



State of Michigan

**Department of Technology, Management and Budget
State Facilities Administration
Design and Construction Division**

**DCSPEC
Bidding and Contract Document
Minor Projects**

File No. 472/25256.JBB MDOC / Alger Correctional Facility Cooler/Freezer Replacement

Industrial Park Dr, Wetmore, MI

March 20, 2026 (100% Specifications)

BID SUMMARY

**DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
STATE FACILITIES ADMINISTRATION
DESIGN AND CONSTRUCTION DIVISION
3111 W. St. Joseph Street
Lansing, Michigan 48917**

Bids must be submitted electronically at: <https://sigma.michigan.gov/webapp/PRDVSS2X1/AltSelfService>

FILE NUMBER 472/25256.JBB	DEPARTMENT/AGENCY DOC / Alger Correctional Facility	
CONTRACT TIME(S) 120 calendar days from Notice To Proceed	PROJECT NAME Cooler / Freezer Replacement	LOCATION Industrial Park Dr, Wetmore, MI 49895
BID OPENING DATE April 22, 2026 at 2:00 pm ET		FOR AN EXAMINATION OF THE SITE: Attend the Mandatory Pre-bid Walkthrough
SEE SECTION 00100 INSTRUCTIONS TO BIDDERS AND SECTION 00700 GENERAL CONDITIONS PROVIDED WITH THE BIDDING DOCUMENTS. BID: WE PROPOSE TO FURNISH, PERFORM AND COMPLETE THE ENTIRE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS IN CONSIDERATION OF THE BID PRICE (S) STATED BELOW.		
FIRM NAME AND COMPLETE ADDRESS		TELEPHONE NUMBER and E-MAIL ADDRESS
<input type="checkbox"/> Qualified Disabled Veteran BIDDER'S SIGNATURE AND TITLE _____ DATE _____		<u>SIGMA VENDOR NUMBER</u>
		<small>(protected information required for processing payments)</small>
WITNESS' SIGNATURE _____		DATE _____

By signing this bid above, bidder certifies their enclosed Qualified Disabled Veteran and Michigan-Based Business Certifications.

BASE BID FROM BID SCHEDULE (Include specified Allowances):

(use words) _____	Dollars \$	(in figures) _____
Alternate 1: (Add/Subtract) _____	Dollars \$	(in figures) _____
(use words)		
Alternate 2: (Add/Subtract) _____	Dollars \$	(in figures) _____
(use words)		
Alternate 3: (Add/Subtract) _____	Dollars \$	(in figures) _____
(use words)		

A PERFORMANCE BOND AND A PAYMENT BOND ARE REQUIRED FOR ALL BIDS OVER \$50,000.00. EACH BID MUST BE ACCOMPANIED BY A FIVE (5) PERCENT BID GUARANTEE. BUILDERS RISK INSURANCE IS REQUIRED TO BE PROVIDED BY THE CONTRACTOR UNLESS OTHERWISE INDICATED IN THE BID DOCUMENTS.

BIDDERS ARE ALSO CAUTIONED TO FAMILIARIZE THEMSELVES WITH ALL OF THE OTHER CONDITIONS OF THE CONTRACT.

Project Scope of Work:

Remove and replace the existing walk-in cooler freezer combination unit with a new walk-in cooler and separate walk-in freezer. Provide new LED lighting in units. Remove and replace the existing cooler & freezer remote refrigeration, located outside, with new remote refrigeration components. Provide a new roof over the refrigeration components.

The Bidder must figure its Base Bid on the specified, or Addendum-approved, materials and equipment **only**. No "or equal" or substitution proposals will be permitted after Bid opening, except as provided in the General Conditions.

Addenda: Bidder acknowledges receipt of Addenda: No. ___ dated: _____, No. ___ dated: _____ No. ___ dated: _____

Schedule of Alternates - The Bidder will complete (or deduct from the Contract) the parts of the Work designated by the Alternates that follow and accept in full payment (or allow in full credit) for those parts of the Work the following Item Bid Prices:

Alternate Item No.	Bid Quantity	Description	Unit Price	Item Bid Price
1	1	Back-up Generator for Cooler/Freezer		

The Bidder further acknowledges and agrees that the separate prices bid on this “Schedule of Alternates,” where they are applicable and deemed acceptable by the **Owner**, will be used if incorporated into the Contract when the **Owner** issues the Notice of Award.

Schedule of Unit Prices or Contingent Change Order Prices - The Bidder shall use this “Schedule” to quote unit prices identified in the bid documents or propose other contingent Change Order prices. The proposed Unit Prices or contingent Change Order prices set forth in this schedule, at the sole discretion of the **Owner**, may, or may not be incorporated into the Contract Documents. The **Owner** reserves the right to negotiate Unit Prices or contingent Change Order prices set forth herein prior to their possible incorporation into the Contract Documents.

Item No.	Bid Quantity	Description	Unit Price	Item Bid Price
N/A				

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
State Facilities Administration
Design & Construction Division

**Qualified Disabled Veteran (QDV)
Business Representation**

'Qualified Disabled Veteran,' means a business entity that is 51% or more owned by one or more veterans with a service-connected disability.

'Qualified Disabled,' means a business entity that is 51% or more owned by one or more with a service-connected disability.

The vendor represents that it IS _____, a qualified disabled veteran.

The contractor represents and warrants that the company meets the above (when checked) and has attached supporting documentation per the following:

Each bid requesting the Qualified Disabled Veterans (QDV) preference, in accordance with Public Act 22 of 2010, MCL 18.1241.3 shall include a DD214 Proof of Service and Discharge, a Veterans Administration rating decision letter, proof of disability (if the disability is not indicated on the DD214), and appropriate legal documents setting forth the 51% natural persons QDV ownership.

Fraudulent Certification as a Qualified Disabled Veteran may result in debarment under MCL 18.264.

Certification of a Michigan Based Business

(Information Required Prior to Contract Award for Application of State Reciprocity Provisions)

To qualify as a Michigan Based Business:

Vendor must have, during the 12 months immediately preceding this bid deadline:

or

If the business is newly established, for the period the business has been in existence, it has:

(Check all that apply):

- Filed a Michigan single business tax return showing a portion, or all the income tax base allocated or apportioned to the State of Michigan pursuant to the Michigan Single Business Tax Act, 1975 PA 228, MCL 208.1 – 208.145: or
- Filed a Michigan income tax return showing income generated in or attributed to the State of Michigan; or
- Withheld Michigan income tax from compensation paid to the bidder's owners and remitted the tax to the Department of Treasury; or

I certify that I have personal knowledge of such filing or withholding, that it was more than a nominal filing for the purpose of gaining the status of a Michigan business, and that it indicates a significant business presence in the state, considering the size of the business and the nature of its activities.

I authorize the Michigan Department of Treasury to verify that the business has or has not met the criteria for a Michigan business indicated above and to disclose the verifying information to the procuring agency.

Bidder shall also indicate one of the following:

- Bidder qualifies as a Michigan business (provide zip code: _____)
- Bidder does not qualify as a Michigan business (provide name of State: _____).
- Principal place of business is outside the State of Michigan, however service/commodity provided by a location within the State of Michigan (provide zip code: (_____)).

Fraudulent Certification as a Michigan business is prohibited by MCL 18.1268 § 268. A BUSINESS THAT PURPOSELY OR WILLFULLY SUBMITS A FALSE CERTIFICATION THAT IT IS A MICHIGAN BUSINESS OR FALSELY INDICATES THE STATE IN WHICH IT HAS ITS PRINCIPAL PLACE OF BUSINESS IS GUILTY OF A FELONY, PUNISHABLE BY A FINE OF NOT LESS THAN \$25,000 and subject to debarment under MCL 18.264.

ASBESTOS ABATEMENT ATTESTATION

SUBMISSION REQUIRED WITH ALL BIDS

Pursuant to the Public Entity Asbestos Removal Verification Act, PA 59 of 2024, MCL 338.3371 et seq. ("the Act"), the Owner will conduct the background investigation as required of any asbestos abatement contractor, or a general contractor that contracts with an asbestos abatement contractor, for the abatement of asbestos. Under the Act, an "Asbestos abatement contractor" means a business entity that is licensed under the asbestos abatement contractors licensing act, 1986 PA 135, MCL 338.3101 to 338.3319, and that carries on the business of asbestos abatement on the premises of another business entity and not on the asbestos abatement contractor's premises. Asbestos abatement contractor includes an individual or person with an ownership interest in a business entity described in MCL 338.3373(b).

(INSTRUCTIONS: Professional to select one of these two statements, then *delete* the not selected statement and instructions.)

THE SCOPE OF WORK TO BE COVERED UNDER THIS CONTRACT CONTAINS ASBESTOS ABATEMENT AND THIS ATTESTATION MUST BE COMPLETED.

THE SCOPE OF WORK TO BE COVERED UNDER THIS CONTRACT DOES NOT CONTAIN ASBESTOS ABATEMENT AND THIS ATTESTATION IS TO BE LEFT BANK.

Contractor attests that: *(check one:)*

- The Contractor will self-perform all asbestos abatement project work and attests that Contractor has not been issued 5 or more notices of violation of environmental regulations (State and/or Federal), nor has been subject to an administrative consent order or a consent judgment involving environmental regulations.
- The Contractor will self-perform all asbestos abatement project work; however, Contractor has been issued 5 or more notices of violation of environmental regulations (State and/or Federal), or has been subject to an administrative consent order or a consent judgment involving environmental regulations, requiring Owner to conduct a background investigation and a public hearing pursuant to PA 59 of 2024, MCL 338.3371 et seq.
- The Contractor nominates the following Sub-contractor for all asbestos abatement project work and attests that the nominated Sub-contractor has not been issued 5 or more notices of violation of environmental regulations (State and/or Federal), nor has been subject to an administrative consent order or a consent judgment involving environmental regulations:

Nominated Sub-contractor: _____

- The Contractor nominates the following Sub-contractor for all asbestos abatement project work; however, the nominated Sub-contractor has been issued 5 or more notices of violation of environmental regulations (State and/or Federal), or has been subject to an administrative consent order or a consent judgment involving environmental regulations, requiring Owner to conduct a background investigation and a public hearing pursuant to PA 59 of 2024, MCL 338.3371 et seq.

Nominated Sub-contractor: _____

BID BOND

BID SUBMITTED ON the _____ day of _____, 20____.

Bid Security is in the form of a Bid Bond _____ Bid Bond form has been duly executed _____; or

A Bank Certified or Cashier's check ___ or Money Order ___ is attached to this page ____ (If Bid Security is by Check or Money Order, the original check or money order must be delivered to the issuing office before Bid Due Time. ALL other SIGMA bid submittals are also still to be made).

If the Bidder is an Individual:

Name of Individual: _____

Name & Title of Person Authorized to sign: _____

Signature: _____
(If not the Individual, Attach Power of Attorney) Date

Doing Business as: _____

Business Address: _____

County of registration _____

Telephone: _____ FAX: _____

If the Bidder is a Partnership:

By: _____
(True Name of the Partnership)

Partner Authorized to Sign _____ Date

Signature: _____
(Attach evidence of Authority to sign) Date

Business Address: _____

County of registration _____

Telephone: _____ FAX _____

If the Bidder is a Corporation:

By: _____
(Legal Corporation Name)

Name & Title of Authorized Officer: _____

Signature: _____
(Attach evidence of Authority to sign) Date

Name & Title of Officer Attesting: _____

Signature: _____ Date

Business Address: _____

Telephone: _____ FAX _____

(State of Incorporation): _____

If The Bidder is A Joint Venture: JOINT VENTURE SIGNATURES MUST BE AS PROVIDED IN INSTRUCTIONS TO BIDDERS. EACH JOINT VENTURER SIGNING THE BID MUST SIGN IN THE MANNER INDICATED FOR AN INDIVIDUAL, A PARTNERSHIP OR A CORPORATION. IF MORE THAN TWO JOINT VENTURERS OF THE SAME TYPE ARE INCLUDED, USE ADDITIONAL PAGES. JOINT VENTURE STATE OF INCORPORATION _____ OR COUNTY OF REGISTRATION _____

POST-BID SUBMITTALS

The PSC will request this submittal after bid opening. Complete and submit these items within two business days after the request.

BIDDER'S EXPERIENCE MODIFICATION RATING (EMR) _____

Attach letter of explanation if the Bidder does not have an EMR.

PROPOSED PROJECT SUPERINTENDENT _____

Attach brief resume or list of similar successful projects.

LIST OF SIMILAR PROJECTS COMPLETED BY THE BIDDER

Please list at least three completed projects of similar size and complexity to the project being bid, with reference contact information

REFERENCE # _____

Owner: _____

Project/Contract Name: _____

Location of Project/Contract: _____

Contract Price: _____ Project/Contract Started: _____ Completed: _____

Owner's Representative (Name and Telephone): _____

Scope of Project/Contract: _____

REFERENCE # _____

Owner: _____

Project/Contract Name: _____

Location of Project/Contract: _____

Contract Price: _____ Project/Contract Started: _____ Completed: _____

Owner's Representative (Name and Telephone): _____

Scope of Project/Contract: _____

REFERENCE # _____

Owner: _____

Project/Contract Name: _____

Location of Project/Contract: _____

Contract Price: _____ Project/Contract Started: _____ Completed: _____

Owner's Representative (Name and Telephone): _____

Scope of Project/Contract: _____

POST BID SUBMITTALS: LIST OF SUBCONTRACTORS

The Apparent Low Bidder shall nominate for each Division of Specification and/or trade category, the Subcontractor to be awarded Sub-agreements, including the apparent Low Bidder if work is to be self-performed. The Apparent Low Bidder will ensure that all Subcontractors have a current State Project Registration in compliance with PA10 of 2023, as amended in PA110 of 2024. Nominated subcontractors shall not be removed, replaced, or added to except by written request for good reason, subject to Owner acceptance. Notwithstanding anything to the contrary, the Owner has the right to object, regardless of cause, to any asbestos abatement Subcontractor nominated by the Contractor to be awarded a Sub-agreement that has 5 or more notices of violation of environmental regulations, or has been subject to an administrative consent order or a consent judgment involving environmental regulations, within the immediately preceding 5 years.

Division, Specification Section and/or Trade	Nominated Subcontractor(s)	Amount of Subcontract
1. Walk-in Cooler/Freezer Supplier	_____	_____
2. Refrigerant Contractor	_____	_____
3. Electrical Contractor	_____	_____
4. Mech. / Plumb. Contractor	_____	_____
5. _____	_____	_____
6. _____	_____	_____
7. _____	_____	_____
8. _____	_____	_____
9. _____	_____	_____
10. _____	_____	_____
11. _____	_____	_____
12. _____	_____	_____
13. _____	_____	_____
14. _____ - _____	_____	_____

The undersigned Apparent Low Bidder _____ certifies that all the information and data furnished in this List of Subcontractors are current, accurate and complete as of the date stated below.

Signed by: _____ Name _____ Title _____

on this _____ day of _____, 20_____.

PERFORMANCE BOND
SURETY COMPANY REFERENCE No. _____

That "the **Contractor**," _____, a corporation ____, individual ____, partnership ____, joint venture __ of the State of _____, qualified to do business in the State of Michigan, as Principal, and "the Surety," _____, of the State of _____, as surety, are held and bound unto the State of Michigan, "the **Owner**," as Obligee, in the amount of _____ Dollars (\$ _____), for the payment of which the **Contractor** and Surety bind themselves, their respective heirs, successors, legal representatives and assigns, jointly and severally, in compliance with 1963 PA 213, as amended, MCL 129.201 et seq.

The **Contractor** has entered into "the Contract" with the **Owner** for _____, "the Work," covered by the Contract Documents, which are incorporated into this Performance Bond by this reference.

If the **Contractor** faithfully performs and fulfills all the undertakings, covenants, terms, conditions, warranties, indemnifications and agreements of the Contract Documents within the Contract Time (including any authorized changes, with or without notice to the Surety) and during the Correction Period, and if the **Contractor** also performs and fulfills all the undertakings, covenants, terms, conditions, warranties, indemnifications and agreements of any and all duly authorized modifications of the Contract Documents, then THIS OBLIGATION IS VOID, OTHERWISE TO REMAIN IN FULL FORCE AND EFFECT.

A. No change in Contract Price or Contract Time, "or equal" or substitution or modification of the Contract Documents (including addition, deletion, or other revision) releases the Surety of its obligations under this Section 00610 Performance Bond. The Surety expressly waives notice of any such change in Contract Price or Contract Time, "or equal" or substitution or

modification of the Contract Documents (including addition, deletion, or other revision).

B. This Performance Bond must be solely for the protection of the **Owner** and its successors, legal representatives or assigns.

C. It is the intention of the **Contractor** and Surety that they must be bound by all terms and conditions of the Contract Documents (including, but not limited to General Conditions and this Performance Bond). However, this Performance Bond is executed pursuant to 1963 PA 213, as amended, MCL 129.201 et seq., and if any provision(s) of this Performance Bond is/are illegal, invalid, or unenforceable, all other provisions of this Performance Bond must nevertheless remain in full force and effect, and the **Owner** must be protected to the full extent provided by 1963 PA 213, as amended, MCL 129.201 et seq.

IMPORTANT: The Surety must be authorized to do business in the State of Michigan by the Department of Licensing and Regulatory Affairs, must be listed on the current U.S. Department of the Treasury Circular 570, and, unless otherwise authorized by the **Owner** in writing, must have at least an A- Best's rating and a Class VII or better financial size category per current A. M. Best Company ratings.

Name, Address and Telephone of the Surety:

Address and Telephone of Agent, who is either a resident of, or whose principal office is maintained in, the State of Michigan

Signed and sealed this _____ day of _____, 20_____.

THE **CONTRACTOR**: (Print Full Name and Sign) By: _____

WITNESS _____ Name & Title: _____
Telephone No. _____

THE SURETY: (Print Full Name and Sign) Agent: _____

WITNESS _____ Attorney-in-Fact: _____
Telephone No. _____

Email: _____

PAYMENT BOND
SURETY COMPANY REFERENCE No. _____

"the **Contractor**," _____, a corporation ____, individual ____, partnership ____, joint venture ____ of the State of _____, qualified to do business in the State of Michigan, as Principal, and "the **Surety**," _____, of the State of _____, as surety, are held and bound unto the State of Michigan, "the **Owner**," as Obligee, in the amount of _____ Dollars (\$ _____), for the payment of which the **Contractor** and Surety bind themselves, their respective heirs, successors, legal representatives and assigns, jointly and severally, in compliance with 1963 PA 213, as amended, MCL 129.201 et seq.

The **Contractor** has entered into "the Contract" with the **Owner** for _____, "the Work," covered by the Contract Documents, which are incorporated into this Payment Bond by this reference.

If the **Contractor** promptly pays all claimants supplying labor or materials to the **Contractor** or to the **Contractor's** Subcontractors in the prosecution of the Work, then THIS OBLIGATION IS VOID, OTHERWISE TO REMAIN IN FULL FORCE AND EFFECT.

A. All rights and remedies on this Payment Bond are solely for the protection of all claimants supplying labor and materials to the **Contractor** or the **Contractor's** Subcontractors in the prosecution of the Work and must be determined in accordance with Michigan Law.

B. No change in Contract Price or Contract Time, "or equal" or substitution or modification of the Contract Documents (including addition, deletion, or other revision) must release the Surety of its obligations under this Payment Bond. The Surety

hereby expressly waives notice of any such change in Contract Price or Contract Time, "or equal" or substitution or modification of the Contract Documents (including addition, deletion, or other revision).

C. It is the intention of the **Contractor** and Surety that they must be bound by all terms and conditions of the Contract Documents (including, but not limited to this Payment Bond). However, this Payment Bond is executed pursuant to 1963 PA 213, as amended, MCL 129.201 et seq., and if any provision(s) of this Payment Bond is/are illegal, invalid, or unenforceable, all other provisions of this Payment Bond must nevertheless remain in full force and effect, and the **Owner** must be protected to the full extent provided by 1963 PA 213, as amended, MCL 129.201 et seq.

IMPORTANT: The Surety must be authorized to do business in the State of Michigan by the Department of Licensing and Regulatory Affairs, must be listed on the current U.S. Department of the Treasury Circular 570, and, unless otherwise authorized by the **Owner** in writing, must have at least an A- Best's rating and a Class VII or better financial size category per current A. M. Best Company ratings.

Name, Address and Telephone of the Surety:

Address and Telephone of Agent, who is either a resident of, or whose principal office is maintained in, the State of Michigan

Signed and sealed this _____ day of _____, 20_____.

THE **CONTRACTOR**: (Print Full Name and Sign) By: _____

WITNESS _____ Name & Title: _____
Telephone No. _____

THE **SURETY**: (Print Full Name and Sign) Agent: _____

WITNESS _____ Attorney-in-Fact: _____
Telephone No. _____

Email: _____

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BIDDING REQUIREMENTS AND CONTRACT CONDITIONS

SECTION 00010 PRE-BID INFORMATION

1. **Invitation to Bid (ITB)** – Your firm is invited to submit a Bid. The State of Michigan as the Owner will receive **bids electronically through the SIGMA VSS website at <https://sigma.michigan.gov/webapp/PRDVSS2X1/AltSelfService>**, for *DOC / Alger Correctional Facility Cooler / Freezer Replacement*, until 2:00 p.m., ET, on April 22, 2026. The State reserves the right to cancel this Invitation to Bid (ITB) or change the date and time for submitting Bids by announcing same at any time before the established date and time for Bid opening. Bids must remain open for acceptance by the Owner for no less than the Bid hold period. Contractor may agree to extend the Bid hold period. However, any such extension must be based upon no increase in the Bid Price and/or Contract Time.
2. **Work Description** – The Work, MDOC / Alger Correctional Facility, Cooler / Freezer Replacement, Industrial Park Dr, Wetmore, Michigan, DTMB File No. 472/25256.JBB includes, but is not necessarily limited to:

Remove and replace the existing walk-in cooler freezer combination unit with a new walk-in cooler and separate walk-in freezer. Provide new LED lighting in units. Remove and replace the existing cooler & freezer remote refrigeration, located outside, with new remote refrigeration components. Provide a new roof over the refrigeration components.

The site is located at: The existing Warehouse building at Alger Correctional Facility, Industrial Park Dr, Wetmore, MI, as shown on the Drawings.

3. **Bidding Documents** – Sets of Bidding Documents may be obtained at <https://sigma.michigan.gov/webapp/PRDVSS2X1/AltSelfService>.
4. **Bid Security** – Each Bid must enclose a duly executed Bid Security, in the amount of five percent (5%) of the Bidder's Base Bid, paid to the "State of Michigan" in the form of a certified or cashier's check or money order drawn upon a bank insured by an agency of the Federal Government, or a bid bond signed by both the Contractor and authorized surety company. *If Bid Security is by check or money order, such certified or cashier's check or money order must be delivered in original copy before the Bid Due Time to:*

State Facilities Administration
Design & Construction Division
3111 W. St. Joseph Street
Lansing, Michigan 48917

All other Bid information must be submitted via SIGMA as per standard bidding procedure

5. **Pre-Bid Conference** – A mandatory X pre-bid conference will be held at *Industrial Park Dr, Wetmore, MI* on April 8, 2026, at 9:00am ET. A tour of the work items will X be held on the same day, starting at 9:30am ET. All prospective Bidders are required X to attend the tour, if held. Other parties interested in the Work are encouraged to attend the tour. Addenda may be issued, in response to issues raised at the pre-bid conference and tour, or as the Owner and/or Professional may otherwise consider necessary. An individual is only permitted to represent one bidder at a mandatory Pre-Bid Conference.

The purpose of the pre-bid conference and inspection is to answer questions and provide an inspection tour of the Project site at the scheduled time on the day of the meeting. A representative will be available to assist the Contractors. Other inspection visits may be allowed if needed. Individuals needing special services to fully participate in the meeting due to a disability may contact Reid Anderson - UPEA at randerson@upea.com.

FOR CORRECTIONAL FACILITIES ONLY: All contractor/vendor representatives attending a Pre-Bid Walk Through Meeting must submit a Vender/Contractor LEIN Request five business days prior to the meeting date, (LEIN Request For CAJ-1037 attached to Bid posting). Send the LEIN Request form, filled out and signed, by email to SmithD76@michigan.gov & FrostS1@michigan.gov. The email "Subject" must include (Facility Name, Project Name, Date & Time of Pre-Bid Walk Through Meeting).

6. **SIGMA VENDOR NUMBER:** If you are bidding a State job for the first time, visit the State of Michigan SIGMA website, <https://sigma.michigan.gov/webapp/PRDVSS2X1/AltSelfService>, and follow the "SOM VSS User Guide for New Vendors" instructions, located under Forms and Reference Documents. Registration is required for bid submission. **Do not wait until the last minute to submit a proposal**, as the SIGMA system requires the creation of an account and entry of certain information, in addition to uploading and submitting the materials. The SIGMA system **will not** allow a proposal to be submitted after the proposal deadline, even if a portion of the proposal has been updated.

Questions on how to submit information or how to navigate in the SIGMA VSS system can be answered by calling **(517) 373-4111 or (888) 734-9749**.

7. **Equal Employment Opportunity** – Covenants to not discriminate in employment by Contractors, Subcontractors and Suppliers required by Law are contained in Instructions to Bidders and General Conditions and are applicable to the Work and any Sub-agreement under the Contract.

8. **Contract Times** – The Contract Times and the associated liquidated damages are specified in the Contract.
9. **Contact Person** – All requests or inquiries concerning the Bidding Documents, or the Work must be addressed to: Reid Anderson U.P. Engineers & Architects, Inc., randerson@upea.com. Questions will be accepted (in writing) until Wednesday, April 15, 2026 at 12:00pm ET.
10. **Award** – Subject to any agreed extension of the period for holding Bids, Bids must remain valid for acceptance by the Owner for 60 Calendar Days after the date of Bid opening. In addition, the Owner expressly reserves the right, within the Owner's sole discretion, to reject any or all Bids, to waive any irregularities, to issue post-Bid Addenda and re-bid the Work without re-advertising, to re-advertise for Bids, to withhold the award for any reason the Owner determines and/or to take any other appropriate action.
11. **Performance and Payment Bonds** – A performance bond and a payment bond are required for all contracts over \$50,000.00 for the contract award amount.

END OF SECTION 00010

SECTION 00100 INSTRUCTIONS TO BIDDERS

1. **PREPARATION OF BID:** Execute Bid fully and properly. Bid Summary Form (DTMB -0401D) and Bid Form Attachments must be used and completely filled out for the Bid to be considered responsive and meeting the requirements of the contract solicitation. All Bid prices must be printed or typed in both words and figures.
2. **BID CHECKLIST:** Submit Bid Summary Form with original signatures plus Bid Form Attachments in accordance with the electronic bidding procedures on the SIGMA VSS website.

A complete Bid will consist of the following forms, which are included immediately following the Bid Summary Form:

Bids SUBMIT THESE Bid Forms and Bid Form Attachments

- All Bids **Signed** and completed Bid Summary Form (DTMB-0401D).
 Bid Schedule.
 Qualified Disabled Veteran (QDV) Business Representation.
 Bid Security in the amount of 5% of Base Bid Price.

If Bid Security is by check or money order, such certified or cashier's check or money order must be delivered in original copy before the Bid Due Time to:

State Facilities Administration
 Design & Construction Division
 3111 W. St. Joseph Street
 Lansing, Michigan 48917

All other Bid information must be submitted via SIGMA as per standard bidding procedure

- Signature Authorization or copy of the partnership agreement if signed by all partners.
 Byrd Anti-Lobbying Certification (Only when Federal Provisions Addendum is included)
 Asbestos Abatement Attestation
 State Project Registration (SPR) for the Contractor and subcontractors (if applicable pursuant to 2023 PA 10, as amended, MCL 408.1101 et seq.)
 Other Forms;
- Over \$50K Forms listed under All Bids.
 Payment and Performance Bond (upon issuing the Notice of Award).
- Over \$100K Forms listed under All Bids.
 Certification of a Michigan Based Business.
 Payment and Performance Bond (upon issuing the Notice of Award).
- Over \$250K Forms listed under All Bids.
 Certification of a Michigan Based Business.
 Payment and Performance Bond (upon issuing the Notice of Award).

