finish material by others.

J. Encapsulating Material:
1. Bridging type encapsulant (for sealing masonry and concrete walls, barrier surfaces during cleanup phase and asbestos containing surfaces to remain in place) shall be capable of being applied with airless spray equipment, able to withstand light impact or abrasion without releasing fibers, water insoluble when cured, and must retain sufficient integrity after six (6) years to allow re-coating. Products that meet these requirements are: Cable Coating No. 2B by American Coating Corporation and Decadix Fire Check by Pentagon Plastics.
2. Penetrating type encapsulant (for sealing scratch coat plaster, wood grounds and wood blocking which have been in contact with asbestos containing material and also exposed ends of pipe insulation) shall not be noxious or toxic to applicator or subsequent occupants, shall have high flame retardance and low toxic fume and smoke emission ratings, shall have some permeability to water vapor to prevent condensation accumulation. Acceptable products are Cafco-Bond-Seal by U.S. Mineral, Protector Sealant (32-20 and 32-21) by H.B. Fuller Co., and SK-13 Emulsion by National Cellulose.

2.2 EQUIPMENT

A. Negative Pressure Ventilation Units:
1. A sufficient quantity of negative pressure ventilation units equipped with HEPA filtration and operated in accordance with ANSI Z9.2-79 (local exhaust ventilation requirements) and EPA guidance document EPA 560/5-83-002 Guidance for Controlling Friable Asbestos-Containing Material in Buildings Appendix F: Recommended Specifications and Operating Procedures for the Use of Negative Pressure Systems for Asbestos Abatement shall be utilized so as to provide one workplace air change every 15 minutes.
2. To calculate total air flow requirement:
   a. Total Ft^3/Min. = Volume of Regulated area (in Ft^3) 15 Min.
3. To calculate the number of units needed for the abatement:
   a. Number of Units Needed = Total Ft^3/Min. / 0.75 (Capacity of Unit in Ft^3/Min).
4. The air filtering equipment shall be capable of filtering asbestos fibers at 0.3 um at 99.97 percent efficiency. Pre-filters, which protect the final filter by removing the larger particles, are required to prolong the operating life of the HEPA filter. Two stages of pre-filtration are required. The first-stage pre-filter shall be a low efficiency type (e.g., for particles 10 um and larger). The second-stage (or intermediate) filter shall have a medium efficiency (e.g., effective for particles down to 5 um). Pre-filters and intermediate filters shall be

installed either on or in the intake grid of the unit and held in place with special housings or clamps.

5. Exhaust air from the regulated area shall maintain a negative pressure of 0.02 inches of water (head). The ventilation shall operate on a 24 hours basis throughout the abatement process until final clearance has been approved.

B. Air Purifying Respirators:

1. Respirator bodies shall be of half face or full-face type with removable cartridges. Single use, disposable or quarter face respirators shall not be used. Full face respirators shall be equipped with a nose cup or other anti fogging devices as would be appropriate for use in air temperatures less than 32 degrees F.
2. Filter cartridges shall, at a minimum, be HEPA type filters labeled with NIOSH and MSHA Certification for "Radionuclides, Radon Daughters, Dust, Fumes, Mists including Asbestos-Containing dusts and Mists" and color coded in accordance with ANSI Z228.2 (1980). In addition, a chemical cartridge section may be added, if required, for solvents, etc., in use. In this case, each section of the combination canister shall be labeled with the appropriate color code and NIOSH/MSHA Certification.

C. Supplied Air Respirator System:

1. The equipment used shall be capable of producing air of the quality and volume required by OSHA Standard (29 CFR 1910) Section 1910.134 and Compressed Gas Association, Inc., New York, Pamphlet G-7, "Compressed Air for Human Respiration", and Specification G-7.1 "Commodity Specification for Air", applied to the job site conditions and crew size. The standards above shall be augmented by provisions of this specification with the more stringent standard governing.
2. Face piece and hose shall be by same manufacturer and shall be certified by NIOSH/MSHA as an approved Type "C" respirator assembly for continuous flow or pressure demand with a positive pressure face-piece.
3. Backup air supply shall be provided that is adequate to allow a minimum of one-half hour escape time for each six-man (woman) crew. The one-half hour shall be based upon all connections to the backup air supply being in use by an average sized adult male engaged in moderately strenuous activity or by the air requirements of the particular respirator in use is greater.
4. Warning device shall be located in the regulated area which will be clearly audible in all parts of the regulated area and can be heard above the noise level produced by equipment and work procedures in use. This warning device shall warn of:
    a. Compressor shutdown or other fault requiring use of backup air supply.
    b. Carbon Monoxide (CO) levels in excess of 50 PPM/V over 8 hours.
5. Carbon Monoxide (CO) levels shall be continually monitored and recorded. This monitor shall be placed in the air line between backup air supply and workers and shall also sound an alarm as specified under "Warning Devices".
6. The compressor shall automatically be shutdown and the alarms sounded if any of the following occur:
    a. Carbon Monoxide (CO) concentrations exceed 500 PPM/V in the air line between the filter bank and backup air supply.
    b. Compressor temperature exceeds normal operating range.
7. Compressor motor shall be an electric motor. Compressors driven by gas or diesel engines shall not be used.
8. An after cooler shall be provided at the entry to the filter system which is capable of reducing temperatures to outside ambient air temperatures.
9. System configuration shall permit the recharging of 1/2 hours 2260 PSI SCBA cylinders.

10. Compressed air systems shall be designed to provide air volumes and pressures to accommodate respirator manufacturer's specifications. The compressed air systems shall have a receiver of adequate capacity to allow escape of all respirator wearers from contaminated areas in the event of compressor failure. Compressors must meet the requirements of 29 CFR 1910.134 (d). Compressors must have an in-line carbon monoxide monitor; periodic inspection of the carbon monoxide monitor must be evidenced. Documentation of adequacy of compressed air systems/respiratory protection system must be retained on site. This documentation will include a list of compatible components with the maximum number and type of respirators that may be used with the system. Periodic testing of compressed air shall insure that systems provide air of sufficient quality (Grade D breathing air as described in Compressed Gas Association Commodity Specifications G-7.1).
11. Full body disposable protective clothing, including head, body and foot coverings consisting of material impenetrable by asbestos fibers (Tyvek® or equivalent) shall be provided to all workers and authorized visitors in sizes adequate to accommodate movement without tearing.
12. Additional safety equipment, such as hard hats meeting the requirements of ANSI Standard Z89.1-1981, eye protection meeting the requirements of ANSI Standard Z87.1-1979, safety shoes meeting the requirements of ANSI Standard Z41.1-1967, disposable PVC gloves, as necessary, shall be provided to all workers and authorized visitors.
13. Nonskid footwear shall be provided to all abatement workers. Disposable clothing shall be adequately sealed to the footwear to prevent body contamination.
14. Provide sufficient supply of disposable mops, rags and sponges for work area decontamination.
15. Provide scaffolds, ladders, lifts and hand tools such as scrapers, wire cutters, brushes, utility knives, wire saws, as the work requires.
16. Sprayers with pumps capable of providing 14-15 pounds per square inch (psi) at the nozzle tip at a flow rate of 2 gallons per minute for spraying amended water.
17. Rubber dust pans and rubber squeegees shall be provided for cleanup.
18. Brushes utilized for removing loose asbestos containing material shall have nylon or fiber bristles, not metal.
19. A sufficient supply of HEPA filtered vacuum systems shall be available during cleanup.
20. Airless spray equipment with an adjustable low pressure nozzle shall be provided for spraying encapsulants. Nozzle tip size and pressure adjustment shall conform to encapsulant manufacturers written recommendations.
21. Heavy duty power cables for temporary electrical service and a portable electric generator for maintaining negative pressure in the work area in case of power failure.
22. Warning Signs and Labels: As required OSHA Regulation 29 CFR 1925.1101(k).
23. Other equipment the Contractor deems necessary for asbestos abatement work shall be submitted to the Architect/Engineer for approval prior to their use.

PART 3 - EXECUTION

3.1 GENERAL COMPLIANCE MEASURES

A. Mandatory Protection Conditions: Contractor's employees shall wear appropriate respiratory protection and protective clothing under the following conditions:
   1. During installation or implementation of engineering work practices and control measures.

2. During maintenance and repair activities for which control measures, hereinafter described, are not feasible.
3. Whenever the control measures are not yet sufficient to reduce exposure below the Permissible Exposure Limits (TWA and/or Excursion Limits).
4. Whenever emergency conditions exist.

B. Control Measures: The Contractor shall use one or any combination of the following control methods to achieve compliance with the "Permissible Exposure Limits" defined hereinbefore:
1. Local exhaust ventilation equipped with HEPA filter dust collection systems.
2. General dilution ventilation equipped with HEPA filtration systems on both exhaust and return air.
3. Vacuum cleaners equipped with HEPA filters.
4. Enclosure or isolation of processes producing airborne asbestos fibers and dust.
5. Use of wet methods, wetting agents or removal encapsulants to control employee exposures during their performance of asbestos abatement activities.
6. Prompt disposal of wastes contaminated with asbestos in leak-tight containers.

C. Supplement to Control Measures: Whenever the control measures described above are not sufficient to reduce the employee exposure to or below the "Permissible Exposure Limits" (TWA and/or Excursion Limit), the Contractor shall continue to use the control measures to maintain the employee exposure to the lowest levels attainable and supplement them with the use of appropriate respiratory protection and protective clothing.

D. Negative-Pressure Enclosure: A negative-pressure enclosure shall be employed whenever feasible, prior to commencing removal, demolition and renovation operations involving asbestos containing materials.

E. Types of Respiratory Protection: The following Table represents the minimum respiratory protection required for given airborne concentrations of asbestos:

Airborne Concentration of Asbestos, Tremolite, Anthophylite, Actinolite, or a Combination of These Minerals	Required Respirator
Not in excess of 2 f/cc (10 X PEL)	1. Half-mask air purifying respirator equipped with high-efficiency filters.
Not in excess of 10 f/cc (50 X PEL)	1. Full faceplate air purifying respirator equipped with high-efficiency filters.
Not in excess of 20 f/cc (100 X PEL)	1. Any powered air purifying respirator equipped with high efficiency filters. 2. Any supplied air respirator operated in continuous flow mode.
Not in excess of 200 f/cc (1000 X PEL)	1. Full face-piece supplied air respirator operated in pressure demand mode.
Greater than 200 f/cc (1,000 X PEL) or unknown concentration	1. Full face-piece supplied air respirator operated in pressure demand mode equipped with an auxiliary positive pressure self-contained breathing apparatus.

NOTE:Respirators assigned for higher environmental concentrations may be used at lower concentrations.

A high-efficiency filter means a filter that is at least 99.97 percent efficient against mono-dispersed particles of 0.3 micrometers in diameter or larger.

F. Employee Rotation: The Contractor shall not use employee rotation as a means of compliance with Permissible Exposure Limits (TWA and/or Excursion Limit).

G. Supervision: The Contractor shall have a project supervisor on site at all times that only supervises the project and is responsible to assure contract and regulatory compliance.

3.2 PREPARATION OF REGULATED AREA

A. Post warning signs at all approaches to a regulated area. Signs shall be posted at a distance sufficiently far enough away from the regulated area to permit any person to read the sign and take the necessary protective measures to avoid exposure.

B. Shutdown and lock out all heating, cooling and air conditioning system (HVAC) components that are in, supply or pass through the regulated area. Appropriate equipment and control measures shall be utilized to prevent contamination of building spaces. Seal all intake and exhaust vents in the work area with tape and 6 mil polyethylene. Also seal any seams in system components that pass through the regulated area.

C. All electrical circuits to the area in which asbestos abatement work is to take place must be disconnected. The regulated area and other uncontaminated areas that were dependent on the disconnected electrical circuits shall be serviced by a temporary electrical service provided by owner. In accordance with the latest issue of the National Electrical Code, temporary electrical service shall be equipped with combination ground fault interrupted and circuit breakers meeting the requirements of UL for Class A, Group 1 devices. The ground fault interrupter portion shall be solid state type, insulated and isolated from the breaker mechanism. A test mechanism shall provide overload and short circuit protection and shall be operated by a toggle switch with over-center switching mechanism so that contact cannot be held closed.

D. Pre-clean all movable objects within the regulated area using a HEPA filtered vacuum or wet cleaning methods as appropriate. After cleaning, these objects shall be removed from the regulated area and carefully stored in an uncontaminated location.

E. Pre-clean all fixed objects in the regulated area using HEPA filtered vacuums or wet cleaning techniques as appropriate, if contamination is visibly covering them. Careful attention must be paid to machinery and behind grills or gratings where access may be difficult but contamination significant. Also pay particular attention to wall, floor and ceiling penetrations behind fixed items. After pre-cleaning, enclose fixed objects in four (4) mil polyethylene sheeting and seal securely in place with tape.

F. Pre-clean all surfaces in the regulated area using HEPA filtered vacuums and/or wet cleaning methods as appropriate. Do not use any methods that would raise dust such as dry sweeping or vacuuming with equipment not equipped with HEPA filters. Do not disturb asbestos containing materials during the pre-cleaning phase.

G. Seal off all windows, doorways, elevator openings, corridors, tunnels, entrances, drains, ducts, grills, grates, diffusers, skylights and any other openings between the regulated area and uncontaminated areas outside of the regulated area (including the outside of the building, tunnels and crawl spaces) with four (4) mil polyethylene sheeting and tape.

H. Wall Covering:
   1. Walls shall be covered with two (2) layers of four (4) mil polyethylene sheeting, starting at top of wall and extending down and across the floor area until it meets in the center of the floor. Here the covering sheets shall be taped together to form a monolithic covering which completely encases the regulated area.
   2. Polyethylene sheets shall be sized to minimize seams. Seams shall be staggered and separated by a distance of at least six (6) feet.
   3. Wall sheeting shall be secured adequately to prevent it from falling away from the walls. This may require additional support/attachment when negative pressure ventilation systems are utilized.

I. Floor Covering:
   1. The floor area which has previously been covered with sheeting extended from the walls shall be covered with one additional layer of six (6) mil (minimum) sheeting. Provide additional protection such as plywood, canvas, or extra plastic sheeting for floors requiring special protection such as carpeting, hardwood flooring and tile floors which may be damaged by water leakage, ladder feet or scaffold wheels. Additional layers of sheeting may be utilized as drop cloths to aid in cleanup of bulk materials.
   2. Polyethylene sheets shall be sized to minimize seams. If the floor area necessitates seams, those on successive layers of sheeting shall be staggered to reduce the potential for water to penetrate to the flooring material. A distance of at least six (6) feet between seams is sufficient. Do not locate any parallel seams at wall/floor joints.
   3. Floor sheeting shall extend at least 24" up the side walls of the work area.

3.3 DECONTAMINATION ENCLOSURE SYSTEM

A. A decontamination enclosure system shall be provided at each location where workers will enter or exit a regulated area.

B. Plans for construction, including materials and layout, shall be submitted as shop drawings and approved by the Architect/Engineer prior to work initiation. Decontamination enclosure systems constructed at the work site shall utilize six (6) mil opaque black or white polyethylene sheeting or other acceptable materials for privacy. Detailed descriptions of portable, prefabricated units, if used, must be submitted for the Architect/Engineer's approval. Plans must include floor plan with dimensions, materials, size, thickness, plumbing and electrical utilities.

C. The decontamination enclosure system shall consist of at least a clean room, a shower room, and an equipment room, each separated from each other and from the regulated area by air locks.

D. Entry to and exit from all airlocks and decontamination enclosure system chambers shall be through curtained doorways consisting of three sheets of overlapping six (6) mil polyethylene sheeting. The curtain doorway sheets shall be secured at the top and one side opposite each other. All curtains shall have weights attached to the bottom to insure that they hang straight and maintain a seal over the doorway when not in use. Doorway designs, providing equivalent protection and acceptable to the Architect/Engineer may be utilized.

E. Access between any two rooms in the decontamination enclosure system shall be through an airlock with at least three (3) feet separating each curtained doorway. Pathways into (from clean to contaminated) and out from (contaminated to clean) the regulated area shall be clearly designated.

F. Clean room shall be sized to adequately accommodate the work crew. Clean disposable clothing, replacement filters for respirators, disposable towels and other necessary items shall be provided in adequate supply at the clean room. A location for postings shall also be provided in this area. Whenever possible, a lockable door shall be used to permit access into the clean room from outside the regulated area.

G. Shower room shall contain one or more shower heads as necessary to adequately accommodate workers. Each shower head shall be supplied with hot and cold water adjustable at the tap. The shower enclosure shall be constructed to insure against leakage of any kind. An adequate supply of soap and disposable towels shall be supplied by the Contractor and available at all times. Shower water shall be drained, collected and filtered as specified in the Article entitled: "Water Collection and Disposal," herein.

H. The equipment room shall be used for storage of equipment and tools at the end of a shift after workers have been decontaminated using a HEPA filtered vacuum and/or wet cleaning techniques as appropriate. Replacement filters (in sealed containers until used) for HEPA vacuums and negative pressure ventilation equipment, extra tools, containers or surfactant and other materials and equipment that may be required during the abatement may also be stored here as needed. A walk-off pan (a small children's swimming pool or equivalent filled with water) shall be located in the regulated area just outside the equipment room for workers to clean off foot coverings after leaving the regulated area and prevent excessive contamination of the worker decontamination enclosure system. A drum lined with a labeled six (6) mil polyethylene bag for collection of disposable clothing shall be located in this room. Contaminated rubber boots or other reusable footwear shall be stored in this area for reuse the following workday.

I. Waste Container Pass-Out Airlock:
   1. The waste container pass-out airlock shall be constructed at some location away from the worker decontamination enclosure system. Wherever possible, this shall be located where there is direct access from the regulated area to the outside of the building.
   2. This airlock system shall consist of an airlock, a container staging area, and another airlock with access to outside the regulated area.
   3. The waste container pass-out airlock shall be constructed in similar fashion to the worker decontamination enclosure system using similar materials and airlock and curtain doorway designs.
   4. This airlock system shall not be used to enter or exit the regulated area. The airlock system shall be tightly sealed when not in use.

J. Emergency exits shall be established and clearly marked with duct tape arrows or other effective designations to permit easy location from anywhere within the regulated area. They shall be secured to prevent access from uncontaminated areas, but still permit emergency exiting. These exits shall be properly sealed with polyethylene sheeting which can be cut to permit egress if needed. These exits may be through the decontamination enclosure, the waste pass-out airlock, other alternative exits satisfactory to fire officials.

3.4 TEMPORARY ISOLATION PARTITIONS

A. Large rooms or open areas that require temporary air tight barriers to separate a contaminated regulated area from an uncontaminated area shall be provided with temporary partitions, constructed in the following manner:
   1. Walls shall be constructed of wood or metal framing to support barriers in all openings larger than 4' x 8'.
   2. A sheathing material (plywood, drywall) of at least 3/8" thickness shall be applied to work side of barrier.
   3. Cover the work side of partition with a double layer of four (4) mil polyethylene sheeting with staggered joints and seal in place.
   4. Provide at least one (12" x 12") window in the barrier system, where feasible, for the purpose of viewing into the regulated area. The window shall consist of heavy gauge plastic or clear safety glass. Panes shall be framed into the barrier system and completely sealed to prevent any leakage of air through the unit.

3.5 MAINTENANCE OF ENCLOSURE SYSTEM

A. Following completion of the construction of all polyethylene barriers and decontamination system enclosures, initiate negative pressure system and allow overnight settling to insure that barriers will remain intact and secured to walls and fixtures before beginning actual abatement activities.

B. All polyethylene barriers and decontamination enclosure systems shall be inspected at least twice daily by the Contractor's competent person prior to the start of each day's abatement activities and following the completion of the day's abatement activities. Document inspections and observations in the daily project log.

C. Damage and defects in the enclosure system are to be repaired immediately upon discovery.

D. Use smoke tubes to test the effectiveness of the barrier system when directed by Owners Project Representative.

E. Anytime during the abatement activities, if visible construction related dust or debris is observed outside of the regulated area or if damage occurs to barriers, work shall immediately stop, repairs shall be made to barriers, and debris/residue cleaned up using appropriate HEPA vacuuming and wet mopping procedures.