Apparent Low Bidders ONLY (upon request from the Professional)

- Experience Modification Rating (EMR), or a letter stating why the Bidder does not have one.
 Identification of the proposed project superintendent, with a resume or list of similar projects handled by that individual.
 A list of at least three (3) projects completed by the Bidder, within the last three (3) years of similar size and complexity, with contact information for references for each.

- A list of nominated sub-contractors, including proposed self-performed categories, for each Division/Trade/etc.

3. **BID SUBMISSION:** Bids must be submitted electronically through the SIGMA VSS website at <https://sigma.michigan.gov/webapp/PRDVSS2X1/AltSelfService>.
4. **BID GUARANTEE:** Each proposal must be accompanied by either a bank certified or cashier's check on an open, solvent bank or a bid bond with an authorized surety company (the surety must be listed on the current U.S. Department of the Treasury Circular 570) in the amount of five percent of the base bid payable to the State of Michigan, as a guarantee of good faith. If the successful Bidder fails to furnish satisfactory bonds and insurance within fifteen Calendar Days after Notice of Award, such guarantee must be forfeited to the State as liquidated damages. *If Bid Security is by check or money order, such certified or cashier's check or money order must be delivered in original copy before the Bid Due Time to the Issuing Office.* The bid security, exclusive of bid bonds, of all unsuccessful Bidders will be returned when an award is made or upon substitution of a bid bond. The bid security of the successful Bidder will be returned when the performance bond and labor and material bond are approved.
5. **Left Blank Intentionally.**
6. **MICHIGAN BASED BUSINESS CERTIFICATION:** All Bidders submitting Bids in excess of \$100,000.00 must complete the Certification of Michigan Based Business. This information will determine if a Bidder qualifies as a "Michigan" business for purposes of application of reciprocity where applicable.
7. **POST-BID SUBMITTAL:** For all projects, the Professional may request a Post-Bid Submittal from the Apparent Low Bidders. The Apparent Low Bidders must submit to the Professional, within **two** Business Days after receipt of the Professional's request,
- Experience Modification Rating (EMR), or a letter stating why the Bidder does not have one.
 - Identification of the proposed project superintendent with a resume or list of similar projects managed by that individual.
 - A list of at least three (3) projects completed by the Bidder, within the last three (3) years of similar size and complexity, with contact information for references for each.
- Failure to provide the submittals may disqualify the Bid.**
8. **SIGNATURES:** All Bids, notifications, claims, and statements must be signed as follows:
- (a) **Corporations:** Signature of official must be accompanied by a certified copy of the Resolution of the Board of Directors authorizing the individual signing to bind the corporation.
 - (b) **Partnerships:** Signature of one partner must be accompanied by a signed copy of the legal document (e.g., Power of Attorney or partnering agreement) authorizing the individual signing to bind all partners. If Bid is signed by all partners, no authorization is required.
 - (c) **Individual:** No authorization is needed. Each signature must be witnessed.
9. **BID PRICES:** The Bidder's Base Bid and Alternate Bid prices must include, and payment for completed Work will compensate in full for: all services, obligations, responsibilities, management, supervision, labor, materials, devices, equipment, construction equipment, general conditions, permits, patent fees and royalties, testing, inspection and approval responsibilities, warranties, temporary facilities, small tools, supplies, Bonds, insurance, taxes, mobilization, close-out, overhead and profit and all connections, appurtenances and any other incidental items of any kind or nature, as are necessary to complete the Work, in a neat, first quality, workmanlike and satisfactory manner in accordance with the Drawings and Specifications and as otherwise required to fulfill the requirements of the Bidding Documents. For each Cash Allowance item, the Bidder must include, within the Bid, all labor costs, construction equipment costs, insurance and Bond premiums and other general conditions costs and Fees (Bidder's and Subcontractors') to complete Work associated with the material, equipment, or other designated item to be furnished under the Cash Allowance. For each Provisionary Allowance, the Bidder must include, within the Bid, insurance, premiums (not recoverable as labor burden) and Bond premiums required to complete Work that may be ordered under a Provisionary Allowance.
10. **INSPECTION OF BIDDING DOCUMENTS AND SITE CONDITIONS:** The Bidder must carefully review and inspect all documents referenced and made part of this ITB, site conditions, all applicable statutes, regulations, ordinances, and resolutions addressing or relating to the goods and services under this contract. Failure to do so or failure to acquire clarifications and answers to any discovered conflicts, ambiguities, errors, or omissions in the Bidding Documents will be at the Bidder's sole risk.
11. **SAFETY REQUIREMENTS AND LAWS:** The Bidder awarded the Contract must comply with all applicable federal, state, and local Laws including health and safety regulations, environmental protection, permits and licensing.

12. INTERPRETATIONS AND ALTERATIONS TO THE BID AND BIDDING DOCUMENTS: All requests for clarification or interpretation of the Bidding Documents, all proposals for any modifications to the Bidding Documents, all requests for information and all other questions or inquiries about the Bidding Documents and/or the Work shall be submitted in writing to the Contact Person identified in the Bid Documents. Requests or inquiries received less than seven Calendar Days before the date of Bid opening will be answered only if (a) the response can be given through an Addendum made available at least seventy-two hours before Bid opening (counting Business Days only), (b) the Bid opening is postponed by Addendum, or (c) the Work is rebid without readvertising following the issuance of post-Bid Addenda.

Bidders must not rely upon any oral statements or conversations regarding interpretations, clarifications, corrections, additions, deletions or other revisions or information to the Bidding Documents. Any addition, limitation or provision made with or attached to the Bid may render it non-responsive and/or irregular and be a cause for rejection. The Owner reserves the right to issue a post-Bid Addendum after opening the Bids and set a new date for the receipt and opening of sealed Bids. The Bidder acknowledges that any quantities of Unit Price Work given in this ITB are approximate only and payments will be made only for actual quantities of Unit Price Work completed in accordance with the Contract Documents.

13. MODIFICATION OF BID: The entire bid must be resubmitted on the SIGMA VSS website.

14. BID WITHDRAWAL: Except for timely filed claims of mathematical or clerical errors granted by the State, no Bid may be withdrawn within sixty Calendar Days after the Bid Opening time and date or before the Bid expiration date without forfeiting Bid security. The request to withdraw a Bid due to error must be submitted in writing along with the supporting documents within two Business Days after the date of Bid Opening. The claim must describe in detail the error(s), include a signed affidavit stating the facts of the alleged error(s) and request that the Bidder be released from its Bid. The review of the claim and its supporting documents by the State is only for the purpose of evaluating the Bidder's request and must not create duty or liability on the State to discover any other Bid error or mistake. The sole liability of any Bid error or mistake rests with Bidder.

15. OBJECTION TO THE AWARD: A Bidder may file a written protest with the Director-DCD to object to the Apparent Low Bidder. This objection must be filed within seven Calendar Days after the date of Bid opening and must describe in detail the basis for the protest and request a determination. The Director-DCD will either dismiss or uphold the protest and notify the protestor within ten Calendar Days after receipt of the written protest.

16. BID IRREGULARITIES: The following irregularities on any Bid Form or Bid Form Attachment must be resolved as follows:

- (a) between SIGMA entry and signed Bid Summary attachment, the signed Bid Summary attachment will be used.
- (b) between words and figures, the words must be used.
- (c) between any sum, computed by the Bidder, and the correct sum, the sum computed by the Bidder must be used.
- (d) between the product, computed by the Bidder, of any quantity and Bid Unit Price and the correct product of the Unit Price and the quantity of Unit Price Work, the product extended by the Bidder must be used.
- (e) between a stipulated Allowance and the amount entered, the Allowance must be used.
- (f) any mobilization pay item exceeding the maximum specified must be ignored and the Bid must remain unchanged.
- (g) if any Bidder fails or neglects to bid a Unit Price for an item of Unit Price Work but shows a "Bid Price" for that item, the missing unit price must be computed from the respective quantity and the Item Bid Price shown.
- (h) if any Bidder fails or neglects to show a "Bid Price" for an item of Unit Price Work but bids a unit price, the missing Bid Price must remain as "zero"; and
- (i) if any Bidder fails or neglects to enter a Bid Price in both words and figures, the Bid Price printed or typed, whether in words or figures, must be used.

17. CERTIFICATION: The bidder certifies to the best of its knowledge and belief that, within the past three (3) years, the bidder, an officer of the bidder, or an owner of a 25% or greater interest in the bidder:

- (a) Has not been convicted of a criminal offense incident to the application for or performance of a contract or subcontract with the State of Michigan or any of its agencies, authorities, boards, commissions, or departments.
- (b) Has not had a felony conviction in any state (including the State of Michigan).
- (c) Has not been convicted of a criminal offense which negatively reflects on the bidder's business integrity, including but not limited to, embezzlement, theft, forgery, bribery, falsification, or destruction of records, receiving stolen property, negligent misrepresentation, price-fixing, bid rigging, or a violation of state or federal anti-trust statutes.
- (d) Has not had a loss or suspension of a license or the right to do business or practice a profession, the loss or suspension of which indicates dishonesty, a lack of integrity, or a failure or refusal to perform in accordance with the ethical standards of the business or profession in question.
- (e) Has not been terminated for cause by the Owner.
- (f) Has not failed to pay any federal, state, or local taxes.
- (g) Has not failed to comply with all requirements for foreign corporations.
- (h) Has not been debarred from participation in the bid process pursuant to Section 264 of 1984 PA 431, as amended, MCL 18.1264, or debarred or suspended from consideration for award of contracts by any other State or any federal Agency.
- (i) Has not been convicted of a criminal offense or other violation of other state or federal law, as determined by a court of competent jurisdiction or an administrative proceeding, that in the opinion of DTMB indicates that the bidder is unable to

perform responsibly or which reflects a lack of integrity that could negatively impact or reflect upon the State of Michigan, including but not limited to, any of the following offenses under or violations of:

1. The Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.101 to 324.90106.
 2. A persistent and knowing violation of the Michigan Consumer Protection Act, 1976 PA 331, MCL 445.901 to 445.922.
 3. A finding that the bidder failed to pay the wages and/or fringe benefits as required by applicable law.
 4. Repeated or flagrant violations of 1978 PA 390 MCL 408.471 to 408.490 (law relating to payment of wages and fringe benefits).
 5. A willful or persistent violation of the Michigan Occupational Health and Safety Act, 1974, PA 154, MCL 408.10001 to 408.1094, including: a criminal conviction, repeated willful violations that are final orders, repeated violations that are final orders, and failure to abate notices that are final orders.
 6. A violation of federal or state civil rights, equal rights, or non-discrimination laws, rules, or regulations.
 7. Been found in contempt of court by a Federal Court of Appeals for failure to correct an unfair labor practice as prohibited by Section 8 of Chapter 372 of the National Labor Relations Act, 29 U. s. C. 158 (1980 PA 278, as amended, MCL 423.321 et seq).
- (j) Is not an Iran-Linked Business as defined in MCL 129.312.

A false statement, misrepresentation, or concealment of material facts on this certification may be grounds for rejection of this proposal or termination of the award and may be grounds for debarment.

18. REJECTION OF BID: The Bidder acknowledges the right of the Owner to reject any Bids and to waive any informality, defects or irregularity in any Bid received. In addition, the Bidder recognizes the right of the Owner to reject a Bid if:

- (a) the Bid is in any way incomplete or irregular.
- (b) the Bidder, Subcontractor or Supplier is not responsible as determined by the Owner.
- (c) the Bidder's performance as a Contractor was unsatisfactory under a prior Contract with the Owner for the construction, repair, modification, or demolition of a facility with the Owner, or under any other Contract, which was funded, directly or indirectly, by the Owner.
- (d) there are reasonable grounds for believing that collusion or unlawful agreements exists between any Bidders, that a Bidder is interested in more than one Bid, or that the Bid is not genuine.
- (e) the Bid exceeds the funds available.

19. MATERIALS AND EQUIPMENT SUBSTITUTION: Any Bidder wishing to use manufacturers or materials other than those specified must submit a written request to the Professional not later than seven days before due date for Bids. Request must be accompanied by product data to permit evaluation and comparison with specified products or materials. The Person submitting the request will be responsible for its prompt delivery. The Professional and the Owner will examine and evaluate the product data and if found acceptable, an Addendum will be issued and mailed or delivered to each Person who has received a set of Drawings and Specifications. All Addenda issued must be made a part of the Contract requirements. Contractor will be responsible for any extra work and expense incurred to satisfactorily and completely incorporating each substitute product into the Project.

20. MICHIGAN PRODUCTS AND RECYCLED PRODUCTS: All Contractors and Suppliers are encouraged to provide Michigan-made products and/or recycled products and/or green products and/or environmentally friendly products whenever possible where price, quality, and performance are equal to, or superior to, non-Michigan products and the requirements of the Contract Documents. The Contractor will be required to use alternatives to landfills for waste disposal such as reuse or recycle of asphalt, bricks, concrete, masonry, plastics, paint, glass, carpet, metals, wood, drywall, insulation, and any other waste materials to the extent practical.

21. PRE-AWARD PRODUCT SUBMITTALS: If requested, the Apparent Low Bidders must submit a summary of preliminary technical data on each product listed in N/A. The Apparent Low Bidders will furnish this summary data to the Professional within forty-eight hours of the Bid Opening. These submittals will be used to evaluate the Bid before the award. Failure to provide the submittals may disqualify the Bid.

22. CONTRACT AND CONTRACT AWARD: The Owner intends to award a Contract to the responsive and responsible best value bidder, except as provided below relative to veteran's preference.

22.1 Determination of the lowest three Bidders shall be based on the sum of the Base Bid and any additive and deductive Alternates the Owner accepts, in the order in which they are listed only. The Owner will accept an Alternate only if all other previously listed Alternates are also accepted unless acceptance by the Owner of Alternates in a different order does not affect determination of the lowest three bidders in any way.

22.2 The bids will be evaluated for best value based on price and qualitative components by comparing the qualitative components of the three lowest responsive and responsible Bidders. The comparison may also include other Bidders whose bids are within 10% of the lowest responsive and responsible Bidder.

- 22.3 If a Qualified Disabled Veteran meets the requirements of the contract solicitation, provides acceptable responses to both Part One and Part Two of the Best Value Construction Bidder Evaluation to achieve a Best Value recommendation and with the veteran's preference is the lowest responsive, responsible, best value Bidder, the Owner will award the contract to the Qualified Disabled Veteran bidder. A determination as to whether the requirements of the bid solicitation have been met will be based solely on the Owner's and Professional's evaluation of the Bid Summary, Bid Attachments, Bidder-provided documents, and interview.
- 22.4 For the purpose of evaluating and determining the low responsive bid, 10% of the lowest responsive bid (the bid that would otherwise receive the contract award if the preference were not being considered) will be deducted from all QDV bids. If the low responsive QDV bid, less the 10% preference, is less than the lowest responsive bid, then the QDV bid will be declared the official low responsive bid. The original QDV bid amount will be the basis of the contract award.

Example:

Lowest Responsive Bid	\$100,000
Lowest Responsive QDV Bid	\$109,000
Preference (10% of the Lowest Responsive Bid)	\$ 10,000
Lowest Responsive QDV Bid Less Preference	\$ 99,000 (\$109,000 - \$10,000)
Official Low Responsive Bid	\$109,000

- 22.5 The Apparent Low Bidders will be evaluated for responsiveness and responsibility based on the following:

- Compliance with the bid specifications and requirements.
- The Bidder's financial resources.
- The Bidder's technical capabilities.
- The Bidder's technical experience.
- The Bidder's past performance.
- The Bidder's insurance and bonding capacity.
- The Bidder's business integrity.

Some qualitative components that may be evaluated are:

- Technical approach.
- Quality of proposed personnel.
- Management plans.
- Past performance of any nominated asbestos abatement subcontractor(s).

- 22.6 For contracts under \$250,000, best value will primarily be based on the lowest responsive and responsible bid.

23. CONTRACT TIME; LIQUIDATED DAMAGES: Work of all trades as specified in the Contract Documents must be completed in 120 calendar days from the date of Notice-to-Proceed except for minor replacement, correction, or adjustment items which do not interfere with the complete operation and utilization of all parts of the Contract Work. This Contract Time is of the essence and liquidated damages for each Calendar Day that expires after this Substantial Completion of the entire Work must be in the amount of \$300.00. Liquidated damages are not a penalty, are cumulative and represent a reasonable estimate of the Owner's extra costs and damages, which are difficult to estimate with accuracy in advance.

24. MOBILIZATION: If used in the Specifications/Bid schedule, all the up-front costs incurred by the Contractor must be covered by the mobilization. The costs to establish temporary site offices, to obtain required permits for commencing the Work and for bonds and insurance premiums are examples of costs to the Contractor that are covered by mobilization pay item. This cost must not exceed four percent (4%) of the Base Bid, unless otherwise expressly provided in the Bidding Documents.

25. SOIL EROSION AND SEDIMENTATION CONTROL: All Work under this Contract must meet the storm water management requirements of the Project and comply with the applicable Soil Erosion and Sedimentation Control (SESC) rules and regulations and specific provisions for same within the Contract Documents. SESC measures will be monitored and enforced by the State Facilities Administration, or another authorized enforcing agency if so delegated, through the review of the Contractor's implementation plans and site inspections. State Facilities Administration or the Professional will notify the Contractor in writing of any violation(s) of the applicable SESC statutes and/or the corrective action(s) undertaken by the Owner and may issue stop work orders. State Facilities Administration has the right to assess a fine to the Contractor for noncompliance with the provisions of the Contract Documents and/or SESC regulations applicable to this Work and fines must be in addition to any other remediation costs or liquidated damages applicable to the Project and may exceed the value of the Contract.

- 26. PREVAILING WAGE:** The Bidding Documents include either the attached Appendix V of prevailing rates of wages and fringe benefits for all classes of Construction Mechanics called for in the Bid and resulting Contract, if any, or the attached current prevailing wage determination issued by the U.S. Department of Labor, as applicable depending on the funding source(s).

To the extent 2023 PA 10, as amended, MCL 408.1101 et seq. is applicable, the bid response for a state project must include a copy of the state project registration for the Contractor and for each Subcontractor of the Contractor that has been selected at the time the Contractor submits the Bid.

END OF SECTION 00100

SECTION 00120 SUPPLEMENTARY INSTRUCTIONS

The provisions of this Section amend or supplement Section 00100 Instructions to Bidders and those other provisions of the Bidding Requirements that are indicated below. All other Bidding Requirements that are not so amended or supplemented remain in full force and effect.

END OF SECTION 00120

SECTION 00200 INFORMATION FOR BIDDERS

1. UNDERGROUND UTILITIES

Information or data about physical conditions of existing Underground Utilities, which have been used by the Professional in preparing the Bidding Documents, is shown, or indicated in the Drawings and technical Specifications and those Underground Utility drawings itemized immediately below.

2. PERMITS, APPROVALS, LICENSES AND FEES

- 2.1 If the Owner has secured or will secure any permits, approvals and licenses and has paid or will pay any associated charges and fees, any such permits, approvals and licenses are itemized in this paragraph: **LARA Plan Reviews (PR2026BFS-xxxxxx, PR2026BCC-xxxxxx) only. Contractor(s) must obtain permits.**
- 2.2 If any permits, approvals, and licenses itemized above have been obtained by the Owner and the fees have been paid, copies of those permits, approvals, licenses, and corresponding fee receipts, are attached to this Section 00200 Information for Bidders.

Except for any permits, approvals, licenses, and fees identified above, the Contractor shall be responsible for all permits, approvals, licenses, and fees applicable to Work.

3. SEQUENCING REQUIREMENTS

Refer to the technical Specifications, including, but not limited to the General Requirements, for information, data, and criteria on sequences of Work restraints, construction, and maintenance of service to existing facilities, which, if provided, must govern the selection of Work sequences. Each Bidder must be responsible for any conclusions or interpretations the Bidder makes related to the selection of sequences and Means and Methods, based on the technical data made available, and/or those additional investigations or studies made or obtained by that Bidder.

4. SUBSURFACE CONDITIONS

In preparing the bidding documents, the PSC used the reports of explorations and tests of subsurface conditions itemized immediately below.

- 4.1 Information or data contained in those reports that may be properly considered Authorized Technical Data concerning subsurface conditions include (NOTE: All other information or data excluded from the list below represent Non-Technical Information or Data, interpretations, or opinions):
- 4.2 In preparing the bidding documents, the PSC has not used the following reports of explorations and tests of subsurface conditions itemized immediately below.

5. OTHER PHYSICAL CONDITIONS

- 5.1 The Drawings and technical Specifications and those drawings itemized immediately below contain information or data that have been used in the preparation of the Bidding Documents, and that may be properly considered Authorized Technical Data concerning physical conditions of existing surface and subsurface facilities.
- 5.2 The reference documents itemized immediately below have not been used in the preparation of the Bidding Documents and are available for review or purchase. Information and data contained in those reference documents, including, but not limited to dimensions, locations and conditions of existing surface and subsurface structures, roadways, piping, raceways, equipment, etc. may not accurately or reliably reflect actual conditions. Neither the Owner nor Professional warrants that this list identifies all existing relevant documents.

END OF SECTION 00200

SECTION 00700 GENERAL CONDITIONS

1. **Interpretations:** Any requests for clarifications or interpretations of the Contract Documents must be in writing to the Professional, who will issue written clarifications or interpretations as appropriate. If the Contractor believes that such clarification or interpretation justifies an adjustment to the Contract Price/Time, the Contractor must promptly notify the Professional in writing before proceeding with the Work Involved.
- 1.1 **Standards:** The Contract Documents describe the entire Work. The provisions of the Contract Documents must govern over any standard specifications, manual or code of any technical society, organization, or association but, if lower than the standards set by any Law applicable to the Work or the Project, the higher standards must govern. The Contractor's responsibilities extend to cover Subcontractors and Suppliers if liable as a result of their actions or obligations.
- 1.2 **Contract Time Computation:** The time to complete the Work must be made in Calendar Days and must include both the first and last day. The first day is established by the Notice-to-Proceed.
- 1.3 **Technical Specifications and Priority:** The following applies whenever priority is called for in Contract Documents: specifications must govern Drawings; figured dimensions must govern scaled dimensions; detail drawings must govern general drawings; Drawings must govern Submittals.
- 1.4 **Indemnification:** The Contractor is required to defend, indemnify and hold harmless the Owner and the Professional, their employees, agents, servants, and representatives from and against all claims, suits, demands, actions of whatever type and nature and all judgments, costs, losses and damages, whether direct, indirect or consequential including, but not limited to, charges of architects, engineers, attorneys and others and all court, hearing and any other dispute resolution costs arising from:
- (a) any patent or copyright infringement by the Contractor.
 - (b) any damage to the premises or adjacent lands, areas, properties, facilities, rights-of-way, and easements, including loss of use to the business and property of others as a result of Contractor's operations.
 - (c) any bodily injury, sickness, disease or death, or injury to or destruction of property, including loss of use due to or related to the Work and caused in whole or in part by the Contractor or Subcontractor or Supplier's negligence, omissions, or failure to maintain the required insurance and coverage and,
 - (d) a failure by the Contractor to appropriately handle Hazardous Materials for the Work or the Contractor's operations in compliance with the Owner requirements and/or applicable Laws and regulations.

The indemnification obligations are not affected by the limitation on the amount and types of damages, compensation or benefits payable by or for the Contractor or Subcontractor or Supplier under worker's or workman's compensation acts, disability benefit acts or other employee benefit acts.

- 1.5 **Contract Documents Ownership:** The State is the owner of the Contract Documents. The Contractor, Subcontractor or Supplier must not reuse any of the documents on any other Project without prior consent of the State and Professional. The Professional will furnish on behalf of the Owner at no cost to the Contractor, one (1) electronic copy of the Drawings and Project Manual. If the **Contractor**, or the Contractor's Subcontractors or Suppliers request hard copy sets, reproduction of these documents will be the responsibility of the **Contractor**.

2. GENERAL PROVISIONS

- 2.1 **Owner:** The Project Director and/or Owner Field Representative will represent the Owner. Neither the Project Director nor the Owner Field Representative has the authority to interpret the requirements of the Contract Documents or to authorize any changes in the Work or any adjustment in Contract Price/Time. The State will provide the necessary easements for permanent structure and permanent changes in existing lands, areas, properties, and facilities. However, the Contractor must obtain, at no increase in Contract Price/Time, permits for any other lands, areas, properties, facilities, rights-of-way, and easements required

by the Contractor for temporary facilities, storage, disposal of soil or waste material or any other purpose. The Contractor must submit copies of the permits and written agreements to the Owner. The Contractor must engage a registered land surveyor to establish the necessary reference points and/or base lines for construction and must be responsible for protecting them including benchmarks and Project elevations.

2.2 **Professional:** Acting as the Owner's representative during the Contract Time period, the Professional will endeavor to guard the Owner from Defective work and to keep the Owner informed of the progress of the Work. Unless delegated by specific written notice from the Owner, the Professional and the Professional's representatives do not have the authority to authorize any changes in the Work or any adjustment in Contract Price/Time. The On-site Inspections by the Owner Field Representative and/or the Professional do not relieve the Contractor from its obligation to provide the Work in accordance with the Contract Documents or represent acceptance of Defective Work.

2.3 **Contractor:** The Contractor must manage, supervise, and direct the Work competently, applying the management, supervision, skills, expertise, scheduling, coordination, and attention necessary to provide the Work in accordance with the Contract Documents with a minimum disturbance to or interference to the business operations on site or adjacent properties. The Contractor must assign and maintain a competent full-time **superintendent** on the Work, as its representative, at all times while Work is being done on site and must not be replaced without the Owner's consent. The DTMB Superintendent Designation [form](#) must be completed by the Contractor and submitted before beginning any work. The Contractor shall enforce good order among its employees and shall not employ on the work any disorderly, intemperate, or unfit persons, or not skilled in the work assigned to them. The Contractor is solely responsible for his Means and Methods, safety precautions and programs related to safety, the Contractor's failure to execute the Work in accordance with the Contract Documents and any act of omissions by the Contractor, Subcontractor or Supplier. The Contractor must **compare Contract Documents for conflicts**, unworkable or unsafe specified Means and Methods and verify against manufacturer's recommendations for installations and handling and must notify the Professional in writing of the discovery of any such conflicts or errors. The Contractor is required to furnish certifications that lines and grades for all concrete work were checked before and after placing concrete, and that final grades are as required by the Contractor Documents. Wherever required, the Contractor must be responsible for all cutting, fitting, drilling, fixing-up, and patching of concrete, masonry, gypsum board, piping and other materials that may be necessary to make in-place Work and dependent Work fit together properly. The Contractor must restore to pre-existing conditions all walks, roadways, paved or landscaped areas and other real and personal property not designated for alteration by the Contract Documents. The Contractor must maintain at the site one copy of safety data sheets (SDS) and one copy of all **as built/Record Documents** in good order and annotated in a neat and legible manner to show:

- (a) all revisions made,
- (b) dimensions noted during the furnishing and performance of the Work, and
- (c) all deviations between the as-built installation and the Contract Documents, all approved Submittals and all clarifications and interpretations.

The Contractor must maintain and furnish promptly to the Owner and the Professional upon their request **daily field reports and photos** recording the on-site labor force and equipment (Contractor and Subcontractors); materials/equipment received; visits by Suppliers; significant in-progress and completed trade Work within major areas; and other pertinent information. The Contractor is obligated to act to prevent threatened damage, death, injury, or loss without any special instruction in **emergencies** and must give the Owner prompt written notice of any changes in Work resulting from the action taken for review and approval.