F. Openings made in the enclosure system to accommodate negative air pressure system shall be made airtight with tape and caulking as needed. If more than one unit is installed, they should be turned on one at a time, checking the integrity of wall barriers for secure attachment and need for additional reinforcement. Insure that adequate power supply is available to satisfy the requirements of the ventilating and exhaust units. Negative pressure units shall be exhausted to the outside of the building. They shall not be exhausted into occupied areas of the building. Careful installation and daily inspections shall be done to insure that the ducting does not release fibers into uncontaminated building areas.

G. Use of enclosure system shall not commence until the following has been accomplished:
   1. Enclosure systems have been constructed, inspected, and tested.
   2. Negative pressure systems are functioning adequately.

3. All pre-abatement submissions, notifications, postings and permits have been provided and approved by the Architect/Engineer, or Construction Representative, as applicable.
4. All equipment for abatement, cleanup and disposal are on hand.
5. All worker training is completed.
6. Contractor has received written notice to commence abatement work from the Owner, based on recommendation of the Owners Project Representative.

3.6 WORKPLACE ENTRY AND EXIT PROCEDURES

A. All workers and authorized personnel shall enter the regulated area through the decontamination enclosure system.

B. All personnel who enter the regulated area must sign the registration log, located in the clean room, both upon entry and exiting the area.

C. All personnel shall proceed first to the clean room, remove all street clothes, and appropriately don respiratory protection (as approved for the job conditions) and disposable coveralls, head covering and foot covering. Hard hats, eye protection and gloves shall also be utilized if required. Clean respirators and protective clothing shall be provided and utilized by each person for each separate entry into the regulated area.

D. Personnel wearing designated personal protective equipment shall proceed from the clean room through the decontamination enclosure system to the regulated area.

E. Before leaving the regulated area all personnel shall remove gross contamination from the outside of respirators and protective clothing by brushing or wet wiping procedures. (Small HEPA vacuums with brush attachments may be utilized for this purpose.) Each person shall clean bottoms of protective footwear in the walk-off pan just prior to entering the equipment room.

F. Personnel shall proceed to equipment room where they remove all protective equipment except respirators. Deposit disposable clothing into appropriately labeled containers for disposal.

G. Reusable, contaminated footwear shall be stored in the equipment room when not in use in the regulated area. Upon completion of abatement it shall be disposed of as asbestos contaminated waste. Rubber boots may be decontaminated at the completion of the abatement for reuse.

H. Still wearing respirators, personnel shall proceed to the shower area, clean the outside of the respirators and the exposed face area under running water prior to removal of respirator and shower and shampoo to remove residual asbestos contamination. Various types of respirators will require slight modification of these procedures. An airline respirator with HEPA filtered disconnect protection may be disconnected in the equipment room and worn into the shower. A powered air purifying respirator face-piece will have to be disconnected from the filter/power pack assembly which is not waterproof, upon entering the shower. Cartridges must be in place for each new entry into the regulated area.

I. After showering and drying off, proceed to the clean room and don street clothing even though there will be later reentry into the regulated area or street clothes if it is the end of the work shift.

J. Workers shall NOT eat, drink, smoke, or chew gum or tobacco in the regulated area. To eat, drink or smoke, workers shall follow the procedure described above, and then dress in street clothes before entering the non-regulated areas of the building.

K. These procedures shall be posted in the clean room and equipment room.

3.7 WASTE CONTAINER PASS-OUT PROCEDURE

A. Asbestos contaminated waste that has been containerized shall be transported out of the regulated area through the waste container pass-out airlock (or through the decontamination enclosure if a separate airlock has not been constructed).

B. The inside team wearing protective clothing and respirators appropriate for the contaminated regulated area shall clean the entire surface, including bottoms, of properly labeled bags, using HEPA vacuums and wet wiping techniques and transport them into the waste container pass-out airlock where they will be placed into another properly labeled bag. No worker from the inside team shall further exit the regulated area through this airlock.

C. Workers from outside the regulated area wearing appropriately assigned respirators shall enter the airlock from outside the regulated area. No worker from the outside team shall further enter the regulated area through this airlock.

D. The exit from this airlock shall be secured to prevent unauthorized entry.

3.8 WATER COLLECTION AND DISPOSAL

A. All water resulting from pre-cleaning operation, excess from floor of regulated area and the final cleaning operation shall be collected and placed in sealed containers for disposal as contaminated material.

B. Water from the decontamination shower shall be collected in a holding tank and filtered to remove particles of 0.5 microns or larger size before draining water into sanitary sewer system. The drainage and filtering system shall consist of the following:
   1. A centrifugal pump capable of pumping at least 25 gallons/minute.
   2. Two filter cartridge housings, one serving as a pre-filter, utilizing at least 6 cylindrical 100 micron filters (reusable type) and the other serving as final filter with 6 cylindrical 0.5 micron filters.
   3. Maintain two sets (6 cylinders per set) of 100 micron filters, to allow one set to be cleaned while the other set is in use.
   4. A common garden hose may be connected to final filter housing to drain water to sanitary sewer system.

3.9 WET REMOVAL PROCEDURE

A. Wet all asbestos containing material with an amended water solution, or removal encapsulant, using equipment capable of providing a fine spray mist, in order to reduce airborne fiber concentrations when the material is disturbed. Saturate the material to the substrate. Keep all removed material wet to prevent fiber release until it can be containerized for disposal. If

regulated area temperatures are below 32°F and amended water is subject to freezing, modify as specified for surfactant in Article 2.1 entitled: "Materials," herein. Maintain a high humidity in the regulated area by misting or spraying to assist in fiber settling and reduce airborne concentrations.

B. Saturated asbestos containing material shall be removed in manageable sections. Removed material should be containerized before moving to a new location for continuance of work. Surrounding areas shall be periodically sprayed and maintained in a wet condition until visible material is cleaned up.

C. Material removed from building structures or components shall not be dropped or thrown to the floor. Material should be removed as intact sections or components whenever possible and carefully lowered to the floor. If this cannot be done for materials greater than 50 feet above the floor, a dust-tight chute shall be constructed to transport the material to containers on the floor or the material may be containerized at elevated levels (e.g. on scaffolds) and carefully lowered to the ground by mechanical means. For materials between 15 and 50 feet above the ground they may be containerized at elevated levels or dropped onto inclined chutes or scaffolding for subsequent collection and containerization.

D. Bags shall be considered full when half their capacity has been filled. They should be securely sealed to prevent accidental opening and leakage by tying tops of bags in an overhand knot or by taping in gooseneck fashion. Do not seal bags with wire or cord.

E. Large components removed intact may be wrapped in two (2) layers of six (6) mil polyethylene sheeting secured with tape for transport to the approved disposal site (Wrap and Cut).

F. Asbestos containing waste with sharp edged components (e.g., nails, screws, metal lath, tin sheeting) shall be placed into drums for disposal in lieu of polyethylene bags. Drums shall be marked to differential contents from those drums containing bagged material.

G. After completion of all stripping work, surfaces from which asbestos containing materials have been removed such as plaster base coat or metal deck, etc., the surfaces shall be wet brushed and sponged to remove all visible residues.

3.10 FLOORING SYSTEM REMOVAL

A. Only Wet Removal Techniques will be allowed. Remove and dispose of all carpet, including pad, prior to plasticizing the work area. Where "carpet-to-remain" is scheduled, such carpet shall be thoroughly cleaned using HEPA vacuum equipment. A minimum of two layers of 6 mil plastic shall be used to cover remaining carpet during the floor system removal operations. All curtains or draperies shall be removed from the work area prior to beginning removal activities. Prepare work area with barriers as specified herein. Cover the wall surfaces of the work area with a minimum of two layers of 6 mil plastic.

B. Areas immediately adjacent to removal areas such as corridors or hallways which do not receive asbestos material removal, but are necessary routes to and from the work areas, shall be protected with plastic on floors and walls, same as described herein. Openings from these areas into areas where asbestos material is removed shall have curtained doorways to minimize fiber release into other areas. All exits shall be marked in bold lettering "**EXIT**" or "**Emergency Exit**".

C. Provide decontamination enclosures and differential air pressure as specified herein. Respiratory protection shall be ½ mask Air Purifying Respirators with HEPA cartridges at a minimum.

D. Spray asbestos material with ample amounts of amended water, using equipment recommended by the manufacturer capable of providing a "mist" application to reduce the release of fibers. Spray the asbestos material repeatedly during the work process to maintain a wet condition and to minimize fiber release. Asbestos flooring materials shall be wetted sufficiently to minimize the possibility that they become broken, crumbled, pulverized, or reduced to powder. Care shall be taken by the workers to apply enough wetting agent to achieve the intent described herein.

E. The Asbestos Abatement Contractor shall use removal techniques, methods, and equipment which will not permit the fiber count during flooring system removal operations to exceed 0.01 fibers/cc of air as detected by personal air sampling methods.

F. All methods for removal of mastic must be approved by the Owner or Architect/Engineer. The preferred method for removing mastic or adhesives is by solvents. The solvent shall be required to conform to a minimum of the following conditions:
   1. Flash point (open or closed cup) > 200 degrees Fahrenheit.
   2. Auto Ignition Temperature > 600 degrees Fahrenheit.
   3. Slight odor, pH neutral, aromatic vapors < 100 ppm, and will not react violently with water.
   4. Respirator cartridges capable of filtering fumes will be required.

G. Collect the material that has been removed and place it into clear sealable plastic bags (6 mil thick minimum). Each bag shall be cleaned, wet wiped, evacuated, and removed from the work area. All plastic bags and containers must be imprinted with required and specified warnings and/or labels. The preferred method is for the material to be placed directly into previously described containers.

H. Clean the external surfaces of the containers thoroughly in the work area. Next, move the containers into the Equipment Decontamination Enclosures. Proper equipment decontamination requires:
   1. Clean gross contamination in work area.
   2. Wet clean thoroughly in wash room.
   3. Place in clear sealable bags (6 mils thick minimum) with required warnings and/or labels.
   4. Evacuate air and seal with as little free air space as possible, twist top of bag, gooseneck, and wrap with duct tape.
   5. Move container into Holding Area.

I. After all visible gross material has been properly bagged and removed; wet clean and HEPA vacuum the lower half of the wall surfaces.

J. The work floor and the outer layer of wall plastic shall be encapsulated unless scheduled for demolition. After the encapsulant has dried, one layer of plastic from the walls shall be removed and disposed of as contaminated material in double plastic bags.

K. Final air clearance is required by either Phase Contrast Microscopy (PCM) or Transmission Electron Microscopy (TEM) as applicable. After final clearance is achieved, the floor should be left in such a condition that floor replacement or removal can proceed.

3.11 AIR MONITORING

A. The Asbestos Abatement Contractor shall take steps on a daily basis to ascertain the integrity of the enclosure and/or the effectiveness of the control method relied on by the Asbestos Abatement Contractor to assure that asbestos fibers do not migrate from regulated areas to adjacent areas.

B. The Asbestos Abatement Contractor shall conduct daily monitoring that is representative of the exposure of each employee who is assigned to work within a regulated area who is performing Class I or II work, unless the Asbestos Abatement Contractor has made a negative exposure assessment for the entire operation in accordance with 29 CFR 1926.1101.

C. Air monitoring may or may not be performed by an independent air sampling professional (ASP) employed by the Architect/Engineer to verify work procedures are not causing elevated airborne concentrations of asbestos fibers in the interior of the structure adjacent to the work area. However, if air sampling is conducted by an independent ASP, such air sampling shall not take the place of the required air sampling to be conducted by the Asbestos Abatement Contractor.

3.12 DAILY PERSONAL AIR MONITORING (OSHA Compliance) (To be Conducted by Contractor):

A. Daily determination of employee exposure shall be made by collecting one or more breathing zone samples that are representative of the 8-hour TWA, full-shift exposure for each employee in each regulated area; and one or more breathing zone air samples that are representative of 30-minute exposures associated with operations that are most likely to produce exposures above the excursion limit for employees in each regulated area.

B. Daily personal air monitoring testing may be eliminated if employees are equipped with supplied-air respirators operated in a positive-pressure mode while performing abatement work.

3.13 CLEARANCE TESTING - PHASE CONTRAST MICROSCOPY (PCM) (To be Conducted by Owner’s Representative)

A. Clearance sampling and analysis will be performed on select containments only after the asbestos abatement work area has been completely cleaned and visually inspected.

B. Air sampling for final clearance shall be conducted using collection procedures in accordance with NIOSH Standard Analytical Method 7400.

C. The specific locations where samples shall be taken and the number of samples shall be established by the Owner's Air Sampling Professional.

D. Aggressive sampling shall be performed with portable fans circulating air in the work area to simulate actual use conditions.

E. Air samples shall be analyzed by Phase Contrast Microscopy.

F. All samples analyzed shall indicate concentrations of airborne fibers less than 0.01 f/cc, or less than the average of the fiber count established by Baseline Test for outside containment air, whichever is greater. Areas exceeding this level shall require the area to be recleaned and retested

until satisfactory levels are obtained. Only when tests meet the acceptable level, can the protective barriers of the regulated area be removed.

G. Owner will pay for initial clearance testing. The cost of any retesting, necessitated as a result of failure to meet requirements for clearance, shall be borne by the Asbestos Abatement Contractor.

3.14 CLEANUP PROCEDURE

A. Remove and containerize all visible accumulations of asbestos containing material and asbestos contaminated debris utilizing rubber dust pans and rubber squeegees to move material around. Do not use metal shovels to pick up or move accumulated waste. Special care shall be taken to minimize damage to floor sheeting.

B. Wet clean all surfaces in the regulated area using rags, mops and sponges as appropriate. (Note: Some HEPA vacuums might not be wet-dry vacuums.)

C. Prior to removing the inner layer of plastic sheeting, the sheeting shall be sprayed with an encapsulant, so that any residue remaining will be adhered to the plastic sheeting.

D. Remove the cleaned inner layer of plastic sheeting from walls and floors. Windows, doors, HVAC system vents and all other openings shall remain sealed. The negative pressure ventilation units shall remain in continuous operation. Decontamination enclosure systems shall remain in place and be utilized.

E. Remove all containerized waste from the regulated area and waste container pass-out airlock.

F. The Owner’s Project Representative, MDNR/EPA Representative (if available), and the Contractor shall inspect the regulated area for visible residue. If any accumulation of residue is observed, it will be assumed to be asbestos and the cleaning cycle shall be repeated.

G. After cleaning the regulated area the Contractor may either spray the remaining barrier material with encapsulant or, wait at least 24 hours to allow fibers to settle and HEPA vacuum and wet clean all objects and surfaces in the regulated area again.

H. Decontaminate all tools and equipment and remove at the appropriate time in the cleaning sequence.

I. The regulated area shall be cleaned until it is in compliance with clearance testing specified in Article entitled: "Clearance Testing," hereinafter.

J. Following the satisfactory completion of clearance air testing remaining barriers may be removed and properly disposed of. All fixed objects within the area, which were covered with polyethylene prior to abatement work, shall be uncovered and thoroughly cleaned. A final visual inspection by the Owner's Project Representative, MDNR/EPA Representative (if available), and the Contractor shall insure that no contamination remains in the regulated area. Unsatisfactory conditions shall require additional cleaning and air testing.

3.15 DISPOSAL PROCEDURES

A. As the work progresses, to prevent exceeding available storage capacity on site, sealed and labeled containers of asbestos containing waste shall be removed and transported directly to the prearranged disposal location, which must be an authorized site in accordance with regulatory requirements of NESHAP and the State of Missouri. Use of intermediate storage locations is not an accepted disposal procedure.

B. The Contractor shall provide documentation in the form of a transportation and disposal manifest that will provide a chain-of-custody record of all asbestos-containing waste from project site to the disposal site. All asbestos-containing waste generated must be accounted for by these records and copies of all such records shall be delivered to the Construction Representative.

C. The approved landfill for this project shall be as specified in Paragraph 1.1 of this section unless an alternate is specifically approved in writing via addendum or change order.

D. Transportation to the Landfill:
   1. Once bags have been removed from the regulated area, they shall be loaded into an enclosed truck for transportation.
   2. The enclosed cargo area of the truck shall be free of debris and lined with six (6) mil polyethylene sheeting to prevent contamination from leaking or spilled containers. Floor sheeting shall be installed first and extend up the side walls. Wall sheeting shall be overlapped and taped into place.
   3. Drums shall be placed on level surfaces in the cargo area and packed tightly together to prevent shifting and tipping. Large components shall be secured to prevent shifting and bags placed on top. Do not throw containers into truck cargo area.
   4. Personnel loading asbestos containing waste shall be protected by disposable clothing including head, body and foot protection and at a minimum, half-face-piece, air-purifying, dual cartridge respirators equipped with HEPA filters.
   5. Any debris or residue observed on containers or surfaces outside of the regulated area resulting from cleanup or disposal activities shall be immediately cleaned up using HEPA filtered vacuum equipment and/or wet methods.

E. Disposal at the Landfill:
   1. Upon reaching the landfill, trucks are to approach the dump location as closely as possible for unloading of the asbestos containing waste.
   2. Bags, drums and components shall be inspected as they are off-loaded at the disposal site. Damaged containers shall be very carefully taped shut and repacked into drums or bags as applicable.
   3. Waste containers shall be placed on the ground at the disposal site, not pushed or thrown out of trucks (weight of wet material could rupture bags).
   4. Personnel off-loading containers at the disposal site shall wear protective equipment consisting of disposable head, body and foot protection and, at a minimum, half-face-piece, air-purifying, dual cartridge respirators equipped with HEPA filters.
   5. Following the removal of all containerized waste, the truck cargo area shall be decontaminated using HEPA vacuums and wet methods to meet the no visible residue criteria. Polyethylene sheeting shall be removed and discarded along with contaminated cleaning materials and protective clothing, in bags or drums at the disposal site.

3.16 REESTABLISHMENT OF REGULATED AREA

A. Reestablishment of the regulated area shall only occur following the completion of cleanup procedures and after clearance air monitoring has been performed and documented to the satisfaction of the Construction Representative.

B. Re-secure mounted objects removed from their former positions during area preparation activities.

C. Re-secure and relocate objects that were removed to temporary locations back to their original positions.

D. Reestablish HVAC, mechanical and electrical systems in proper working order. Remove potentially contaminated HVAC system filters and dispose of as asbestos contaminated waste. Decontaminate filter assembly using HEPA vacuums and wet cleaning techniques.

END OF SECTION 028213

SECTION 033511
CONCRETE FLOOR FINISHES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface treatments.

B. Color coatings.

C. Clear coatings.

D. Slip-resistant coatings.

E. Polished concrete.

1.02 SUBMITTALS

A. Product Data: Manufacturer's published data on each finishing product, including information on compatibility of different products and limitations.

B. Sample: Provide color chart for color coatings.

C. Maintenance Data: Provide data on maintenance and renewal of applied finishes.

D. Specimen warranty.

E. Executed warranty.

1.03 QUALITY ASSURANCE

A. For slabs indicated to receive concrete polishing system, do not proceed with concrete polishing unless manufacturer's representative is present for first day of placement.

B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with at least 3 years of documented experience.

C. Installer Qualifications: Company specializing in performing work of type specified and with at least 3 years of documented experience.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's sealed packaging, including application instructions.

1.05 FIELD CONDITIONS

A. Maintain light level equivalent to a minimum 200 W light source at 8 feet above the floor surface over each 20 foot square area of floor being finished.

B. Maintain ambient temperature of 50 degrees F minimum.

1.06 WARRANTY

A. Finish Warranty: Provide five-year manufacturer warranty against excessive degradation of finish. Include provision for replacement of units with excessive fading, chalking, or flaking.

B. Extended Correction Period: Correct defective work within 2-year period commencing on Date of Substantial Completion.

PART 2 PRODUCTS

2.01 APPLICATIONS

A. Unless otherwise indicated on drawings, finish concrete floors using clear coating or color coating, as selected by Architect after concrete subfloor has been exposed.

B. Color Coating:
   1. Use at following locations: 120 Shipping & Receiving.

C. Clear Coating:
   1. Use at the following locations: 120 Shipping & Receiving.

D. Polished Finish:
   1. Use at following locations: 120 Shipping & Receiving.

2.02 COATINGS

A. Color Coatings: Pigmented coating recommended by manufacturer for finishing existing concrete floors and slabs.
   1. Gloss: Satin.
   2. Color(s): As selected by Architect from manufacturer's standard range.
   3. Type: High solids epoxy; two-component.
      a. Acceptable manufacturers include, but are not limited to, the following:
         1) Allied Construction Technologies, Inc
         2) Euclid Chemical Company
         3) Kaufman Products Inc
         4) Master Builders Solutions
         5) SureCrete Design Products

B. Clear Coatings: Clear coating recommended by manufacturer for finishing existing concrete floors and slabs.
   1. Gloss: High gloss.
   2. Color(s): As selected by Architect from manufacturer's standard range.
   3. Type: High solids epoxy; two-component.
      a. Acceptable manufacturers include, but are not limited to, the following:
         1) Allied Construction Technologies, Inc
         2) Euclid Chemical Company
         3) Kaufman Products Inc
         4) Master Builders Solutions
         5) SureCrete Design Products

C. Slip-Resistant Coating:
   1. Plastic Aggregate: Finely ground polymer for addition to coatings for slip resistance.

2.03 POLISHED CONCRETE SYSTEM

A. Description: Materials, equipment, and procedures designed and furnished by single manufacturer to produce densely polished concrete of specified sheen.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that floor surfaces are acceptable to receive the work of this section.

B. Verify that flaws in concrete have been patched and joints filled with methods and materials suitable for further finishes.

3.02 GENERAL

A. Apply materials in accordance with manufacturer's instructions.

3.03 COATING APPLICATION

A. Verify that surface is free of previous coatings, sealers, curing compounds, water repellents, laitance, efflorescence, fats, oils, grease, wax, soluble salts, residues from cleaning agents, and other impediments to adhesion.

B. Verify that water vapor emission from concrete and relative humidity in concrete are within limits established by coating manufacturer.

C. Protect adjacent non-coated areas from drips, overflow, and overspray; immediately remove excess material.

D. Apply coatings in accordance with manufacturer's instructions, matching approved mock-ups for color, special effects, sealing and workmanship.

3.04 CONCRETE POLISHING

A. Execute using materials, equipment, and procedures specified by manufacturer, using manufacturer approved installer.
   1. Final Polished Sheen: Satin finish; other sheens are included as comparison to illustrate required sheen; final sheen is before addition of any sealer or coating, regardless of whether that is also specified or not.
   2. Satin Finish: Reflecting images from side lighting.

B. Protect finished surface as required and as recommended by manufacturer of polishing system.

3.05 PROTECTION

A. Protect installed coatings from subsequent construction operations.

B. Do not permit traffic over unprotected floor surface.

END OF SECTION

SECTION 079200
JOINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Nonsag gunnable joint sealants.

B. Joint backings and accessories.

1.02 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.

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; 2016 (Reapproved 2023).

E. SCAQMD 1168 - Adhesive and Sealant Applications; 1989, with Amendment (2022).

1.03 SUBMITTALS

A. See Section 013300 - Submittals for submittal procedures.

B. 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. Backing material recommended by sealant manufacturer.
   4. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
   5. Substrates the product should not be used on.

C. Preconstruction Laboratory Test Reports: Submit at least four weeks prior to start of installation.

D. Executed warranty.

1.04 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 the work of this section and with at least three years of documented experience.

C. 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.

1.05 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:
   1. Adfast USA Inc
   2. Bostik Inc
   3. Hilti, Inc
   4. QUIKRETE Companies
   5. Sherwin-Williams Company
   6. Sika Corporation

2.02 JOINT SEALANT APPLICATIONS

A. Scope:
   1. Interior Joints:
      a. Do not seal gaps and openings in gypsum board and suspended ceilings
      b. Seal the following joints:
         1) Joints between door frames and window frames and adjacent construction.
         2) In sound-rated wall and ceiling assemblies, gaps at electrical outlets and wiring devices.

B. Interior Joints: Use nonsag polyurethane sealant, unless otherwise indicated.

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. 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 12.5 percent, minimum.
   2. Color: Match adjacent finished surfaces.

2.05 ACCESSORIES

A. Sealant Backing Materials, General: Materials placed in joint before applying sealants; assists sealant performance and service life by developing optimum sealant profile and preventing three-sided adhesion; type and size recommended by sealant manufacturer for compatibility with sealant, substrate, and application.

B. Masking Tape: Self-adhesive, nonabsorbent, nonstaining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.

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. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer.

D. Install bond breaker backing tape where backer rod cannot be used.

E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.

F. 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.

G. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

END OF SECTION

SECTION 084313
ALUMINUM-FRAMED STOREFRONTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Aluminum-framed storefront, with vision glass.

B. Aluminum doors and frames.

C. Weatherstripping.

D. Door hardware.

1.02 RELATED REQUIREMENTS

A. Section 079200 - Joint Sealants: Sealing joints between frames and adjacent construction.

B. Section 088000 - Glazing: Glass and glazing accessories.

1.03 PRICE AND PAYMENT PROCEDURES

A. See Section 012300 - Alternates.
   1. This section describes products included as Alternate No. 1 and in the Base Bid.

1.04 REFERENCE STANDARDS

A. AAMA CW-10 - Care and Handling of Architectural Aluminum from Shop to Site; 2015.

B. AAMA 609 & 610 - Cleaning and Maintenance Guide for Architecturally Finished Aluminum; 2025.

C. AAMA 611 - Specification for Anodized Architectural Aluminum; 2024.

D. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.

E. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.

F. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 2021.

G. ASTM E283/E283M - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Skylights, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 2019.

H. ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2014 (Reapproved 2021).

1.05 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Conduct a preinstallation meeting one week before starting work of this section; require attendance by all affected installers.

1.06 SUBMITTALS

A. See Section 013300 - Submittals, for submittal procedures.

B. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, glass and infill, door hardware, and internal drainage details.

C. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related work, expansion and contraction joint location and details, and field welding required.

D. Samples: Submit two samples at least 2 x 4 inches in size illustrating finished aluminum surface.

E. Hardware Schedule: Complete itemization of each item of hardware to be provided for each door, cross-referenced to door identification numbers in Contract Documents.

F. Specimen warranty.

1.07 QUALITY ASSURANCE

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

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

1.08 DELIVERY, STORAGE, AND HANDLING

A. Handle products of this section in accordance with AAMA CW-10.

B. Protect finished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond to aluminum when exposed to sunlight or weather.

1.09 FIELD CONDITIONS

A. Do not install sealants when ambient temperature is less than 40 degrees F. Maintain this minimum temperature during and 48 hours after installation.

1.10 WARRANTY

A. Correct defective Work within a five year period after Date of Substantial Completion.

B. Provide five year manufacturer warranty against failure of glass seal on insulating glass units, including interpane dusting or misting. Include provision for replacement of failed units.

C. Provide five year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Aluminum-Framed Storefronts:
   1. Arcadia, Inc
   2. Boyd Aluminum
   3. Kawneer North America
   4. Manko Window Systems, Inc
   5. Oldcastle BuildingEnvelope
   6. Pittco Architectural Metals Inc
   7. Trulite Glass & Aluminum Solutions, LLC

2.02 ALUMINUM-FRAMED STOREFRONT

A. Aluminum-Framed Storefront: Factory fabricated, factory finished aluminum framing members with infill, and related flashings, anchorage and attachment devices.
   1. Glazing Position: Centered (front to back).
   2. Vertical Mullion Dimensions: 2 inches wide by 4-1/2 inches deep.
   3. Finish: Class II natural anodized.
      a. Factory finish all surfaces that will be exposed in completed assemblies.
   4. Finish Color: As selected by Architect from manufacturer's standard line.
   5. Fabrication: Joints and corners flush, hairline, and weatherproof, accurately fitted and secured; prepared to receive anchors and hardware; fasteners and attachments concealed from view; reinforced as required for imposed loads.
   6. Construction: Eliminate noises caused by wind and thermal movement, prevent vibration harmonics, and prevent "stack effect" in internal spaces.
   7. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.
   8. Expansion/Contraction: Provide for expansion and contraction within system components caused by cycling temperature range of 170 degrees F over a 12 hour period without causing detrimental effect to system components, anchorages, and other building elements.

9. Movement: Allow for movement between storefront and adjacent construction, without damage to components or deterioration of seals.
10. Perimeter Clearance: Minimize space between framing members and adjacent construction while allowing expected movement.

B. Performance Requirements
1. Wind Loads: Design and size components to withstand the specified load requirements without damage or permanent set, when tested in accordance with ASTM E330/E330M, using loads 1.5 times the design wind loads and 10 second duration of maximum load.
a. Member Deflection: Limit member deflection to flexure limit of glass in any direction, with full recovery of glazing materials.
2. Air Leakage: 0.06 cfm/sq ft maximum leakage of storefront wall area when tested in accordance with ASTM E283/E283M at 1.57 psf pressure difference.

2.03 COMPONENTS

A. Aluminum Framing Members: Tubular aluminum sections, drainage holes and internal weep drainage system.
1. Framing members for interior applications need not be thermally broken.
2. Glazing Stops: Flush.
3. Structurally Reinforced Members: Extruded aluminum with internal reinforcement of structural steel member.

B. Glazing: See Section 088000.

C. Swing Doors: Glazed aluminum.
1. Thickness: 1-3/4 inches.
2. Top Rail: 4 inches wide.
3. Vertical Stiles: 4-1/2 inches wide.
4. Bottom Rail: 10 inches wide.
5. Glazing Stops: Square.
6. Finish: Same as storefront.

2.04 MATERIALS

A. Extruded Aluminum: ASTM B221 (ASTM B221M).

B. Sheet Aluminum: ASTM B209/B209M.

C. Fasteners: Stainless steel.

D. Sealant for Setting Thresholds: Non-curing butyl type.

E. Glazing Gaskets: Type to suit application to achieve weather, moisture, and air infiltration requirements.

2.05 FINISHES

A. Class II Natural Anodized Finish: AAMA 611 AA-M12C22A31 Clear anodic coating not less than 0.4 mils thick.

B. Color: As selected by Architect from manufacturer's standard range.

2.06 HARDWARE

A. For each door, include sill sweep strip and threshold.

B. Weatherstripping: Wool pile, continuous and replaceable; provide on all exterior doors.

C. Sill Sweep Strips: Resilient seal type, retracting, of neoprene; provide on all doors.

D. Threshold: Extruded aluminum, one piece per door opening, ribbed surface; provide on doors as indicated.

E. Hinges: Butt type, swing clear; top, intermediate, and bottom.

F. Push/Pull Set: Standard configuration push/pull handles.

G. Exit Devices: Panic type.

H. Door Closers: Exposed overhead.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify dimensions, tolerances, and method of attachment with other work.

B. Verify that storefront wall openings and adjoining water-resistive and/or air barrier seal materials are ready to receive work of this section.

3.02 INSTALLATION

A. Install wall system in accordance with manufacturer's instructions.

B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.

C. Provide alignment attachments and shims to permanently fasten system to building structure.

D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.

E. Provide thermal isolation where components penetrate or disrupt building insulation.

F. Install sill flashings. Turn up ends and edges; seal to adjacent work to form water tight dam.

G. Where fasteners penetrate sill flashings, make watertight by seating and sealing fastener heads to sill flashing.

H. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.

I. Set thresholds in bed of sealant and secure.

J. Install hardware using templates provided.

K. Install glass using glazing method required to achieve performance criteria; see Section 088000.

L. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

3.03 TOLERANCES

A. Maximum Variation from Plumb: 0.06 inch per 3 feet non-cumulative or 0.06 inch per 10 feet, whichever is less.

B. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch.

3.04 FIELD QUALITY CONTROL

A. Provide services of storefront manufacturer's field representative to observe for proper installation of system and submit report.

3.05 ADJUSTING

A. Adjust operating hardware for smooth operation.

3.06 CLEANING

A. Remove protective material from pre-finished aluminum surfaces.

B. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths, and take care to remove dirt from corners and to wipe surfaces clean.

C. Upon completion of installation, thoroughly clean aluminum surfaces in accordance with AAMA 609 & 610.

3.07 PROTECTION

A. Protect installed products from damage until Date of Substantial Completion.

END OF SECTION

SECTION 085659
SERVICE AND TELLER WINDOW UNITS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Service and teller window units.

1.02 RELATED REQUIREMENTS

A. Section 079200 - Joint Sealants: Sealing joints between frames and adjacent construction.

1.03 REFERENCE STANDARDS

A. AAMA 611 - Specification for Anodized Architectural Aluminum; 2024.

B. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.

C. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 2021.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate work with adjacent materials specified in other sections and as indicated on drawings and approved shop drawings.

B. Coordinate electrical service and rough-in requirements.

C. Preinstallation Meeting: Prior to start of installation arrange a meeting on site to familiarize installer and installers of related work with requirements relating to this work.

1.05 SUBMITTALS

A. See Section 013300 - Submittals for submittal procedures.

B. Product Data: Submit manufacturer's product data for specified products indicating materials, operation, glazing, finishes, and installation instructions.

C. Shop Drawings: Indicate configuration, sizes, rough-in, mounting, anchors and fasteners, and installation clearances.

D. Samples for Selection of Finishes:
   1. Applied Finishes: Color charts for factory finishes.

E. Manufacturer Qualification Statement.

F. Installer Qualification Statement.

G. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with at least three years documented experience, and with ability to provide test reports showing that their standard manufactured products meet the specified requirements.

B. 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. Deliver units in manufacturer's original packaging and unopened containers with identification labels intact.

B. Store units in area protected from exposure to weather and vandalism.

1.08 WARRANTY

A. Provide manufacturer's warranty agreeing to repair or replace units and their components that fail in materials or workmanship within five years from Date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Service and Teller Window Units:
   1. Quikserv
   2. Ready Access, Inc
   3. C.R. Laurence Co., Inc.

2.02 SERVICE AND TELLER WINDOW UNITS

A. Location: Built within interior wall, as indicated on drawings.

B. Type of Use: Walk-up.

C. Window Type: Sliding, single horizontal.
   1. Operation: Manual.
   2. Mounting: Flush with wall surface.
   3. Window Size: As indicated on drawings.
   4. Material: Aluminum.
      a. Finish: Clear anodized.
      b. Finish Color: As selected from manufacturer's standard colors.
   5. Header: Manufacturer's standard type.
   6. Sill: Owner Furnished, Contractor Installed.

D. Glazing: Single (monolithic), clear.
   1. Tempered safety glazing.

2.03 ASSEMBLY COMPONENTS

A. Windows: Factory-fabricated, finished, and glazed, with extruded aluminum frame and glazing stops; complete with hardware and anchors.
   1. Provide window units that are re-glazable from the secure side without dismantling the non-secure side of framing.
   2. Rigidly fit and secure joints and corners with internal reinforcement. Make joints and connections flush, hairline, and weatherproof. Fully weld corners.
   3. Apply factory finish to exposed surfaces.
   4. Wind Design: Design and size components to withstand dead loads and live loads caused by pressure and negative wind loads acting normal to plane of window as calculated in accordance with applicable code.

2.04 MATERIALS

A. Aluminum Extrusions: Minimum 1/8 inch thick frame and sash material complying with ASTM B221 and ASTM B221M.
   1. Finish: Class II natural anodized.

B. Monolithic Glass: Fully tempered float glass; minimum 1/4 inch thickness.

C. Sealant for Setting Sills and Sill Flashing: Non-curing butyl type.

2.05 FINISHES

A. Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41 Clear anodic coating not less than 0.7 mils thick.

B. Class II Natural Anodized Finish: AAMA 611 AA-M12C22A31 Clear anodic coating not less than 0.4 mils thick.

C. Color: To be selected by Architect from manufacturer's standard range.

2.06 ACCESSORIES

A. Hardware and Security Devices for Sliding Windows:
   1. Handles: Stainless steel, manufacturer's standard profile and finish.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that window openings are ready for installation of windows.

B. Verify that correct embedded anchors are in place and in proper location; repair or replace anchors as required to achieve satisfactory installation.

C. Notify Architect if conditions are not suitable for installation of units; do not proceed until conditions are satisfactory.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install units in correct orientation (inside/outside or secure/non-secure).

C. Anchor units securely in manner so as to achieve performance specified.

D. Remove and replace defective work.

3.03 ADJUSTING

A. Adjust operating components for smooth operation while also maintaining a secure, weather-tight enclosure and a tight fit at the contact points; lubricate operating hardware.

3.04 CLEANING

A. Remove protective material from factory finished surfaces.

B. Clean exposed surfaces promptly after installation without damaging finishes.

3.05 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain operable units.
   1. Instructor: Manufacturer's training personnel.
   2. Location: At project site.
   3. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.

3.06 PROTECTION

A. Provide temporary protection to ensure that service and teller windows are without damage upon Date of Substantial Completion.

END OF SECTION

SECTION 088000
GLAZING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Insulating glass units.

B. Glazing units.

C. Glazing compounds.

1.02 RELATED REQUIREMENTS

A. Section 084313 - Aluminum-Framed Storefronts: Glazing provided as part of storefront assembly.

B. Section 085659 - Service and Teller Window Units: Glazing provided as part of assembly.

1.03 PRICE AND PAYMENT PROCEDURES

A. See Section 012300 - Alternates.
   1. This section describes products included as Alternate No. 1 and in the Base Bid.

1.04 REFERENCE STANDARDS

A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; Current Edition.

B. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test; 2015 (Reaffirmed 2020).

C. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; 2005 (Reapproved 2019).

D. ASTM C1036 - Standard Specification for Flat Glass; 2021.

E. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2018.

F. ASTM C1172 - Standard Specification for Laminated Architectural Flat Glass; 2019.

G. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2016 (Reapproved 2023).

H. ASTM C1376 - Standard Specification for Pyrolytic and Vacuum Deposition Coatings on Flat Glass; 2021a.

I. ASTM E1300 - Standard Practice for Determining Load Resistance of Glass in Buildings; 2016.

J. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation; 2019.

K. GANA (SM) - GANA Sealant Manual; 2008.

L. NFRC 100 - Procedure for Determining Fenestration Product U-factors; 2023.

M. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence; 2023.

N. NFRC 300 - Test Method for Determining the Solar Optical Properties of Glazing Materials and Systems; 2023.

1.05 SUBMITTALS

A. Product Data on Insulating Glass Unit and Glazing Unit Glazing Types: Provide structural, physical and environmental characteristics, size limitations, special handling and installation requirements.

B. Product Data on Glazing Compounds and Accessories: Provide chemical, functional, and environmental characteristics, limitations, special application requirements, and identify available colors.

C. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.06 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 and with at least three years documented experience.
   1. Provide company, field supervisors, and installers that hold active ANSI accredited certifications in appropriate categories for work specified.

1.07 FIELD CONDITIONS

A. Do not install glazing when ambient temperature is less than 40 degrees F.

B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.08 WARRANTY

A. Insulating Glass Units: Provide a five (5) year manufacturer warranty to include coverage for seal failure, interpane dusting or misting, including providing products to replace failed units.

B. Laminated Glass: Provide a five (5) year manufacturer warranty to include coverage for delamination, including providing products to replace failed units.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Glass Fabricators:
   1. GGI - General Glass International
   2. Standard Bent Glass Corp
   3. Tecnoglass
   4. Thompson I.G., LLC
   5. Trulite Glass & Aluminum Solutions, LLC
   6. Viracon, Inc

2.02 PERFORMANCE REQUIREMENTS - EXTERIOR GLAZING ASSEMBLIES

A. Provide type and thickness of exterior glazing assemblies to support assembly dead loads, and to withstand live loads caused by positive and negative wind pressure acting normal to plane of glass.
   1. Comply with ASTM E1300 for design load resistance of glass type, thickness, dimensions, and maximum lateral deflection of supported glass.
   2. Provide glass edge support system sufficiently stiff to limit the lateral deflection of supported glass edges to less than 1/175 of their lengths under specified design load.
   3. Glass thicknesses listed are minimum.