2.4 **Subcontractors and Suppliers:** The Owner assumes no contractual obligations to anyone other than the Contractor. All trade construction Drawings must be field coordinated before fabrication and/or installation. The Owner reserves the right to reject or revoke, for its convenience, any approved Subcontractor/Supplier. For any projects with asbestos abatement, Contractor must comply with MCL 338.3375(4) and complete the Asbestos Abatement Attestation. Work performed by any Subcontractor or Supplier must be through an appropriate written agreement that:

- (a) expressly binds the Subcontractor/Supplier to the requirements of the Contract Documents,
- (b) requires such Subcontractor or Supplier to assume toward the Contractor all the obligations that the Contractor assumes toward the Owner and the Professional, and
- (c) contains the waiver of rights and dispute resolution provisions.

2.5 Prevailing Wages and Access to Payroll Records:

2.5.1 Prevailing Wages:

To the extent applicable, Contractor will comply with federal and state prevailing wage requirements. The wage and classification schedules applicable for this project/location are included in Appendix V.

Federal Prevailing Wages - If a project is funded in whole or in part by federal dollars, the Contractor and all Subcontractors must comply with the most recent version of Federal Provisions Addendum and all Laws pertaining to occupational classifications and wage requirements as follows:

1. FEDERAL PROVISIONS ADDENDUM

- a. The most current version of Federal Provisions Addendum shall apply to this contract and is included at the end of this section and/or Appendix V.

2. DAVIS BACON ACT WAGE AND CLASSIFICATIONS

- a. If applicable, the Contractor (and its Subcontractors) for prime construction contracts in excess of \$2,000 must comply with the Davis-Bacon Act ([40 USC 3141-3148](#)) as supplemented by Department of Labor regulations ([29 CFR Part 5](#), "Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction").
- b. The Contractor (and its Subcontractors) shall pay all mechanics and laborers employed directly on the site of the work, unconditionally and at least once a week, and without subsequent deduction or rebate on any account, the full amounts accrued at time of payment, computed at wage rates not less than those stated in the advertised specifications, regardless of any contractual relationship which may be alleged to exist between the Contractor or subcontractor and the laborers and mechanics.
- c. The Contractor will post the scale of wages to be paid in a prominent and easily accessible place at the site of the work.
- d. There may be withheld from the Contractor so much of accrued payments as the contracting officer considers necessary to pay to laborers and mechanics employed by the Contractor or any Subcontractor on the work the difference between the rates of wages required by the Contract to be paid laborers and mechanics on the work and the rates of wages received by the laborers and mechanics and not refunded to the Contractor or Subcontractors or their agents.
- e. The Contractor shall maintain payrolls and basic records relating thereto for a period of three (3) years after the project; contractor shall submit Certified Payroll Reports using US Department of Labor Wage and Hour Division Form WH-347 for each weekly payroll to support and document compliance with the Davis Bacon Wage rates.
- f. Davis Bacon wage and classification schedules applicable for this project/location are included at the end of this section and/or Appendix V.

State Prevailing Wages -The following provisions apply when 2023 PA 10, as amended, MCL 408.1101 et seq. applies.

Prevailing Wage and Fringe Benefits--The rates of wages and fringe benefits to be paid to each class of Construction Mechanic by DB Entity and Subcontractors must not be less than the wage and fringe benefit rates prevailing in the locality in which the work is performed.

Nondiscrimination, Nonretaliation- Contractor or a Subcontractor shall not discharge, discipline, retaliate against, or otherwise discriminate against a Construction Mechanic, or threaten to do any of these things, because the Construction Mechanic reported or was about to report a violation or suspected violation of the act.

Construction Mechanics under this Contract are intended beneficiaries of the contractual prevailing wage, fringe benefit, and nondiscrimination nonretaliation requirements of the Contract. Any such Construction Mechanic aggrieved by failure of a contractor or subcontractor to pay prevailing wages or benefits as specified in the Contract, or by violation of section 7 of 2023 PA 10, in addition to any other remedies provided by law, may bring an action in a court of competent jurisdiction against such contractor or subcontractor for damages or injunctive relief and may be awarded reinstatement or other appropriate relief, and all damages sustained, together with actual costs and attorney fees at trial and on appeal.

Contractor and Subcontractors shall keep posted on the construction site, in a conspicuous place, a copy of all prevailing wage and fringe benefit rates prescribed in this Contract and shall keep an accurate record showing the name and occupation of and the actual wages and benefits paid to each Construction Mechanic employed by it in connection with the Contract. This record shall be available for reasonable inspection by the State.

Contractor must immediately notify the Owner if Contractor's state project registration or a Subcontractor's state project registration is no longer valid (i.e. suspended, revoked or not renewed) at any time during the term of the Contract.

Contractor is to submit certified payrolls, including contractor and subcontractor, not later than 10-days after the end of a pay period to the Department of Labor and Economic Opportunity database via the internet through the Online Certified Payroll

Submission process the Contractor signed up for to receive their State Project Registration, 2023 PA 10 as amended, MCL 408.1122. State certified payroll is not to be submitted to DTMB at any time.

- 2.5.2 **Access to Payroll Records:** The Contractor and its Subcontractors must maintain and keep, in accordance with generally accepted accounting principles, records pertaining to the bidding, award and performance of the Work, including, but not limited to certified payroll, employment records and all data used in estimating the Contractor's prices for the Bid, Change Order, proposal or claim. The Owner or its representative must have access to those records, must have the right to interview the Contractor's employees and must be provided with appropriate facilities for the purpose of inspection, audit/review and copying for five years after final payment, termination, or date of final resolution of any dispute, litigation, audit exception or appeal. The certified payroll and other employment records of workers assigned to the site must contain the name and address of each worker, correct wage classification, rate of pay, daily and weekly number of hours worked, deduction made, and actual wages paid. The Contractor must maintain records that show: (a) the anticipated costs or actual costs incurred in providing such benefits, (b) that commitment to provide such benefits is enforceable, and (c) that the plan or program is financially responsible and has been communicated in writing to the workers affected.
- 2.6 **Asbestos Abatement Projects:** For projects with Asbestos Abatement, the Contractor must comply with PA 59 of 2024, MCL 338.3371 et seq. as applicable and with APPENDIX III – ASBESTOS ABATEMENT PROJECT PROCEDURES as part of and in conjunction with all other contract requirements.

3. Bonds and Insurance:

- 3.1 Both the Performance Bond and Payment Bond must remain in effect from the date of Contract Award until final completion of the Work or the end of Correction Period, whichever comes later. The surety bonds required for a Construction Contract will not be accepted by SFA unless the surety bonding company is listed in the current United States Government, Department of Treasury's, Listing of approved sureties (bonding/insurance companies), Department Circular 570. Copies of the current Circular listing may be obtained through the internet web site <https://www.fiscal.treasury.gov/fsreports/ref/suretyBnd/c570.htm>.

Insurers must have an "A-" A.M. Best Company Rating and a Class VII or better financial size category as shown in the most current A.M. Best Company ratings. Insurance must be provided by insurers authorized by the Department of Insurance and Financial Services (DIFS) to do business as an insurer in Michigan. The insurance company and must attach evidence of the authorization. These certificates must specify the Project File No., Project Title, and a description of the Project. The Contractor agrees that insurance coverage afforded under the policies as such coverage relate to the State under this Contract as determined by the Contractor will not be modified or canceled without at least thirty calendar days prior written notice to the State. The latest A.M. Best's Key Ratings Guide and the A.M. Best's Company Reports (which include the A.M. Best's Ratings) are found at: <http://www.ambest.com>. The Contractor must not perform any part of the Work unless the Contractor has all the required insurance in full force and effect.

- 3.2 The Contractor is required to provide proof of the minimum levels of insurance coverage as indicated below. The purpose of this coverage must be to protect the State from claims which may arise out of or result from the Contractor's performance of services under the terms of this Contract, whether such services are performed by the Contractor, or by any subcontractor, or by anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable.

The Contractor waives all rights against the State for recovery of damages to the extent these damages are covered by the insurance policies the Contractor is required to maintain pursuant to this Contract. The Contractor also agrees to provide evidence that all applicable insurance policies contain a waiver of subrogation by the insurance company.

All insurance coverages provided relative to this Contract is PRIMARY and NON-CONTRIBUTING to any comparable liability insurance (including self-insurances) carried by the State.

The Insurance must be written for not less than any minimum coverage herein specified or required by law, whichever is greater. All deductible amounts for any of the required policies are subject to approval by the State.

The State reserves the right to reject insurance written by an insurer the State deems unacceptable.

BEFORE THE CONTRACT IS SIGNED BY BOTH PARTIES, THE CONTRACTOR MUST FURNISH TO THE DIRECTOR-DCD CERTIFICATE(S) OF INSURANCE VERIFYING INSURANCE COVERAGE. THE CERTIFICATE MUST BE ON THE STANDARD "ACCORD" FORM. THE CONTRACT NUMBER MUST BE SHOWN ON THE CERTIFICATE OF INSURANCE TO ASSURE CORRECT FILING. All such Certificate(s) are to be prepared by the Insurance Provider and not by the Contractor. All such Certificate(s) must contain a provision indicating that coverages afforded under the policies WILL NOT BE CANCELLED, MATERIALLY CHANGED, OR NOT RENEWED without THIRTY days prior written notice, except for 10 days for non-payment of premium, having been given to the Director-DCD. Such NOTICE must include the CONTRACT NUMBER affected and be mailed to the Project Director.

The Contractor is required to provide the type and amount of insurance below:

- (a) Commercial General Liability Insurance with a limit of not less than \$1,000,000 each occurrence. If such CGL insurance contains a general aggregate limit, it must apply separately to this project.

The Contractor must list the State, its departments, divisions, agencies, offices, commissions, officers, employees, and agents as ADDITIONAL INSUREDS on the Commercial General Liability policy.

- (b) Vehicle Liability Insurance for bodily injury and property damage as required by law on any auto including owned, hired, and non-owned vehicles used in the Contractor's business.

The Contractor must list the State, its departments, divisions, agencies, offices, commissions, officers, employers, and agents as ADDITIONAL INSUREDS on the vehicle liability policy.

- (c) Worker's disability compensation, disability benefit or other similar employee benefit act with minimum statutory limits.

NOTE:

- (i) If coverage is provided by a State fund or if Contractor has qualified as a self-insurer, separate certification must be furnished that coverage is in the state fund or that Contractor has approval to be a self-insurer.
- (ii) Any citing of a policy of insurance must include a listing of the States where that policy's coverage is applicable; and
- (iii) This provision must not be applicable where prohibited or limited by Michigan law.

- (d) Employer's Liability Insurance with the following minimum limits:

\$1,000,000 each accident
 \$1,000,000 each employee by disease
 \$1,000,000 aggregate disease

3.3 Liability Insurance: Liability insurance must be endorsed to list as additional insureds the Professional's consultants and agents. Worker's Compensation, Employer's Liability Insurance and all other liability insurance policies must be endorsed to include a waiver of rights to recover from the Owner, Professional and the other additional insureds. The Contractor's liability insurance must remain in effect through the Correction Period and through any special correction periods. For any employee of the Contractor who is resident of and hired in Michigan, the Contractor must have insurance for benefits payable under Michigan's Worker's Compensation Law. For any other employee protected by Worker's Compensation Laws of any other state, the Contractor must have insurance or participate in a mandatory state fund, where applicable, to cover the benefits payable to any such employee. These requirements must not be construed to limit the liability of the Contractor or its insurers. The Owner does not represent that the specified coverage or limits of insurance are sufficient to protect the Contractor's interests or liabilities.

3.4 Builder's Risk Insurance: Unless indicated otherwise in the bid document, the Contractor will purchase and maintain property insurance for 100% of actual cash replacement value of the insurable Work (minimum amount to be the contract award amount) while in the course of construction, including foundations, additions, attachments, and all fixtures, machinery and equipment belonging to and constituting a permanent part of the building structures. The property insurance also will cover temporary structures, materials and supplies to be used in completing the Work, only while on the building site premises or within five hundred feet of the site. The property insurance insures the interests of the Owner, Contractor and all Subcontractors and Suppliers at any tier as their interest may appear. The property insurance insures against "all risk" of physical loss or damage to the extent usually provided in policy forms of insurers authorized to transact this insurance in Michigan. A copy of the master insurance policy will be available for review by the State, upon request. Any deductible shall be both the option and responsibility of the **Contractor**.

3.5 The Owner and Contractor intend that the required policies of property insurance must protect all the parties insured and provide primary coverage for all losses and damages caused by the perils covered. Accordingly, to the extent that the insurance company pays claims, the Owner and the Contractor and its Subcontractors/Suppliers waive all rights against each other for any such losses and damages and waive all such rights against the Professional and all other persons named as insureds or additional insureds.

4. Prosecutions; Substantial Completion:

4.1 The Contractor must not start the Work at the site before the first day established by the Notice to Proceed and/or before all insurance is in effect. A pre-construction conference will be held with the Contractor to review its Progress Schedule, qualifications of its key personnel, its proposed access to the site, traffic and parking, procedures for submittal, change orders, etc., and to exchange emergency contact information. The Contractor must use its accepted Progress Schedule when making proposals or claims for adjustment in Contract Time/Price.

- 4.2 Except in an Emergency, all Work at the site must take place during normal working hours; 6:00 AM to 6:00 PM, during Business Days and in accordance with the special working conditions for the Agency. If the Contract Documents allow work outside the normal hours, the Contractor must provide a written notice to the Owner twenty-four hours before performing such Work and must reimburse the Owner any related increase in the costs incurred by the Owner such as overtime charges of the Professional and payments for custodial and security personnel.
- 4.3 If, upon inspection and completion of all pre-requisite testing of the Work, the Contractor considers that a portion of the work or all the Work is substantially completed, it must provide a list of items to be corrected or completed to the Owner and the Professional for joint inspection. Within ten Calendar Days of this joint inspection, the Professional will deliver to the Owner and Contractor a list of incomplete/Defective work or a Certificate of Substantial Completion with a Punch List. The certificate must:
- fix a reasonable date of Substantial Completion,
 - fix a date for completion of the Punch List, and
 - recommend the division of responsibilities between the Owner and Contractor for utilities, security, safety, insurance, maintenance, etc.

Upon issuing the Certificate of Substantial Completion, the Owner will pay for the completed Work subject to (a) withholding of two hundred percent of the value of any uncompleted Work, as determined by the Professional, and (b) any other deductions as the Professional may recommend or may withhold to cover Defective work, liquidated damages and the fair value of any other items entitling the Owner to a withholding. Prerequisites for Substantial Completion, over and above the extent of Work completion required, include (a) receipt by the **Owner** of operating and maintenance documentation, (b) all systems have been successfully tested and demonstrated by the **Contractor** for their intended use, and (c) the **Owner** having received all required certifications and/or occupancy approvals from the State and those Political Subdivisions having jurisdiction in and of itself does not necessarily connote Substantial Completion. The Contractor must provide all related operating and maintenance (O&M) documentation to the Owner before training if training is required and not later than Substantial Completion otherwise. The Contractor must give the Owner the final O&M documentation (with revisions made after Substantial Completion) before the request for final payment.

- 4.4 The Owner may decide to use, at its sole option, any functioning portion of the Work and will inform the Contractor in writing of the decision. The portion of Work to be used must be jointly inspected to determine the extent of completion if it has not undergone the inspection for Substantial Completion. The Professional must prepare a list of items to be corrected/completed and the Owner will allow the Contractor reasonable access to correct/complete the listed items and finish other work.

5. Warranty; Tests, Inspections and Approvals; Corrections of Work:

- 5.1 **Warranty:** The Contractor must furnish the State with a written guarantee to remedy any defects due to faulty materials or labor which appear in the Work within one year from the date of final acceptance by the State. This warranty excludes defect or damage caused by (a) abuse, modification by others, insufficient or improper operation or maintenance, or (b) normal wear and tear under normal usage. Manufacturer warranties for materials and equipment received by the Contractor must be assigned and promptly delivered to the Owner at Substantial Completion. The warranties period starts from the date of the substantial completion and must be in full force and effect for the entire duration of the Correction Period.

Roof Warranty: For roofing systems, the following warranties are required as minimum:

- A two-year contractor's warranty against any defects due to faulty materials or labor.
- A fifteen-year manufacturer's total system warranty; and
- A twenty-year membrane/shingles/tiles warranty.

- 5.2 **Tests, Inspections and Approvals:** The Owner will perform or retain a professional/agency to perform inspections, tests or approvals for those materials required to meet quality control standards specified in the Contract Documents except for those inspections, tests or approvals specifically designated to the Contractor in the Contract Documents. However, the Contractor must assume full responsibility for any testing, inspection, or approval.

- required to meet code requirements, as promulgated by code inspecting authorities.
- required by Law.
- indicated or required by the Contract Documents as designated to the Contractor.
- required for the Professional's acceptance of a Supplier, materials or equipment or mix designs submitted for prior approval by the Contractor; or
- Defective work, including an appropriate portion of the Delay and costs occasioned by discovery of Defective work. The Contractor must (a) pay all related costs; (b) schedule related activities; and (c) secure and furnish to the Professional the required certificates of inspection, testing or approval. The Contractor must provide proper and safe access to the site for inspection, testing or approval. The Contractor must provide the Professional a timely notice whenever any Work is ready for inspection, testing or approval. If the Contractor covers any Work without proper approval by the Professional as required

by the Contract Documents, the Contractor must, at its own expense, uncover, expose, or otherwise make available, when requested by the Professional or Owner, for testing, inspection, or approval of the covered Work.

- 5.3 Correction of Work:** If any testing, inspection, or approval reveals Defective Work and the Work is rejected by the Professional, the Contractor, at its sole expense, must promptly, as directed, correct, or remove the Defective Work from the site and replace it with non-Defective Work within the Correction Period. The Contractor must bear responsibility for its proportionate share of the Delay and costs resulting from the correction and/or removal and replacement of Defective Work. If the Contractor, within reasonable and agreed upon time after receipt of written notice, (a) fails to correct Defective Work or remove and replace rejected Work, or (b) fails to correct or complete items on any Punch List, or (c) fails to perform Work in accordance with the Contract Documents, or (d) fails to comply with any other provision of the Contract Documents, the Owner, directly or through others, after seven Calendar Days from the date of the written notice to the Contractor, may correct and remedy the Defective Work. To the extent necessary to correct and remedy such Defective Work, the Owner must be allowed to exclude the Contractor from all or part of the site; take possession of all or part of the Work and stop related operations of the Contractor; take possession of the Contractor's tools, plant and office and construction equipment at the site; and incorporate into the Work materials and equipment for which the Owner has paid the Contractor. The Contractor must allow the Owner and the Professional easy access to the site to correct such Defective Work. The Owner must be entitled to an appropriate decrease in Contract Price for all claims, costs, losses, damages, and Delay incurred or sustained by the Owner which are attributable to the Contractor. Such costs may include, but not limited to, costs of correction or removal and replacement of Defective Work, costs of repair and replacement of other work destroyed or damaged by the action and related charges of the Professional. If the discovery of the Defective Work takes place after final payment and the Contractor fails to correct and pay the Owner any of these costs, the Owner must demand due performance under the Performance Bond. Until the period of limitation provided by Michigan Law, the Contractor must promptly, and upon receipt of written notice from the Owner, correct Defective Work. In the event of an Emergency or unacceptable risk of loss or damage or if appropriate under the circumstances, the Owner, directly or through others under contract with the Owner, may correct or remove and replace the Defective Work. The specified correction of Work requirements has no limitation on the rights of the Owner to have Defective Work corrected or removed and replaced, if rejected, except as otherwise provided by the Michigan Law.
- 5.4 Special Correction Period Requirements:** Whenever the Owner undertakes any portion of the Work because the Contractor's act or omission Delays completion of the Work or it is eligible for Partial Use, the warranties for all materials and equipment incorporated into that portion of the Work must remain in full force and effect between the start of such Partial Use and the date when the Correction Period starts. The Correction Period for any Defective Work that is corrected or rejected and replaced within the last three months of the Correction Period must be extended by an additional six months, starting on the date such Work was made non-Defective.
- 5.5 Special Maintenance Requirements:** If the Contract Documents specify that the entire Work, or a portion of the Work, upon reaching Substantial Completion, must not be placed in use by the Owner, the Contractor must maintain the Work, or specified part of the Work, in good order and proper working condition and must take all other actions necessary for its protection between the certified date of Substantial Completion and the date when the Work, or designated part of the Work, is placed in use. If no separate price for such special maintenance period was requested and made part of the Contract Documents, the Owner will amend the Contract Documents to appropriately increase the Contract Price.
- 6. Changes:**
- 6.1 Changes in the Work:** The Owner may, at any time, without notice to sureties, make any changes bilaterally or unilaterally, by a written Change Order, in the Work within the general scope of the Contract, including but not limited to changes in the Specifications, materials, or Contract Time. In a bilateral change order, the Owner may direct the Professional to prepare a Bulletin describing the change being considered. Upon receiving the Bulletin, the Contractor establishes the cost and returns it to the Professional for review within 15 calendar days. The Contractor's proposal must be irrevocable for 60 Calendar Days after it is submitted to the Professional. If the Professional recommends acceptance of the Bulletin and the Owner agrees with the changes, the Owner issues a written bilateral Contract Change Order to amend the Contract Documents. However, the Owner may issue a unilateral Change Order if the Owner and Contractor are unable to agree on the adjustment in Contract Price or Time. If the Contractor disagrees with such unilateral Contract Change Order, the Contractor must complete the Work and may deliver notice of a claim in accordance with the claim submittal process.
- 6.2 Differing Site Condition:** The Owner does not warrant that any technical data, including the Project reference points, provided by the Owner is necessarily sufficient and complete for the purpose of selecting Means and Methods, initiating, maintaining, and supervising safety precautions and programs or discharging any other obligation assumed by the Contractor under the Contract Documents. If different or unknown site conditions are discovered, the Contractor must notify the Owner in writing before the conditions are disturbed or before proceeding with the affected Work. Upon review, if the Owner decides to agree with the differing site conditions, with the Professional's advice, the Owner may issue a written Contract Change Order to amend the Contract Price or Time through the Bulletin authorization process. If the Owner decides to disagree with the Contractor and the Contractor disagrees with the Owner's decision, the Contractor must complete the Work and may deliver notice of a claim in accordance with the claim submittal process. No proposal or claim by the Contractor due to differing site conditions will be allowed (a) if the Contractor knew of their existence before submitting its Bid or if those conditions could have been discovered

by any reasonable examinations for which the Contractor, as Bidder, was made responsible under the Bidding Requirements and/or (b) unless the Contractor's written notice is provided within not more than 21 days after the contractor first recognizes the condition giving rise to the proposal or claim and gives the Owner adequate opportunity to investigate the asserted differing site conditions. A full and detailed breakdown of cost and time requested, with supporting documentation, if not provided with the initial notice shall be delivered to the Professional and Owner within 15 days of the notice, unless otherwise agreed in writing, by the Owner prior to expiration of such time.

6.3 Responsibilities for Underground Utilities: The Contractor must comply with the 2013 PA 174, as amended, MCL 460.721 et seq., and all other Laws concerning Underground Utilities. Before performing site Work, all Underground Utilities, lines, and cables (public and private) must be located and marked. The Contractor must notify MISS DIG to locate and mark utilities on properties that are not State properties. In addition, the Contractor must be responsible for immediately notifying the Owner of any contact with or damage to Underground Utilities, and for the safety, protection of and repairing any damage done to any Work, surface, and subsurface facilities. If the Contractor encounters Underground Utilities that inaccurately located by the Contract Documents or not previously located/located, which could not be reasonably have been seen, the Owner may issue a written Contract Change Order to amend the Contract Price or Time through the Bulletin authorization process.

6.4 Hazardous Material Conditions: If the Contractor encounters material reasonably believed to be Hazardous Material, which was not described in the Drawings and/or Specifications and was not generated or brought to the site by the Contractor, the Contractor shall immediately stop all affected work, give written notice to the Owner of the conditions encountered, and take appropriate health and safety precautions in accordance with all federal, state, and local laws. Upon receipt of the notice, the Owner will investigate the conditions and (a) may stop the Work and terminate the affected Work or the Contract for convenience; (b) may contract others to have the Hazardous Material removed or rendered harmless or (c) issue a written Contract Change Order to amend the Contract Price/Time through the Bulletin authorization process. If the Hazardous Material is brought to site by the Contractor or as a result in whole or in part from any of its violation of any Law covering the use, handling, storage, disposal of, processing, transport and transfer or from any other act or omission within its control, the Contractor is responsible for the Delay and costs to clean up the site, remove and render harmless the Hazardous Material to the satisfaction of the Owner, State and all Political Subdivisions with jurisdiction.

6.5 Incidents with Archaeological Features: The Contractor must immediately notify the Owner in writing of any Archeological Feature deposits encountered at the site and must protect the deposits in a satisfactory manner. If the Contractor encounters such features, which result in an anticipated change to the Contract Price/Time, the Owner may issue a written Contract Change Order through the Bulletin authorization process.

6.6 Unit Price Work: Quantities as listed have been carefully estimated but are not guaranteed. The Owner reserves the right to increase or decrease the quantities of the Work to be performed at the Unit Price by amounts up to 20 percent of the listed estimated quantities. For Unit Price Work, the Contractor must promptly inform the Professional in writing if actual quantities differ from the estimated quantities for any item. For quantities over 120% or below 80% of the estimated quantity, the Owner may negotiate a Unit Price with the Contractor, or direct a unilateral change, or bid that Work under separate contract. Any adjusted Unit Price agreed upon by the Owner will only apply to the actual quantities above 120% or below 80% of the estimated quantity. No adjustment due to quantity variations must be allowed (a) unless the Contractor met the notice requirements, or (b) if any Unit Price increase results in whole or in part from any act or omission within the control of the Contractor (errors in the Contractor's Bid, unbalanced Unit Prices, etc.). If a dispute arises between the Owner and the Contractor on the adjusted Unit Price, the Contractor must carry on the Work with due diligence during the disputes/disagreements.

6.7 Cash Allowances; Provisionary Allowances: The Contractor must obtain the Professional's and Project Director's written acceptance before providing materials, equipment, or other items covered by Cash Allowance. Work authorized under any Provisionary Allowance may consist of (a) changes required by actual conditions, as determined by the **Professional**, and (b) any other Work authorized and completed under the pertinent provisions of the Contract Documents.

6.8 Changes in Contract Price:

6.8.1 The Contractor's proposals or claims for Work Involved must detail all affected items of Work, whether increased, revised, added, or deleted, and must be fully documented and itemized as to (a) individual adds and deducts in Work quantities and labor man-hours; (b) corresponding itemized cost of Work Involved; (c) materials and equipment cost including transportation, storage, and suppliers' field services; and (d) Fee.

6.8.1.1 No proposal or claim by the Contractor on account of any asserted change not issued as a Bulletin by the PSC or Owner, shall be allowed unless initiated by written notice of such proposal or claim to the Professional and Owner within 21 days after the occurrence of the event giving rise to the proposal or claim. A full and detailed breakdown of cost and time requested, with supporting documentation, if not provided with the initial notice shall be delivered to the Professional and Owner within 15 days of the notice, unless otherwise agreed in writing, by the Owner prior to expiration of such time.