B. Weather-Resistive Barrier Seals: Provide completed assemblies that maintain continuity of building enclosure water-resistive barrier, vapor retarder, and/or air barrier.

C. Thermal and Optical Performance: Provide exterior glazing products with performance properties as indicated. Performance properties are in accordance with manufacturer's published data as determined with the following procedures and/or test methods:
   1. Center of Glass U-Value: Comply with NFRC 100 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 7 computer program.
   2. Center of Glass Solar Heat Gain Coefficient (SHGC): Comply with NFRC 200 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 7 computer program.
   3. Solar Optical Properties: Comply with NFRC 300 test method.

2.03 GLASS MATERIALS

A. Float Glass: Provide float glass based glazing unless otherwise indicated.
   1. Annealed Type: ASTM C1036, Type I - Transparent Flat, Class 1 - Clear, Quality - Q3.
   2. Kind FT - Fully Tempered Type: Complies with ASTM C1048.

B. Laminated Glass: Float glass laminated in accordance with ASTM C1172.
   1. Laminated Safety Glass: Complies with ANSI Z97.1 - Class B or 16 CFR 1201 - Category I impact test requirements.
   2. Polyvinyl Butyral (PVB) Interlayer: 0.030 inch thick, minimum.

2.04 INSULATING GLASS UNITS

A. Insulating Glass Units:
   1. Durability: Certified by an independent testing agency to comply with ASTM E2190.
   2. Coated Glass: Comply with requirements of ASTM C1376 for pyrolytic (hard-coat) or magnetic sputter vapor deposition (soft-coat) type coatings on flat glass; coated vision glass, Kind CV; coated overhead glass, Kind CO; or coated spandrel glass, Kind CS.
   3. Spacer Color: Black.
   4. Edge Seal:
      a. Single-Sealed System: Provide silicone, polysulfide, or polyurethane sealant as seal applied around perimeter.
      b. Color: Black.
   5. Purge interpane space with dry air, hermetically sealed.

B. Insulating Glass Units: Vision glass, double glazed.
   1. Applications: Exterior glazing unless otherwise indicated.
   2. Space between lites filled with air.
   3. Outboard Lite: Laminated, 1/4 inch thick, minimum.
      a. Tint: Clear.
      b. Coating: Low-E (passive type), on #2 surface.
   4. Inboard Lite: Laminated float glass, 1/4 inch thick, minimum.
      a. Tint: Clear.
   5. Total Thickness: 1 inch.

2.05 GLAZING UNITS

A. Monolithic Interior Vision Glazing:
   1. Applications: Interior glazing unless otherwise indicated.
   2. Glass Type: Laminated float glass.
   3. Tint: Clear.
   4. Thickness: 1/4 inch, nominal.
   5. Glazing Method: Dry glazing method, gasket glazing.

2.06 ACCESSORIES

A. Setting Blocks: Silicone, with 80 to 90 Shore A durometer hardness; ASTM C864 Option II. Length of 0.1 inch for each square foot of glazing or minimum 4 inch by width of glazing rabbet space minus 1/16 inch by height to suit glazing method and pane weight and area.

B. Glazing Gaskets: Resilient silicone extruded shape to suit glazing channel retaining slot; ASTM C864 Option II; color black.

PART 3 EXECUTION

3.01 VERIFICATION OF CONDITIONS

A. Verify that openings for glazing are correctly sized and within tolerances, including those for size, squareness, and offsets at corners.

B. Verify that the minimum required face and edge clearances are being provided.

C. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and support framing is ready to receive glazing system.

D. Verify that sealing between joints of glass framing members has been completed effectively.

E. Proceed with glazing system installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Clean contact surfaces with appropriate solvent and wipe dry within maximum of 24 hours before glazing. Remove coatings that are not tightly bonded to substrates.

B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.

C. Prime surfaces scheduled to receive sealant where required for proper sealant adhesion.

3.03 INSTALLATION, GENERAL

A. Install glazing in compliance with written instructions of glass, gaskets, and other glazing material manufacturers, unless more stringent requirements are indicated, including those in glazing referenced standards.

B. Install glazing sealants in accordance with ASTM C1193, GANA (SM), and manufacturer's instructions.

C. Do not exceed edge pressures around perimeter of glass lites as stipulated by glass manufacturer.

D. Set glass lites of system with uniform pattern, draw, bow, and similar characteristics.

3.04 INSTALLATION - DRY GLAZING METHOD (GASKET GLAZING)

A. Application - Exterior and/or Interior Glazed: Set glazing infills from either the exterior or the interior of the building.

B. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.

C. Rest glazing on setting blocks and push against fixed stop with sufficient pressure on gasket to attain full contact.

D. Install removable stops without displacing glazing gasket; exert pressure for full continuous contact.

3.05 FIELD QUALITY CONTROL

A. Glass and Glazing product manufacturers to provide field surveillance of the installation of their products.

B. Monitor and report installation procedures and unacceptable conditions.

3.06 CLEANING

A. Remove excess glazing materials from finish surfaces immediately after application using solvents or cleaners recommended by manufacturers.

B. Remove nonpermanent labels immediately after glazing installation is complete.

C. Clean glass and adjacent surfaces after sealants are fully cured.

D. Clean glass on both exposed surfaces not more than 4 days prior to Date of Substantial Completion in accordance with glass manufacturer's written recommendations.

3.07 PROTECTION

A. Remove and replace glass that is damaged during construction period prior to Date of Substantial Completion.

END OF SECTION

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.

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; 2023.

F. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2023.

G. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2017.

H. ASTM C1658/C1658M - Standard Specification for Glass Mat Gypsum Panels; 2019, with Editorial Revision (2020).

I. GA-216 - Application and Finishing of Gypsum Panel Products; 2024.

1.04 SUBMITTALS

A. See Section 013300 - Submittals for submittal procedures.

B. Product Data:
   1. Provide data on metal framing, gypsum board, accessories, and joint finishing system.

C. Installer's Qualification Statement.

1.05 QUALITY ASSURANCE

A. 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 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 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.

2.02 BOARD MATERIALS

A. Manufacturers - Gypsum-Based Board:
   1. American Gypsum Company
   2. CertainTeed Corporation
   3. Georgia-Pacific Gypsum
   4. Gold Bond Building Products, LLC provided by National Gypsum Company
   5. PABCO Gypsum
   6. 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. Type X.
   4. Thickness:
      a. Vertical Surfaces: 5/8 inch.

2.03 GYPSUM BOARD ACCESSORIES

A. Acoustic Insulation: ASTM C665; preformed mineral-fiber, friction fit type, unfaced; thickness 2 inches.

B. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.

C. Finishing Compound: Surface coat and primer, takes the place of skim coating.

D. Anchorage to Substrate: Tie wire, nails, screws, and other metal supports, of type and size to suit application; to rigidly secure materials in place.

PART 3 EXECUTION

3.01 EXAMINATION

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

3.02 FRAMING INSTALLATION

A. Standard Wall Furring: Install at plastered walls scheduled to receive gypsum board, not more than 4 inches from floor and ceiling lines and abutting walls. Secure in place on alternate channel flanges at maximum 24 inches on center.

3.03 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.

3.04 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.

3.05 INSTALLATION OF TRIM AND ACCESSORIES

A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.

B. Corner Beads: Install at external corners, using longest practical lengths.

3.06 JOINT TREATMENT

A. 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 1: Wall areas above finished ceilings, whether or not accessible in the completed construction.

B. 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.

3.07 TOLERANCES

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

3.08 PROTECTION

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

END OF SECTION

SECTION 092216
NON-STRUCTURAL METAL FRAMING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Metal partition 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 S100 - North American Specification for the Design of Cold-Formed Steel Structural Members; 2016, with Supplement (2020).

B. AISI S220 - North American Standard for Cold-Formed Steel Nonstructural Framing; 2020.

C. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2019.

D. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.

E. ASTM A1003/A1003M - Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members; 2015.

F. ASTM C1007 - Standard Specification for Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories; 2020.

G. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2020.

H. 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, load charts, and limitations.

C. Product Data: Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.

D. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

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.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Metal Framing, Connectors, and Accessories:
   1. CEMCO
   2. ClarkDietrich

3. Jaimes Industries
4. MarinoWARE
5. R-stud
6. SCAFCO Corporation
7. Steel Construction Systems
8. Telling Industries

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: C-shaped.
   4. Furring: Hat-shaped sections, minimum depth of 7/8 inch.

B. Partition Head to Structure Connections: Provide mechanical anchorage devices that accommodate deflection using slotted holes, screws, and anti-friction bushings, preventing rotation of studs while maintaining structural performance of partition.
   1. Structural Performance: Maintain lateral load resistance and vertical movement capacity required by applicable code when evaluated in accordance with AISI S100.
   2. Material: ASTM A653/A653M steel sheet, SS Grade 50.

C. Non-Loadbearing Framing Accessories:
   1. Ceiling Hangers: Type and size as specified in ASTM C754 for spacing required.
   2. Partial Height Wall Framing Support: Provides stud reinforcement and anchored connection to floor.
      a. Materials: ASTM A36/A36M formed sheet steel support member with factory-welded ASTM A1003/A1003M steel plate base.
   3. Framing Connectors: ASTM A653/A653M steel clips; secures cold rolled channel to wall studs for lateral bracing.
   4. Fasteners: ASTM C1002 self-piercing self-tapping screws.
   5. Anchorage Devices: Powder actuated.
   6. Acoustic Insulation: ASTM C665; preformed mineral-fiber, friction fit type, unfaced; thickness as required for STC.

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. Install structural members and connections in accordance with ASTM C1007.

C. Extend partition framing to structure in all locations.

D. 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.

E. Align and secure top and bottom runners at 24 inches on center.

F. Fit runners under and above openings; secure intermediate studs to same spacing as wall studs.

G. Install studs vertically at 16 inches on center.

H. Align stud web openings horizontally.

I. Secure studs to tracks using fastener method. Do not weld.

J. Fabricate corners using a minimum of three studs.

K. Install double studs at wall openings, door and window jambs, not more than 2 inches from each side of openings.

L. Coordinate installation of bucks, anchors, and blocking with electrical, mechanical, and other work to be placed within or behind stud framing.

M. Furring: Install at spacing and locations shown on drawings. Lap splices a minimum of 6 inches.

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

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.

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; 2022.

E. ASTM E1264 - Standard Classification for Acoustical Ceiling Products; 2023.

1.03 SUBMITTALS

A. Product Data: Provide data on suspension system components, acoustical units, and metal edge trim/ transition.

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.

1.04 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.

1.05 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: Painted mineral fiber, with the following characteristics:
   1. Classification: ASTM E1264 Type III.
      a. Form: 2, water felted.
      b. Pattern: "E" - lightly textured.

2. Size: 24 by 24 inches.
3. Thickness: 3/4 inch.
4. Panel Edge: Reveal.
5. Color: Match existing, as approved by Architect.
6. Suspension System: Exposed grid.

2.03 SUSPENSION SYSTEM(S)

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; factory-applied closed-cell foam gaskets.
   1. Structural Classification: Light-duty, when tested in accordance with ASTM C635/C635M.
   2. Profile: Tee; 15/16 inch face width.
   3. Finish: Match existing, as approved by Architect.

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. Perimeter Moldings: Same metal and finish as grid.

D. Metal Edge Trim for Suspension Systems: Steel or extruded aluminum; provide attachment clips, splice plates, and preformed corner pieces for complete trim system.
   1. Trim Height: 12 inch.
   2. Finish: Match suspension system.
   3. Color: White.
   4. Basis-of-Design Product:
      a. Armstrong World Industries, Inc.; Axiom Transitions, AXTR12STR.

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 and as supplemented in this section.

B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.

C. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
   1. Use longest practical lengths.

D. 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.

E. 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.

F. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.

G. Support fixture loads using supplementary hangers located within 6 inches of each corner, or support components independently.

H. 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. Make field cut edges of same profile as factory edges.
   2. Double cut and field paint exposed reveal 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

SECTION 096340
STONE FLOORING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Stone on floors and bases.

B. Thresholds.

1.02 PRICE AND PAYMENT PROCEDURES

A. See Section 012300 - Alternates.
   1. This section describes products included as Alternate No. 1, not included in the base bid.

1.03 REFERENCE STANDARDS

A. ANSI A118.4 - American National Standard Specifications for Modified Dry-Set Cement Mortar; 2023.

B. ANSI A118.7 - American National Standard Specifications for High Performance Cement Grouts for Tile Installation; 2019.

C. ANSI A118.10 - American National Standard Specifications for Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation; 2023.

D. ASTM C119 - Standard Terminology Relating to Dimension Stone; 2022.

E. ASTM C615/C615M - Standard Specification for Granite Dimension Stone; 2023.

F. ASTM C1528/C1528M - Standard Guide for Selection of Dimension Stone; 2020.

G. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation; 2025.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene one week prior to commencing work of this section.

1.05 SUBMITTALS

A. Product Data: Provide information on each stone flooring type for verification. Provide instructions for using grout. Provide information on metal thresholds.

B. Samples: Submit stone samples for verification of color/pattern, texture, and thickness. Submit sample of colored grout.

C. Maintenance Data: Include recommended cleaning methods, cleaning materials, stain removal methods, and polishes and waxes.
   1. Include list of liquids detrimental to appearance of stone finish.

D. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. Extra Flooring Material: 10 sq ft of each size, color, and surface finish installed.

1.06 QUALITY ASSURANCE

A. Perform work in accordance with TCNA (HB) instructions for methods specified.

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

1.07 FIELD CONDITIONS

A. Maintain at least 50 degrees F ambient temperature during installation of flooring materials.

PART 2 PRODUCTS

2.01 STONE

A. Stone, General: See recommendations in ASTM C1528/C1528M.

B. Marble: Free of defects detrimental to appearance or durability:

1. Quarry: Historic Phenix Quarry in Greene County, MO; Variety: Napoleon Gray, ASTM Type III High-Density Limestone.
2. Unit Size: 12 by 24 inches.
3. Thickness: 3/4 inch.
4. Cut Direction and Surface Finish: Fleuri Sawn 50/50 Acid
   a. Include Select Fossiliferous as approved by Architect.
5. Sole Source Manufacturer: Provide product from Phenix Marble Company: www.phenixmarble.com.

C. Granite: Free of defects detrimental to appearance or durability; ASTM C615/C615M.
1. Unit Size: 12 by 24 inches.
2. Thickness: 3/4 inch.
3. Color: Missouri Red Granite.
4. Surface Finish: Sawn, 50/50 Acid.
5. Acceptable Producers include, but are not limited to, the following:
   a. Busenbark Flooring and Granite
   b. Missouri River Monument Co.
   c. StonePly Co.
   d. Tecstone Granite

D. Base: Match Marble flooring for surface finish and color:
1. Length of Units: As recommended by Manufacturer.
2. Height: 4 inches.
3. Top Edge: Eased.
4. Internal Corner: Lapped butt joint.
5. External Corner: Eased.
6. Sole Source Manufacturer: Provide from Phenix Marble Company: www.phenixmarble.com.

2.02 SETTING AND GROUTING MATERIALS

A. Manufacturers:
1. Bostik Inc
2. LATICRETE International, Inc
3. Mapei Corporation

B. Mortar Bed Materials: Portland cement, sand, latex additive, and water.

C. Latex-Portland Cement Mortar Bond Coat: ANSI A118.4.

D. Polymer Modified Grout: ANSI A118.7 polymer modified cement grout.
1. Applications: Use this type of grout where indicated 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(s): As selected by Architect from manufacturer's full line.

2.03 ACCESSORIES

A. Waterproofing Membrane: Fluid applied neoprene complying with ANSI A118.10.

B. Thresholds: Extruded aluminum, with integral edge strip.
1. Sizes as indicated on drawings by full width of wall or frame opening.
2. Height/ Beveled Sides: as needed to accomodate height changes of adjacent flooring, as indicated on drawings. Ensure ADA compliance.

C. Cleaner: Type not harmful to stone, joint materials, or adjacent surfaces; recommended by stone producer and grout manufacturer.

D. Sealer: Colorless, slip and stain resistant type that will not detrimentally affect stone and adjacent work.

2.04 MORTAR AND GROUT MIX

A. Mix and proportion cementitious materials for site made slurry coat and mortar bed.

B. Mix and proportion pre-mixed setting bed and grout materials in accordance with manufacturer's instructions.

2.05 FABRICATION

A. Cut stone into sizes and thickness required.

B. Fabrication Tolerances:
   1. Maximum Variation From Thickness: 1/16 inch.
   2. Maximum Variation From Face Size: 1/16 inch.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are ready to receive this work.

3.02 PREPARATION

A. Vacuum clean substrate surfaces; damp clean stone.

B. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.

C. Clean stone prior to installation, with edges and surfaces free of dirt or foreign material.

D. Do not use wire brushes or implements that mark or damage exposed surfaces.

3.03 INSTALLATION - GENERAL

A. Install stone flooring in accordance with stone fabricator's instructions.

B. Lay stone units to pattern indicated, and do not interrupt pattern through openings.

C. Place thresholds at door frame openings indicated on Drawings.

D. Cut and fit stone units tightly to penetrations, leaving sealant joint space. Ensure finish trim will cover cut edges. Form corners and bases neatly. Align floor and base joints.

E. Maintain uniform joint width subject to variance in tolerance allowed in stone unit size. Make joints watertight, without voids, cracks, excess mortar or excess grout.

F. Maintain joint width of 1/4 inch where abutting vertical surfaces or protrusions.

G. Sound test the units after setting. Replace hollow sounding units.

H. Keep expansion and control joints free of mortar or grout. Apply sealant to joints.

I. Grout joints. Pack and work grout into voids. Neatly tool to flush surface.

3.04 THINSET METHOD

A. Install in accordance with TCNA (HB) Method F113, with mortar bond coat.

B. Allow thinset materials to cure prior to grouting.

3.05 MORTAR BED METHOD

A. Install in accordance with TCNA (HB) Method F121, over waterproofing membrane.

B. Set stone in full mortar bed to support stone over full bearing surface.

C. Allow units to set for a minimum of 48 hours prior to grouting.

D. To accommodate joint grout, rake out joints 1/4 to 3/8 inch.

3.06 CLEANING

A. Clean stone and grout surfaces with cleaner; seal with sealer.

END OF SECTION

SECTION 096500
RESILIENT FLOORING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Resilient tile flooring.

B. Resilient base.

C. Installation accessories.

1.02 PRICE AND PAYMENT PROCEDURES

A. See Section 012200 - Unit Prices.
   1. This Section describes products included as Unit Price No. 1 and Unit Price No. 2.

1.03 REFERENCE STANDARDS

A. ASTM F1700 - Standard Specification for Solid Vinyl Floor Tile; 2020.

B. ASTM F1861 - Standard Specification for Resilient Wall Base; 2021.

C. RFCI (RWP) - Recommended Work Practices for Removal of Resilient Floor Coverings; 2018.

1.04 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. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

D. 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: 20 linear feet of each type and color.

1.05 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.

1.06 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.

1.07 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. Luxury Vinyl Tile: Solid vinyl with color and pattern throughout thickness.
   1. Basis-of-Design Product:

a. Luxury Vinyl Tile, Ebbing Travertine PCET manufactured by Tarkett Flooring.

2. Other acceptable manufacturers:
   a. Armstrong Flooring
   b. Mannington Commercial
   c. Mohawk Group
   d. Shaw Contract
   e. Tarkett Flooring
3. Minimum Requirements: Comply with ASTM F1700, of Class corresponding to type specified.
4. Plank Tile Size: 12 by 36 inch.
5. Total Thickness: 0.120 inch.
6. Installation Pattern: Vertical Ashlar.
7. Color: To be selected by Architect from manufacturer's full range.

2.02 RESILIENT BASE

A. Resilient Base: ASTM F1861, Type TV, vinyl, thermoplastic; Style B, Cove.
   1. Basis-of-Design Product:
      a. Johnsonite, a Tarkett Company; Traditional Wall Base.
   2. Other acceptable manufacturers:
      a. Flexco Corporation
      b. Mannington Commercial
      c. Tarkett Flooring
   3. Height: 4 inches.
   4. Thickness: 0.125 inch.
   5. Finish: Satin.
   6. Color: To be selected by Architect from manufacturer's standard range.

2.03 ACCESSORIES

A. Adhesive for Vinyl Flooring:
   1. Manufacturers:
      a. H.B. Fuller Construction Products, Inc
      b. Loba-Wakol, LLC
      c. Stauf USA, LLC

B. Moldings, Transition and Edge Strips: Metal.
   1. Manufacturers:
      a. Mannington Commercial
      b. Schluter-Systems
      c. Futura Transitions; Bonnell Aluminum

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. Remove existing resilient flooring and flooring adhesives; follow the recommendations of RFCI (RWP).

B. Prepare substrates as recommended by adhesive manufacturers.

C. Remove subfloor ridges and bumps. Fill minor low spots, cracks, joints, holes, and other defects with subfloor filler to achieve smooth, flat, hard surface.

D. Prohibit traffic until filler is fully cured.

E. 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. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.
   1. Metal Strips: Attach to substrate before installation of flooring using stainless steel screws.
   2. Resilient Strips: Attach to substrate using adhesive.

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 ashlar pattern. Allow minimum 1/2 full size tile width at room or area perimeter.

C. Install plank tile with a random offset of at least 6 inches from adjacent rows.

3.05 INSTALLATION - RESILIENT BASE

A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches between joints.

B. Miter internal corners. At external corners, use premolded units. At exposed ends, use premolded units.

C. Install base on solid backing. Bond tightly to wall and floor surfaces.

D. Scribe and fit to door frames and other interruptions.

3.06 CLEANING

A. Remove excess adhesive from floor, base, and wall surfaces without damage.

B. Clean in accordance with manufacturer's written instructions.

3.07 PROTECTION

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

END OF SECTION

SECTION 096813
TILE CARPETING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Carpet tile, fully adhered.

B. Installation accessories.

1.02 REFERENCE STANDARDS

A. ASTM D2859 - Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials; 2016 (Reapproved 2021).

B. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source; 2023.

C. 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; sizes, patterns, colors available, and method of installation.

B. Samples: Submit two carpet tiles illustrating color and pattern design for each carpet color selected.

C. Accessory Samples: Submit two 6 inch long samples of edge strip.

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.

1.04 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.

1.05 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. Interface, Inc
   2. Mannington Commercial
   3. Mohawk Group
   4. Shaw Contract
   5. Tarkett Commercial.

2.02 MATERIALS

A. Tile Carpeting: Tufted, manufactured in one color dye lot.
   1. Basis-of-Design Product: Carpet Tile, Poetic Form, Metal Edge Tile 5T620, Anthracite Palladium 18580 manufactured by Shaw Contract.
   2. Tile Size: 24 by 24 inch, nominal.
   3. Color: Anthracite Palladium 18580 or approved equal.
   4. Installation Method: Monolithic.

5. Critical Radiant Flux: Minimum of 0.22 watts/sq cm, when tested in accordance with ASTM E648 or NFPA 253.
6. Surface Flammability Ignition: Pass ASTM D2859 (the "pill test").

2.03 ACCESSORIES

A. Subfloor Filler: White premix latex; type recommended by flooring material manufacturer.

B. Edge Strips: Vinyl, color as selected by Architect.

C. 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. Cementitious Subfloor Surfaces: Verify that substrates are ready for flooring installation by testing for moisture and alkalinity (pH).
1. Obtain instructions if test results are not within limits recommended by flooring material manufacturer and adhesive materials manufacturer.

D. 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 or local low spots, cracks, joints, holes, and other defects with subfloor filler.

C. Apply, trowel, and float filler to achieve smooth, flat, hard surface. Prohibit traffic until filler is cured.

D. 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. Lay carpet tile in square pattern, with pile direction parallel to next unit, set parallel to building lines.

F. Locate change of color or pattern between rooms under door centerline.

G. Fully adhere carpet tile to substrate.

H. Trim carpet tile neatly at walls and around interruptions.

I. 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

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. Marble, granite, slate, and other natural stones.
   6. Floors, unless specifically indicated.
   7. Glass.
   8. Concealed pipes, ducts, and conduits.

1.02 REFERENCE STANDARDS

A. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; Current Edition.

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, at least 4x4 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. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.

B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum 3 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.
   1. If a single manufacturer cannot provide specified products; minor exceptions will be permitted provided approval by Architect is obtained using the specified procedures for substitutions.
   2. Substitution of other products by the same manufacturer is preferred over substitution of products by a different manufacturer.

B. Paints:
   1. Behr Paint Company
   2. Diamond Vogel Paints
   3. Dunn-Edwards Corporation; _____: www.dunnedwards.com/#sle.
   4. PPG Paints
   5. Sherwin-Williams Company
   6. Vista Paint Corporation

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. Paint I-OP - Interior Surfaces to be Painted, Unless Otherwise Indicated: Including gypsum board, concrete masonry units, and plaster.
   1. Two top coats and one coat primer.
   2. Top Coat(s): High Performance Architectural Interior Latex; MPI #138, 139, 140, 141, or 142.
   3. 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 Latex Primer Sealer; MPI #50.

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. Concrete Masonry Units: 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 mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.

D. Seal surfaces that might cause bleed through or staining of topcoat.

E. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

F. Masonry:

G. Gypsum Board: Fill minor defects with filler compound. Spot prime defects after repair.

H. 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.

3.03 APPLICATION

A. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".

B. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

C. Apply each coat to uniform appearance in thicknesses specified by manufacturer.

D. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

E. 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

SECTION 124813
ENTRANCE FLOOR MATS AND FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Extruded aluminum entrance floor grilles.

B. Stainless steel entrance floor gratings.

1.02 PRICE AND PAYMENT PROCEDURES

A. See Section 012300 - Alternates.
   1. This section describes products included as Alternate No. 1 and the Base Bid.

1.03 SUBMITTALS

A. Product Data: Provide data indicating properties of walk-off surface, component dimensions and recessed frame characteristics.

B. Shop Drawings: Indicate dimensions and details for recessed frame.
   1. For recessed frames located within a dimensionally restricted area, show dimensions of space within which the frame will be installed.

C. Samples: Submit two samples, at least 4 by 4 inches in size illustrating pattern, color, finish, and edging.

D. Maintenance Data: Include cleaning instructions, and stain removal procedures.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Entrance Floor Grilles and Gratings:
   1. Activar Construction Products Group - JL Industries
   2. Babcock-Davis
   3. Balco, Inc
   4. Construction Specialties, Inc
   5. Kadee Industries
   6. Nystrom, Inc
   7. Pawling Corporation
   8. Reese Enterprises, Inc

2.02 ENTRANCE FLOOR GRILLES AND GRATINGS

A. Entrance Floor Gratings: Recessed aluminum bar grating with longitudinal bars running perpendicular to traffic flow and perimeter frame forming sides of recess; grating hinged for access to recess.
   1. Grating: Longitudinal bars 0.09 inch, nominal, in width, spaced at less than twice the bar width apart; cross bars set below for pronounced linear appearance.
   2. Carpet Strips: Nylon carpet tread strips, nominal 1 inch wide, set into grating at 4 inches, nominal, on center in direction of traffic flow.
      a. Color: As selected by Architect from manufacturer's standard selection.
   3. Recess Depth: As indicated on drawings.
   4. Length in Direction of Traffic Flow: 36 inches.
   5. Width Perpendicular to Traffic Flow: Full width of entrance door opening.
   6. Frame: Anodized aluminum for embedding in concrete; minimal exposed trim; stud or hook concrete anchors.

B. Mounting: Top of non-resilient members level with adjacent floor.

C. Structural Capacity: Capable of supporting rolling load of 300 lb without permanent deformation or noticeable deflection.

D. Vibration Resistant Fabrication: Welded, riveted, or bolted members; no snap or friction connections.

2.03 FABRICATION

A. Construct recessed mat frames square, tight joints at corners, rigid. Coat surfaces with protective coating where in contact with cementitious materials.

B. Fabricate mats in single unit sizes; fabricate multiple mats where indicated on drawings.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that floor opening for mats are ready to receive work.

3.02 PREPARATION

A. Mats: Verify size of floor recess before fabricating mats.

B. Vacuum clean floor recess.

3.03 INSTALLATION

A. Install frames to achieve flush plane with finished floor surface.

B. Install walk-off surface in floor recess flush with finish floor after cleaning of finish flooring.

3.04 TOLERANCES

A. Maximum Gap Formed at Recessed Frame From Mat Size: 1/4 inch.

END OF SECTION

SECTION 125900
SYSTEMS FURNITURE INSTALLATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Systems furniture installation.

1.02 RELATED SECTIONS

A. Division 26 – Electrical

1.03 CERTIFIED FURNITURE INSTALLERS, LICENSED ELECTRICIAN AND CERTIFIED TELECOMMUNICATIONS INSTALLER

A. Installation shall be subcontracted to a commercial office furniture installation company, with professionally trained certified technicians. Subject to approval by owner and architect. A moving company is not acceptable for systems furniture installation.

B. A mover is acceptable for moving of crates, removal and reinstallation of private office and conference room furniture, filing cabinets, task chairs, etc.

1.04 PRE-INSTALLATION MEETINGS

A. Convene minimum two weeks prior to starting work of this section.

1.05 DELIVERY, STORAGE, AND HANDLING

A. The terms "workstations," "systems furinture," or “cubicles” may be used interchangably for this project.

B. Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.

C. Storage locations for storage furniture and construction materials will be discussed at the pre-construction meeting.

D. Handling: Handle materials to avoid damage.

1.06 PROJECT 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 recommended limits.

1.07 SEQUENCING

A. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

PART 2 PRODUCTS

2.01 (NEW) OWNER-PURCHASED AND CONTRACTOR INSTALLED

A. New systems furniture isntallation: Owner will place the order, General Contractor to coordinate order (fabricated and delivered to the site by MVE), receipt of delivery, and provide installation of new systems furniture to locations indicated on Drawings.
   1. New systems furniture to be manufactured by Missouri Vocational Enterprises (MVE).

B. Install systems furniture as recommended by Missouri Vocational Enterprises (MVE).

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.

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. Install in accordance with manufacturer's instructions and in proper relationship with adjacent construction. Test for proper operation and adjust until satisfactory results are obtained.

B. Systems furniture installation shall include labor for General Contractor's licensed electrician to connect power/ data for systems furniture. General Contractor to provide all necessary power poles and final connections. Existing may be reused; General Contractor to determine feasibility.

C. General Contractor's certified installer shall install and connect workstations in configuration as shown in plans and per related keynotes and general notes, utilizing parts provided by Owner.

D. Owner will be responsible for moving computers, monitors, keyboards, and personal belongings out of work area prior to construction, and will be responsible for installation and connections of the mentioned items after construction is complete.

3.04 PROTECTION

A. Protect installed products from damage until completion of project.

B. Contractor shall remove all trash and debris at the end of each work day.

C. Any damaged furniture shall be identified and documented, and Owner shall be notified. Contractor is responsible for floor and wall protection in path of furniture and contents removal in all areas not under renovation or completed areas of work.

D. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 211300
FIRE-SUPPRESSION SPRINKLER SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. System design, installation, and certification.

1.02 REFERENCE STANDARDS

A. NFPA 13 - Standard for the Installation of Sprinkler Systems; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.03 SUBMITTALS

A. See Section 013300 Submittals for submittal procedures.

B. Shop Drawings:
   1. State of Missouri is Authority Having Jurisdiction. Sprinkler system shall be designed and installed per NFPA 13-2025.
   2. Submit preliminary layout of finished ceiling areas indicating only sprinkler locations coordinated with ceiling installation.

1.04 QUALITY ASSURANCE

A. Designer Qualifications: Design system under direct supervision of a Professional Engineer experienced in design of this type of work and licensed in the State in which the Project is located.

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 documented experience and approved by manufacturer.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Store products in shipping containers and maintain in place until installation. Provide temporary inlet and outlet caps. Maintain caps in place until installation.

PART 2 PRODUCTS

2.01 SPRINKLER SYSTEM

A. Occupancy: Light hazard; comply with NFPA 13.

2.02 SPRINKLERS

A. Suspended Ceiling Type: Semi-recessed pendant type with matching push on escutcheon plate.
   1. Response Type: Standard.
   2. Coverage Type: Standard.
   3. Finish: Enamel, color white .
   4. Escutcheon Plate Finish: Enamel, color white.
   5. Fusible Link: Fusible solder link type temperature rated for specific area hazard.

B. Suspended Ceiling Type: Recessed pendant type with matching push on escutcheon plate.
   1. Response Type: Standard.
   2. Coverage Type: Standard.
   3. Finish: Enamel, color white.
   4. Escutcheon Plate Finish: Enamel, color white.
   5. Fusible Link: Fusible solder link type temperature rated for specific area hazard.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with referenced NFPA design and installation standard.

B. Install equipment in accordance with manufacturer's instructions.

C. Place pipe runs to minimize obstruction to other work.

D. Place piping in concealed spaces above finished ceilings.

E. Apply masking tape or paper cover to ensure concealed sprinklers, cover plates, and sprinkler escutcheons do not receive field paint finish. Remove after painting. Replace painted sprinklers.

F. Flush entire piping system of foreign matter.

3.02 SCHEDULES

A. System Hazard Areas:
   1. Offices: Light Hazard.

END OF SECTION

SECTION 233700
AIR OUTLETS AND INLETS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Slot ceiling diffusers.

B. Registers/grilles: Ceiling-mounted, exhaust and return registers/grilles.

1.02 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.

1.03 QUALITY ASSURANCE

A. 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 CEILING SLOT DIFFUSERS

A. Type: Continuous 1 inch wide slot, three slots wide, with adjustable vanes for left, right, or vertical discharge.

B. Fabrication: Aluminum extrusions with factory baked enamel finish.

C. Color: Baked enamel white.

D. Plenum: Integral, galvanized steel, insulated.

2.03 CEILING EXHAUST AND RETURN REGISTERS/GRILLES

A. Type: Streamlined blades, 3/4 inch minimum depth, 1/2 inch maximum spacing, with blades set at 45 degrees, vertical face.

B. Frame: 1 inch margin with ceiling grid mounting.

C. Fabrication: Steel with 20 gauge, 0.0359 inch minimum frames and 22 gauge, 0.0299 inch minimum blades, steel and aluminum with 20 gauge, 0.0359 inch minimum frame, or aluminum extrusions, with factory baked enamel finish.

D. Color: As indicated on the drawings.

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.

C. Provide balancing dampers on duct take-off to diffusers and grilles and registers.

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

SECTION 260505
SELECTIVE DEMOLITION FOR ELECTRICAL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Electrical demolition.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify field measurements and circuiting arrangements are as indicated.

B. Verify that abandoned wiring and equipment serve only abandoned facilities.

C. Demolition drawings are based on field observation and existing record documents.

D. Report discrepancies to Engineer before disturbing existing installation.

E. Beginning of demolition means installer accepts existing conditions.

3.02 PREPARATION

A. Disconnect electrical systems in walls, floors, and ceilings to be removed.

3.03 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK

A. Remove, relocate, and extend existing installations to accommodate new construction.

B. Remove abandoned wiring to source of supply.

C. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces.

D. Repair adjacent construction and finishes damaged during demolition and extension work.

E. Maintain access to existing electrical installations that remain active. Modify installation or provide access panel as appropriate.

F. Extend existing installations using materials and methods to match existing conditions.

END OF SECTION

SECTION 260519
LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Single conductor building wire.

B. Wiring connectors.

C. Electrical tape.

D. Heat shrink tubing.

E. Wire pulling lubricant.

1.02 REFERENCE STANDARDS

A. ASTM B3 - Standard Specification for Soft or Annealed Copper Wire; 2013 (Reapproved 2018).

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; 2017.

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. NEMA WC 70 - Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy; 2021.

I. NETA ATS - Standard for Acceptance Testing Specifications for Electrical Power Equipment And Systems; 2025.

J. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

K. UL 44 - Thermoset-Insulated Wires and Cables; Current Edition, Including All Revisions.

L. UL 83 - Thermoplastic-Insulated Wires and Cables; Current Edition, Including All Revisions.

M. UL 267 - Outline of Investigation for Wire-Pulling Compounds; Current Edition, Including All Revisions.

N. UL 486A-486B - Wire Connectors; Current Edition, Including All Revisions.

O. UL 486C - Splicing Wire Connectors; Current Edition, Including All Revisions.

P. UL 486D - Sealed Wire Connector Systems; Current Edition, Including All Revisions.

Q. UL 510 - Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape; Current Edition, Including All Revisions.

1.03 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 Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.04 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

1.05 DELIVERY, STORAGE, AND HANDLING

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

1.06 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 Architect 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.

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 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.

H. 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.

I. 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.

J. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

K. 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 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.

2.05 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.

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. 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.

E. Paralleled Conductors: Install conductors of the same length and terminate in the same manner.

F. 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.

G. Install conductors with a minimum of 12 inches of slack at each outlet.

H. Neatly train and bundle conductors inside boxes, wireways, panelboards and other equipment enclosures.

I. Group or otherwise identify neutral/grounded conductors with associated ungrounded conductors inside enclosures in accordance with NFPA 70.

J. 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 contaminates. Do not use wire brush on plated connector surfaces.

K. 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.

L. Insulate ends of spare conductors using vinyl insulating electrical tape.

M. 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

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.

1.03 REFERENCE STANDARDS

A. IEEE 81 - IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Grounding System; 2012.

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 Architect. 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.

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

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.

1.03 REFERENCE STANDARDS

A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.

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. Secure fasteners in accordance with manufacturer's recommended torque settings.

L. 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

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.

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; 2018.

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. 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

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 260526 - Grounding and Bonding for Electrical Systems.

B. Section 260529 - Hangers and Supports for Electrical Systems.

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 OS 1 - Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports; 2013 (Reaffirmed 2020).

D. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

E. UL 514A - Metallic Outlet Boxes; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate minimum sizes of pull boxes with the actual installed arrangement of connected conduits, calculated according to NFPA 70.
   2. Coordinate the placement of boxes with millwork, furniture, devices, equipment, etc. installed under other sections or by others.
   3. Notify Architect 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. Sheet-Steel Boxes: Comply with NEMA OS 1, and list and label as complying with UL 514A.
   3. Wall Plates: Provide stainless steel wall plates.

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. Unless otherwise indicated, provide separate boxes for line voltage and low voltage systems.

E. Unless otherwise indicated, boxes may be surface-mounted where exposed conduits are indicated or permitted.

F. Box Locations:
   1. Unless dimensioned, box locations indicated are approximate.
   2. Locate junction and pull boxes in the following areas, unless otherwise indicated:
      a. Concealed above accessible suspended ceilings.

G. 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.

H. Install boxes plumb and level.

I. Close unused box openings.

J. Install blank wall plates on junction boxes and on outlet boxes with no devices or equipment installed or designated for future use.

K. 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

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.

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. Verify minimum sizes of raceways with the actual conductors and components to be installed.
   3. Notify Architect 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.
   2. Include color chart for color selection by architect from manufacturer's standard colors.

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: To be selected by Architect.
   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

SECTION 260553
IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Identification nameplates and labels.

B. Wire and cable markers.

1.02 RELATED REQUIREMENTS

A. Section 260519 - Low-Voltage Electrical Power Conductors and Cables: Color coding for power conductors and cables 600 V and less; vinyl color coding electrical tape.

B. Section 262726-Wiring Devices: Device and wallplate finishes.

C. Section 271000 - Structured Cabling: Identification for communications cabling and devices.

1.03 REFERENCE STANDARDS

A. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Verify final designations for equipment, systems, and components to be identified prior to fabrication of identification products.

B. Sequencing:
   1. Do not conceal items to be identified, in locations such as above suspended ceilings, until identification products have been installed.
   2. Do not install identification products until final surface finishes and painting are complete.

1.05 SUBMITTALS

A. See Section 013300 Submittals, for submittals procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets for each product.