- 6.8.2 For Contractor's proposals or claims for adjustments in Contract Price arising from Delays, the Contractor's estimates must be as comprehensive and detailed as may be appropriate to support the proposal or claim. Examples of related information include labor manpower levels, production data and Progress Schedule revision.
- 6.8.3 If the Contract Documents use lump sum or Unit Prices for the Work Involved, those prices must be used in estimating the price change. Otherwise, the Owner may direct the Contractor to proceed (a) on a negotiated lump sum; or (b) on an actual cost basis with or without a guaranteed maximum; or (c) through a unilateral Change Order on a lump sum basis or a not-to-exceed basis, based on the Professional's estimate of the anticipated Cost of the Work Involved and a fee. Items making-up the Cost of the Work Involved must be allowable to the extent (a) consistent with those prevailing in the Project locality, (b) necessary, reasonable, and clearly allocable to the Work Involved, and (c) limited to labor costs, subcontract costs, material and equipment costs, construction equipment costs and general conditions costs.
- 6.8.4 In estimating any additional cost by the Contractor or its Subcontractor, the rates for the craft labor man-hour used in estimating changes in Contract Price must not exceed the rates in Means Cost Data (Means) or other cost guide acceptable to the Owner. If the rates exceed the acceptable cost guides, the Contractor must provide proper justifications acceptable to the Professional and the Owner. The payroll costs may be used to quote a Bulletin. However, the payroll costs must include wages, labor burdens and a factor for field supplies and purchase costs (less market values if not consumed) of tools not owned by the workers. Labor burdens must be certified by an authorized financial representative of the Contractor and may include social security, unemployment, taxes, workers' compensation, health and retirement benefits, vacation, and holiday pay. The factor for field supplies and tools (individually valued at less than \$1,000.00) must not exceed 4% of the wages without burdens, unless detailed data, which supports higher costs, is provided. Rates for owned, rented, or leased construction equipment must be in accordance with the contract price rates. Otherwise, the appropriate hourly, daily, weekly, or monthly rates listed in Means must be used. However, if the total rental or lease cost of an item to the Project exceeds the reasonable purchase price of the rented or leased item, the Owner reserves the right to pay only the purchase price of the item and take title to the item. Operating cost must not exceed the hourly operating rate in Means and for multiple shifts, rates must not exceed the shift work adjustments recommended in the cost guide.
- 6.8.5 The cost of any Work Involved may include necessary general conditions costs to the extent those costs increase or decrease on account of, or are directly attributable to, the performance of the furnishing and/or performance of the additional Work Involved or are required due to an extension in Contract Times or Delays. Such costs may include payroll costs of personnel, temporary facilities at the site, liability insurance and bond premiums, Subcontractors, royalty payments and fees for permits and licenses and taxes on the Work Involved.
- 6.8.6 A contractor or subcontractor who performs the Work may charge a fee of up to 15% of the cost of Work involved for overhead and profit. Contractor may charge a mark-up fee of up to 5% of its Subcontractor's cost excluding fees if the Work is performed by the Subcontractor. If Work is to be performed by lower tier subcontractor(s), intermediate subcontractors and the Contractor must share a fee of up to 5% of the lowest tier subcontractor's cost excluding fees. The total mark-up fees for the Work must not exceed 20% of the lowest tier subcontractor's cost excluding fees. If the adjustment to the Contract Price incorporates a contractor reservation of rights to claim additional adjustments, the fees must be reduced by one-third. Contractor's administrative costs and home office overhead must be non-reimbursable expenses covered by the Fee for the Work.

6.9 Changes in Contract Time:

- 6.9.1 If a justified extension beyond the Contract Time is not reasonably anticipatable under the circumstances, the Owner may approve an extension to the Contract Time through the Bulletin authorization process at no additional cost to the Owner. Examples of events that may justify an extension in the Contract Time include acts of God; acts of the public enemy; fires; floods; and strikes.
- 6.9.2 If, at any time during the life of this Contract, the Contractor finds that for reasons beyond its control, it will be impossible to complete the Work on or before the Contract completion date, a written request for a change to the Contract extending the time of completion must be submitted. Such a request must set forth in precise detail the reasons believed to justify an extension and must be in such format as the State may require.
- 6.9.3 When submitting a quotation for a Contract change authorization for extra work or change in plans, the Contractor must include as part of the quotation, a statement requesting any extra time necessary to complete the related Work. Lack of such a statement will serve as notification that the extra time will not be required to complete the Contract work and will waive the right to a later claim. The Owner will not pay additional compensation to the Contractor for performing Contract Work during any extension period granted.
- 6.9.4 If the Progress Schedule and the funding allow for an early completion date, the Contractor may submit to the Owner for approval, a request to shorten the Contract Time. If approved by the Owner, the new Contract Time applies to the Project and liquidated damages, if any, will be assessed for any delays after the new completion date.

6.10 Price Reduction for Defective Cost or Pricing Data: Whenever the Contractor signs a proposal for a change in the Contract or claim settlement, the Contractor will be deemed to have certified on behalf of itself, Subcontractors and Suppliers, to its best knowledge and belief that the proposal and its contents (a) were made in good faith and are consistent with the facts and the provisions of the Contract; and (b) are current, complete, and accurate. If the Contract Price/Time is increased by any Change Order, claim or dispute settlement because the Contractor, Subcontractor or Supplier, at any tier, represented or furnished cost or pricing data of any kind that were false, contained math errors or were incomplete, the Contract Price must be correspondingly reduced by Change Order. If there is a good cause to doubt the Contractor's compliance with the Defective cost and pricing data requirements, the Owner must be entitled to make an appropriate withholding from any payment otherwise owed to the Contractor.

7. Payments:

7.1 Schedule of Values: The Schedule of Values must be approved by the Professional and accepted by the Owner and must divide the Work into pay items for significant Sections and areas, facilities, or structures, with subtotals for first tier Subcontractors. As required or as noted in Division 1, the accepted Schedule of Values must be supported by a more detailed breakdown allocating the pay items to the Progress Schedule Activities. It must tabulate labor costs, Subcontract costs and material and equipment costs. Labor costs must include appropriate sums for construction equipment costs, general conditions costs, administrative costs, and profit, unless separate pay items are itemized for those costs. The Schedule of Values must include two percent of the Contract Price for each of the following close-out pay items: (a) fire safety inspection, certificate of occupancy and other code approvals, as specified in the Contract Documents, (b) manufacturer warranties, finalized operating and maintenance documentation, Owner training documentation, and test and balance reports, and (c) finalized as built/Record Documents.

7.2 Requests for Payment: Not more than once every thirty Calendar Days, the Contractor may submit to the Professional a Request for Payment on the Owner's form signed by the Contractor certifying Work completed and enclosing all supporting documentation. A draft copy of the payment request must be submitted to the Owner Field Representative for review and comments. For projects under \$50,000, the Contractor may not submit more than two requests in addition to the final payment request. Each Request for Payment must certify that all monies owed by the Contractor to Subcontractors and Suppliers for which payment previously has been sought has been paid from payments received and include a sworn statement. No Request for Payment must include amounts for a Subcontractor or Supplier if the Contractor does not intend to use the payments requested, when received, to reduce the Contractor's outstanding obligations on the Work. The Owner will pay the Contractor within thirty Calendar Days after the Owner receives and approves a certified Request for Payment from the Professional. The Contractor will provide a certification in writing that the payment request submittal is true and accurate. If payment is requested based on materials and equipment stored at the site or at another location agreed to in writing, the Request for Payment also must be accompanied by (a) consent of surety, (b) a bill of sale, invoice or other documentation warranting that the Owner has received the materials and equipment free and clear of all liens, and (c) evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect them and the Owner's interests. The Contractor warrants and guarantees that title to all Work, materials and equipment covered by any Request for Payment, whether incorporated in the Work or not, will pass to the Owner free and clear of all liens no later than at the time of payment by the Owner to the Contractor.

7.2.1 Electronic Funds Transfer: The State will only disburse payments under this Contract through Electronic Funds Transfer (EFT). Contractor must register with the State at <http://www.michigan.gov/SIGMAVSS> to receive electronic fund transfer payments. If Contractor does not register, the State is not liable for failure to provide payment. Without prejudice to any other right or remedy it may have, the State reserves the right to set off at any time any amount then due and owing to it by Contractor against any amount payable by the State to Contractor under this Contract.

7.3 Review of Request for Payment; Intent of Review: Within ten Calendar Days after receipt of a Request for Payment, the Professional must certify to the Owner the amount the Professional determines to be due or must return the Request for Payment to the Contractor indicating the reasons for withholding certification. The Professional's certification of any Request for Payment constitutes a representation to the Owner that the Work has progressed to the point indicated; that to the best of the Professional's knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents; and that the Contractor is entitled to payment in the amount certified. In the case of final payment, the Professional's certification of final payment and recommendation that the Work is acceptable must be a further representation that conditions governing final payment to the Contractor have been met.

7.4 Refusal to Make or to Recommend Payment: The Owner may withhold from any payment an amount based on the (a) Professional's refusal to recommend payment or (b) Owner's estimate of the fair value of items included in the payment request. The Owner will give the Contractor reasonably prompt written notice supporting such action. The Professional may refuse to recommend any part of any payment, or because of subsequently discovered evidence, inspections or tests or the value of the Punch List, nullify all or any portion of any payment previously recommended, as the Professional may consider necessary to protect the Owner from loss because:

- (a) the Work is Defective or completed Work has been damaged requiring correction or replacement,
- (b) a defective work/non-compliance notice has not been acknowledged by the Contractor,

- (c) the Contract Price has been reduced by Change Order,
 - (d) it has been necessary that the Owner correct Defective Work or complete Work,
 - (e) reasonable evidence exists that all or a part of the Work will not be completed within the corresponding Contract Time,
 - (f) the Contractor failed to comply with any material requirements of the Contract, including, but not limited to the failure to submit Progress Schedule Submittals or as built/Record Documents when due,
 - (g) stored materials for which payment has been made or is sought has been determined by the Professional or the Owner Field Representative to be damaged or missing, or
 - (h) the Professional reasonably believes or knows of the occurrence of an event justifying termination for cause.
- 7.5 **Request for Final Inspection:** The Contractor must complete the Substantial Completion Punch List within the Contract Time and date. The Contractor must assemble all required documentation before requesting final inspection in writing. The Contractor may request final inspection of the entire Work, or the part of the Work for which final payment is specified in the Contract Documents. Upon this written notice, and if deemed appropriate by the professional, the Professional will make a final completion inspection with the Owner and Contractor and notify the Contractor of all incomplete or Defective Work revealed by the Final Inspection. The Contractor must immediately correct and complete the Work.
- 7.6 **Close-out Documents:** The Contractor must prepare and submit the following documentation before requesting final inspection or final payment: final operating and maintenance documentation (with revisions made after Substantial Completion), warranties, inspection certificates, as built/Record Documents, release of payment claim forms, and all other required documents.
- 7.7 **Request for Final Payment:** The Contractor may request final payment after correcting or completing the Work to the satisfaction of the Professional and delivering close-out documentation (7.6). The Contractor's request for final payment must also enclose:
- (a) evidence of completed operations insurance and an affidavit certifying that the insurance coverage will not be canceled, materially changed, or renewal refused,
 - (b) an affidavit certifying that the surety agrees that final payment does not relieve the surety of any of its obligations under the Performance Bond and Payment Bond,
 - (c) a completed DTMB-0460 Form close out checklist,
 - (d) a list of all pending insurance claims arising out of or resulting from the Work being handled by the Contractor and/or its insurer
 - (e) Contractor's 'Guarantee and Statement' (DTMB-0437) containing a statement of guaranteed indebtedness acceptable to the Owner in the full amount of the Contract Price, or a release of payment claims in the form of a release of liens, or a Bond or other security acceptable to the Owner to indemnify the Owner against any payment claim.
- 7.8 **Final Payment and Acceptance:** If the Professional is satisfied that the entire Work, or the part of the Work for which final payment is specified in the Contract Documents, is complete and the Contractor's other obligations under the Contract Documents has been fulfilled, the Professional will furnish to the Owner and Contractor the Professional's certification of final payment and acceptance within thirty Calendar Days after receipt of the final payment request. If the Professional is not satisfied, the Professional will return the request to the Contractor indicating in writing the reasons for not certifying final payment. If the final payment request is returned, the Contractor must correct the deficiencies and re-request final payment. If the Owner concurs with the Professional's certification of final payment the Owner will, within thirty Calendar Days after receipt of the Professional's certification of final payment, pay the balance of the Contract Price subject to those provisions governing final payment specified in the Contract Documents. If the Owner does not concur with the Professional's determination, the Owner will return the request for final payment to the Contractor with written reasons for refusing final payment and acceptance.
- 7.9 **Contractor's Continuing Obligation:** The following does not constitute acceptance of the Work in the event the Work or any Work is not in accordance with the Contract Documents, and therefore does not release the Contractor from its obligation to perform and furnish the Work in accordance with the Contract Documents:
- (a) a certification by the Professional of any Request for Payment or final payment.
 - (b) the issuance of a Substantial Completion certificate.
 - (c) any payment by the Owner to the Contractor.
 - (d) any Partial Use.
 - (e) any act of acceptance by the Owner or any failure to do so.
 - (f) any review and approval of a Shop Drawing, sample, test procedure or other Submittal.
 - (g) any review of a Progress Schedule.
 - (h) any On-Site Inspection.
 - (i) any inspection, test, or approval.
 - (j) any issuance of a notice of acceptability by the Professional; or
 - (k) any correction of Defective Work or any completion of Work by the Owner.

- 7.10 **Waiver of Claims:** The making of final payment does not constitute a waiver by the Owner of any rights as to the Contractor's continuing obligations under the Contract Documents, nor will it constitute a waiver of any claims by the Owner against the Contractor still unsettled, or arising from unsettled payment claims, Defective Work appearing after final inspection or failure by the Contractor to comply with the Contract Documents or the terms of any special warranties provided by the Contract Documents or by Law. The acceptance of final payment will constitute a waiver of all claims by the Contractor against the Owner, other than those claims previously made in writing, on a timely basis.
8. **Other Work:** During the Contract Time, the Owner may self-perform or Contract for other work at the site. By doing so, the Owner or its representative will coordinate the operations of the Contractor and the other work. Whenever the other work interfaces with the Contractor's Work on site, the Contractor must coordinate its activities with the interfacing work, inspect the other work and promptly report to the Professional in writing if the other work is unavailable or unsuitable. The Contractor's failure to do so will constitute an acceptance of such other work as fit and proper for integration with the Work except for latent or non-apparent defects and deficiencies in the other work. The Contractor must provide proper and safe access to the site for handling, unloading and storage of their materials and equipment and for the execution of the other work. The Contractor must do all cutting, fitting, patching, and interfacing of the Work that may be required to make any part of the Work come together properly and integrate with other work. If the Contractor becomes party to a dispute or claim due to damages caused to its Work/property or other work/their property, the Contractor must promptly attempt, without involving the Owner or the Professional or their agents, to settle with the other party by agreement or otherwise resolve the claim. If the Owner determines that the other work resulted in a delay to the Work to be performed by the Contractor and such delay justifies a Change Order, the Owner will authorize the necessary adjustment in Contract Price and/or Time.
9. **Stop Work Orders and Suspension of Work:** The Owner may order the Contractor in writing to defer, stop, suspend, or interrupt all or part of the Work, in the event any of the following situations:
- any Work is Defective,
 - any Work, when completed, will not conform to the Contract Documents,
 - any materials or equipment are unsuitable,
 - any workers are insufficiently skilled,
 - failure of the Contractor to implement appropriate measures for the SESC, or
 - as the Owner may determine appropriate for its convenience. The Contractor is responsible for the Delays and any additional costs if at fault. Any justified increase in Contract Price/Time due to suspension of Work must be submitted within twenty-one Calendar Days of knowing the extent of Delays and before submitting the final payment.
10. **Termination:**
- 10.1 **Termination for Breach:** The Owner may elect to terminate all or any part of the Work if:
- the Contractor fails to complete the Work, or a specified part of the Work, within the corresponding Contract Time; fails or refuses to supply sufficient management, supervision, workers, materials, or equipment; or otherwise fails to prosecute the Work, or any specified part of the Work, with the diligence required to comply with the Contract Time(s).
 - the Contractor persistently disregards the authority of the Professional or violates or disregards a provision of the Contract Documents or the Laws of any Political Subdivision with jurisdiction.
 - the Contractor admits in writing, or the Owner otherwise establishes, the Contractor's inability or refusal to pay the Contractor's debts generally as they become due.
 - in response to the Owner's demand, the Contractor fails to provide adequate, written assurance that the Contractor has the financial resources necessary to complete the Work within the Contract Time.
 - the Contractor fails to comply with the Michigan Residency requirements (1984 PA 431, as amended, MCL 18.1241a); or is found to be in violation of Section 4 of 1980 PA 278 concerning unfair labor practices, or any nondiscrimination requirements imposed by Law.
 - at any time, the Contractor, Subcontractor or Supplier is in violation of unfair labor practices prohibited by Section 8 of Chapter 327 of the National Labor Relations Act, 29 U.S.C. 158; or
 - the Contractor violates or breaches any material provision of the Contract Documents, which provides contractually for cause termination or rescission of the Contract or of the Contractor's right to complete the Work.

Within seven Calendar Days after the Contractor receives a notice requiring assurance of due performance for any of the above occurring non-conformances, the Contractor must meet with the Owner and present the Contractor's plan to correct the problems. If the Owner determines that the Contractor's plan provides adequate assurance of correction, that determination does not waive the Owner's right to subsequently default the Contractor or affect any rights or remedies of the Owner against the Contractor and/or surety then existing or that may accrue in the future. The Owner, after giving the Contractor and surety seven Calendar Days' written notice of intent to default, may declare the Contractor in default and terminate the services of the Contractor for cause. Unless otherwise agreed between the Owner and Contractor, at the expiration of the Seven-Calendar Day (intent to default) period, the Contractor must immediately stop all Work and proceed in accordance with the Owner's instructions. Following the expiration of the Seven-Calendar Day (intent to default) notice, the Contractor will be sent a default

letter – notice of termination for cause. The Owner will issue a Contract Change Order to revise the name of the contract party to the name of the surety company. The surety company must undertake to perform and complete the Work, in accordance with the Contract Documents, in place of the Contractor, either through the surety's agents or by executing agreements with qualified contractors (excluding the Contractor and any of the Contractor's affiliates), or both.

The Owner may issue a fifteen-Calendar Day notice of intent to default the surety company if they fail to execute in a timely manner the completion of the Contract Work. Without an adequate plan of correction, the Owner may issue a notice of termination for cause letter to the surety. If a termination of the contract with the surety occurs, the Owner reserves the right to complete the Work.

If the Owner has terminated the Contractor, any such termination will not affect any rights or remedies of the Owner against the Contractor or surety, or both, then existing or that may accrue after termination. All provisions of the Contract Documents that, by their nature, survive final acceptance of the Work must remain in full force and effect after a termination for cause of the Contractor or default of the surety, or both. The Owner may, in its sole discretion, permit the Contractor to continue to perform Work when the Contractor is in default or has been defaulted. Such decision by the Owner in no way operates as a waiver of any of the Owner's rights under the Contract Documents or Performance Bond, nor in the event of a subsequent default, entitle the Contractor or surety to continue to perform or prosecute the Work to completion.

- 10.2 **Termination on Non-Bonded Project:** For non-bonded projects, the Owner will follow the termination protocol in Paragraph 10.1 without involving a surety.
- 10.3 **Termination for Convenience of the Owner:** Upon fifteen Calendar Days' written notice to the Contractor and surety, or sooner if reasonable under the circumstances, the Owner may, without cause and without prejudice to any other right or remedy it may have, elect to terminate any part of the Work, or the Contract in whole or in part, as the Owner may deem appropriate for its convenience. Upon receipt of any such termination notice, the Contractor must immediately proceed in accordance with any specific instructions, protect and maintain the Work, and make reasonable and diligent efforts to mitigate costs associated with the termination. In such termination, the Contractor must be paid in accordance with the terms of this Contract for only services rendered before the effective date of termination. Upon termination for convenience, the Contractor must be released from any obligation to provide further services and the Owner must have full power and authority to take possession of the Work, assume any agreements with Subcontractors and Suppliers that the Owner selects, and prosecute the Work to completion by Contract or as the Owner may deem expedient.
- 10.4 **Termination for Lack of Funding:** If expected or actual funding is withdrawn, reduced, or limited in any way before the completion date set forth in this Contract or in any amendment, the State may, upon written notice to the Contractor, terminate this Contract in whole or in part in accordance with Paragraph 10.3.
11. **Disputes:** All claims, counterclaims, disputes, and other matters in question between the Owner and Contractor arising out of or relating to the Contract Documents must be submitted in writing to the Professional and otherwise processed and resolved as provided in this Article. *Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Initial Decision Maker (Professional/PSC). Claims by either party must be initiated within 21 days after the occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognized the condition giving rise to the claim. Provided such timely notice is delivered, a full and detailed breakdown of cost and time requested, with supporting documentation, if not provided with initial notice shall be delivered to Professional and Owner within 15 days of the notice, unless otherwise agreed in writing, by the Owner prior to expiration of such time.* The Contractor must carry on the Work with due diligence during all disputes or disagreements. Work must not be delayed or postponed pending resolution of any disputes or disagreements. The Contractor must exercise reasonable precautions, efforts, and measures to avoid situations that would cause delay.
- 11.1 **Notice of Claim:** Except for Owner claims for liquidated damages, no claim is valid unless it is based upon written notice delivered by the claimant to the other party and the Professional/PSC within 21 days of the event giving rise to the claim. The notice must state the nature of the dispute, the amount involved, if any, and the remedy sought. The claim submittal with all supporting data must be delivered within thirty (30) Calendar Days after the initial notice unless the Professional allows an extension by written approval. A claim by the Contractor must be submitted to the Professional and Project Director for a recommendation or decision from the Professional. A claim by the Owner must be submitted to the Contractor and the Professional for a written recommendation or decision by the Professional. The Owner reserves the right to audit any Contractor claim (or claim package) that the Contractor values at more than \$50,000.00. Pending final resolution of any claim under this Article, the Contractor must proceed diligently with the Work and comply with any decision of the Owner and/or Professional. For all Contractor claims seeking an increase in Contract Price or Contract Time, the Contractor must submit an affidavit, certifying that the amount claimed accurately reflects any Delay and all costs that the Contractor is entitled from the occurrence of the claimed event and that supporting cost and pricing data are current, accurate, complete and represent the Contractor's best knowledge and belief. The affidavit must be signed in the same manner as required in Item 6 of Section 00100.
- 11.2 **Recommendations or Decisions from the Professional:** For claims under \$100,000.00, if requested in writing by the Contractor, the Professional will render a recommendation or decision within thirty Calendar Days after the request and the

Owner will issue, if necessary, a determination within thirty Calendar Days after the Professional's recommendation or decision. For claims exceeding \$100,000.00, the Professional will issue its recommendation or decision and the Owner, if necessary, will issue its determination, within sixty Calendar Day.

If the Professional denies a Contractor claim or agrees with an Owner claim, that decision must be final and binding on the Contractor, without any determination by the Owner, unless the Contractor files a request for a presentation with the Director-DCD within thirty Calendar Days. To the extent that any recommendation from the Professional is partly or wholly adverse to a claim from the Owner, that determination must be final and binding on both the Owner and Contractor unless either party files a request for a presentation with the Director-DCD within thirty Calendar Days. If the Professional recommends payment of any Contractor claim which increases the Contract Price, that recommendation is subject to the Owner's written approval. In the event any such determination from the Owner is partly or wholly adverse to the preceding recommendation from the Professional, that determination must be final and binding on the Contractor unless the Contractor files suit in the Michigan Court of Claims within thirty Calendar Days after receipt of such determination. The claim is waived if not made in accordance with these requirements.

If either the Contractor or Owner is not satisfied with any decision of the Professional on a claim, that party must, within thirty Calendar Days of receiving that decision, file a written appeal with complete supporting documentation with the Director-DCD. The Director-DCD has discretion concerning the allowability of evidence submitted and is not bound to any rules of evidence. If the right to a presentation is waived or if a presentation is conducted and the dispute remains unresolved, the Director-DCD, at the Director-DCD's sole option, must specify in which forum the dispute must be conducted by issuing a written determination to the Contractor that the dispute if the Contractor so elects, be submitted in writing to the Michigan Court of Claims. The Director-DCD's determination on the dispute is final and binding on the Contractor unless the Contractor files a lawful action in the Michigan Court of Claims within thirty Calendar Days after receiving the Director-DCD's determination. After settlement or final adjudication of any claim, if payment by the Contractor is not made to the Owner, the Owner may offset the appropriate amounts against (a) payments due to the Contractor under any other Contract between the Owner and the Contractor, or (b) any amounts for which the Owner may be obligated to the Contractor in any capacity. The Director-DCD may designate someone to fulfill the Director-DCD's duties under these terms and conditions.

END OF SECTION 00700

SECTION 00750 SPECIAL WORKING CONDITIONS

1. The Work is for the Department of Corrections and their special working conditions are included in Appendix II. Contractor must comply with all security regulations. Access to and egress from the buildings and State Agency grounds must be via routes specifically designated by the State Agency. Whenever the Contractor has caused an operating security or fire system to go out of service or left unsecured openings in existing facilities or security fences, the Contractor must furnish a security guard or fire watch acceptable to the Owner to maintain security of the facility outside of normal working hours and will be held responsible for any losses from the facility.
2. The Contractor must maintain, at all times, dust control measures to the satisfaction of the Owner.

END OF SECTION 00750

SECTION 00800 SUPPLEMENTARY CONDITIONS

1. The following conditions must supplement the general conditions: N/A

END OF SECTION 00800

SECTION 00900 ADDENDA

1. Each Bid submittal must include acknowledgement of receipt and review of all Addenda issued during the Bidding period.

END OF SECTION 00900

DIVISION 01
GENERAL REQUIREMENTS

SECTION 01010 SUMMARY OF WORK

1. General

1.1 General information covering the "Scope of Work" is specified on the Invitation to Bid. Additional information is as follows:

- (a) **Remove and replace the existing walk-in cooler freezer combination unit with a new walk-in cooler and separate walk-in freezer. Provide new LED lighting in units. Remove and replace the existing cooler & freezer remote refrigeration, located outside, with new remote refrigeration components. Provide a new roof over the refrigeration components.**

1.2 The Agency will provide the following Work:

- (a) State Salvage: The State reserves the right to salvage certain items and equipment and those salvaged items will be identified to the Bidder at the time of their inspection of the proposed Work. The State will remove salvaged items before commencement of the Work.
- (b) Moving Furnishings and Equipment: The Contractor must give timely notice to the State Agency representative identified in the pre-construction meeting of all furnishings, window covering and movable equipment that will interfere with the Work or which the Contractor cannot protect with coverings of paper, plastic, drop cloths or clean tarpaulin. The Contractor must furnish, install, maintain, and remove all coverings used to protect furnishings, window coverings and movable equipment.

END OF SECTION 01010

SECTION 01020 ALLOWANCES

1. Allowances

1.1 Cash Allowances:

- (a) Bidders must include in their Base Proposal Sum an allowance of \$0.00 to cover N/A specified in Section N/A. The base bid shall include bonds and insurance on the value of the allowance.
- (b) Monies in the allowance will be used only if directed in writing by the Project Director and Professional.
- (c) Payments under a Cash Allowance must be on actual cost and exclude cost for supervision, handling, unloading, storage, installation, testing, fee, premiums for bond and insurance, etc.
- (c) Unused allowances will be deducted from the contract amount through contract change order.

1.2 Provisional/Contingency Allowances:

- (a) Bidders must include in their Base Proposal Sum a contingency allowance of \$10,000.00. The base bid shall include bonds and insurance on the value of the allowance.
- (b) Monies will be used in the contingency allowance only if directed in writing by the Project Director and Professional.
- (c) Payments under a Provisionary Allowance will include not only the purchase/furnished cost of the materials and equipment involved, but also all related labor costs, subcontract costs, construction equipment costs, general conditions costs and Fee, provided they are calculated in accordance with the requirements of the contract documents.
- (c) Unused allowances will be deducted from the contract amount through contract change order.

END OF SECTION 01020

SECTION 01025 MEASUREMENT AND PAYMENT

- 1. **Schedule of Values:** Unless noted otherwise, before mobilization and start of construction, the Contractor must submit a Schedule of Values to the Professional for review and approval, of the various tasks that must be performed to complete all the Work. The schedule must show each task and the corresponding value of the task, including separate monies allocated for General Condition items and Project close-out. The aggregate total value for all tasks must be equal to the total Contract sum.

END OF SECTION 01025

SECTION 01030 ALTERNATES

- 1. **Use of Alternates:** Determination of the lowest three Bidders shall be based on the sum of the Base Bid and any additive and deductive Alternates the Owner accepts, in the order in which they are listed only. The Owner will accept an Alternate only if all other previously listed Alternates are also accepted unless acceptance by the Owner of Alternates in a different order does not affect determination of the lowest three bidders in any way.

2. **Execution:** (a) Coordinate pertinent related Work and modify surrounding work as required to complete the Project for each alternate.
(b) Description of Alternates:

Alternate No. 1: N/A.

END OF SECTION 01030

SECTION 01040 COORDINATION

1. Project Coordination:

- (a) Before beginning Work the Contractor must coordinate with the State Agency representative to implement the schedule for the Project. Once the Project is started, it must be carried to completion without delay. (b) Any building utility service interruptions or outages including security required by the Contractor in performing the Work must be prearranged with the staff of the State Agency and must occur only during those scheduled times. (c) The Contractor is not responsible for removing room furnishings unless is required by the Contract Documents.

2. Cutting and Patching:

- (a) The Contractor must do all cutting, fitting, or patching of the Work that may be required to make its several parts fit together properly or make new Work join with the existing structure. The Contractor must take proper precautions so as not to endanger any existing Work. The Contractor must not cut or alter existing structural members or foundations unless specifically required by the Contract Documents.
- (b) Holes or openings cut in exterior walls and roofs for installation of materials or equipment must be waterproofed by appropriate, approved materials and methods.
- (c) All adjacent finished surfaces that are damaged by the new Work must be patched with materials matching existing surfaces. Joints between patched and existing material must be straight, smooth, and flush. Workers skilled in its installation must apply all patching material.

END OF SECTION 01040

SECTION 01050 FIELD ENGINEERING

1. When applicable, the Contractor must employ a surveyor who must establish and maintain all lines and levels required for laying out and constructing the Work. The Contractor agrees to assume all responsibility due to inaccuracy of any Work of the surveyor, and including incorrect benchmarks, their loss or disturbance. Upon completion of the Project, the Contractor must submit two copies of site layout Drawings prepared for the Project and certified by the surveyor.

END OF SECTION 01050

SECTION 01060 REGULATORY REQUIREMENTS

1. **Laws:** The Contractor and its Subcontractors/Suppliers must comply with all Federal, State, and local Laws applicable to the Work and site.
2. **Codes:** All Works must be provided in accordance with the State Construction Code Act, 1972 PA 230, as amended, MCL 125.1501 et seq., International Building and Residential Codes and all applicable Michigan construction codes and fire safety including but not limited to: Michigan Building Code, Michigan Residential Code, Michigan Uniform Energy Code, Michigan Electrical Code, Michigan Rehabilitation Code for Existing Buildings, Michigan Mechanical Code, Michigan Elevator Code and Michigan Plumbing Code. If the Contractor observes that any Contract Document conflicts with any Laws or the State Construction Code or any permits in any respect, the Contractor must promptly notify the Professional in writing. If the Contractor provides any Work knowing or having to reason to know of such conflict, the Contractor must be responsible for that performance.
3. **Permits:** All required construction permits must be secured and their fees including inspection costs must be paid by the Contractor. The time incurred by the Contractor in obtaining construction permits must constitute time required to complete the Work and does not justify any increases to the Contract Time or Price, except when revisions to the Drawings and/or Specifications required by the permitting authority cause the Delays. The Contractor must pay all charges of Public Utilities for connections to the Work, unless otherwise provided by Cash Allowances specific to those connections. The following permit fees will be paid by the Owner: **LARA Bureau of Construction Codes & Bureau of Fire Safety plan reviews.**
4. **Taxes:** The Contractor must pay all Michigan sales and use taxes and any other similar taxes covering the Work that are currently imposed by legislative enactment and as administered by the Michigan Department of Treasury, Revenue Division. If the Contractor is not required to pay or bear the burden or obtains a refund of any taxes deemed to have been included in the Bid and

Contract Price, the Contract Price must be reduced by a like amount and that amount, whether as a refund or otherwise, must ensure solely to the benefit of the State of Michigan.

- 5. Safety and Protection:** The Contractor and its Subcontractors/Suppliers must comply with all applicable Federal, State, and local Laws governing the safety and protection of persons or property, including, but not limited to the Michigan Occupational Safety and Health Act (MIOSHA), 1974 PA 154, as amended, MCL 408.1001 et seq., and all rules promulgated under the Act. The Contractor is responsible for all damages, injury or loss to the Work, materials, equipment, fines, penalties as a result of any violation of such Laws, except when it's due to the fault of the Drawings or Specifications or to the Act, error, or omission of the Owner or Professional. The Contractor is solely responsible for initiating, maintaining, and supervising all safety precautions and programs and such responsibility must continue until such time as the Professional is satisfied that the Work, or Work inspected, is completed and ready for final payment. In doing the Work and/or in the event of using explosives, the Contractor must take all necessary precautions for the safety of, and must erect and maintain all necessary safeguards and provide the necessary protection to prevent damage, injury or loss to: (a) all employees on the Work and other persons who may be affected by the Work, (b) all the Work and materials and equipment to be incorporated into the Work, whether stored on or off the site, and (c) other property at or adjacent to the site, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and Underground Utilities not designated for removal, relocation or replacement. In the event of severe weather, the Contractor must inspect the Work and the site and take all reasonably necessary actions and precautions to protect the Work and ensure that public access and safety are maintained.
- 6. Fire Hazard Conditions:**
- (a) The fire hazard classification of finish materials where used in the specification must be in accordance with the current Michigan Building Code.
 - (b) Classification must be determined by tunnel test in accordance with National Fire Protection Association (NFPA-255), American Society for Testing Materials (ASTM E-84) or Underwriters' Laboratories, Inc. (UL-723).
- ~~**7. Flame/Smoke Resistance Standards:** The Contractor must provide carpeting complying with "Class B" requirements as set forth in Michigan Department of State Police State Fire Safety Board "Health Care Facilities Fire Safety Rules" R29.1243, Rule 243, when tested in accordance with the following procedures:~~
- ~~(a) Tunnel Test: Test for surface burning characteristics, with ratings for flame spread, fuel contribution, and/or smoke density; ASTM E 84, UL 723, or NFPA No. 255.~~
 - ~~(b) Pill Test: Test for flammability; ASTM D 2859, or DOC FF-1-70.~~
 - ~~(c) Floor Radiant Panel Test: Test for burning under varying radiant energy levels; ASTM E 648, with minimum average radiant flux ratings not less than 0.45 watts/sq. cm.~~
 - ~~(d) Smoke Density Test: Test in radiant heat chamber, with and without flame, for density of smoke generated; ASTM E 662, or NFPA No. 258, also known as NBS Smoke Density Chamber Test.~~
- 8. Michigan Right-To-Know Law:** The Contractor and its Subcontractors/Suppliers must comply with MIOSHA, Michigan Right-to-Know Law (Public Act 80 of 1986) and the rules promulgated under it. The Act places certain requirements on employers to develop a communication program designed to safeguard the handling of hazardous chemicals through labeling of chemical containers and development and availability of Safety Data Sheets (SDS), and to provide training for employees who work with these chemicals and develop a written hazard communications program. The Act also provides for specific employee rights, including the right to be notified of the location of SDS and to be notified at the site of new or revised SDS within five Business Days after receipt and to request SDS copies from their employers. The Contractor, employer or Subcontractor must post and update these notices at the site.
- 9. Environmental Requirements:** The Contractor and its Subcontractors/Suppliers must comply with all applicable Federal, State and local environmental Laws, standards, orders or requirements including but not limited to the National Environmental Policy Act of 1969, as amended, Michigan Natural Resources and Environmental Protection Act, P.A. 451 of 1994, as amended, the Clean Air Act, as amended, the Clean Water Act, as amended, the Safe Drinking Water Act, as amended, Pollution Prevention Act, as amended, Resource Conservation and Recovery Act, as amended, National Historic Preservation Act, as amended and Energy Policy and Conservation Act and Energy Standards for Buildings Except Low-Rise Residential Buildings, ANSI/ASHRAE/IESNA Standard 90.1.
- 10. Nondiscrimination:** For all State Contracts for goods or services in amount of \$5,000 or more, or for Contracts entered into with parties employing three or more employees; in connection with the performance of Work under this Contract, the Contractor and its Subcontractors and Suppliers must comply with the following requirements:
- 10.1 Not to discriminate against any employee or applicant for employment because of race, color, religion, national origin, age, sex (as defined in Executive Directive 2019-09), height, weight or marital status and take affirmative action to ensure that applicants are employed, and the employees are not subject to such discrimination. Such action must include, but is not limited to, the following: employment, upgrading, demotion or transfer; recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training.

- 10.2 To state in all solicitations or advertisements for employees that all qualified applicants will receive consideration for employment without regard to race, color, religion, national origin, age, sex, height, weight, or marital status.
- 10.3 To send, or have its collective bargaining representative send, each labor union or representative of workers with which there is a collective bargaining agreement or other contract or understanding, a notice advising the labor unions or workers' representative of the commitments under this provision.
- 10.4 To comply with the Elliot-Larsen Civil Rights Act, 1976 PA 453, as amended , MCL 37.2201 et seq.; the Michigan Persons with Disability Civil Rights Act, 1976 PA 220, as amended, MCL 37.1101 et Seq.; *Executive Directive 2019-09*; and all published rules, regulations, directives, and orders of the Michigan Civil Rights Commission (MCRC) which may be in effect on or before the date of Bid opening.
- 10.5 The Contractor must furnish and file compliance reports within the times, and using the forms prescribed by the MCRC. Compliance report forms may also elicit information as to the practices, policies, programs, and employment statistics of the Contractor and Subcontractors. The Contractor must permit access to Records by the MCRC and its agent for purposes of ascertaining compliance with the Contract and with rules, regulations, and orders of the MCRC.
- 10.6 If, after a hearing held under its rules, the MCRC finds that the Contractor has not complied with the Elliott-Larson requirements of the Contract Documents, MCRC may, as part of its order, certify its findings to the Administrative Board of the State of Michigan, which may order the cancellation of the Contract and/or declare the Contractor ineligible for future contracts with the State until the Contractor complies with the MCRC's order.
- 11. **Michigan Residency for Employees:** Fifty percent of the persons employed on the Work by the Contractor must have been residents of the State of Michigan for not less than one year before beginning employment on the Work. This residency requirement may be reduced or waived to the extent that Michigan residents are not available or to the extent necessary to comply with the federal funds used for the Project. This requirement does not apply to employers who are signatories to collective bargaining agreements that allow for the portability of employees on an interstate basis.

END OF SECTION 01060

SECTION 01090 REFERENCES

- 1. References will be made in an abbreviated alpha numeric form to specific standard specifications, reference publications and building codes of federal or state agencies, manufacturers, associations, or trade organizations. Such references will be identified by the alphabetic abbreviation which identifies the government agency, the association or organization followed by the rule, section or detail number that are to form a part of these specifications, the same as if fully set forth herein, and must be of latest issued date in effect three months before the Bid opening date shown on the Proposal and Contract. The abbreviations used are referred to as follows:

<u>Abbreviation</u>	<u>Agency, Association or Organization</u>
ACI	American Concrete Institute
AISC	American Institute of Steel Construction, Inc.
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute, Inc.
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASSE	American Society of Sanitary Engineering
ASTM	American Society of Testing and Materials
AWS	American Welding Society
AWWA	American Water Works Association
BOCA	Building Officials and Code
CDA	Copper Development Assn., Inc.
CLFMI	Chain Link Fence Manufacturer's Institute
CISPI	Cast Iron Soil Pipe Institute
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standard
F/M	Factory Mutual Research Corporation
FS	Federal Specifications
HEW	United States Department of Health Education and Welfare
MDOT	Michigan Department of Transportation
NFPA	National Fire Protection Association
NSF	National Sanitation Foundation Testing Laboratory, Inc
NSWMA	National Solid Waste Management Association
PCA	Portland Cement Association
PDI	Plumbing and Drainage Institute
SMACNA	Sheet Metal & Air Conditioning Contractors

UL
USBM
USDC

Underwriters Laboratories, Inc.
United States Bureau of Mines
United States Department of Commerce

END OF SECTION 01090

SECTION 01100 PROJECT PROCEDURES

1. **Signage and Safety:** The Contractor must post appropriate construction signs to advise the occupants and visitors of occupied facilities of the limits of construction work areas, hardhat areas, excavations, construction parking and staging areas, etc. Advertising signage by contractors, subcontractors, or suppliers is not allowed. The Contractor must maintain safe and adequate pedestrian and vehicular access to fire hydrants, commercial and industrial establishments, churches, schools, parking lots, hospitals, fire, and police stations and like establishments. The Contractor must obtain written approval from the Owner ten Calendar Days before connecting to existing facilities or interrupting the services on site.
2. **Required Project Sign:** N/A
3. **Barrier and Enclosures:**
 - (a) The Contractor must furnish, install, and maintain as long as necessary and remove when no longer required adequate barriers, warning signs or lights at all dangerous points throughout the Work for protection of property, workers, and the public. The Contractor must hold the State of Michigan harmless from damage or claims arising out of any injury or damage that may be sustained by any person or persons as a result of the Work under the Contract.
 - (b) **Temporary Fence:** N/A
 - (c). **Street Barricades:** N/A
4. **Construction Aids:**
 - (a) The Contractor must furnish, install, and maintain as long as necessary and remove when no longer required, safe and adequate scaffolding, ladders, staging, platforms, chutes, railings, hoisting equipment, etc., as required for proper execution of the Work. All construction aids must conform to Federal, State, and local codes or Laws for protection of workers and the public.
 - (b) **Debris Chute:** The Contractor must use a chute to lower debris resulting from their Work. The chute must be the enclosed type with its discharge directly into the truck or approved container.
 - (c) **Pumping and Drainage:** The Contractor must provide all pumping necessary to keep excavations and trenches free from water the entire period of Work on the Contract. The Contractor must construct and maintain any necessary surface drainage systems on the Work site so as to prevent water entering existing structures or to flow onto public or private property adjacent to the Agency's land, except for existing drainage courses or into existing drainage systems. The Contractor must prevent erosion of soils and blockage of any existing drainage system.

END OF SECTION 01100

SECTION 01200 PROJECT MEETINGS

1. **Pre-Construction Conferences:** The Project Director will schedule a pre-construction conference to be attended by the Professional, State Agency staff, and the Contractors. A project procedure as outlined in Form DTMB-0460, will be established for the Work during the pre-construction meeting. When no organizational meeting is called, the Contractor, before beginning any Work, must meet with the staff of the Agency and arrange a Work schedule for the Project. Once the Project has been started, the Contractor must carry it to completion without delay.
2. **Progress Meetings:** The Professional will schedule progress meetings to be held on the job site whenever needed to supply information necessary to prevent job interruptions, to observe the Work or to inspect completed Work. The Contractor must be represented at each progress meeting by persons with full authority to act for the Contractor in regard to all portions of the Work.

END OF SECTION 01200

SECTION 01300 SUBMITTALS

1. Shop Drawings, Samples and Technical Submittals:

1.1 Contractor's Review:

Before each submission, the Contractor must:

- (a) determine and verify all field measurements, quantities, dimensions, instructions for installation and handling of equipment and systems, installation requirements (including location, dimensions, access, fit, completeness, etc.), materials, color, catalog numbers and other similar data as to correctness and completeness, and
- (b) have reviewed and coordinated that technical Submittal with other technical submittals and the requirements of the Contract Documents.

1.2 Notice of Variation:

The Contractor must give the Professional specific written notice of any variation from the requirements of the Contract Documents.

1.3 Contractor's Approval:

The Contractor shall not submit unapproved submittals. Each submittal shall be stamped/certified to indicate that the submittal satisfies the requirements of the Contract Documents before submission to the Professional.

1.4 Responsibility and Authority:

Neither the Owner's authority to review any of the Submittals by the Contractor, nor the Owner's decision to raise or not to raise any objections about the Submittals, creates or imposes any duty or responsibility on the Owner to exercise any such authority or decision for the benefit of the Contractor/Subcontractor/Supplier, any surety to any of them or any other third party. The Contractor is not relieved of responsibility for errors or omissions in shop drawings, product data, samples, or similar submittals just because the Professional approved them for general design intent.

1.5 Final As-Built/Record Documents and Submittals:

The approved Submittals are a part of the final As-Built/Record Documents required for processing final payment to the Contractor.

1.6 Submissions:

Contractor must submit to the Professional:

- (a) an organized and indexed .pdf electronic file(s) of the drawing(s) and one bond copy of all Shop Drawings;
- (b) 3-inch wide by 2-inch high clear space for State approval stamp must be provided on the Title Sheet of the shop drawings;
- (c) all required samples; and
- (d) all other technical submittals (test, results, test and safety procedures, O&M manuals, etc.) that are required by the Contract Documents. In addition to electronic copies up to 2 hard copies of the approved O&M manuals may be required to be provided to the agency

1.7 Professional's Review and Return:

Professional's Review and Return: Submittals will be returned to the Contractor within fifteen Calendar Days. The Contractor is responsible for any time Delay and any cost incurred by the Professional, Contractor or Subcontractors/Suppliers as a result of resubmissions and re-reviews of a particular Submittal. The Contractor shall revise, and correct submittals returned for revision and resubmittal until approval by the Professional is achieved. All time consumed by the resubmissions and rereviews of a particular Submittal shall constitute time required to furnish that Submittal or shall represent Delays not justifying any increase in Contract Time or Contract Price, or both.

2. Progress Schedule:

2.1 SUMMARY

A. The **Contractor** will submit CPM Progress Schedules to the **Owner** depicting its approach to prosecution of the Work. This includes but is not limited to the **Contractor's** approach to recovering schedule and managing the effect of changes, substitutions, and Delays on Work sequencing.

B. The Progress Schedule will include the Rev. 0 Submittal (par. 2.14), Update Submittals (par. 2.15) and Revision Submittals (par. 2.16). Each Submittal will be assigned a unique number. For a resubmission, the initial number will be modified by the letter A, B, C, etc., as appropriate.

C. Through the Progress Schedule, the **Owner** will seek to stay current on progress, updated Activity and Milestone Dates, and the **Contractor's** approach to Work remaining.

D. References to the Critical Path Method (CPM) are to CPM construction industry standards that are consistent with the requirements of this Section.

2.2 RELATED SECTIONS

A. Section 00700 General Conditions; and Section 00800 Supplementary Conditions.

2.3 GLOSSARY OF TERMS

A. Capitalized terms not already defined in any Division 0 Specification have the following intent and meanings:

1. Milestone—A key point of progress, designating interim targets toward the Contract Times. They may pinpoint critical path foundations, key deliveries, building framing, start of MEP rough-in, building enclosure, partitions, interior finishes, conditioned space, commissioning stages, Substantial Completion, and other events of like import.
2. Official Schedule—The most recent Revision Submittal returned to the **Contractor** as Resubmittal Not Required. The Rev. 0 Official Schedule is the *As-Planned* Schedule.
3. Revision 0 Submittal—Progress Schedule submitted by the **Contractor** depicting the entire Work as awarded.

4. Update Submittal–A monthly Progress Schedule update reflecting progress and minor adjustments on the Activities, sequencing and restraints for Work remaining.

2.4 QUALITY ASSURANCE

A. The **Contractor** will obtain a written interpretation from the **Professional**, if the **Contractor** believes the selection of Activities, logic ties or restraints requires an interpretation of the Contract Documents. With each submission, the **Contractor** will point out by specific, written notation, any Progress Schedule feature that may reflect variations from any requirements of the Contract Documents.

B. The **Contractor** is responsible to obtain information from each Subcontractor and Supplier when scoping their respective Activities, Values, logic ties and restraints

C. No review of any Progress Schedule by or on behalf of the **Owner** will relieve the **Contractor** from complying with the Contract Times and any required sequence of Work or from completing Work omitted from the Progress Schedule. No review will imply approval of any variation from or interpretation of the Contract Documents, unless approved by the **Professional** through a written interpretation or by means of a separate, written notation.

2.5 ALLOWANCES

A. Work covered by Cash Allowances will be completed within the Contract Times. To the extent reasonable and consistent with the **Contractor's** plan, Work authorized by provisional contingency allowances will be completed within the Contract Times. The Progress Schedule will incorporate the **Contractor's** best estimate of the Activities, logic and restraints required, using the information in the Contract Documents, or as indicated by the **Professional** in writing.

2.6 "OR EQUALS" AND SUBSTITUTIONS

A. Activities in the Rev. 0 Progress Schedule will be based on materials and equipment required by the Contract Documents and will not reflect any "or equal" or substitute materials or equipment, even if the **Contractor** intends to pursue "or equal" and substitution proposals. This limitation also applies to any Means and Methods indicated in or required by the Contract Documents.

2.7 MEASUREMENT AND PAYMENT

A. The Schedule of Values will include a Progress Schedule *pay item*. Fifteen percent (15%) of this *pay item* will be eligible for payment upon delivery of the *complete* Rev. 0 Submittal. The balance of this *pay item* will be eligible for payment, on a prorated basis, with each Request for Payment attaching an Update Submittal.

2.8 PROGRESS SCHEDULE SUBMITTALS

A. Each Progress Schedule Submittal will consist of an electronic copy the **Contractor's file**, a narrative and a PDF file of the project schedule report and plots, each file appropriately titled for the schedule version and date of publishing.

B. The CPM scheduling software will be Primavera Project Planner®, SureTrak® or Microsoft Project®.

C. In addition to the monthly update schedule submittal, **Contractor** shall provide prior to each Progress Meeting, a 2-week look ahead schedule extracted from the current overall schedule and providing sufficient additional activity detail to appropriately define the expected activity during the upcoming 2-week period.

2.9 PRINTOUTS

A. Schedule Reports will include Activity (ID) code and description, duration, calendar, Early Dates, Late Dates and Total Float, all of which will comport with the requirements of paragraph 8.3.4 of Section 00700 General Conditions.

1. Late Finish Date for an Activity pinpointing a Contract Time will equal that Contract Time. Early Start Date for an Activity designating a Contract restraint will equal the proper Notice to Proceed date. Schedule Reports may or may not append CPM Plots (time-scaled Activity/logic).

2. For Precedence Diagram Method, separate Schedule Reports will tabulate, for each Activity, all preceding and succeeding logic types and lead times, whether CPM Plots displaying vertical logic ties are appended or not.

B. CPM Schedule Plots will be plotted on a suitable time scale and identify the Contract Times, Critical Paths, and sub-Critical Paths. Activities will be shown on the Early Dates with Total Floats noted by Late Date flags.

c. Line of Balance Plots will reflect industry practice for repetitive construction and will segregate the production lines for all trades within the hammock Activities.

2.10 NARRATIVE REQUIREMENTS

A. In general, a narrative will describe the **Contractor's** approach to prosecution of the Work, subject to the requirements of the Contract Documents. Further, each narrative will list the Critical Path Activities and compare Early and Late Dates with Contract Times and Milestone Dates. The basis for restraint dates will be explained.

B. For each Update Submittal, the narrative will compare current Dates to the respective Milestone Dates, describe changes in crewing and construction equipment and identify new Delays. For each Revision Submittal, the narrative also will itemize changes in Activities, logic ties and restraint dates made necessary by each change, Delay, schedule recovery, substitution and **Contractor**-initiated revision occurring since the previous Submittal.

2.12 ACTIVITY REQUIREMENTS

A. The Progress Schedule will detail Work sequencing only to the extent necessary to allow the **Owner** to correlate percent complete, compare actual dates with Milestones and Contract Times and the data in Requests for Payment.

B. Separate Activities will designate permits, construction, Submittal preparation/review (and resubmission and re-review, for same); MEP coordination drawings; deliveries; commissioning; and Punch List. Separate Activities will designate **Owner**-furnished items, interface with other work and the **Owner** and **Professional's** responsibilities.

C. Activities will be detailed only to the extent required to show the transition of trade Work. Activities will detail the progression through site/excavation, foundations, building framing, start/completion of interior partitions, MEP rough-in, building enclosure, interior finishes, conditioned space, and commissioning.

1. Submittal Activities will segregate long-lead items, any item requiring structural access and other procurements that, in the **Contractor's** judgment, may bear on the rate of progress. Separate MEP coordination drawing Activities will be used for each floor. Beyond these requirements, it is not necessary to burden the Progress Schedule with Activities for less significant Submittals and deliveries.

2. For multiunit Work (e.g., rough-in overhead MEP for each floor, etc.), detailed Activities will be shown for a typical (often, the first) unit). Other or follow-on units may be replicated, as appropriate, or modeled with a hammock Activity combining the sum total of the typical detailed Activities. Separate Activities, as may be suitable to the Divisions of Work involved, will be identified for single-unit Work. This requirement applies to such scope as Work in mechanical rooms, building framing, commissioning, etc.

3. Activities will not combine separate or non-concurrent items of Unit Price or lump sum Work, Work in separate structures and Work in distinct areas, locations or floors within an area or structure; or rough-in and finish Work.

D. Activity durations will equal the Business Days required to sufficiently complete the Work designated by the Activity (i.e., when finish-to-start successors may start, even if the Activity is not quite 100% complete). Installation Activities will last from twenty (20) to forty (40) Days.

E. Activities will be assigned consistent descriptions and identification codes. Sort codes will group Activities by building or structure, floor or area, Change Order and Change Authorization and other meaningful schemes.

2.13 FLOAT TOLERANCES

A. Any Progress Schedule with Early Dates after a Contract Time will yield negative Total and Contract Floats, whether shown/calculated or not. Any Revision Submittal with less than negative twenty (20) Days of Float will be returned as "Revise and Resubmit," unless a time extension is requested, or the **Owner** withholds liquidated damages or asserts intent to do so in the event schedule is not recovered.

B. Floats calculated from the definitions given in Section 00020 Glossary supersede any conflicting Float values calculated within any early completion Progress Schedule.

2.14 REVISION 0 (Rev. 0) SUBMITTAL

A. The complete Revision 0 Submittal will be due with the first Request for Payment. The Rev. 0 Submittal will show the Work as awarded, without Delays, "or equal" or substitutions, Change Orders or Change Authorizations.

1. The Rev. 0 narrative will detail the **Contractor's** management of the site (lay down, parking, etc.). Further, the Rev. 0 narrative will identify shifts, weekend Work, Activity calendars, Delays since award and all pending and anticipated "or equal" and substitution proposals.

B. Once endorsed by the **Owner** and returned as "Resubmittal Not Required," the Rev. 0 Progress Schedule (or Rev. 0A, etc.) will be the As-Planned Schedule and the basis for Update Submittals until the Rev. 1 Official Schedule is established. Once the As-Planned Schedule is established, the **Owner** will select Milestones and note Milestone Early and Late Dates. As the Official Schedule evolves, Milestone Dates will be revised accordingly.

D. If the **Owner** refuses to endorse the Rev. 0 Submittal (or Rev. 0A, for a resubmission) as "Resubmittal Not Required," the As-Planned Schedule will not be established. In that event, the **Contractor** will continue to submit Update and Revision Submittals reflecting progress and the **Contractor's** approach to remaining Work. The **Owner** will rely on the available Update and Revision Submittals, subject to whatever adjustments it determines appropriate.

2.15 UPDATE SUBMITTALS

A. Update Submittals with progress up to the closing date and updated Early and Late Dates for progress and remaining Activities will be due with each Request for Payment. As-built data will consist of actual start dates, percent complete, actual finish dates, changes, Delays, and other significant events occurring before the closing date.