C. Samples:
   1. Identification Labels: One of each type and color specified.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

1.07 FIELD CONDITIONS

A. Do not install adhesive products when ambient temperature is lower than recommended by manufacturer.

PART 2 PRODUCTS

2.01 IDENTIFICATION REQUIREMENTS

A. Identification for Conductors and Cables:
   1. Color Coding for Power Conductors 600 V and Less: Comply with Section 260519.
   2. Identification for Communications Conductors and Cables: Comply with Section 271000.

B. Identification for Devices:
   1. Identification for Communications Devices: Comply with Section 271000.
   2. Wiring Device and Wallplate Finishes: Comply with Section 262726.
   3. Use identification label to identify serving branch circuit for all receptacles.

2.02 IDENTIFICATION NAMEPLATES AND LABELS

A. Identification Labels:
   1. Manufacturers:

a. Brady Corporation: www.bradyid.com.
b. Brother International Corporation: www.brother-usa.com.
c. Panduit Corp: www.panduit.com.

2. Materials: Use self-adhesive laminated plastic labels; UV, chemical, water, heat, and abrasion resistant.
3. Text: Use factory pre-printed or machine-printed text. Do not use handwritten text unless otherwise indicated.

B. Format for Receptacle Identification:
1. Minimum Size: 3/8 inch by 1.5 inches.
2. Legend: Power source and circuit number or other designation indicated.
3. Text: All capitalized unless otherwise indicated.
4. Minimum Text Height: 3/16 inch.
5. Color: Black text on clear background.

2.03 WIRE AND CABLE MARKERS

A. Manufacturers:
1. Brady Corporation: www.bradyid.com.
2. HellermannTyton: www.hellermanntyton.com.
3. Panduit Corp: www.panduit.com.

B. Markers for Conductors and Cables: Use wrap-around self-adhesive vinyl self-laminating or heat-shrink sleeve type markers suitable for the conductor or cable to be identified.

C. Markers for Conductor and Cable Bundles: Use plastic marker tags secured by nylon cable ties.

D. Legend: Power source and circuit number or other designation indicated.

E. Text: Use factory pre-printed or machine-printed text, all capitalized unless otherwise indicated.
1. Do not use handwritten text.

F. Minimum Text Height: 1/8 inch.

G. Color: Black text on white background unless otherwise indicated.

PART 3 EXECUTION

3.01 PREPARATION

A. Clean surfaces to receive adhesive products according to manufacturer's instructions.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install identification products to be plainly visible for examination, adjustment, servicing, and maintenance. Unless otherwise indicated, locate products as follows:
1. Conductors and Cables: Legible from the point of access.
2. Devices: Outside face of cover.

C. Install identification products centered, level, and parallel with lines of item being identified.

D. Install self-adhesive labels and markers to achieve maximum adhesion, with no bubbles or wrinkles and edges properly sealed.

3.03 FIELD QUALITY CONTROL

A. Replace self-adhesive labels and markers that exhibit bubbles, wrinkles, curling or other signs of improper adhesion.

END OF SECTION

SECTION 260923
LIGHTING CONTROL DEVICES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Occupancy sensors.

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. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.

B. NECA 130 - Standard for Installing and Maintaining Wiring Devices; 2016.

C. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 SUBMITTALS

A. See Section 013300 Submittals, for submittal procedures.

B. Product Data: Include ratings, operating modes or sequence of functions, configurations, standard wiring diagrams, dimensions, colors, service condition requirements, and installed features.
   1. Occupancy Sensors: Include detailed motion detection coverage range diagrams.

C. Operation and Maintenance Data: Include detailed information on device programming and setup.

D. Project Record Documents: Record actual installed locations and settings for lighting control devices.

1.05 QUALITY ASSURANCE

A. Comply with NFPA 70.

B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

1.06 DELIVERY, STORAGE, AND PROTECTION

A. Store products in clean, dry space in original manufacturer's packaging in accordance with manufacturer's written instructions until ready for installation.

1.07 FIELD CONDITIONS

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

1.08 WARRANTY

A. See Section 007213 General Conditions, for additional warranty requirements.

B. Provide five year manufacturer warranty for occupancy sensors.

PART 2 PRODUCTS

2.01 LIGHTING CONTROL DEVICES - GENERAL REQUIREMENTS

A. Provide products listed, classified, and labeled as suitable for purpose intended.

B. Unless specifically indicated as excluded, provide components necessary for complete operating system including, but not limited to, conduit, wiring, connectors, hardware, and accessories.

2.02 OCCUPANCY SENSORS

A. Manufacturers:
   1. Acuity Brands, Inc: www.acuitybrands.com.
   2. Hubbell Incorporated: www.hubbell.com.
   3. Legrand North America, Inc: www.legrand.us.

B. General Requirements:
   1. Description: Factory-assembled commercial specification grade devices for indoor use capable of sensing both major motion, such as walking, and minor motion, such as small desktop level movements, according to published coverage areas, for automatic control of load indicated.
   2. Sensor Technology:
      a. Ultrasonic Occupancy Sensors: Designed to detect occupancy by sensing frequency shifts in emitted and reflected inaudible sound waves.
   3. Provide LED to visually indicate motion detection with separate color LEDs for each sensor type in dual technology units.
   4. Operation: Unless otherwise indicated, occupancy sensor to turn load on when occupant presence is detected and to turn load off when no occupant presence is detected during adjustable turn-off delay time interval.
   5. Turn-Off Delay: Field adjustable, with time delay settings up to 30 minutes.
   6. Sensitivity: Field adjustable.
   7. Isolated Relay for Low Voltage Occupancy Sensors: SPDT dry contacts, ratings as required for interface with system indicated.

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 branch circuit wiring installation is completed, tested, and ready for connection to lighting control devices.

D. Verify that service voltage and ratings of lighting control devices are appropriate for service voltage and load requirements at location to be installed.

E. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install lighting control devices in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130.

B. Coordinate locations of outlet boxes as required for installation of lighting control devices; see Section 260533.16.

C. Install lighting control devices in accordance with manufacturer's instructions.

D. Unless otherwise indicated, connect lighting control device grounding terminal or conductor to branch circuit equipment grounding conductor and to outlet box with bonding jumper.

E. Install lighting control devices plumb and level, and held securely in place.

F. Provide required supports; see Section 260529.

G. Where applicable, install lighting control devices to fit completely flush to mounting surface with no gaps and rough opening completely covered without strain. Repair or reinstall improperly installed outlet boxes or improperly sized rough openings.

H. Occupancy Sensor Locations:
   1. Location Adjustments: Do not make adjustments to locations without obtaining approval from Engineer.
   2. Locate ultrasonic occupancy sensors minimum of 4 feet from air supply ducts or other sources of heavy air flow and as per manufacturer's recommendations, in order to minimize false triggers.

I. Unless otherwise indicated, install power packs for lighting control devices above accessible ceiling near sensor location.

3.03 FIELD QUALITY CONTROL

A. Inspect each lighting control device for damage and defects.

B. Test occupancy sensors to verify proper operation, including time delays and ambient light thresholds where applicable. Verify optimal coverage for entire room or area.

C. Correct wiring deficiencies and replace damaged or defective conductors, cables, and lighting control devices.

3.04 ADJUSTING

A. Adjust devicesto be flush and level.

B. Adjust occupancy sensor settings to minimize undesired activations while optimizing energy savings, and to achieve desired function as indicated.

3.05 CLEANING

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

END OF SECTION

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.

C. Section 260923 - Lighting Control Devices: Devices for automatic control of lighting, including occupancy sensors.

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.

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 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.

1.06 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. Single Receptacles Installed on Individual Branch Circuits: Provide receptacle ampere rating equal to branch circuit rating.

C. Wiring Device Finishes:
   1. Provide wiring device finishes as described below, unless otherwise indicated.
   2. Wiring Devices, Unless Otherwise Indicated: Gray with stainless steel wall plate.

2.02 WALL SWITCHES

A. Wall Switches - 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: Industrial 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. Receptacles - 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.

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.
   2. Orient outlet boxes for vertical installation of wiring devices unless otherwise indicated.

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. Install wiring devices plumb and level with mounting yoke held rigidly in place.

H. Install wall switches with OFF position down.

I. Install vertically mounted receptacles with grounding pole on top and horizontally mounted receptacles with grounding pole on left.

J. 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.

K. Install blank wall plates on junction boxes and on outlet boxes with no wiring devices installed or designated for future use.

L. 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. 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

SECTION 271000
STRUCTURED CABLING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Communications pathways.

B. Copper cable and terminations.

C. Communications outlets.

D. Communications grounding and bonding.

E. Communications identification.

1.02 RELATED REQUIREMENTS

A. Section 260533.13-Conduit for Electrical Systems.

B. Section 260533.16 - Boxes for Electrical Systems.

C. Section 260533.23-Surface Raceways for Electrical Systems.

D. Section 262726 - Wiring Devices.

1.03 REFERENCE STANDARDS

A. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

B. TIA-568 (SET) - Commercial Building Telecommunications Cabling Standard Set; 2024.

C. TIA-568.2 - Balanced Twisted-Pair Telecommunications Cabling and Components Standards; 2018d, with Addenda (2020).

D. TIA-606 - Administration Standard for Telecommunications Infrastructure; 2021d.

E. TIA-607 - Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises; 2019d, with Addendum (2021).

F. UL 444 - Communications Cables; Current Edition, Including All Revisions.

G. UL 514C - Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers; Current Edition, Including All Revisions.

H. UL 1863 - Communications-Circuit Accessories; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 013300 Submittals, for submittal procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets for each product.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: At least 3 years experience manufacturing products of the type specified.

B. Installer Qualifications: A company having at least 3 years experience in the installation and testing of the type of system specified, and:
   1. Supervisors and installers factory certified by manufacturers of products to be installed.

C. Products: Listed, classified, and labeled as suitable for the purpose intended.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Keep stored products clean and dry.

PART 2 PRODUCTS

2.01 PATHWAYS

A. Conduit: See Section 260533.13.

B. Surface Raceways: See Section 260533.23

2.02 COPPER CABLE AND TERMINATIONS

A. Manufacturers:
   1. Belden: www.belden.com.
   2. CommScope: www.commscope.com.
   3. General Cable Technologies Corporation: www.generalcable.com.
   4. Siemon Company: www.siemon.com.

B. Copper Horizontal Cable:
   1. Description: 100 ohm, balanced twisted pair cable complying with TIA-568.2 and listed and labeled as complying with UL 444.
   2. Cable Type - Voice and Data: TIA-568.2 Category 6 UTP (unshielded twisted pair); 23 AWG.
   3. Cable Capacity: 4-pair.
   4. Cable Applications:
      a. Plenum Applications: Use listed NFPA 70 Type CMP plenum cable.
      b. General Purpose Applications: Use listed NFPA 70 Type CM/CMG general purpose cable, Type CMR riser cable, or Type CMP plenum cable.
   5. Cable Jacket Color - Voice and Data Cable: Blue.

C. Copper Cable Terminations: Insulation displacement connection (IDC) type using appropriate tool; use screw connections only where specifically indicated.

D. Jacks and Connectors: Modular RJ-45, non-keyed, terminated with 110-style insulation displacement connectors (IDC); high impact thermoplastic housing; suitable for and complying with same standard as specified horizontal cable; UL 1863 listed.
   1. Performance: 500 mating cycles.
   2. Voice and Data Jacks: 8-position modular jack, color-coded for both T568A and T568B wiring configurations.

E. Copper Patch Cords:
   1. Description: Factory-fabricated 4-pair cable assemblies with 8-position modular connectors terminated at each end.
   2. Patch Cords for Work Areas:
      a. Quantity: One for each work area outlet port.
      b. Length: 6 feet.

2.03 COMMUNICATIONS OUTLETS

A. Manufacturers:
   1. Belden: www.belden.com.
   2. CommScope: www.commscope.com.
   3. Siemon Company: www.siemon.com.

B. Outlet Boxes: Comply with Section 260533.16.
   1. Provide depth as required to accommodate cable manufacturer's recommended minimum conductor bend radius.
   2. Minimum Size, Unless Otherwise Indicated:
      a. Data or Combination Voice/Data Outlets: 4 inch square by 2-1/8 inch deep (100 by 54 mm) trade size.

C. Wall Plates:
   1. Comply with system design standards and UL 514C.
   2. Accepts modular jacks/inserts.

3. Capacity:
    a. Data or Combination Voice/Data Outlets: As indicated on project drawings.
4. Wall Plate Material/Finish: Match wiring device and wall plate finishes specified in Section 262726.

2.04 GROUNDING AND BONDING COMPONENTS

A. Comply with TIA-607.

2.05 IDENTIFICATION PRODUCTS

A. Comply with TIA-606.

2.06 SOURCE QUALITY CONTROL

A. Factory test cables according to TIA-568 (SET).

PART 3 EXECUTION

3.01 INSTALLATION OF PATHWAYS

A. Install pathways with the following minimum clearances:
    1. 12 inches from power conduits and cables and panelboards.

B. Outlet Boxes:
    1. Coordinate locations of outlet boxes provided under Section 260533.16 as required for installation of telecommunications outlets provided under this section.
        a. Orient outlet boxes for vertical installation of wiring devices.
        b. Provide separate outlet boxes for line voltage and low voltage devices.

3.02 INSTALLATION OF EQUIPMENT AND CABLING

A. Cabling:
    1. Do not bend cable at radius less than manufacturer's recommended bend radius; for unshielded twisted pair use bend radius of not less than 4 times cable diameter.
    2. Do not over-cinch or crush cables.
    3. Do not exceed manufacturer's recommended cable pull tension.
    4. When installing in conduit, use only lubricants approved by cable manufacturer and do not chafe or damage outer jacket.

B. Service Loops (Slack or Excess Length): Provide the following minimum extra length of cable, looped neatly:
    1. At Outlets - Copper: 12 inches.

C. Copper Cabling:
    1. Category 5e and Above: Maintain cable geometry; do not untwist more than 1/2 inch from point of termination.
    2. For 4-pair cables in conduit, do not exceed 25 pounds pull tension.
    3. Use T568B wiring configuration.

D. Identification:
    1. Use wire and cable markers to identify cables at each end.
    2. Use manufacturer-furnished label inserts, identification labels, or engraved wallplate to identify each jack at communications outlets with unique identifier.

3.03 FIELD QUALITY CONTROL

A. Comply with inspection and testing requirements of specified installation standards.

B. Visual Inspection:
    1. Inspect cable jackets for certification markings.
    2. Inspect cable terminations for color coded labels of proper type.
    3. Inspect outlet plates and patch panels for complete labels.

C. Testing - Copper Cabling and Associated Equipment:

1. Category 5e and Above Links: Perform tests for wire map, length, attenuation, NEXT, and propagation delay.

D. Final Testing: After all work is complete, including installation of telecommunications outlets, and telephone dial tone service is active, test each voice jack for dial tone.

END OF SECTION

APPENDIX A –

LIMITED ASBESTOS INSPECTION REPORT

KLINGNER
& ASSOCIATES, P. C.
Engineers • Architects • Surveyors

LIMITED ASBESTOS INSPECTION REPORT

Missouri Geological Survey
Flooring & Front Entrance
Renovations
MO Project No. W2303-01
111 Fairgrounds Rd
Rolla, Missouri 65401

October 3, 2024

Prepared for:

STATE OF MISSOURI

301 W. High St. - Room 730
Jefferson City, Missouri 65102

Prepared by:

KLINGNER & ASSOCIATES, P.C.

616 N. 24th Street
Quincy, Illinois 62301

Project No. 24-5012

TABLE OF CONTENTS

1.0 INTRODUCTION

The asbestos inspection was requested by the State of Missouri – Division of Facilities Management, Design & Construction. The purpose of the inspection was to identify asbestos containing materials in locations affected by a future renovation of the Publications Room and Graphics Studio; Shipping and Receiving Room; and the Front Lobby and Museum of the Buehler Building.

2.0 SITE DESCRIPTION

Property Address: Buehler Building, 111 Fairground Rd., Rolla, Missouri

The structure inspected is a one-story structure with concrete walls. The limited asbestos inspection included sampling visible suspect asbestos containing building materials located in the museum, front entry, office, IT closet, kitchen, publications, shipping/receiving, and communications areas in the interior of the structure. A full building inspection was not completed.

3.0 ASBESTOS INSPECTION

3.1 Introduction

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

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

3.2 Regulations

The primary federal regulations include:

- ASHARA (Asbestos School Hazard Abatement Reauthorization Act), which applies to both public and commercial buildings;

- OSHA - 29 CFR 1926.1101(Occupational Safety and Health Administration's), which applies to employees of employers in the workforce;
- NESHAP - 40 CFR 61(National Emission Standards for Hazardous Air Pollutants), which applies to exposure or potential exposure to the general public (NESHAP includes public, commercial, and some residential buildings being demolished or renovated).

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

3.3 Inspection Results

Mr. Grant Ohnemus, Licensed Asbestos Inspector – Missouri license number 7118041724MOII23518 (see Exhibit F – Missouri Asbestos Inspector License) of Klingner & Associates, P.C. performed an asbestos inspection at 111 Fairground Rd. on September 18, 2024. The inspection included a visual assessment for possible asbestos containing building materials (ACBM) in the structure. Samples were collected from observed suspect materials.

Non-building components that were affixed to the building components, such as displayed geologic samples, were visually observed and no materials were observed to be fibrous, flaking, or soft; therefore, no samples were collected.

Samples were shipped under chain of custody to EMSL Analytical, Inc. in Indianapolis, Indiana. EPA Method 600/R-93/116 for Polarized Light Microscopy (PLM) was used to determine the presence or absence of asbestos and the percentage content in each sample collected. Point counts were performed to verify the asbestos content of materials containing less than 1% asbestos.

Documentation of the inspection is included in the Exhibits as follows:

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

During the inspection, twenty (20) homogeneous areas were identified and sixty (60) samples were collected. Samples were collected from floor tile, floor tile mastic, ceiling tile, floor base, floor base mastic, drywall, drywall mud, carpet mastic, window rubber, plaster base coat, and plaster skim coat. Analytical results indicated five (5) homogeneous areas contained greater than 1% asbestos. A summary of the identified asbestos containing materials is included in the table below and in Exhibit A. Photographs of the materials are included as Exhibit B. Maps showing the location of the asbestos containing materials are included in Exhibit E.

Asbestos Containing Building Materials						
Sample ID	**Location**	**Percent & Type**	**Sample Description**	**Category I, Category II, or Friable**	**Condition (Good, Fair, or Poor)**	**Quantity**
1	Museum, Office, Publications, Kitchen	2% Chrysotile	Black/Multi Colored Carpet Mastic	Category II	Good	~1325 SF
4	Museum, Office, Publications, Kitchen	2% Chrysotile	9”x9” Grey FT	Category I	Good	~1325 SF
9	Museum, Office, Publications, Kitchen	2% Chrysotile	Mastic for 4	Category II	Good	~1325 SF
11	Closet, Shipping/Receiving, Communications	2% Chrysotile	9”x9” Cream/Grey FT	Category I	Good	~1600 SF
12	Closet, Shipping/Receiving, Communications	2% Chrysotile	Mastic for 11	Category II	Good	~1600 SF

3.4 Recommendations

If the asbestos containing building materials identified in Section 3.3 above are going to be disturbed directly or indirectly during renovation activities, the materials to be disturbed should be removed by a Missouri licensed asbestos abatement contractor prior to disturbance. Please be aware that friable asbestos containing building materials can be disturbed indirectly from sources such as vibration or strong air movement.

4.0 CERTIFICATION

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

_____ October 3, 2024

Grant Ohnemus Date

Missouri Asbestos Inspector License # 7118041724MOII23518

EXHIBIT A

ASBESTOS SAMPLE RESULTS SUMMARY

KLINGNER & ASSOCIATES, P. C.
Engineers • Architects • Surveyors

Asbestos Sample Results Summary

Client: State of Missouri | **Site Identification:** Geological Survey - Buehler Building, Rolla, MO
Inspection Date: 9/18/2024 | **Project #:** 24-5012 | **Page:** 1 / 1

Sample ID	Location	ASBESTOS		Sample Description	Category I, Category II, or Friable	Condition (Good, Fair, or Poor)	Quantity
		Percent	Type				
1A	Museum, Office, Publications, and Kitchen	ND	NA	Black/Multi Colored Carpet Mastic	Category II	Good	~1325 SF
1B		2%	Chrysotile				
1C		PS	PS				
2A	Museum, Office, Publications, and Shipping/Revieving	ND	NA	Black Floor Base	NA	NA	NA
2B		ND	NA				
2C		ND	NA				
3A	Museum, Office, Publications, Communications, closet,	ND	NA	2'x2' White CT (Dotted)	NA	NA	NA
3B		ND	NA				
3C		ND	NA				
4A	Museum, Office, Publications, and Kitchen	2%	Chrysotile	9"x9" Grey FT	Category I	Good	~1325 SF
4B		PS	PS				
4C		PS	PS				
5A	Museum, Publications, and IT Closet	ND	NA	Drywall	NA	NA	NA
5B		ND	NA				
5C		ND	NA				
6A	Museum, Publications, and IT Closet	ND	NA	Drywall Mud	NA	NA	NA
6B		ND	NA				
6C		ND	NA				
7A	Front Entry and Communications	ND	NA	12"x12" Dark Grey FT	NA	NA	NA
7B		ND	NA				
7C		ND	NA				
8A	Front Entry and Communications	<0.25%	Chrysotile	Mastic for 7	NA	NA	NA
8B		<0.25%	Chrysotile				
8C		<0.25%	Chrysotile				
9A	Museum, Office, Publications, and Kitchen	2%	Chrysotile	Mastic for 4	Category II	Good	~1325 SF
9B		PS	PS				
9C		PS	PS				
10A	Front Entry	ND	NA	Grey Floor Base Mastic	NA	NA	NA
10B		ND	NA				
10C		ND	NA				
11A	Closet, Shipping/Receiving, and Communications	2%	Chrysotile	9"x9" Cream/Grey FT	Category I	Good	~1600 SF
11B		PS	PS				
11C		PS	PS				
12A	Closet, Shipping/Receiving, and Communications	2%	Chrysotile	Mastic for 11	Category II	Good	~1600 SF
12B		PS	PS				
12C		PS	PS				
13A	On the wall in Shipping and Receiving	ND	NA	2'x2' White CT (Smooth)	NA	NA	NA
13B		ND	NA				
13C		ND	NA				
14A	Communications, Shipping/Recieving	ND	NA	Black Floor Base Mastic	NA	NA	NA
14B		ND	NA				
14C		ND	NA				
15A	Communications	ND	NA	Window Rubber	NA	NA	NA
15B		ND	NA				
15C		ND	NA				
16A	Throughout	ND	NA	Plaster Base Coat	NA	NA	NA
16B		ND	NA				
16C		ND	NA				
17A	Throughout	ND	NA	Plaster Skim Coat	NA	NA	NA
17B		ND	NA				
17C		ND	NA				
18A	IT Closet	ND	NA	Brown Burlap Carpet	NA	NA	NA
18B		ND	NA				
18C		ND	NA				
19A	IT Closet	ND	NA	Brown Burlap Carpet Mastic	NA	NA	NA
19B		ND	NA				
19C		ND	NA				
20A	IT Closet	ND	NA	Black Floor Base	NA	NA	NA
20B		ND	NA				
20C		ND	NA				

ND = None Detected | PS = Positive Stop | NA = Not Applicable | FT = Floor Tile | CT = Ceiling Tile

EXHIBIT B

PHOTOGRAPHS

1	Description	Communications Area
	Date	9/19/2024

2	Description	Communications Area
	Date	9/19/2024

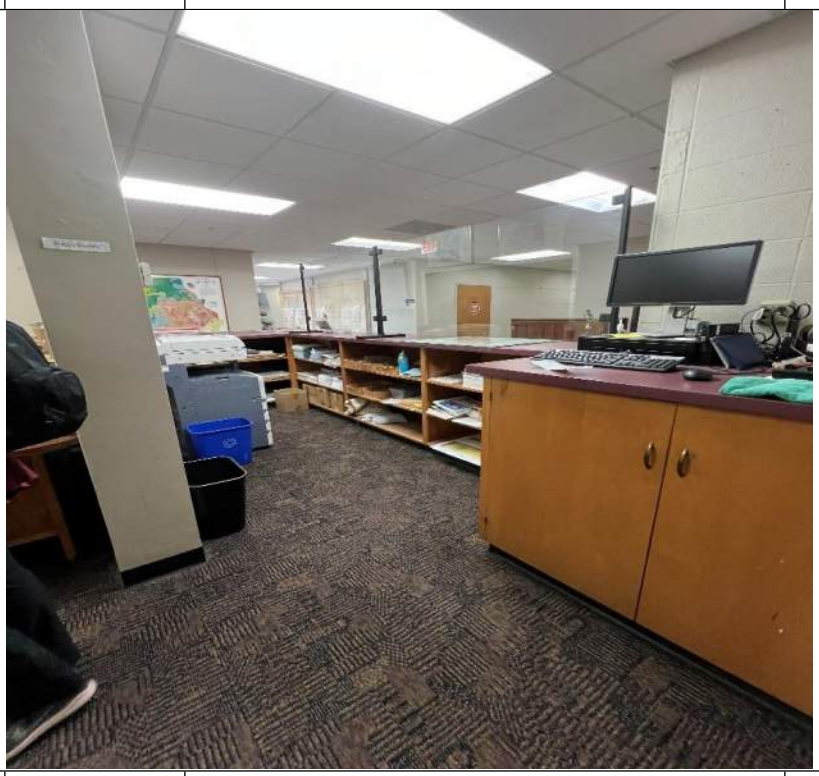
3	Description	Front Entry
	Date	9/19/2024

4	Description	Front Entry
	Date	9/19/2024

5	Description	Office	
	Date	9/19/2024	

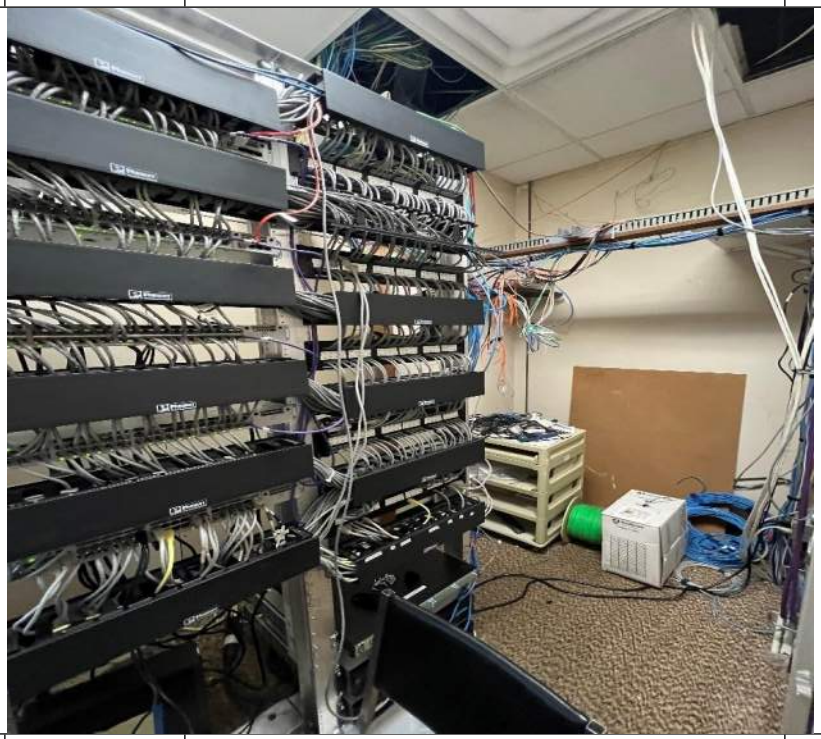
6	Description	Museum Area	
	Date	9/19/2024	

7	Description	Publications Area	
	Date	9/19/2024	



8	Description	Publications Area	
	Date	9/19/2024	

9	Description	Shipping and Receiving Area	
	Date	9/19/2024	



10	Description	IT Closet	
	Date	9/19/2024	

11	Description	Sample 1A – Black/Multi Colored Carpet Mastic	Percent Asbestos
	Date	9/19/2024	2% Chrysotile

12	Description	Sample 2A – Black Floor Base Mastic	Percent Asbestos
	Date	9/19/2024	ND

13	Description	Sample 3A – 2'x2' White CT (Dotted)	Percent Asbestos
	Date	9/19/2024	ND

14	Description	Samples 4A and 9A – 9"x9" Grey FT and Mastic	Percent Asbestos
	Date	9/19/2024	FT - 2% Mastic – 2%

15	Description	Sample 5A and 6A – Drywall and Drywall Mud	Percent Asbestos
	Date	9/19/2024	ND

16	Description	Samples 7A and 8A – 12”x12” Dark grey FT and Mastic	Percent Asbestos
	Date	9/19/2024	ND

17	Description	Sample 10A – Grey Floor Base Mastic	Percent Asbestos
	Date	9/19/2024	ND

18	Description	Samples 11A and 12A 9”x9” Cream/Grey FT and Mastic	Percent Asbestos
	Date	9/19/2024	FT - 2% Mastic – 2%

19	Description	Sample 13A – 2'x2' White CT (Smooth)	Percent Asbestos
	Date	9/19/2024	ND

20	Description	Sample 14A – Black Floor Base Mastic	Percent Asbestos
	Date	9/19/2024	ND

21	Description	Sample 15A – Window Rubber	Percent Asbestos
	Date	9/19/2024	ND

22	Description	Sample 16A – Plaster Base Coat	Percent Asbestos
	Date	9/19/2024	ND

23	Description	Sample 17A – Plaster Skim Coat	Percent Asbestos
	Date	9/19/2024	ND

24	Description	Samples 18A and 19A – Brown Burlap Carpet and Mastic	Percent Asbestos
	Date	9/19/2024	ND

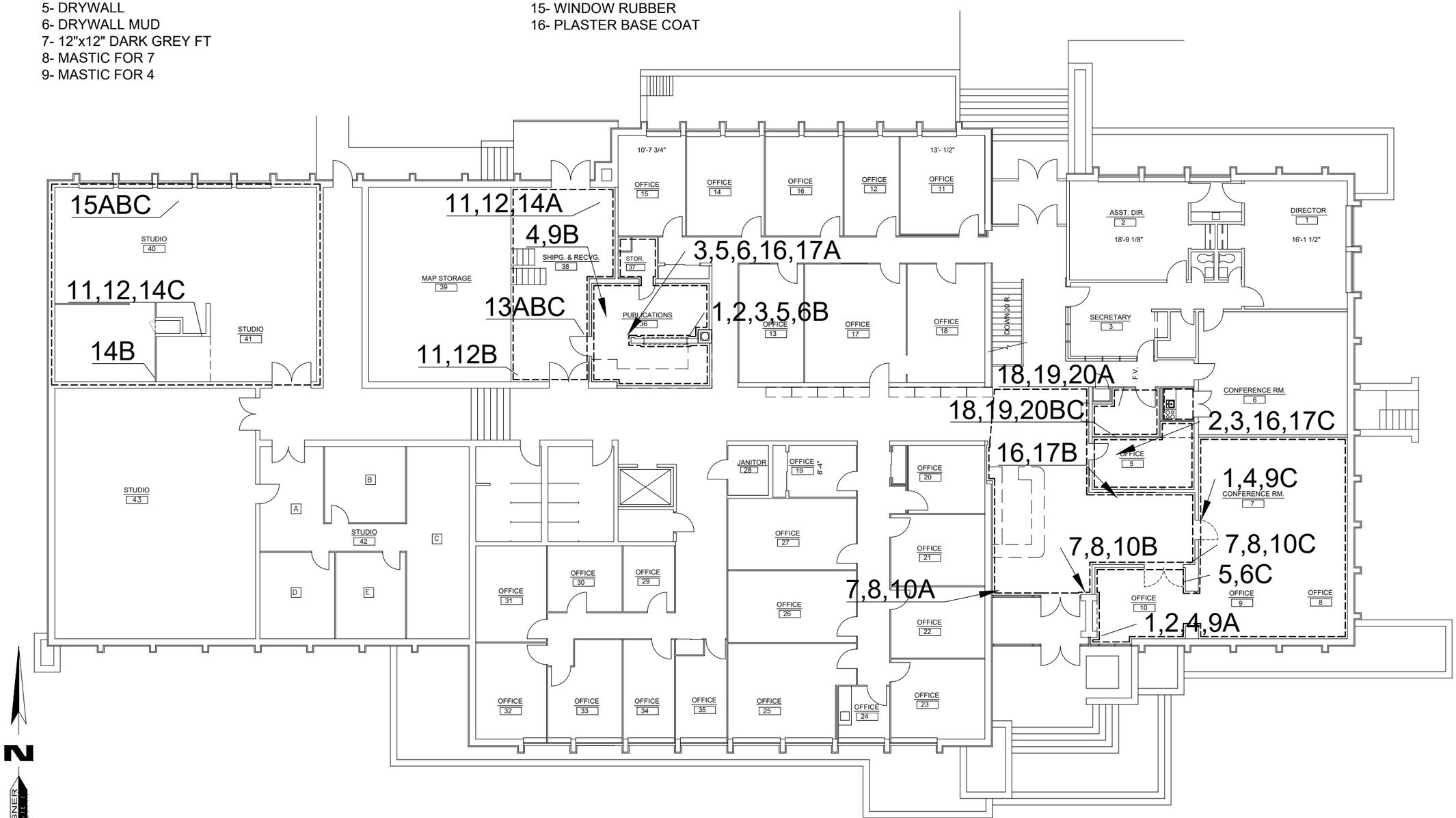
25	Description	Sample 20A – Black Floor Base Mastic	Percent Asbestos
	Date	9/19/2024	ND

EXHIBIT C

SAMPLE LOCATION MAP

ASBESTOS SAMPLE LEGEND:

ASBESTOS:
1- BLACK/MULTI COLORED CARPET MASTIC
2- BLACK FLOOR BASE
3- 2'x2' WHITE CT (DOTTED)
4- 9"x9" GREY FT
5- DRYWALL
6- DRYWALL MUD
7- 12"x12" DARK GREY FT
8- MASTIC FOR 7
9- MASTIC FOR 4
10- GREY FLOOR BASE MASTIC
11- 9"x9" CREAM/GREY FT
12- MASTIC FOR 11
13- 2'x2' WHITE CT (SMOOTH)
14- BLACK FLOOR BASE MASTIC
15- WINDOW RUBBER
16- PLASTER BASE COAT
17- PLASTER SKIM COAT
18- BROWN BURLAP CARPET MASTIC
19- BROWN BURLAP CARPET MASTIC
20- BLACK FLOOR BASE



KLINGNER & ASSOCIATES, P.C.
Engineers • Architects • Surveyors
www.klingner.com
Columbia, Missouri
3622 Endeavor Ave., Ste 117
573.355.5988
Quincy, IL Hannibal, MO
Burlington, IA Galesburg, IL Pella, IA
Davenport, IA Carbondale, IL

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REVISION HISTORY

MARK	DESCRIPTION	DATE	APPR
1			

ISSUED FOR 10/03/2024
ACM REPORTING

GEOLOGICAL SURVEY, REPLACE FLOORING & REN. FRONT ENT.
STATE OF MO - OFFICE OF ADM.
301 W. HIGH STREET, ROOM 730
JEFFERSON CITY, MO 65102

Non-Reduced Sheet Size: 11" x 17"

DESIGNED	DRAWN
.	.
FIELD GEO	FIELD BOOK .
CHECKED JAC	CHECK DATE 10/03/2024

SHEET TITLE
ASBESTOS SAMPLE LOCATIONS

PROJECT NO. 24-5012
DRAWING ISSUED DATE: 10/03/2024
SHEET
ASB-1

EXHIBIT D

LABORATORY REPORT

EMSL Analytical, Inc.

6340 CastlePlace Dr. Indianapolis, IN 46250

Tel/Fax: (317) 803-2997 / (317) 803-3047

http://www.EMSL.com / indianapolislab@emsl.com

EMSL Order:	162417031
Customer ID:	KLIN50
Customer PO:	
Project ID:	

Attention:	Grant Ohnemus	**Phone:**	(217) 223-3670
	Klingner & Associates, P.C.	**Fax:**	(217) 223-3603
	616 North 24th Street	**Received Date:**	09/20/2024 10:00 AM
	Quincy, IL 62301	**Analysis Date:**	09/26/2024 - 09/27/2024
		Collected Date:	
Project:	24-5012		

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
1A *162417031-0001*	Black/Multi Colored Carpet Mastic	Brown/Gray Non-Fibrous Homogeneous	HA: 1	100% Non-fibrous (Other)	None Detected
1B *162417031-0002*	Black/Multi Colored Carpet Mastic	Tan/Black Non-Fibrous Homogeneous	HA: 1	98% Non-fibrous (Other)	**2% Chrysotile**
1C *162417031-0003*	Black/Multi Colored Carpet Mastic		HA: 1		**Positive Stop (Not Analyzed)**
2A *162417031-0004*	Black Floor Base Mastic	Tan Non-Fibrous Homogeneous	HA: 2	100% Non-fibrous (Other)	None Detected
2B *162417031-0005*	Black Floor Base Mastic	Tan Non-Fibrous Homogeneous	HA: 2	100% Non-fibrous (Other)	None Detected
2C *162417031-0006*	Black Floor Base Mastic	Brown/Tan Non-Fibrous Homogeneous	HA: 2	100% Non-fibrous (Other)	None Detected
3A *162417031-0007*	2x2 White CT - Dotted	Gray/White Fibrous Homogeneous	60% Cellulose 20% Min. Wool HA: 3	15% Perlite 5% Non-fibrous (Other)	None Detected
3B *162417031-0008*	2x2 White CT - Dotted	Gray/White Fibrous Homogeneous	60% Cellulose 20% Min. Wool HA: 3	15% Perlite 5% Non-fibrous (Other)	None Detected
3C *162417031-0009*	2x2 White CT - Dotted	Gray/White Fibrous Homogeneous	60% Cellulose 20% Min. Wool HA: 3	15% Perlite 5% Non-fibrous (Other)	None Detected
4A *162417031-0010*	9x9 Grey FT	Gray Non-Fibrous Homogeneous	HA: 4	98% Non-fibrous (Other)	**2% Chrysotile**
4B *162417031-0011*	9x9 Grey FT		HA: 4		**Positive Stop (Not Analyzed)**
4C *162417031-0012*	9x9 Grey FT		HA: 4		**Positive Stop (Not Analyzed)**

Initial report from: 09/27/2024 08:29:24

EMSL Analytical, Inc.
6340 CastlePlace Dr. Indianapolis, IN 46250
Tel/Fax: (317) 803-2997 / (317) 803-3047
http://www.EMSL.com / indianapolislab@emsl.com