2.16 REVISION SUBMITTALS

A. Progress Schedule Revisions will be submitted with the third Request for Payment and every two (2) months after that, or more often, if necessary due to schedule recovery or other Progress Schedule revisions. Revisions will revise the Update Submittal attached to the prior Request for Payment.

B. Progress Schedule revisions will detail all impacts on pre-existing Activity scope, logic ties and restraint dates and reflect the Contractor's current approach to Work remaining. Revisions may be required because of changes in the Work, substitutions, schedule recovery and Delays.

C. Once endorsed by the **Owner** and returned as "Resubmittal Not Required," a Revision Submittal becomes the Rev. 1, Rev. 2, etc. Official Schedule and the basis for subsequent Update Submittals until a more current Official Schedule is established. If the **Owner** refuses to endorse a Revision Submittal as "Resubmittal Not Required," the **Contractor** will continue to submit Update and Revision Submittals when and as required in this Section.

2.17 RETROSPECTIVE DELAY ANALYSIS

A. If the **Owner** refuses to endorse any Revision Submittal as "Resubmittal Not Required," the **Contractor** and **Owner** will use the latest Official Schedule when evaluating the effect of Delays on Contract Time and/or Contract Price. The procedure will consist of progressively revising the latest Official Schedule at key Revision Submittal closing dates. For each Progress Schedule iteration, slippage between actual Milestone Dates and Rev. 0 Milestone Dates will be correlated to Delays occurring solely in that iteration. Revisions affecting Work after any iteration will be included only to the extent consented by the **Owner** at that time and/or if confirmed by as-built progress.

3. **Shop Drawings:** The Contractor shall deliver shop drawings of products, materials, assemblies, or equipment to the Professional.

Item of Work

Tiling

Food Service Equipment

3. **Samples:** The Contractor must deliver all samples of material or equipment to the job site for examination by the State Agency and the Professional. Samples will be examined by the Professional for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents. The Contractor must furnish all Work in accordance with

approved samples. The following general classifications of material and equipment require submission of samples. Samples of other items may be requested by the Professional at any time.

<u>Item of Work</u>	<u>Type of Sample</u>	<u>Section Number</u>
Quarry Tiles	Color Samples	093000
Coating System	Color Samples	098720
Painting	Color Samples	099000

END OF SECTION 01300

SECTION 01400 QUALITY CONTROL

1. **Testing Laboratory Services:** All tests required by the Owner must fulfill ASTM, ANSI, Commercial and other Standards for testing. The Contractor must submit a minimum of three copies of each test report to the Professional for evaluation and subsequent distribution. The following general classifications of Work require submission of test reports and/or certificates of inspection. Additional submissions may be requested by the Professional at any time.

<u>Item of Work</u>	<u>Test Type</u>	<u>Section Number</u>
N/A		

2. **Tests:**

- (a) Paid by Owner: N/A
- (b) Paid by Contractor: N/A

3. **Concrete/Asphalt Materials:** Before placement of any concrete, the Contractor must submit for the Professional's approval complete data on the trial concrete mix formulation and a testing laboratory report for ASTM C94, twenty-eight-day standard cylinder test for compressive strength of a sample of the concrete mix. For asphalt paving, the Contractor must submit the data and testing reports for ASTM D946, AC-5. The mix must have 4.5 to 6 percent of asphalt cement by weight for binder course and 5 to 7 percent of asphalt cement by weight for surface course in accordance with Asphalt Institute Manual MS-4, MS-13, and the current Michigan Department of Transportation (MDOT) Standard Specifications for Construction.

- (a) The Contractor must furnish to the Professional tickets showing mix formulation, Contractor's name, Project name, mix identification for each load of concrete/asphalt delivered and installed. If the technical specifications allow added water to the concrete mix after leaving the batch plant, the delivery ticket must reflect the added water. The Owner Field Representative must receive a copy of each delivery ticket for transmittal to the Professional for evaluation.

- (b) The Professional may require the Contractor to core drill questionable cast-in-place concrete/asphalt for laboratory testing. Should the laboratory analysis indicate the concrete/asphalt fails to meet specification requirements, the Contractor must pay all costs for core drilling and testing in the laboratory and replace the concrete/asphalt found to fail meeting the specification requirements. Should the laboratory analysis confirm that the concrete/asphalt meets specification requirements, the Owner will pay the Contractor for their costs for core drilling, concrete/asphalt patching and the laboratory fee for testing of the concrete/asphalt core samples.

END OF SECTION 01400

SECTION 01500 CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

1. The Contractor must furnish and install all temporary facilities and controls required by the Work, must remove them from State property upon completion of the Work, and the grounds and existing facilities must be restored to their original condition.
2. If water or electricity is available in the area where Work will be performed, the Contractor will not be charged for reasonable use of these services for construction operation. The Contractor must pay costs for installation and removal of any temporary connections including necessary safety devices and controls. Use of services must not disrupt or interfere with operations of the State Agency.
3. **Temporary Sanitary Facilities:**
 - (a) **Portable Toilets:** The Contractor must provide and maintain a sufficient number of portable temporary toilets in locations approved by the State Agency. They must comply with all Federal, State, and local code requirements. The Contractor must maintain the temporary toilets in a sanitary condition at all times and must remove them when the Work under this Contract is complete. The Contractor's employees are not allowed to use any existing State toilet facility.
4. **Field Office:**
 - (a) **On Site Trailer:** At the beginning of the Work, the Contractor may provide a field office and storage building at the site in a location acceptable to the Owner. The building may be a trailer. The Contractor may provide such other temporary buildings as he may require for the use of workers and safe storage for tools and materials. Job signs with the Contractor's name, logos, specialty, ... etc., are not allowed.
 - (b) **On site trailers are allowed.**

END OF SECTION 01500

SECTION 01600 MATERIAL AND EQUIPMENT

1. The Contractor must furnish and be responsible for all materials, equipment, facilities, tools, supplies and utilities necessary for completing the Work. All materials and equipment must be provided as described in the Contract Documents and of good quality, free of defect and new and must be applied, installed, connected, erected, used, cleaned and conditioned following the manufacturer's and Suppliers' instructions.
2. **Delivery, Storage, and Handling:** All materials and equipment delivered to and used in the Work must be suitably stored and protected from the elements. The areas used for storage must only be those approved by the State Agency. The Owner assumes no responsibility for stored material. The ownership and title to materials will not be vested in the Owner before materials are incorporated in the Work unless payment is made by the Owner for stored materials and equipment. After delivery, before and after installation, the Contractor must protect materials and equipment against theft, injury, or damage from all causes. For all materials and equipment, the Contractor must provide complete information on installation, operation, and preventive maintenance.
 - (a) The Contractor must cover and protect bulk materials while in storage which are subject to deterioration because of dampness, the weather or contamination. The Contractor must keep materials in their original sealed containers, unopened, with labels plainly indicating manufacturer's name, brand, type, and grade of material and must immediately remove from the Work site containers which are broken, opened, watermarked and/or contain caked, lumpy, or otherwise damaged materials.
 - (b) The Contractor must keep equipment stored outdoors from contact with the ground, away from areas subject to flooding and covered with weatherproof plastic sheeting or tarpaulins.

- (c) The Contractor must certify that any materials stored off-site are:
 - a) Stored on property owned or leased by the Contractor or owned by the agency.
 - b) Insured against loss by fire, theft, flood, or other hazards.
 - c) Properly stored and protected against loss or damage.
 - d) In compliance with the plans and specifications.
 - e) Specifically allotted, identified, and reserved for the project.
 - f) Itemized for tracking and payment.
 - g) Subject to these conditions until the items are delivered to the project site.

END OF SECTION 01600

SECTION 01650 FACILITY START-UP

1. **Tests:** The complete installation consisting of the several parts of equipment and systems installed according to the requirements of the Contract Documents must be ready in all respects for use by the State Agency and must be subjected to a test at full operating conditions and pressures for normal conditions of use.
2. **Adjustments:** Contractor must adjust and replace the Work which is necessary to fulfill the requirements of the Contract Documents and to comply with the directions and recommendations of the manufacturer of the several parts of equipment, and to comply with all provisions of architectural and/or engineering drawings/specifications and all codes and regulations which may apply to the entire installation.
3. **Demonstration:** Contractor must provide an on-site demonstration and training of all systems operations to the Owner when it is substantially completed.

END OF SECTION 01650

SECTION 01700 CONTRACT CLOSE-OUT

1. **Substantial Completion:** The Contractor must notify the Professional, the Project Director and the Agency when the Work will be substantially complete. If the Professional, Owner, and Agency agree that the project is Substantially Complete, the Professional and Project Director will inspect the Work. The Professional, upon determining that the Work, or a portion of the Work inspected, is substantially complete, will prepare a Punch List and will attach it to the respective Certificate of Substantial Completion. The Contractor must be represented on the job site at the time this inspection is made and thereafter must complete all Work by the date set for final acceptance by the Owner.
2. **Cleaning:**
 - (a) **Regular Cleaning:** The Contractor must remove all scrap or removed material, debris, or rubbish from the Project work site at the end of each working day and more frequently whenever the Owner Field Representative deems such material to be a hazard. The Contractor cannot discard materials on the grounds of the State Agency without the express permission of the Project Director. No salvage or surplus material may be sold on the premises of the State Agency. No burning of debris or rubbish is allowed. Any recyclable materials must be recycled, and the Contractor will be required to provide recycling plan.
 - (b) **Final Cleaning:** Before final acceptance by the State, the Contractor must clean all Work and existing surfaces, building elements and contents that were soiled by their operations and make repairs for any damage or blemish that was caused by the Work.

END OF SECTION 01700

SECTION 01800 MAINTENANCE

1. The Contractor is responsible for maintaining the following parts of Work in good order and proper working conditions and must take all necessary actions for their protection until they are placed for use by the Owner:

END OF SECTION 01800

APPENDIX I

GLOSSARY

GLOSSARY

Activity– An element in the Progress Schedule establishing a requisite step, or the time and resources required, for completing the part of the Work associated with that Activity.

Addenda– Written instruments that are used by the Owner and/or Professional to incorporate interpretations or clarifications, modifications, and other information into the Bidding Documents. An Addendum issued after Bid opening to those Bidders who submitted a Bid, for the purpose of re-bidding the Work without re-advertising, is referred to as a **post-Bid Addendum**.

Agency- Any unit, section, division, department, or other instrumentality of the State that benefits from the Work.

Alternate– Refers to work specified in the Bidding Documents for which the Bidder must bid a Bid Price.

Apparent Low Bidders: Those Bidders whose Base Bid, when added to those specific Alternates the Owner intends to accept, yields the three lowest sums of Bid and Alternates. Additional Bidders may be considered Apparent Low Bidders if their Bid, when added to those specific Alternates the Owner intends to accept, yields a sum within 10% of the lowest of the Apparent Low Bidder's sum. If a qualified disabled veteran meets the requirements of the contract solicitation, provides acceptable responses to both Part One and Part Two of the Best Value Construction Bidder Evaluation to achieve a Best Value recommendation and with the veteran's preference is the lowest responsive, responsible, best value Bidder it is considered the Apparent Low Bidder.

Archaeological Feature– Any prehistoric or historic deposit of archaeological value, as determined by a representative of a State Agency that is duly authorized to evaluate such findings and render such judgments. An Archaeological Feature deposit may include, but is not limited to Indian habitations, ceremonial sites, abandoned settlements, treasure trove, artifacts, or other objects with intrinsic archaeological value and that relate to the history and culture of the State of Michigan.

Authorized Technical Data– Information and data contained in a report of exploration and tests of subsurface conditions. Also, any physical data (dimension, location, conditions, etc.) contained in those Drawings of physical conditions of existing surface and subsurface facilities.

Best Value- The bids will be evaluated for best value based on price and qualitative components that may include but are not limited to technical design, technical approach, quality of proposed personnel, and management plans, per PA 430 of 2012.

Bid– Written offer by a Bidder for the Work, as specified, which designates the Bidder's Base Bid and Bid Prices for all Alternates. The term *Bid* includes a *re-bid*.

Bidder– The Person acting directly, or through an authorized representative, who submits a Bid directly to the **Owner**.

Bidding Documents– The proposed Contract Documents as advertised, and all Addenda issued before execution of the Contract.

Bid Price– The Bidder's price for a lump sum item of work, or the product of the Bidder's unit price for an item of Unit Price Work times the quantity given on the Bid Form for that item.

Bid Security– A security serving as a guarantee that the Bidder will conform to all conditions.

Bidding Requirements–The Advertisement, Instructions to Bidders, Supplementary Instructions, Information for Bidders, Bid Form, Bid Form Attachments, and qualification submittals, as advertised and as modified by Addenda, and any other Section included within Division 0 of the Bidding Documents for the purpose of governing bidding and award of the Contract.

Board– The Administrative Board of the State of Michigan.

Bond– Security furnished by the **Contractor**, as required by the Contract Documents.

Business Day– Any Day except Saturdays, Sundays and holidays observed by the **Owner**.

Bulletin– A request used by the **Owner** to describe a change in the Work under consideration by the **Owner** and to request the **Contractor** to submit a proposal for the corresponding adjustment in Contract Price and/or Contract Time, if any.

Calendar Day– Every day shown on the calendar, Saturdays, Sundays, and holidays included.

Cash Allowance– An **Owner**-specified sum included within the Contract Price to reimburse the **Contractor** for the actual purchase/furnished cost of materials and/or equipment or other designated items, as specifically provided in the Contract Documents. Although the scope (e.g., the required quantity) of any Work covered by a Cash Allowance is sufficiently detailed in the Contract Documents for the purposes of bidding the required labor costs, Subcontract costs, construction equipment costs and general conditions costs and Fee, it is understood that the required materials, equipment or other designated items are of uncertain purchase cost at the time of Bid or are yet to be specified in more detail by the **Professional** as to quality, appearance, durability, finish and such other necessary features affecting purchase price.

Change Order– A written order issued and signed by the **Owner**, which amends the Contract Documents for changes in the Work or an adjustment in Contract Price and/or Contract Time, or both.

Construction Mechanic– A skilled or unskilled mechanic, laborer, worker, helper, assistant, or apprentice working on a state project but shall not include executive, administrative, professional, office, or custodial employees.

Contract Award– The official action of the **Board**, the **Director-SFA** or the **Director-DCD** awarding the Contract to the **Contractor**.

Contract Documents– Written and graphic documents that form the legal agreement between the **Owner** and the **Contractor**, consisting of this document, completed Bid and Contract forms, terms and conditions of the contract, specifications, drawings, addenda, Notice of Award, Notice-to-Proceed and contract change orders.

Contract Price– The total compensation, including authorized adjustments, payable by the **Owner** to the **Contractor** (subject to provisions for Unit Price Work).

Contract Times–The Contract Times for the entire Work are the periods allowed, including authorized adjustments, for Substantial Completion and final completion of the Work. The Contract Times for a designated portion of the Work are the periods allowed for Substantial Completion and final completion of any such portion of the Work, as specified in the Contract Documents.

Contractor– Business enterprise with which the **Owner** has entered into the Contract.

Correction Period– A period during which the **Contractor** must, in accordance with the Contract Documents, (a) correct or, if rejected, remove, and replace Defective Work, and (b) maintain warranties for materials and equipment in full force and effect.

Cost of the Work Involved– The sum of all costs that would be, or were, necessarily incurred by the **Contractor** in providing any Work Involved with the related change, less the costs that would be, or would have been, incurred by the **Contractor** to provide such Work without the related change.

Defective– As determined by the Professional, an adjective which when referring to or when applied to the term “Work” refers to (a) Work not conforming to the Contract Documents or not meeting the requirements of an inspection, test, or approval, or (b) Work itemized in a Punch List which the **Contractor** fails to complete or correct within a reasonable time after issuance of the Punch List by the **Professional**.

Delay– Any act or omission or other event that in any manner adversely affects or alters the schedule, progress or completion of all or any part of the Work. Delay is a generic term intended to include deferral, stoppage, slow down, interruption and extended performance, and all related hindrance, rescheduling, disruption, interference, inefficiency and productivity and production losses.

Department (DTMB)– Department of Technology, Management and Budget of the State of Michigan.

Director- The Director of the **Department**.

Director-SFA- The Director of **DTMB** State Facilities Administration.

Director-DCD- The Director of **DTMB** State Facilities Administration, Design and Construction Division.

Division– Each of the numbered, distinct parts (starting with Division 0) into which the Specifications are divided.

Drawings– Part of the Contract Documents showing the Work. Drawings must neither serve nor be used as Shop Drawings.

Emergency– A condition affecting the safety or protection of persons, or the Work, or property at or adjacent to the site.

State Facilities Administration (SFA)-Entity in the **Department** responsible for design, construction, and operations and maintenance of facilities.

Fee for the Work Involved (Fee)– An established, percentage mark-up on the Cost of the Work Involved which is allowed to the **Contractor** for (a) reasonable administrative costs, and (b) negotiated, reasonable profit on the Cost of the Work Involved.

Hazardous Material– Asbestos containing materials (ACMs), Polychlorinated biphenyls (PCBs), petroleum products, such construction materials as paint thinners, solvents, gasoline, oil, etc., and any other like material the manufacture, use, treatment, storage, transportation, or disposal of which is regulated by federal, state, or local Laws governing the protection of public health, natural resources, or the environment.

Invitation To Bid (ITB) - The solicitation document presenting the terms and conditions that will become part of the Contract when the Bid is accepted.

Law(s)– Means federal, state, and local statutes, ordinances, orders, rules and/or regulations.

MCL– The Michigan Compiled Laws of the State of Michigan.

Means and Methods– Includes means, methods, techniques, sequences and/or procedures applicable to the Work.

Notice of Award– Written notice accepting the Bid to the lowest responsive, responsible Bidder and designating the Contract Price (and establishing the Alternates accepted by the **Owner**).

Notice-to-Proceed– Written notice issued by the Project Director directing the Contractor to commence the construction activities and establishing the start date of the Contract Time.

On-Site Inspection– The **Professional's** on-site examination of the **Contractor's** completed or in progress Work to determine and verify to the Project Director that the quantity and quality of all Work complies with the requirements of the Contract Documents.

Owner– The State of Michigan, with whom the **Contractor** has entered into the Contract and for whom the Work is to be provided.

Owner Field Representative– A State employee or consultant, acting collaboratively with the Project Director, providing on-site, periodic observation and documentation of the Work for compliance with the Contract Documents.

Partial Use– The use, by the **Owner**, of a designated portion of the Work before accomplishing Substantial Completion of the entire Work. Partial Use does not mean Substantial Completion of the portion of the Work placed in use by the **Owner**.

Person–Individuals, partnerships, corporations, receivers, trustees, joint ventures or any other legal entity and any combinations of any of them.

Political Subdivision– Any county, city, village, or other local unit of the State, including any agency, department, or instrumentality of any such county, city, village, or other local unit.

Post-Bid Submittal– A Qualification Submittal required of the Bidder selected under Section 00100 - 22 before Contract Award, and which is used by the Owner in the evaluation of the Bid of the selected Bidder.

Professional Services Contractor (PSC or Professional)– The individual or business entity who has the authority to practice the design disciplines required by the Contract Documents. An Agency with appropriate licensing may replace the PSC in their role if a consultant is not used.

Project– The total construction, which includes the Work and possibly other work completed by others, as indicated in the Contract Documents.

Project Director- Designated State employee(s) (a) Responsible for directing and supervising the **Professional's** services during the period allowed for completion of the Work; and/or (b) Acting as representative for the **Owner** and for the enforcement of the Contract Documents, approving payment to the **Contractor** and coordinating the activities of the State, **Owner**, **Professional** and **Contractor**.

Project Schedule– Work Schedule that shows the **Contractor's** approach to planning, scheduling, and execution of the Work and that accurately portrays completed Work as to sequencing and timing, as provided in the Contract Documents.

Project Specifications– The Contract Documents organized into Divisions. "Technical Specifications" means Divisions of the Specifications consisting of technical descriptions of materials, equipment, construction systems, standards, and workmanship.

Provisionary Allowance– An amount included within the Contract Price to reimburse the **Contractor** for the cost to furnish and perform Work that is uncertain because, for example, it is indeterminate in scope and may not be shown or detailed in the Contract Documents.

Punch List– A list of minor items to be completed or corrected by the **Contractor**, any one of which do not materially impair the use of the Work for its intended purpose.

Qualified Disabled Veteran (QDV)- QDV as defined by Public Act 22 of 2010, MCL 18.1241.3 and supported by a DD214 Proof of Service and Discharge, a Veterans Administration rating decision letter, proof of disability (if the disability is not indicated on the DD214), and appropriate legal documents setting forth the 51% natural persons QDV ownership.

Record Documents– Drawings, Specifications, Addenda, Change Orders, Change Authorizations, Bulletins, inspection, test and approval reports, photographs, written clarifications and interpretations and all other documents recording, or annotated to show, all revisions and deviations between the as-built installation and the Contract Documents, all approved Submittals and all clarifications and interpretations.

Records– Books, reports, documents, electronic data, and other evidence relating to the bidding, award and furnishing and performance of the Work.

Recycled Material– Recycled paper products, structural materials made from recycled plastics, re-refined lubricating oils, reclaimed solvents, recycled asphalt and concrete, recycled glass products, re-treaded tires, ferrous metals containing recycled scrap metals and all other materials that contain (a) waste materials generated by a business or consumer, (b) materials that have served their intended purpose, and/or (c) materials that have been separated from solid waste for collection, recycling and disposition in the percentage determined by the State as provided by Law.

Request for Payment– The form provided by the **Owner** (Payment Request DTMB-0440) to be used by the **Contractor** in requesting payment for Work completed, which must enclose all supporting information required by the Contract Documents.

Schedule of Values– A schedule of pay items, which subdivides the Work into its various parts and which details, for each itemized part, cost and pricing information required for making payments for Work performed. The sum of all pay item costs in the Schedule of Values must equal the Contract Price for the Work.

Shop Drawings– Includes drawings, diagrams, illustrations, standard schedules, performance charts, instructions and other data prepared by or for the **Contractor** to illustrate some part of the Work, or by a Supplier and submitted by the **Contractor** to illustrate items of material or equipment.

Soil Erosion and Sedimentation Control– The planning, design and installation of appropriate Best Management Practices designed and engineered specifically to reduce or eliminate the off-site migration of soils via water runoff, wind, vehicle tracking, etc. Soil erosion and sedimentation control in the State of Michigan is regulated under The Natural Resources Environmental Protection Act; Soil Erosion and Sedimentation Control, 1994 PA 451, Part 91, as amended, MCL 324.9101 et seq. Soil erosion and sedimentation control associated with this Contract is monitored and enforced by the DTMB-SFA.

State– The State of Michigan in its governmental capacity, including its departments, divisions, agencies, boards, offices, commissions, officers, employees, and agents. Non-capitalized references to a state refer to a state other than the State of Michigan.

State Construction Code– The Michigan State Construction Code Act, 1972 PA 230, as amended, MCL 125.1501 et seq.

Subcontractor– A Person having an agreement with the Contractor to provide labor at the site and furnishing materials and/or equipment for incorporation into the Work.

Submittals– Includes technical Submittals, Progress Schedules and those other documents required for submission by the Contract Documents. The term "technical Submittal" includes Shop Drawings, brochures, samples, Operation and Maintenance (O&M) Manuals, test procedures and any other Submittal the Contract Documents require the **Contractor** to submit to demonstrate how the items covered, after installation or incorporation into the Work, will conform to the information given in the Contract Documents and be compatible with the design of the completed Work as a functioning whole as indicated in the Contract Documents.

Substantial Completion– The Work, or a portion of the Work designated in the Contract Documents as eligible for separate Substantial Completion, has been completed in accordance with the Contract Documents as determined by the PSC, to the extent that the **Owner** can use or occupy the entire Work, or the designated portion of the Work, for the use intended without any outstanding, concurrent Work at the site, except as may be required to complete or correct Punch List items.

Supplier– A manufacturer or fabricator, or a distributor, material man or vendor representing a manufacturer or fabricator, who has an agreement with the Contractor to furnish materials and/or equipment.

Underground Utilities– Pipelines, piping, conduit, duct, cables, wells, tanks, tunnels and appurtenances, or other similar facilities, installed underground to convey or support conveyance of potable water, sprinkler or irrigation water, fire protection systems, electricity, gases, steam, petroleum products, sewerage and drainage removal, telephone, communications, cable TV, traffic, or control systems.

Unit Price Work– The work involving specified quantities (i.e., related Work quantities) which, when performed, is measured by the **Professional** and paid using the measured quantities and unit prices contained in the Contract Documents. Performance of Unit Price Work for undefined quantities is contingent upon conditions encountered at the site, as determined, and authorized by the **Professional**.

Unit Price Work, Specific– Work of specified and defined quantities (i.e., quantities are detailed in, and can be taken-off from, the Contract Documents) that when performed is measured by the **Professional** and paid based on the measured quantities and unit prices contained in the Contract Documents.

Work- (as in “*the Work*,” “*the entire Work*”)– The entire *completed Construction* required by the Contract Documents. The Work results from furnishing and performing all services, obligations, responsibilities, management, supervision, labor, materials, equipment, construction equipment, general conditions, permits, taxes, patent fees and royalties, testing, inspection and approval responsibilities, warranties, temporary facilities, small tools, field supplies, Bonds, insurance, mobilization, close-out, overhead and all connections, devices and incidental items of any kind or nature required and/or made necessary by the Contract Documents.

Work Involved, any Work Involved– Existing or prospective Work (a) reflected in any notice, proposal, or claim, or (b) reflected in changes ordered or in process, or (c) affected by Delay.

APPENDIX II
SPECIAL WORKING CONDITIONS

DEPARTMENT OF CORRECTIONS

The Work comprising this Project will be performed at a State of Michigan Correctional Facility and the Contractor/Professional must comply with the following special working rules.

1. Contractor/Professional must submit a LEIN request consisting of name, driver's license number, social security number, birth date, and additional information when requested, on all persons to be employed on the Project site. Such form (Vendor/Contractor LEIN Request, CAJ-1037) must be submitted directly to the Department of Corrections Designee for approval before any person's appearance at the site for Work assignments. These employees will be required to attend Contractor/Professional orientation prior to any on site activity.
2. Contractor/Professional will be allowed to work within or on Correctional Facility confines for an eight (8) hour shift, from 7:00am to 5:00pm, as designated by the facility. Four (4) ten (10) hour shifts will be considered upon approval by MDOC. No Work is allowed to be performed on Saturdays, Sundays, or State holidays without written permission from the State Agency. The State Agency may set other time schedules as discussed during the pre-construction meeting. Consideration will be given to using alternate shifts to minimize the length of time an area is out of service, pending approval by MDOC. One escort shall be provided for the duration of the project. An additional escort may be considered for certain tasks, pending approval by MDOC.
3. All employees of the Contractor/Professional may be subject to individual body search each time they enter the Correctional Facility. Packages or containers of any kind may be opened for inspection. Lunch boxes are not permitted inside the security perimeter. All employees of the Contractor/Professional will be required to have legal picture identification cards.
4. All trucks and other mobile equipment may be subject to inspection both on arrival and upon departure from the Correctional Facility. Absolutely no fraternization between inmates and Contractor/Professional's employees will be tolerated. Any attempts at same by prisoners are to be reported immediately to the escorting officer or MDOC employee.
5. No requests for visits with inmates will be granted to Contractor/Professional's employees except where such visiting originated prior to award of the Contract.
6. Contractor/Professional must follow rules pertaining to foot and vehicle traffic as established by the Correctional Facility. Contractor/Professional must observe all of the off-limit restricted areas beyond which no unauthorized personnel may trespass. The Contractor/Professional and their workers may not leave the assigned Work areas.
7. Heavy equipment, power tools and machinery must be removed from the inside of the security perimeter through the assigned gate at times specified by each facility. Such heavy equipment including but not limited to power shovels, compressors, welding machines, air hammers, welding equipment, etc., must be immobilized in an acceptable manner and may not remain inside unless specifically approved by the Warden. Cutting torches and cutting tools in general must be securely locked as directed by the Agency and checked out as needed. No tools, small pipe, copper, or wire will remain on the site overnight unless acceptably secured as approved by the facility. Any gas powered equipment entering the secured perimeter must be equipped with locking gas caps at all times.
8. MDOC physical plant standards require Contractors/Professionals to provide a properly sized emergency generator(s) to be onsite with all associated equipment to ensure a quick install in an event where power may be disrupted to any part of the facility. Use of the MDOC regional emergency generator may be utilized when applicable and available. See contract documents for any specific generator requirements.
9. In the event of underground excavation work of any kind, ground penetrating radar must be used to document underground utilities, wires, cables, fiber optic, tunnels, structures etc. prior to any work being performed. When the ground must be disturbed within 6' an underground obstacle as mentioned above, hydro-excavation must take place.

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- a. Any damage to an underground utility, wire, cable, fiber optic, or underground structure of any kind must be reported immediately to facility staff and a plan of action made to repair the damage immediately. Any wire, cable, or fiberoptic line that has been damaged by the Contractor/Professional, must be replaced in whole. A splice is not an acceptable means for repair.
10. There will be no exchange, loaning or borrowing of tools, equipment, or manpower between Correctional Facility personnel and the Contractor/Professional.
 11. Specific Facility and MDOC requirements regarding tools & equipment will be covered during the Contractor/Professional orientation process prior to any on site activity. Topics covered include but are not limited to:
 - a. All tools and equipment within a work area which is not enclosed and secure must be disabled, secured, or removed from the facility if the entire construction crew leaves the work area/facility.
 - b. Clean up of the site shall be continuously maintained and at the end of each work shift all debris shall be removed from the site or placed into a dumpster as approved by the facility. All building and grounds shall be cleaned using a magnet or metal detector to ensure no debris remains. Demolition work above occupied building requires spotter below area being disturbed to collect potential falling debris.
 - c. Dumpsters for debris collection/recycle/removal are not allowed to be left inside the security perimeter unless approved by the Warden. In such cases the dumpster location and security will be specified by the Warden and may be required to be secured within a temporary fenced area or provided with a lockable cover. Removal of dumpsters is subject to coordination with the facility.
 - d. Tools, tool boxes, and equipment of contractors and/or workers performing services inside an institution shall be manifested, inventoried and inspected prior to entry into and exit from the institution. Staff designated to escort workers within the facility shall ensure tools are controlled with proper security and safety procedures and work activities are confined to authorized areas.
 - e. A list of Dangerous and Critical Tools will be provided to the Contractor as well as all policies and procedures dictating the security, control, and use of these of tools. Tool Control will be thoroughly covered during Contractor/Professional orientation prior to any on site activity.
 - f. Explosively Driven Tools and Ammunition will not be allowed.
 - g. Smoking, and the use and possession of tobacco products, is strictly prohibited.
 - h. It is a felony to bring any of the following items into a correctional facility or onto facility property where prisoners may have access to them without prior written permission of the Warden:
 1. Any weapon, including a pocketknife, or other implement which may be used to injure another person, or which may be used in aiding a prisoner to escape.
 2. Any alcoholic beverage or poison.
 3. Any prescription drug or controlled substance without written certification of need from a licensed physician.
 4. Personal cellular telephones and pagers are not permitted on facility grounds except in a locked motor vehicle in designated parking areas.
 5. Audio or visual recording devices, including cameras.
 12. The assigned gate through which materials, equipment and vehicles must be transported will be opened upon request between the hours as determined by agreement with facility operations.
 13. Sanitary facilities will be assigned by the Correctional Facility authorities for the use of the employees of all Contractors. The MDOC or facility may require placement of portable facilities as outlined in the specifications. If used and authorized, portable sanitary facilities shall be locked at all times as when not in use.
 14. Guards may be assigned to the working areas. They may inspect and search areas under construction at any time, including the Contractor/Professional's equipment.

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15. Areas for employee parking, tool boxes, etc., must be assigned only by Correctional Facility authorities on the site. Remove all firearms, weapons, alcoholic beverages, drugs, medicines, or explosives from vehicles before entering Facility property. Lock vehicles when not attended.
 16. Accidents - The Correctional Facility infirmary is not available to Contractor/Professional's employees.
 17. The Warden of this Correctional Facility retains the right to revise these "Special Working Conditions" as required to meet facility needs.
 18. Unless noted otherwise in the project documents, roofing work is not to occur between November 15th and April 1st each year, unless written authorization is provided to the Contractor.
 19. The MDOC will not be responsible for receiving, storing, and handling materials or equipment for a construction contractor.

APPENDIX III
SPECIAL PROJECT PROCEDURES

DEMOLITION/REMODELING PROJECT PROCEDURES

Furnish all equipment, materials, labor, and services necessary to complete all building demolition required in connection with the existing building, in order to permit the installation of new Work. The goal of the Owner is to generate the least amount of waste or debris possible. However, inevitable waste and debris that are generated shall be reused, salvaged, or recycled, and disposal in landfills shall be minimized to the extent economically feasible. The Contractor will be required to prepare waste management plan for the collection, handling, storage, transportation, and disposal of the waste generated at the construction site for the Owner's review and approval. The Contractor will be required to produce waste management progress reports.

1. Locations: Notations are made in various places on the Drawings to call attention to building demolition which is required; however, these Drawings are not intended to show every item to be removed. The Contractor and the Subcontractors for the various trades must remove the materials related to their respective trades as required to permit the construction of the new Work as shown.
2. Permits: The Contractor must secure from the appropriate agencies all required permits necessary for proper execution of the work before starting work on the project site. All fees for securing the permits must be paid by the Contractor, including all inspection costs which may be legally assessed by the Bureau of Construction Codes in accordance with the authority granted under the Public Act 1980 PA 371, as amended.
3. Enclosures: Where it is necessary to make alterations to walls, floors or roof of the existing building, the Contractor must provide and maintain dustproof partitions to separate the parts where Work is being done from the adjoining parts occupied by the State Agency. Where any parts are opened and exposed to the elements, the Contractor must provide weather tight enclosures to fully protect the structure and its contents.
4. Waste Management Plan: The management plan must address waste source identification and separation, returns, reuse and salvage, recycling, landfill options, alternatives to landfilling, materials handling procedures and transportation.
5. Preparation: Protect all existing Work that is to remain and restore in an approved manner any such Work that becomes damaged.
 - 5.1 Rubbish and debris resulting from the Work must be removed immediately from the site by the Contractor. However, any recyclable materials must be recycled; the Contractor will be required to use alternatives to landfills for waste disposal such as reuse or recycle of asphalt, bricks, concrete, masonry, plastics, paint, glass, carpet, metals, wood, drywall, insulation, and any other waste materials to the extent practical.
 - 5.2 Unless otherwise specified, the Agency will remove existing furniture, drapery tracks, draperies, window blinds, and other equipment items, which might interfere with the new construction.
6. Coordination: Demolition work, in connection with any new unit of Work, must not be commenced until all new materials required for completion of that new item of Work are at hand.
7. Waste Management Plan Progress Reports: Submit an updated report with the payment requests. The progress reports shall include:
 - a. The amount of waste sent to a landfill, tipping fees paid and the total disposal cost. Include supporting documents such as manifests, weight tickets, receipts and/or invoices.
 - b. Records for each material recycled/reused/salvaged from the project including the amount, date removed from the job site, destination, transportation cost, recycled materials, and the net cost/ savings.
 - c. Breakdown of waste by type generated to date.
 - d. Recycling/salvage/landfill rates.
 - e. Percent of waste recycled/salvaged to date.

HAZARDOUS MATERIALS PROJECT PROCEDURES

1. The Contractor must use, handle, store, dispose of, process, transport and transfer any material considered a Hazardous Material in accordance with all federal, state, and local Laws. If the Contractor encounters material reasonably believed to be a Hazardous Material and which may present a substantial danger, the Contractor must immediately stop all affected work, give written notice to the Owner of the conditions encountered, and take appropriate health and safety precautions.
2. This project has been identified by the DTMB-SFA as having a possibility of containing Hazardous Waste materials to be legally removed from the Project job site to complete the Work as described in the Proposal and Contract. If removal of friable asbestos material is required, the Contractor must contact the Air Quality Division, Department of Environment, Great Lakes, and Energy, at **(517) 284-6773**, for a permit and furnish all training, labor, materials, services, insurance, and equipment necessary to carry out the removal operations of all Hazardous Materials from the Project job site, as identified by the Scope of Work, or encountered on the Project job site, in accordance with State and Federal Hazardous Waste Codes. A Contract Change Order will be written to modify the existing Contract to pay for the additional cost.
3. Environmental Hazards (air, water, land and liquid industrial) are handled by the Waste and Hazardous Materials Division, Michigan Department of Environment, Great Lakes, and Energy (EGLE) in carrying out the requirements of the Federal Environmental Protection Agency (EPA). For general information and/or a copy of the latest regulations and publications call (517) 335-2690.
4. The Michigan Occupational Safety and Health Administration (MIOSHA) provides protection and regulations for the safety and health of workers. The Department of Licensing and Regulatory Affairs provides for the safety of workers. The Department of Community Health provides for the health of workers (517/373-3740) (TDD 517/373-3573).
 - 4.1 Contractor must post any applicable State and/or Federal government regulations at the job site in a prominent location.
 - 4.2 Contractor must be responsible for training their workers in safe work practices and in proper removal methods when encountering hazardous chemicals.
5. Applicable Regulations:
 - 5.1 Natural Resources and Environmental Protection Act – PA 451 of 1994, as amended, including Part 111 – Hazardous Waste Management, Part 121 – Liquid Industrial Waste and Part 147 – PCB compounds.
 - 5.2 RCRA, 1976 - Resource Conservation and Recovery Act: This federal statute regulates generation, transportation, treatment, storage, or disposal of hazardous wastes nationally.
 - 5.3 TSCA, 1979 – Toxic Substances Control Act: This statute regulates the generation, transportation, storage, and disposal of industrial chemicals such as PCBs.
6. Definitions: Hazardous substances are ignitable, corrosive, reactive, and/or toxic, based on their chemical characteristics.
 - 6.1 Under Federal and Michigan Law, a Small Quantity Generator of hazardous waste provides from 220 to less than 2,000 lbs./month or never accumulates 2,200 lbs. or more.
 - 6.2 A Generator size provider of hazardous waste provides 2,200 lbs. or more/month or accumulates above 2,200 lbs.
7. Disposals: To use an off-site hazardous waste disposal facility, the Contractor must use the Uniform Hazardous Waste Manifest (shipping paper). Small quantities of hazardous waste may not be disposed of in sanitary landfills used for solid waste.
8. Federal, state, and local Laws and regulations may apply to the storage, handling and disposal of Hazardous Materials and wastes at each State Agency. Contact the **Environmental Assistance Center** of the Michigan Department of Environment, Great Lakes, and Energy (EGLE) at **1-800-662-9278**, Fax to: 517-241-0673 or e-mail to: DEQ-EAD-env-assist@michigan.gov for general EGLE information including direct and referral assistance on air, water and wetlands permits; contaminated site clean-ups; underground storage tank removals and remediation; hazardous and solid waste disposal; pollution prevention and recycling; and compliance-related assistance. The Center provides businesses, municipalities, and the public with a single point of access to EGLE's environmental programs.

ASBESTOS ABATEMENT PROJECT PROCEDURES

Should this Work require the renovation or demolition of a building or structure initially constructed on or prior to 1980, the Contractor will use the attached copy of a Comprehensive Asbestos Building Survey for those portions of the building or structure being impacted and must plan his or her work to minimize disturbance of any known or assumed asbestos containing materials (ACM). In addition, if this building or structure was constructed on or prior to 1980, the Contractor's On-Site Superintendent and all Subcontractor On-Site Superintendents for trades that could potentially disturb known or assumed ACM, must, as a minimum, have and provide documentation of current Asbestos Awareness Training.

If the Comprehensive Asbestos Building Survey identifies known or assumed ACM that will potentially be disturbed as a part of the Contractor's renovation or demolition activities, the Contractor must remove, transport, and dispose of these materials at no additional cost to the Owner and prior to any other work taking place within the immediate vicinity of said material. If required, the Contractor must provide the Owner a minimum of 10 working day notification prior to the start of any asbestos abatement activities with abatement in occupied buildings being completed even if they will be conducted during off hours (nights, weekends, and state holidays).

If the Contractor encounters a suspected ACM that was not previously identified within the Comprehensive Asbestos Building Survey, the Contractor must immediately stop all affected work, give written notice to the Owner of the conditions encountered, and take appropriate health and safety precautions. If, after providing Owner notification, the Contractor is directed to sample and/or remove the suspected ACM in question, a Contract Change Order will be written to modify the existing Contract to pay for the additional cost. Any abatement shall be completed in accordance with the requirements of this Section.

If removal of ACM is required, removal must be completed by a contractor currently licensed to remove asbestos by the State of Michigan, Department of Licensing and Regulatory Affairs (DLARA) Asbestos Program and abatement must be performed in accordance with all federal, state, and local Laws and Regulations. Prior to commencing any asbestos abatement activities, the licensed abatement contractor must submit, as required by Federal, State and Local Laws and Regulations, a "Notification of Intent to Renovate/Demolish" to both the State of Michigan, Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division and to the DLARA, Asbestos Program, to comply with National Emission Standards for Hazardous Air Pollutants (NESHAP), and the Clean Air Act (CAA). All regulated ACM must be disposed of at an approved Type II (general refuse) landfill and must be in leak-tight wrapping or containers. ACM that is non friable and is not in poor condition or will not become regulated ACM at any time can be disposed of in a Type III (construction debris) landfill.

At the completion of each abatement activity, the Contractor must perform clearance testing in accordance with National Institute for Occupational Safety and Health (NIOSH) 582 "Sampling and Evaluating Airborne Asbestos Dust". All air samples shall indicate concentrations of less than 0.01 fibers/cc for clearance to be met. Clearance testing shall be performed by a third-party Asbestos Consultant. The Asbestos Consultant selected by the Contractor shall be experienced and knowledgeable about the methods for asbestos air sampling and be able to select representative numbers and locations of samples. It is mandatory that the Asbestos Consultant's on-site hygienist performing sampling and analysis have certification that he/she has passed a NIOSH 582 or equivalent course.

The NESHAP asbestos regulations, notification form, guidelines and fact sheets are available on EGLE's web site www.michigan.gov/egle under heading Air; then click on Compliance; then click on Asbestos NESHAP Program. For guidelines on submitting notifications pursuant to the Asbestos Contractors Licensing Act, contact the DLARA, Occupational Health Division, Asbestos Program at (517) 322-1320 or visit DLARA's web site www.michigan.gov/asbestos.

LEAD ABATEMENT PROJECT PROCEDURES

Should this Work require the renovation or demolition of a building or structure, the workers are assumed to be exposed to lead or materials containing lead above acceptable levels until proven otherwise through personal air sampling and analysis. The Contractor shall take all steps necessary to assure that his/her employees, are not exposed to lead at concentrations greater than the Permissible Exposure Limit as per the State of Michigan Department of Licensing and Regulatory Affairs Occupational Health Standards Part 603 "Lead Exposure in Construction". In addition, the Contractor shall convey this same requirement to all subcontractors that may be under his/her control.

The employer shall comply with the Michigan Lead Abatement Act, as amended, and the Lead Hazard Control rules and must communicate information concerning lead hazards according to the requirements of Michigan Occupational Safety and Health Administration (MIOSHA) Part 603 and the Occupational Safety and Health Administration's (OSHA's) Hazard Communication Standard for the construction industry, 29 CFR 1926.59, including but not limited to safety equipment (e.g. personal fit-tested and approved respirators and protective clothing), worker rotation (on a short-cycle and regular basis), working practices (e.g. sanding, cutting, grinding, abraded, burning and heat-gun stripping of lead based paint are not allowed), the requirements concerning warning signs and labels, Safety Data Sheets (SDS), and employee information and training. Employers shall comply with the requirements of 29 CFR 1926.62(l) - Employee Information and Training.

If lead or materials containing lead will be disturbed as a part of the work to be performed, the Contractor must remove, transport, and dispose of these materials at no additional cost to the Owner and prior to any other work taking place within the immediate vicinity of said material. The Contractor must provide the Owner a minimum 10 working day notification prior to the start of any lead abatement activities with abatement in occupied buildings being completed even if they will be conducted during off hours (nights, weekends, and state holidays). Abatement is defined as an activity specifically designed to permanently remove lead paint, lead-contaminated dust or other lead containing materials, the installation of a permanent enclosure or encapsulation of lead paint or other lead containing materials, the replacement of lead-painted surfaces or fixtures, the removal or covering of lead-contaminated soil, and any preparation, cleanup, disposal, and post-abatement clearance testing associated with these activities. Renovation, remodeling, landscaping, or other activity, that is not designed to permanently eliminate lead paint hazards, but is instead designed to repair, restore, or remodel a structure, or housing unit even though the activity may incidentally result in a reduction or elimination of a lead paint hazard is not considered abatement.

If abatement of lead or materials containing lead is required, abatement must be completed by a qualified Lead Abatement Contractor. In addition, Specifications for the Lead Abatement should be based upon a Lead Inspection/Risk Assessment report. The Lead Inspection/Risk Assessment report and clearance testing upon completion should be performed by a Certified Inspector or Risk Assessor. Lead abatement including clearance testing shall be performed in accordance with the State of Michigan, Lead Abatement Act, Part 54A Lead Abatement and with all other federal, state, and local Laws and Regulations that may apply.

For additional information about certifications, guidance, and regulations for lead hazard control activities, visit www.michigan.gov/lead.

APPENDIX IV
HAZARDOUS MATERIALS BUILDING REPORT

March 18, 2025

Sent Via Electronic Mail

Mr. Louis Meyette, PE, Senior Project Manager
OHM Advisors
424 Hancock Street
Hancock, Michigan 49930

Re: *Summary Report* – Professional Industrial Hygiene Consulting and Technical Services to
Conduct Limited Asbestos Sampling in Alger, Michigan
TriMedia Project Number 2025-0520

Dear Mr. Meyette:

TriMedia Environmental & Engineering Services, Inc. (TriMedia) has prepared this correspondence to summarize results of the Limited Asbestos Sampling at Alger Correctional Facility. The intent of this information and data is to assist in identifying hazardous materials related to proposed renovation activities for a door and window upgrade project at the site. This correspondence also includes a summary of analytical laboratory results.

ASBESTOS SURVEY

TriMedia was on-site on March 6, 2025 to conduct sampling to identify the presence of asbestos-containing building materials (ACBM) within identified areas at the facility likely to be impacted during planned window and door upgrades. The assessment is intended to identify building contaminants that, if mismanaged during renovation activities, could pose an environmental or health and safety concern.

Alger Correctional Facility was constructed in 1990. Buildings constructed after 1978 do not need to be tested for lead containing paint per Michigan regulation. TriMedia did not sample paint as part of the assessment.

TriMedia reviewed historical sampling data from May 26, 2022, March 22, 2023, and collected a total of 20 samples (consisting of 22 layers) of asbestos-containing materials to be submitted for laboratory analysis. Each suspect asbestos-containing material sampled was containerized in a laboratory-supplied sealable bag; labeled with a material description, sample location, and a unique sample number; and, shipped under chain of custody to EMSL Analytical, Inc., (EMSL) in Indianapolis, Indiana for analysis under EPA Method 600/R-93/116 utilizing polarized light microscopy techniques. Historical sampling tables and analytical results have been enclosed for your records.

ASBESTOS RESULTS

Asbestos was not detected at regulated levels in the sampled materials.

Regional Offices

Michigan

Wisconsin

Montana

North Dakota

Arizona

North Carolina

Complete analytical laboratory results have been enclosed for your records. Sampled materials, locations, and analytical results have been summarized in Table 1: Materials Sampled and Found to Not Contain Asbestos.

SUMMARY OF FINDINGS AND RECOMMENDATIONS

- **Historical samples and sampled materials as part of this assessment returned analytical results of none detected for asbestos.**
- The buildings are constructed post 1978 and are not required to be sampled for lead containing paint.
- No other hazardous materials were observed in the planned renovations areas during the inspection.
- Building materials generally will not meet the definition of hazardous waste when handled appropriately.

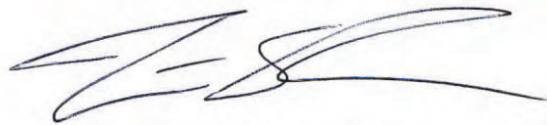
TriMedia made every reasonable attempt to access all areas of the buildings, however, as with all hazardous material assessments, there exists the potential for discovering additional suspect materials not addressed by this report during demolition activities. In the event suspect materials are identified during on-site activities, they must be sampled before being disturbed.

It is hoped this *Summary Report* meets your needs and expectations. Should you have any questions regarding this correspondence, or the project in general, please do not hesitate to contact the undersigned at (906) 228-5125 or via email at tsorensen@trimediaee.com. On behalf of the professional staff at TriMedia, thank you for the opportunity to be of service to OHM Advisors.

Sincerely,
TriMedia Environmental & Engineering Services, LLC



John Schuitema
Staff Industrial Hygienist
Michigan Asbestos Inspector A51781



Tim Sorensen, ASP
Senior Industrial Hygienist
Michigan Asbestos Inspector #A43037

JFS/jet/trs

Enclosures: Table 1: Materials Sampled and Found to Not Contain Asbestos
Historical Sampling Tables
EMSL Analytical Reports with COC

cc: TriMedia Project File 2025-0520

Limitations: Information presented in this Summary Report was prepared for OHM and its authorized parties only. Any use a third party makes of this report, or any reliance on or decisions to be made based upon, are the responsibility of such third party.

Table 1 Materials Sampled and Found to Not Contain Asbestos

OHM Advisors

Alger County Correctional Facility Window and Door Replacement Project

TriMedia 2025-0520

Sample Date: March 6, 2025

Sample # (Layers)*	Location Details		Material/Description
1A	Aspen	Door	Caulk - White
1B	Cedar	Door	Caulk - White
2A (2)	Aspen	Flooring	12x12 Floor Tile and Mastic
2B (2)	Cedar	Flooring	12x12 Floor Tile and Mastic
3A	Aspen	Exterior Door	Caulk - Gray
3B	Cedar	Exterior Door	Caulk - Gray
4A	200	Window	Caulk - White
4B	200	Window	Caulk - White
5A	Spruce	Door	Caulk - White
5B	Spruce	Door	Caulk - White
6A	Spruce	Tile	Grout - Gray
6B	Spruce	Tile	Grout - Gray
7A	100	Door	Caulk - Brown
7B	100	Door	Caulk - Brown
8A	500	Interior Door	Caulk - Gray
8B	500	Interior Door	Caulk - Gray
9A	500	Exterior Door	Caulk - Dark Gray
9B	500	Exterior Door	Caulk - Dark Gray
10A	Guard Tower	Tower Door	Caulk - White
10B	Guard Tower	Tower Door	Caulk - White

*Material layers separated in laboratory

Historical Sample Results

Table 1 Materials Sampled and Found to Not Contain Asbestos

OHM Advisors
Alger County Correctional Facility
TriMedia 2022-1280
Sample Date: 5/26/2022

Sample # (Layers)	Location Details		Material/Description
001	Back Stairwell	Wall Expansion Joint	Caulk
002	Back Stairwell	Floor	Concrete Floor
003 (2)	Back Stairwell	Wall	CMU and Mortar
004 (2)	Back Stairwell	Wall Expansion Joint	Expansion joint foam
005 (2)	Exterior	Wall	Brick and Mortar
006 (2)	Exterior	Between brick and block	Blue board and glue

Historical Sample Results

Table 1 Materials Sampled and Found to Not Contain Asbestos

TriMedia Project: 2023-0620

Sample # (Layers)	Location Details	Material/Description
BU-001	Birch Upper Level	Drywall
BU-002	Birch Upper Level	Mastic 1x1 Ceiling Tile
BU-003	Birch Upper Level	Tar Paper between CMU Block Expansion
BU-004	Birch Upper Level	1x1 Ceiling Tile
BU-005	Birch Upper Level	CMU Block
BU-006	Birch Upper Level	CMU Mortar
BU-007 (2)	Birch Upper Level	Caulk (ceiling in cell)
BL-01	Birch Lower Level	Replacement 1x1 CT
BL-02	Birch Lower Level	Drywall mud in Porter closer corner
AU-01	Aspen Upper Level	CMU Block
AU-02	Aspen Upper Level	CMU Mortar
AU-03	Aspen Upper Level	1x1 Ceiling Tile
AU-04	Aspen Upper Level	Caulk between some 1x1 Tile for repairs
AU-05	Aspen Upper Level	Drywall
AU-06	Aspen Upper Level	Mastic for 1x1 CT
AU-07	Aspen Upper Level	Caulk and Drywall mud
AL-01	Aspen Lower Level	Replacement 1x1 CT
CU-01	Cedar Upper Level	1x1 Ceiling Tile
CU-02	Cedar Upper Level	Mastic for 1x1 cCT
CU-03	Cedar Upper Level	CMU /Mortar
CU-04	Cedar Upper Level	Drywall
CU-05	Cedar Upper Level	Cuauk and Drywall mud
CL-01	Cedar Lower Level	Replacement 1x1 CT
MU-01	Maple Upper Level	Mastic for 1x1 CT
MU-02	Maple Upper Level	1x1 Ceiling Tile
MU-03	Maple Upper Level	Drywall
MU-04	Maple Upper Level	CMU/Mortar
MU-05	Maple Upper Level	Caulk and Drywall mud
ML-01	Maple Lower Level	Replacement 1x1 CT
PU-01	Pine Upper Level	1x1 Ceiling Tile
PU-02	Pine Upper Level	Mastic for 1x1 CT
PU-03	Pine Upper Level	CMU/Mortar
PU-04	Pine Upper Level	Drywall
PU-05	Pine Upper Level	Caulk and Drywall mud
PL-01	Pine Lower Level	Replacement 1x1 CT
SL-01	Spruce Lower Level	CMU/Mortar
SL-02	Spruce Lower Level	Mastic for 1x1 CT
SL-03	Spruce Lower Level	Drywall Tape and Mud
SL-04	Spruce Lower Level	1x1 Ceiling Tile
SL-05	Spruce Lower Level	Replacement 1x1 CT
300-01	300 Building	1x1 Ceiling Tile
300-02	300 Building	Mastic for 1x1 CT
300-03	300 Building	CMU/Mortar
300-04	300 Building	Replacement 1x1 CT

Table 1 Materials Sampled and Found to Not Contain Asbestos

TriMedia Project: 2023-0620

Sample # (Layers)	Location Details	Material/Description
300-05	300 Building	Drywall
300-06	300 Building	Fire Caulk
200-01	200 Building	Drywall
200-02	200 Building	Drywall/mud
200-03	200 Building	CMU/Mortar
200-04	200 Building	Drywall Mud
Admin-01	Admin Building	1x1 Ceiling Tile
Admin-02 (5)	Admin Building	Drywall Tape and Mud
Admin-03	Admin Building	2x2 Ceiling Tile
Admin-04	Admin Building	Concrete Caulk
Admin-05 (2)	Admin Building	Mastic for 1x1 CT
Admin-06 (2)	Admin Building	CMU/Mortar



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: 162502882
Customer ID: TRIC50
Customer PO:
Project ID:

Attention: Tim Sorensen
TriMedia Environmental & Engineering Svs
830 W. Washington St
Marquette, MI 49855

Phone: (906) 228-5125
Fax: (906) 228-5126
Received Date: 03/07/2025 9:54 AM
Analysis Date: 03/14/2025
Collected Date: 03/06/2025