EMSL Order: 162417031
Customer ID: KLIN50
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
5A *162417031-0013*	Drywall	Brown/White Fibrous Heterogeneous	30% Cellulose HA: 5	60% Gypsum 10% Non-fibrous (Other)	None Detected
5B *162417031-0014*	Drywall	Brown/White Fibrous Heterogeneous	30% Cellulose HA: 5	60% Gypsum 10% Non-fibrous (Other)	None Detected
5C *162417031-0015*	Drywall	Brown/White Fibrous Heterogeneous	30% Cellulose HA: 5	60% Gypsum 10% Non-fibrous (Other)	None Detected
6A *162417031-0016*	Drywall Mud	White Non-Fibrous Homogeneous	HA: 6	100% Non-fibrous (Other)	None Detected
6B *162417031-0017*	Drywall Mud	White Non-Fibrous Homogeneous	HA: 6	100% Non-fibrous (Other)	None Detected
6C *162417031-0018*	Drywall Mud	White Non-Fibrous Homogeneous	HA: 6	100% Non-fibrous (Other)	None Detected
7A *162417031-0019*	12x12 Dark Grey FT	Gray Non-Fibrous Homogeneous	HA: 7	100% Non-fibrous (Other)	None Detected
7B *162417031-0020*	12x12 Dark Grey FT	Gray Non-Fibrous Homogeneous	HA: 7	100% Non-fibrous (Other)	None Detected
7C *162417031-0021*	12x12 Dark Grey FT	Gray Non-Fibrous Homogeneous	HA: 7	100% Non-fibrous (Other)	None Detected
8A *162417031-0022*	Mastic For 7	Yellow Non-Fibrous Homogeneous	HA: 8	100% Non-fibrous (Other)	**<1% Chrysotile**
8B *162417031-0023*	Mastic For 7	Yellow Non-Fibrous Homogeneous	HA: 8	100% Non-fibrous (Other)	**<1% Chrysotile**
8C *162417031-0024*	Mastic For 7	Yellow Non-Fibrous Homogeneous	HA: 8	100% Non-fibrous (Other)	**<1% Chrysotile**
9A *162417031-0025*	Mastic For 4	Tan/Black Non-Fibrous Homogeneous	HA: 9	98% Non-fibrous (Other)	**2% Chrysotile**
9B *162417031-0026*	Mastic For 4		HA: 9		**Positive Stop (Not Analyzed)**
9C *162417031-0027*	Mastic For 4				**Positive Stop (Not Analyzed)**

Initial report from: 09/27/2024 08:29:24

EMSL Analytical, Inc.
6340 CastlePlace Dr. Indianapolis, IN 46250
Tel/Fax: (317) 803-2997 / (317) 803-3047
http://www.EMSL.com / indianapolislab@emsl.com

EMSL Order: 162417031
Customer ID: KLIN50
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
			HA: 9		
10A-Mastic *162417031-0028*	Grey Floor Base Mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	**<1% Chrysotile**
			HA: 10		
10A-Mastic *162417031-0028A*	Grey Floor Base Mastic	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 10		
10B *162417031-0029*	Grey Floor Base Mastic	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 10		
10C *162417031-0030*	Grey Floor Base Mastic	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 10		
11A *162417031-0031*	9x9 Cream/Grey FT	Gray Non-Fibrous Homogeneous		98% Non-fibrous (Other)	**2% Chrysotile**
			HA: 11		
11B *162417031-0032*	9x9 Cream/Grey FT				**Positive Stop (Not Analyzed)**
			HA: 11		
11C *162417031-0033*	9x9 Cream/Grey FT				**Positive Stop (Not Analyzed)**
			HA: 11		
12A *162417031-0034*	Mastic For11	Black Non-Fibrous Homogeneous		98% Non-fibrous (Other)	**2% Chrysotile**
			HA: 12		
12B *162417031-0035*	Mastic For11				**Positive Stop (Not Analyzed)**
			HA: 12		
12C *162417031-0036*	Mastic For11				**Positive Stop (Not Analyzed)**
			HA: 12		
13A *162417031-0037*	2x2 White CT - Smooth	White/Yellow Fibrous Homogeneous	98% Glass	2% Non-fibrous (Other)	None Detected
			HA: 13		
13B *162417031-0038*	2x2 White CT - Smooth	White/Yellow Fibrous Homogeneous	98% Glass	2% Non-fibrous (Other)	None Detected
			HA: 13		
13C *162417031-0039*	2x2 White CT - Smooth	White/Yellow Fibrous Homogeneous	98% Glass	2% Non-fibrous (Other)	None Detected
			HA: 13		
14A *162417031-0040*	Black Floor Base Mastic	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 14		

Initial report from: 09/27/2024 08:29:24

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Project ID:

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
14B *162417031-0041*	Black Floor Base Mastic	Tan Non-Fibrous Homogeneous	HA: 14	100% Non-fibrous (Other)	None Detected
14C *162417031-0042*	Black Floor Base Mastic	Brown Non-Fibrous Homogeneous	HA: 14	100% Non-fibrous (Other)	None Detected
15A *162417031-0043*	Window Rubber	Black Non-Fibrous Homogeneous	HA: 15	100% Non-fibrous (Other)	None Detected
15B *162417031-0044*	Window Rubber	Black Non-Fibrous Homogeneous	HA: 15	100% Non-fibrous (Other)	None Detected
15C *162417031-0045*	Window Rubber	Black Non-Fibrous Homogeneous	HA: 15	100% Non-fibrous (Other)	None Detected
16A *162417031-0046*	Plaster Base Coat	Gray Non-Fibrous Homogeneous	HA: 16	20% Quartz 80% Non-fibrous (Other)	None Detected
16B *162417031-0047*	Plaster Base Coat	Gray Non-Fibrous Homogeneous	HA: 16	20% Quartz 80% Non-fibrous (Other)	None Detected
16C *162417031-0048*	Plaster Base Coat	Gray Non-Fibrous Homogeneous	HA: 16	20% Quartz 80% Non-fibrous (Other)	None Detected
17A *162417031-0049*	Plaster Skim Coat	White Non-Fibrous Homogeneous	HA: 17	100% Non-fibrous (Other)	None Detected
17B *162417031-0050*	Plaster Skim Coat	White Non-Fibrous Homogeneous	HA: 17	100% Non-fibrous (Other)	None Detected
17C *162417031-0051*	Plaster Skim Coat	White Non-Fibrous Homogeneous	HA: 17	100% Non-fibrous (Other)	None Detected
18A *162417031-0052*	Brown Burlap Carpet	Various Fibrous Homogeneous	98% Synthetic HA: 18	2% Non-fibrous (Other)	None Detected
18B *162417031-0053*	Brown Burlap Carpet	Various Fibrous Homogeneous	98% Synthetic HA: 18	2% Non-fibrous (Other)	None Detected
18C *162417031-0054*	Brown Burlap Carpet	Brown/White Fibrous Homogeneous	95% Synthetic HA: 18	5% Non-fibrous (Other)	None Detected
19A *162417031-0055*	Brown Carpet Mastic	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 09/27/2024 08:29:24

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Project ID:

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
			HA: 19		
19B	Brown Carpet Mastic	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
162417031-0056			HA: 19		
19C	Brown Carpet Mastic	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
162417031-0057			HA: 19		
20A	Black Floor Base	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
162417031-0058			HA: 20		
20B	Black Floor Base	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
162417031-0059			HA: 20		
20C	Black Floor Base	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
162417031-0060			HA: 20		

Analyst(s)
Ross Matlock (15)
Sean O'Donnell (37)

Melissa Newkirk
Asbestos Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 "Interim Method") but augmented with procedures outlined in the 1993 ("final") version of the method. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Estimation of uncertainty is available on request.

Samples analyzed by EMSL Analytical, Inc. Indianapolis, IN NVLAP Lab Code 200188-0, AZ0939, CA 2575, CO AL-15132, TX 300262, A2LA Accredited - Certificate #2845.25

Initial report from: 09/27/2024 08:29:24

EMSL Analytical, Inc.
6340 CastlePlace Dr., Indianapolis, IN 46250
Phone/Fax: (317) 803-2997 / (317) 803-3047
http://www.EMSL.com indianapolislab@emsl.com

EMSL Order:	162417031
CustomerID:	KLIN50
CustomerPO:	
ProjectID:	

Attn: **Grant Ohnemus**
Klingner & Associates, P.C.
616 North 24th Street
Quincy, IL 62301

Phone:	(217) 223-3670
Fax:	(217) 223-3603
Received:	9/20/2024 10:00 AM
Analysis Date:	10/3/2024
Collected:	

Project: **24-5012**

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy with Gravimetric Reduction. Quantitation using 400 Point Count Procedure.

SAMPLE ID	DESCRIPTION	APPEARANCE	(%) Matrix Organic	(%) Matrix Acid	NON- ASBESTOS % Fibrous	NON- ASBESTOS % NON-FIBROUS	ASBESTOS % TYPES
8A *162417031-0022* HA: 8	Mastic For 7	Gray/Yellow Non-Fibrous Homogeneous	33.0	63.2		3.8 Non-fibrous (other)	<0.25 Chrysotile

Analyst(s)
Amanda Straw (1)

Melissa Newkirk
Asbestos Laboratory Manager
or other approved signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 “Interim Method”) but augmented with procedures outlined in the 1993 (”final”) version of the method. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Some samples may contain asbestos fibers present in dimensions below PLM resolution limits. EMSL suggests that samples reported as <0.25% or none detected undergo additional analysis via TEM. Estimation of uncertainty is available on request.

Samples analyzed by EMSL Analytical, Inc. Indianapolis, IN NVLAP Lab Code 200188-0, A2LA Accredited - Certificate #2845.25

Initial report from 10/03/2024 09:31:37

THIS IS THE LAST PAGE OF THE REPORT.

OrderID: 162417031

Asbestos Chain of Custody (Air, Bulk, Soil)

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

EMSL Order Number / Lab Use Only: 162417031

EMSL Analytical, Inc.
Indianapolis, IN 46250
PHONE: (317) 803-2997
EMAIL: indianapolislab@emsl.c

If Bill-To is the same as Report-To leave this section blank. Third-party billing requires written authorization.

Customer Information		Billing Information	
Customer ID:		Billing ID:	
Company Name:	Klingner & Associates, P.C.	Company Name:	Klingner & Associates, P.C.
Contact Name:	Grant Ohnemus	Billing Contact:	Grant Ohnemus
Street Address:	616 North 24th Street	Street Address:	616 North 24th Street
City, State, Zip:	Quincy IL 6230	City, State, Zip:	Quincy IL 62301
Country:	US	Country:	US
Phone:	217-223-3670	Phone:	217-223-3670
Email(s) for Report:	gohnemus@klingner.com	Email(s) for Invoice:	

Project Information

Project Name/No:	24-5012	Purchase Order:	
EMSL LIMS Project ID: (If applicable, EMSL will provide)		US State where samples collected:	MO
State of Connecticut (CT) must select project location:	☐ Commercial (Taxable) ☐ Residential (Non-Taxable)		
Sampled By Name:	Grant Ohnemus	Sampled By Signature:	Grant Ohnemus
No. of Samples in Shipment			

Turn-Around-Time (TAT)

☐ 3 Hour ☐ 4-4.5 Hour ☐ 6 Hour ☐ 24 Hour ☐ 32 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☑ 1 Week ☐ 2 Week

TEM Air 3-6 Hour, please call ahead to schedule. 32 Hour TAT available for select tests only; samples must be submitted by 11:30 am.

Test Selection

PCM Air
- ☐ NIOSH 7400
- ☐ NIOSH 7400 w/ 8hr. TWA

PLM - Bulk (reporting limit)
- ☑ PLM EPA 600/R-93/116 (<1%)
- ☐ PLM EPA NOB (<1%)
- ☐ POINT COUNT
  - ☐ 400 (<0.25%) ☐ 1,000 (<0.1%)
- POINT COUNT w/ GRAVIMETRIC
  - ☐ 400 (<0.25%) ☐ 1,000 (<0.1%)
- ☐ NIOSH 9002 (<1%)
- ☐ NYS 198.1 (Friable - NY)
- ☐ NYS 198.6 NOB (Non-Friable - NY)
- ☐ NYS 198.8 (Vermiculite SM-V)

TEM - Air
- ☐ AHERA 40 CFR, Part 763
- ☐ NIOSH 7402
- ☐ EPA Level II
- ☐ ISO 10312*

TEM - Bulk
- ☐ TEM EPA NOB
- ☐ NYS NOB 198.4 (Non-Friable-NY)
- ☐ TEM EPA 600/R-93/116 w Milling Prep (0.1%)

Other Test (please specify)

TEM - Settled Dust
- ☐ Microvac - ASTM D5755
- ☐ Wipe - ASTM D6480
- ☐ Qualitative via Filtration Prep
- ☐ Qualitative via Drop Mount Prep

Soil - Rock - Vermiculite (reporting limit)*
- ☐ PLM EPA 600/R-93/116 with milling prep (<0.25%)
- ☐ PLM EPA 600/R-93/116 with milling prep (<0.1%)
- ☐ TEM EPA 600/R-93/116 with milling prep (<0.1%)
- ☐ TEM Qualitative via Filtration Prep
- ☐ TEM Qualitative via Drop Mount Prep

*Please call with your project-specific requirements.

☑ Positive Stop - Clearly Identified Homogeneous Areas (HA) | Filter Pore Size (Air Samples) ☐ 0.8um ☐ 0.45um

Sample Number	Sample Location / Description	Volume, Area or Homogeneous Area	Date / Time Sampled (Air Monitoring Only)
1 (A, B, L)	Black/Multi Colored Carpet Mastic	1	9/18/2024
2	Black Floor Base mastic	2	
3	2x2 White CT - Dotted	3	
4	9x9 Grey FT	4	
5	Drywall	5	
6	Drywall Mud	6	
7	12x12 Dark Grey FT	7	
8	Mastic for 7	8	

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Method of Shipment:		Sample Condition Upon Receipt:	
Relinquished by: Grant Ohnemus	Date/Time: 9/19/2024	Received by: M Woolley	Date/Time: 9/20/24 10am EST
Relinquished by:	Date/Time:	Received by:	Date/Time

Controlled Document - COC-05 Asbestos R15 4/23/2021

☐ AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.

OrderID: 162417031

EMSL Analytical, Inc.

Asbestos Chain of Custody (Air, Bulk, Soil)

EMSL Order Number / Lab Use Only

17031

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Indianapolis, IN 46250
PHONE: (317) 803-2997
EMAIL: indianapolislab@emsl.co

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Sample Number	Sample Location / Description	Volume, Area or Homogeneous Area	Date / Time Sampled (Air Monitoring Only)
9	Mastic for 4	9	
10	Grey Floor Base Mastic	10	
11	9x9 Cream/Grey FT	11	
12	Mastic for 11	12	
13	2x2 White CT - Smooth	13	
14	Black Floor Base Mastic	14	
15	Window Rubber	15	
16	Plaster Base Coat	16	
17	Plaster Skim Coat	17	
18	Brown Burlap Carpet	18	
19	Brown Carpet Mastic	19	
20	Black Floor Base	20	

Method of Shipment:		Sample Condition Upon Receipt:	
Relinquished by:	Date/Time: 9/19/2024	Received by:	Date/Time: 9/19/24
Relinquished by:	Date/Time:	Received by:	Date/Time:

Controlled Document - COC-05 Asbestos R15 4/23/2021

☐ AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature)

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EXHIBIT E

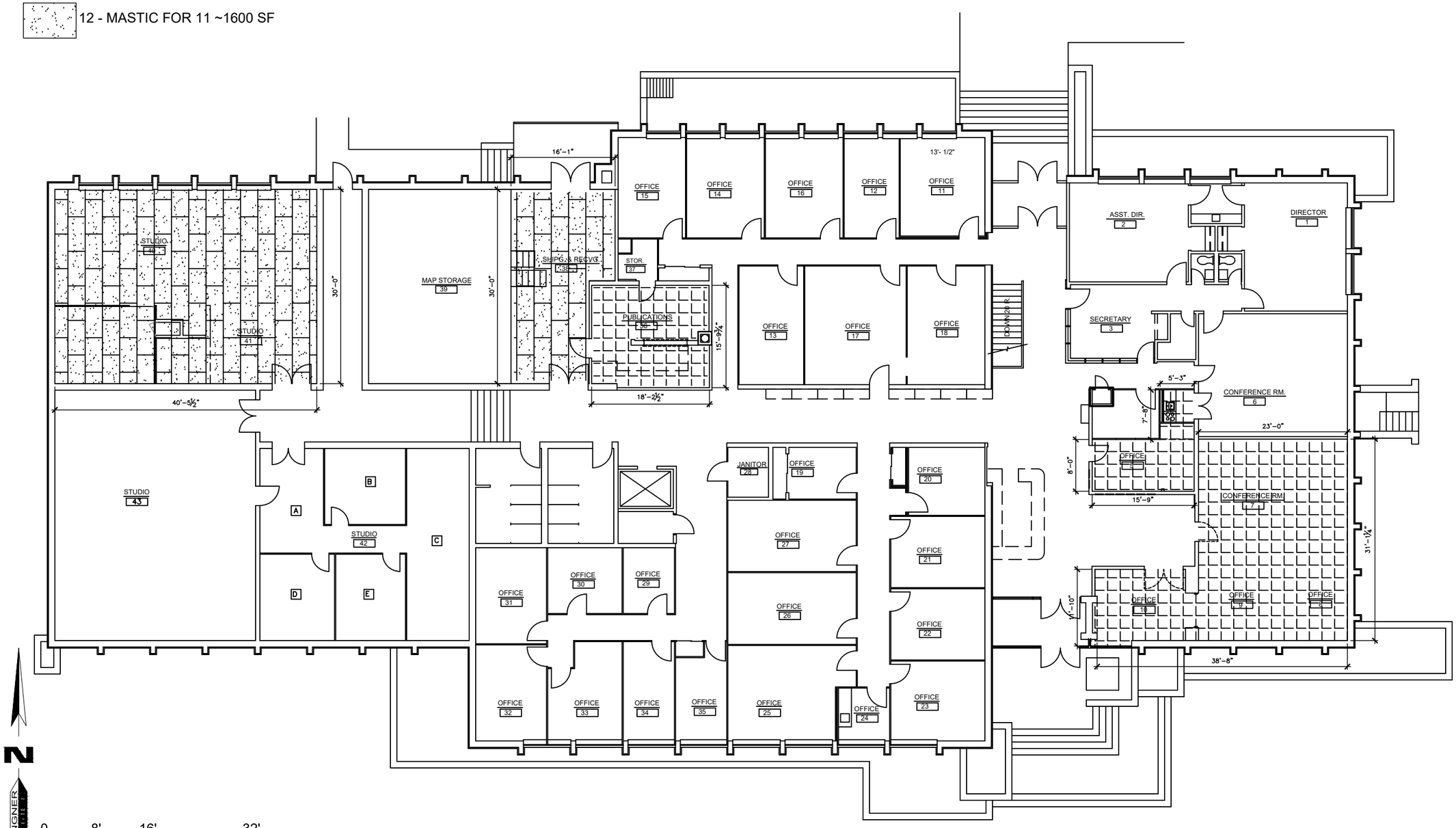
ASBESTOS LOCATION MAP

ASBESTOS LEGEND:

1, 4, 9 - LAYERED - BLACK/MULTI COLORED CARPET MASTIC, 9"X9" GRAY FT, MASTIC FOR GRAY FT ~1325 SF

11 - 9"x9" CREAM/GREY FT ~1600 SF

12 - MASTIC FOR 11 ~1600 SF



N

KLINGNER & ASSOCIATES, P.C.

0 8' 16' 32'

SCALE: 1/16" = 1'-0"

KLINGNER & ASSOCIATES, P.C.
Engineers • Architects • Surveyors
www.klingner.com
Columbia, Missouri
3622 Endeavor Ave., Ste 117
573.355.5988
Quincy, IL Hannibal, MO
Burlington, IA Galesburg, IL Pella, IA
Davenport, IA Carbondale, IL

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REVISION HISTORY

MARK	DESCRIPTION	DATE	APPR
1		.	.

ISSUED FOR 10/03/2024

ACM REPORTING

GEOLOGICAL SURVEY, REPLACE FLOORING & REN. FRONT ENT.
STATE OF MO - OFFICE OF ADM.
301 W. HIGH STREET, ROOM 730
JEFFERSON CITY, MO 65102

Non-Reduced Sheet Size: 11" x 17"

DESIGNED	DRAWN
.	.
FIELD GEO	FIELD BOOK .
CHECKED JAC	CHECK DATE 10/03/2024

SHEET TITLE
ASBESTOS CONTAINING MATERIAL LOCATIONS

PROJECT NO. 24-5012

DRAWING ISSUED DATE: 10/03/2024

SHEET
ASB-2

EXHIBIT F

MISSOURI ASBESTOS INSPECTOR LICENSE

CERTIFICATION NUMBER:

7118041724MOII23518

THIS CERTIFIES

Grant E Ohnemus

HAS COMPLETED THE CERTIFICATION

REQUIREMENTS FOR

Inspector

APPROVED: **05/14/2024**

EXPIRES: **05/14/2025**

TRAINING DATE: **04/17/2024**

Director of Air Pollution Control Program