Project: 2025-0520/Alger County CF

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		Asbestos
			% Fibrous	% Non-Fibrous	% Type
1A <small>162502882-0001</small>	Aspen - Door Caulk White	White Non-Fibrous Homogeneous	HA: 1	100% Non-fibrous (Other)	None Detected
1B <small>162502882-0002</small>	Cedar - Door Caulk White	White Non-Fibrous Homogeneous	HA: 1	100% Non-fibrous (Other)	None Detected
2A-Floor Tile <small>162502882-0003</small>	Aspen - 12x12 Floor Tile	Tan/White Non-Fibrous Homogeneous	HA: 2	100% Non-fibrous (Other)	None Detected
2A-Mastic <small>162502882-0003A</small>	Aspen - 12x12 Floor Tile	Tan Non-Fibrous Homogeneous	HA: 2	100% Non-fibrous (Other)	None Detected
2B-Floor Tile <small>162502882-0004</small>	Cedar - 12x12 Floor Tile	White Non-Fibrous Homogeneous	HA: 2	100% Non-fibrous (Other)	None Detected
2B-Mastic <small>162502882-0004A</small>	Cedar - 12x12 Floor Tile	Tan Non-Fibrous Homogeneous	HA: 2	100% Non-fibrous (Other)	None Detected
3A <small>162502882-0005</small>	Aspen - Exterior Door Caulk - Gray	Gray Non-Fibrous Homogeneous	HA: 3	100% Non-fibrous (Other)	None Detected
3B <small>162502882-0006</small>	Cedar - Exterior Door Caulk - Gray	Gray Non-Fibrous Homogeneous	HA: 3	100% Non-fibrous (Other)	None Detected
4A <small>162502882-0007</small>	200 - Window Caulk - White	White Non-Fibrous Homogeneous	HA: 4	100% Non-fibrous (Other)	None Detected
4B <small>162502882-0008</small>	200 - Window Caulk - White	White Non-Fibrous Homogeneous	HA: 4	100% Non-fibrous (Other)	None Detected
5A <small>162502882-0009</small>	Spruce - Door Caulk - White	White Non-Fibrous Homogeneous	HA: 5	100% Non-fibrous (Other)	None Detected
5B <small>162502882-0010</small>	Spruce - Door Caulk - White	White Non-Fibrous Homogeneous	HA: 5	100% Non-fibrous (Other)	None Detected

Initial report from: 03/14/2025 13:15:38



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: 162502882
Customer ID: TRIC50
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		Asbestos
			% Fibrous	% Non-Fibrous	% Type
6A <i>162502882-0011</i>	Spruce - Tile Grout - Gray	Gray Non-Fibrous Homogeneous	5% Cellulose	20% Quartz 75% Non-fibrous (Other)	None Detected
			HA: 6		
6B <i>162502882-0012</i>	Spruce - Tile Grout - Gray	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
			HA: 6		
7A <i>162502882-0013</i>	100 - Door Caulk - Brown	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 7		
7B <i>162502882-0014</i>	100 - Door Caulk - Brown	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 7		
8A <i>162502882-0015</i>	500 - Interior Door Caulk - Gray	Brown/Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 8		
8B <i>162502882-0016</i>	500 - Interior Door Caulk - Gray	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 8		
9A <i>162502882-0017</i>	500 - Exterior Door Caulk - Dark Gray	Gray/Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 9		
9B <i>162502882-0018</i>	500 - Exterior Door Caulk - Dark Gray	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 9		
10A <i>162502882-0019</i>	Guard Tower - Tower Door Caulk - White	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 10		
10B <i>162502882-0020</i>	Guard Tower - Tower Door Caulk - White	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 10		

Analyst(s)
Maggie Hayden (11)
Ross Matlock (11)

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: 03/14/2025 13:15:38



EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING



2QGY-EY6Y-6UEQ

102507882

Client Information
TriMedia Environmental &
Engineering Svcs
Marquette, MI
TRIC50

Project Overview
Client OHM
PO Number Alger County CF
Project Name 2025-0520
Project ID TRIC50
Bill To Tim Sorensen
Report To Contact tsorensen@trimediae.com
Report To Email
Special Instructions

Project Site
Building Type Commercial
Address Munising
City MI
State MI
Zip 49855

Testing Laboratory
Indianapolis
Indianapolis, IN 46250

Asbestos Bulk

HA	Sample ID	Material	Location	Date/Time Collected	Test Method	TAT	Notes
1	1A	Door Caulk White	Aspen	3/6/2025 3:43 PM	PLM EPA 600	1 Week	
1	1B	Door Caulk White	Cedar	3/6/2025 3:43 PM	PLM EPA 600	1 Week	
2	2A	12x12 Floor Tile	Aspen	3/6/2025 3:43 PM	PLM EPA 600	1 Week	
2	2B	12x12 Floor Tile	Cedar	3/6/2025 3:43 PM	PLM EPA 600	1 Week	
3	3A	Exterior Door Caulk - Gray	Aspen	3/6/2025 3:43 PM	PLM EPA 600	1 Week	
3	3B	Exterior Door Caulk - Gray	Cedar	3/6/2025 3:43 PM	PLM EPA 600	1 Week	
4	4A	Window Caulk - White	200	3/6/2025 3:43 PM	PLM EPA 600	1 Week	
4	4B	Window Caulk - White	200	3/6/2025 3:43 PM	PLM EPA 600	1 Week	
5	5A	-Door Caulk - White	Spruce	3/6/2025 3:43 PM	PLM EPA 600	1 Week	
5	5B	Door Caulk - White	Spruce	3/6/2025 3:43 PM	PLM EPA 600	1 Week	
6	6A	Tile Grout - Gray	Spruce	3/6/2025 3:43 PM	PLM EPA 600	1 Week	
6	6B	Tile Grout - Gray	Spruce	3/6/2025 3:43 PM	PLM EPA 600	1 Week	
7	7A	Door Caulk - Brown	100	3/6/2025 3:43 PM	PLM EPA 600	1 Week	
7	7B	Door Caulk - Brown	100	3/6/2025 3:43 PM	PLM EPA 600	1 Week	
8	8A	Interior Door Caulk - Gray	500	3/6/2025 3:43 PM	PLM EPA 600	1 Week	



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2QGY-EY6Y-6UEQ

HA	Sample ID	Material	Location	Date/Time Collected	Test Method	TAT	Notes
	8B	Interior Door Caulk - Gray	500	3/6/2025 3:43 PM	PLM EPA 600	1 Week	
	9A	Exterior Door Caulk - Dark Gray	500	3/6/2025 3:43 PM	PLM EPA 600	1 Week	
	9B	Exterior Door Caulk - Dark Gray	500	3/6/2025 3:43 PM	PLM EPA 600	1 Week	
	10A	Tower Door Caulk - White	Guard Tower	3/6/2025 3:43 PM	PLM EPA 600	1 Week	
	10B	Tower Door Caulk - White	Guard Tower	3/6/2025 3:43 PM	PLM EPA 600	1 Week	

[Signature]

[Signature]

Sampled By / Date

Mar 6, 2025 Relinquished By / Date

Mar 6, 2025

[Signature] 3/7/25 9:54 AM ~~*[Signature]*~~

Received (Lab) / Date



EMSL Analytical, Inc.

15111 Northville Rd Plymouth, MI 48170

Tel/Fax: (734) 668-6810 / (734) 668-8532

<http://www.EMSL.com> / annarborlab@emsl.com

EMSL Order: 082201239

Customer ID: TRIC50

Customer PO: 2022-1280

Project ID:

Attention: Tim Sorensen
TriMedia Environmental & Engineering Svs
830 W. Washington St
Marquette, MI 49855

Phone: (906) 228-5125

Fax: (906) 228-5126

Received Date: 05/27/2022 9:50 AM

Analysis Date: 05/27/2022

Collected Date:

Project: 2022-1280

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
001 <i>082201239-0001</i>	Caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
002 <i>082201239-0002</i>	Concrete	Gray Non-Fibrous Homogeneous		5% Quartz 95% Non-fibrous (Other)	None Detected
003 <i>082201239-0003</i>	CMU	Gray Non-Fibrous Homogeneous		4% Quartz 96% Non-fibrous (Other)	None Detected
003 <i>082201239-0003A</i>	Mortar	Gray Non-Fibrous Homogeneous		6% Quartz 94% Non-fibrous (Other)	None Detected
004 <i>082201239-0004</i>	Caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
004 <i>082201239-0004A</i>	Foam	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
005 <i>082201239-0005</i>	Brick	Red Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
005 <i>082201239-0005A</i>	Mortar	Gray Non-Fibrous Homogeneous	<1% Cellulose	6% Quartz 94% Non-fibrous (Other)	None Detected
006 <i>082201239-0006</i>	Foam	Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
006 <i>082201239-0006A</i>	Glue	Clear Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Analyst(s)

Ashton Bullock (10)

Ryan Shannon, 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. Plymouth, MI NVLAP Lab Code 101048-4

Initial report from: 05/27/2022 17:17:14

Sample ID	Room ID	Location Description	Material Description	Date
001	Back Stairwell	Wall expansion joint	Caulk	5/26/2022
002	Back Stairwell	floor	Concrete floor	5/26/2022
003	Back Stairwell	wall	Cmu and mortar	5/26/2022
004	Back Stairwell	Wall expansion joint	Expansion joint foam	5/26/2022
005	Exterior	Wall	Brick and mortar	5/26/2022
006	Exterior	Between brick and block	Blue board and glue	5/26/2022

APB VPS 5/27/22 9:50



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EMSL Order: 082300645

Customer ID: TRIC50

Customer PO: 2023-0620

Project ID:

Attention: Tim Sorensen
TriMedia Environmental & Engineering Svs
830 W. Washington St
Marquette, MI 49855

Phone: (906) 228-5125

Fax: (906) 228-5126

Received Date: 03/24/2023 12:35 PM

Analysis Date: 03/29/2023

Collected Date:

Project: 2023-0620

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		Asbestos
			% Fibrous	% Non-Fibrous	% Type
BU-001 <small>082300645-0001</small>	Drywall	Brown/White Fibrous Heterogeneous	3% Cellulose <1% Glass	<1% Quartz 97% Non-fibrous (Other)	None Detected
BU-002 <small>082300645-0002</small>	Ceiling Tile	White Fibrous Homogeneous	75% Min. Wool	25% Non-fibrous (Other)	None Detected
BU 002 <small>082300645 0002A</small>	Glue Pod	Brown Non-Fibrous Homogeneous	1% Cellulose	100% Non fibrous (Other)	None Detected
BU-003 <small>082300645-0003</small>	Tar Paper	Brown Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected
BU-004 <small>082300645-0004</small>	Ceiling Tile	Gray/White Fibrous Heterogeneous	<1% Cellulose 80% Min. Wool	20% Non-fibrous (Other)	None Detected
BU-005 <small>082300645-0005</small>	CMU Block	Gray Non-Fibrous Homogeneous		6% Quartz 94% Non-fibrous (Other)	None Detected
BU-006 <small>082300645-0006</small>	Mortar	Gray Non-Fibrous Homogeneous	<1% Cellulose	7% Quartz 93% Non-fibrous (Other)	None Detected
BU 007 <small>082300645 0007</small>	Joint Compound	White Non-Fibrous Homogeneous		2% Mica 98% Non-fibrous (Other)	None Detected
BU-007 <small>082300645-0007A</small>	Caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
BL-01 <small>082300645-0008</small>	Ceiling Tile	Gray/White Fibrous Heterogeneous	30% Cellulose 30% Min. Wool	30% Perlite 10% Non-fibrous (Other)	None Detected
BL-02 <small>082300645-0009</small>	Drywall Mud	White Non-Fibrous Homogeneous		6% Mica 94% Non-fibrous (Other)	None Detected
AU-01 <small>082300645-0010</small>	Block	Gray Non-Fibrous Homogeneous		6% Quartz 94% Non-fibrous (Other)	None Detected
AU 02 <small>082300645 0011</small>	Mortar	Gray Non-Fibrous Homogeneous		5% Quartz 95% Non-fibrous (Other)	None Detected
AU-03 <small>082300645-0012</small>	Ceiling Tile	Gray/White Fibrous Heterogeneous	60% Min. Wool	28% Perlite 12% Non-fibrous (Other)	None Detected
AU-04 <small>082300645-0013</small>	Caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
AU-05 <small>082300645-0014</small>	Drywall	Brown/White Fibrous Heterogeneous	2% Cellulose <1% Glass	98% Non-fibrous (Other)	None Detected

Initial report from: 03/29/2023 14:19:24



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<http://www.EMSL.com> / annarborlab@emsl.com

EMSL Order: 082300645
Customer ID: TRIC50
Customer PO: 2023-0620
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		Asbestos
			% Fibrous	% Non-Fibrous	% Type
AU-06 <i>082300645-0015</i>	Mastic	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
AU-07 <i>082300645-0016</i>	Caulk and Drywall Mud	White Non-Fibrous Homogeneous	<1% Cellulose	4% Mica 96% Non-fibrous (Other)	None Detected
AL-01 <i>082300645-0017</i>	Ceiling Tile	Gray/White Fibrous Heterogeneous	30% Cellulose 30% Min. Wool	30% Perlite 10% Non-fibrous (Other)	None Detected
CU-01 <i>082300645-0018</i>	Ceiling Tile	Gray/White Fibrous Heterogeneous	<1% Cellulose 68% Min. Wool	30% Perlite 2% Non-fibrous (Other)	None Detected
CU-02 <i>082300645-0019</i>	Ceiling Tile	Brown/White Fibrous Heterogeneous	<1% Cellulose <1% Glass	<1% Quartz 100% Non-fibrous (Other)	None Detected
CU-02 <i>082300645-0019A</i>	Glue Pod	Brown Non-Fibrous Homogeneous	<1% Glass	100% Non-fibrous (Other)	None Detected
CU-03 <i>082300645-0020</i>	Cinderblock	Gray Non-Fibrous Homogeneous		5% Quartz 95% Non-fibrous (Other)	None Detected
CU-03 <i>082300645-0020A</i>	Mortar	Gray Non-Fibrous Homogeneous		8% Quartz 92% Non-fibrous (Other)	None Detected
CU-04 <i>082300645-0021</i>	Drywall	Brown/White Fibrous Heterogeneous	2% Cellulose <1% Glass	<1% Quartz 98% Non-fibrous (Other)	None Detected
CU-05 <i>082300645-0022</i> <i>No drywall mud present.</i>	Caulk and Drywall Mud	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
CL-01 <i>082300645-0023</i>	Ceiling Tile	Gray/White Fibrous Heterogeneous	30% Cellulose 30% Min. Wool	30% Perlite 10% Non-fibrous (Other)	None Detected
MU-01 <i>082300645-0024</i>	Ceiling Tile	Gray/White Fibrous Heterogeneous	<1% Cellulose 68% Min. Wool	30% Perlite 2% Non-fibrous (Other)	None Detected
MU-01 <i>082300645-0024A</i>	Glue Pod	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
MU-02 <i>082300645-0025</i>	Ceiling Tile	Gray/White Fibrous Heterogeneous	<1% Cellulose 60% Min. Wool	35% Perlite 5% Non-fibrous (Other)	None Detected
MU-03 <i>082300645-0026</i>	Drywall	Brown/White Fibrous Heterogeneous	4% Cellulose <1% Glass	96% Non-fibrous (Other)	None Detected
MU-04 <i>082300645-0027</i>	Cinderblock	Gray Non-Fibrous Homogeneous		5% Quartz 95% Non-fibrous (Other)	None Detected
MU-04 <i>082300645-0027A</i>	Mortar	Gray Non-Fibrous Homogeneous	<1% Cellulose	5% Quartz 95% Non-fibrous (Other)	None Detected
MU-05 <i>082300645-0028</i> <i>No caulk present.</i>	Caulk and Drywall Mud	White Non-Fibrous Homogeneous		5% Mica 95% Non-fibrous (Other)	None Detected

Initial report from: 03/29/2023 14:19:24



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EMSL Order: 082300645
Customer ID: TRIC50
Customer PO: 2023-0620
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		Asbestos
			% Fibrous	% Non-Fibrous	% Type
ML-01 <small>082300645-0029</small>	Ceiling Tile	Gray/White Fibrous Heterogeneous	<1% Cellulose 68% Min. Wool	30% Perlite 2% Non-fibrous (Other)	None Detected
PU-01 <small>082300645-0030</small>	Ceiling Tile	Gray/White Fibrous Heterogeneous	<1% Cellulose 70% Min. Wool	30% Perlite	None Detected
PU-02 <small>082300645-0031</small>	Ceiling Tile	Brown/White Fibrous Heterogeneous	2% Cellulose <1% Glass	<1% Quartz 98% Non-fibrous (Other)	None Detected
PU-02 <small>082300645-0031A</small>	Glue Pod	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
PU-03 <small>082300645-0032</small>	Cinderblock	Gray Non-Fibrous Homogeneous		5% Quartz 95% Non-fibrous (Other)	None Detected
PU-03 <small>082300645-0032A</small>	Mortar	Gray Non-Fibrous Homogeneous	<1% Cellulose	6% Quartz 94% Non-fibrous (Other)	None Detected
PU-04 <small>082300645-0033</small>	Drywall	Brown/White Fibrous Heterogeneous	3% Cellulose <1% Glass	<1% Quartz 97% Non-fibrous (Other)	None Detected
PU-05 <small>082300645-0034</small>	Caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
PU-05 <small>082300645-0034A</small>	Joint Compound	White Non-Fibrous Homogeneous		2% Mica 98% Non-fibrous (Other)	None Detected
PL-01 <small>082300645-0035</small>	Ceiling Tile	Gray/White Fibrous Heterogeneous	30% Cellulose 30% Min. Wool	30% Perlite 10% Non-fibrous (Other)	None Detected
SL-01 <small>082300645-0036</small>	Cinderblock	Gray Non-Fibrous Homogeneous		6% Quartz 94% Non-fibrous (Other)	None Detected
SL-01 <small>082300645-0036A</small>	Mortar	Gray Non-Fibrous Homogeneous		8% Quartz 92% Non-fibrous (Other)	None Detected
SL-02 <small>082300645-0037</small>	Ceiling Tile	Brown/White Fibrous Heterogeneous	6% Cellulose <1% Glass	94% Non-fibrous (Other)	None Detected
SL-02 <small>082300645-0037A</small>	Glue	Tan Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
SL-03 <small>082300645-0038</small>	Joint Compound	White Non-Fibrous Homogeneous		30% Ca Carbonate 5% Mica 65% Non-fibrous (Other)	None Detected
SL-03 <small>082300645-0038A</small>	Tape	Beige Fibrous Homogeneous	98% Cellulose	2% Non-fibrous (Other)	None Detected
SL-03 <small>082300645-0038B</small>	Drywall	Brown/Gray Fibrous Heterogeneous	5% Cellulose <1% Glass	95% Non-fibrous (Other)	None Detected
SL-04 <small>082300645-0039</small>	Ceiling Tile	Beige Fibrous Homogeneous	40% Min. Wool	50% Perlite 10% Non-fibrous (Other)	None Detected
SL-05 <small>082300645-0040</small>	Ceiling Tile	Gray/White Fibrous Heterogeneous	30% Cellulose 30% Min. Wool	30% Perlite 10% Non-fibrous (Other)	None Detected

Initial report from: 03/29/2023 14:19:24



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Customer ID: TRIC50
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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

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
300-01 <small>082300645-0041</small>	Ceiling Tile	Gray/White Fibrous Heterogeneous	20% Cellulose 60% Min. Wool	10% Perlite 10% Non-fibrous (Other)	None Detected
300-02 <small>082300645-0042</small>	Ceiling Tile	Brown/Gray Fibrous Heterogeneous	4% Cellulose <1% Glass	96% Non-fibrous (Other)	None Detected
300-02 <small>082300645-0042A</small>	Glue	Brown Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
300-03 <small>082300645-0043</small>	Cinderblock	Gray Non-Fibrous Homogeneous		5% Quartz 95% Non-fibrous (Other)	None Detected
300-03 <small>082300645-0043A</small>	Mortar	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
300-04 <small>082300645-0044</small>	Ceiling Tile	Gray/White Fibrous Heterogeneous	30% Cellulose 30% Min. Wool	30% Perlite 10% Non-fibrous (Other)	None Detected
300-05 <small>082300645-0045</small>	Drywall	Brown/Gray Fibrous Heterogeneous	5% Cellulose <1% Glass	95% Non-fibrous (Other)	None Detected
300-06 <small>082300645-0046</small>	Caulk	Red Non-Fibrous Homogeneous	8% Glass	92% Non-fibrous (Other)	None Detected
200-01 <small>082300645-0047</small>	Joint Compound	White Non-Fibrous Homogeneous		30% Ca Carbonate 4% Mica 66% Non-fibrous (Other)	None Detected
200-01 <small>082300645-0047A</small>	Drywall	Brown/Gray Fibrous Heterogeneous	4% Cellulose <1% Glass	96% Non-fibrous (Other)	None Detected
200-02 <small>082300645-0048</small>	Drywall Mud	White Non-Fibrous Homogeneous		30% Ca Carbonate 6% Mica 64% Non-fibrous (Other)	None Detected
200-03 <small>082300645-0049</small>	Cinderblock	Gray Non-Fibrous Homogeneous		6% Quartz 94% Non-fibrous (Other)	None Detected
200-03 <small>082300645-0049A</small>	Mortar	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
200-04 <small>082300645-0050</small>	Drywall Mud	White Non-Fibrous Homogeneous		30% Ca Carbonate 5% Mica 65% Non-fibrous (Other)	None Detected
ADMIN-01 <small>082300645-0051</small>	Ceiling Tile	Beige Fibrous Homogeneous	40% Min. Wool	50% Perlite 10% Non-fibrous (Other)	None Detected
ADMIN-02 <small>082300645-0052</small>	Joint Compound A	White Non-Fibrous Homogeneous		30% Ca Carbonate 4% Mica 66% Non-fibrous (Other)	None Detected
ADMIN-02 <small>082300645-0052A</small>	Joint Compound B	Beige Non-Fibrous Homogeneous	4% Wollastonite	6% Mica 90% Non-fibrous (Other)	None Detected
ADMIN-02 <small>082300645-0052B</small>	Tape	Beige Fibrous Homogeneous	98% Cellulose	2% Non-fibrous (Other)	None Detected
ADMIN-02 <small>082300645-0052C</small>	Joint Compound C	White Non-Fibrous Homogeneous		30% Ca Carbonate 5% Mica 65% Non-fibrous (Other)	None Detected

Initial report from: 03/29/2023 14:19:24



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EMSL Order: 082300645
Customer ID: TRIC50
Customer PO: 2023-0620
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		Asbestos
			% Fibrous	% Non-Fibrous	% Type
ADMIN-02 <i>082300645-0052D</i>	Drywall	Brown/Gray Fibrous Heterogeneous	5% Cellulose <1% Glass	95% Non-fibrous (Other)	None Detected
ADMIN-03 <i>082300645-0053</i>	Ceiling Tile	Gray/White Fibrous Heterogeneous	30% Cellulose 30% Min. Wool	30% Perlite 10% Non-fibrous (Other)	None Detected
ADMIN-04 <i>082300645-0054</i>	Caulk	Gray Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
ADMIN-05 <i>082300645-0055</i>	Ceiling Tile	Beige Fibrous Homogeneous	40% Min. Wool	50% Perlite 10% Non-fibrous (Other)	None Detected
ADMIN-05 <i>082300645-0055A</i>	Glue	Brown Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
ADMIM-06 <i>082300645-0056</i>	Cinderblock	Gray Non-Fibrous Homogeneous		5% Quartz 95% Non-fibrous (Other)	None Detected
ADMIM-06 <i>082300645-0056A</i>	Mortar	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected

Analyst(s)

Ashton Bullock (44)

Madeline Ryan (35)

Eric Budai, Laboratory Manager
or Other Approved Signatory

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Samples analyzed by EMSL Analytical, Inc. Plymouth, MI NVLAP Lab Code 101048-4

Initial report from: 03/29/2023 14:19:24

0823 00645

Sample ID	Material Description	Result
BU-001	Drywall	
BU-002	Mastic for 1x1 ceiling tile	
BU-003	Tar paper between CMU block expansion	
BU-004	1x1 Ceiling Tile	
BU-005	CMU block	
BU-006	CMU mortar	
BU-007	Caulk (ceiling in cell)	
BL-01	Replacement 1x1 ceiling tile	
BL-02	Drywall mud in Porter closer corner	
AU-01	CMU block	
AU-02	CMU mortar	
AU-03	1x1 Ceiling Tile	
AU-04	Caulk between some 1x1 tile for repair	
AU-05	Drywall	
AU-06	Mastic for 1x1 ceiling tile	
AU-07	Caulk & drywall mud	
AL-01	Replacement 1x1 ceiling tile	
CU-01	1x1 Ceiling Tile	
CU-02	Mastic for 1x1 ceiling tile	
CU-03	CMU/Mortar	
CU-04	Drywall	
CU-05	Caulk and Drywall mud	
CL-01	Replacement 1x1 ceiling tile	
MU-01	Mastic for 1x1 ceiling tile	
MU-02	1x1 Ceiling Tile	
MU-03	Drywall	
MU-04	CMU/Mortar	
MU-05	Caulk and Drywall mud	
ML-01	Replacement 1x1 ceiling tile	
PU-01	1x1 Ceiling Tile	
PU-02	Mastic for 1x1 ceiling tile	
PU-03	CMU/Mortar	
PU-04	Drywall	
PU-05	Caulk and Drywall mud	
PL-01	Replacement 1x1 ceiling tile	
SL-01	CMU/Mortar	
SL-02	Mastic for 1x1 ceiling tile	
SL-03	Drywall, tape and mud	
SL-04	1x1 Ceiling Tile	
SL-05	Replacement 1x1 ceiling tile	
300-01	1x1 Ceiling Tile	
300-02	Mastic for 1x1 ceiling tile	
300-03	CMU/Mortar	
300-04	Replacement 1x1 ceiling tile	
300-05	Drywall	



100 Portage Street Houghton, MI 49931

906-482-4810 • 800-562-7684 • Fax: 906-482-9799

[M12-06112]

March 5, 2026

Alger Correctional Facility
Industrial Park Dr.
Wetmore, MI 49895

RE: COOLER, FREEZER REPLACEMENT HAZARDOUS MATERIAL TESTING

To Whom It May Concern:

Upper Peninsula Engineers & Architects visited the site on 2/25/26. The purpose of this visit was limited to bulk sampling of materials planned to be impacted by a proposed walk-in cooler and freezer replacement. Testing included sampling of floor tiles, caulk, and grout for asbestos fibers. Deteriorated ceiling paint was sampled to determine if it was lead-based paint. The bulk materials tested did not contain asbestos fibers. The ceiling paint tested below the regulatory criteria for lead-based paint.

Sincerely,

A handwritten signature in black ink, appearing to read 'S. Genter', is written over a light blue horizontal line.

Sam Genter
MI Asbestos Inspector Accreditation #: A63169
MI Lead Inspector/Risk Assessor: P-009865

Attachments:

Asbestos Analytical Report
Lead Analytical Report



Customer: UP Engineers & Architects (2820)
Address: 100 Portage St
Houghton, MI 49931

Order #: 674311

Received 02/27/26
Analyzed 03/05/26
Reported 03/05/26

Attn:

Project: Alger CF Cooler Freezer
Location: Alger County MI
Number: 06112

Method: EPA 600/R-93/116 & 40 CFR App. E Sub. E Pt. 763

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
674311-001	02/25/26	A1	Freezer/Cooler		
Layer 1:	Caulk			No Asbestos Detected	100% NON FIBROUS MATERIAL
	Clear, Rubbery				
674311-002	02/25/26	A2	Freezer/Cooler		
Layer 1:	Caulk			No Asbestos Detected	100% NON FIBROUS MATERIAL
	Clear, Rubbery				
674311-003	02/25/26	A3	Alger CF Cooler Freezer		
Layer 1:	Ceramic Tile			No Asbestos Detected	100% NON FIBROUS MATERIAL
	Gray, Hard				
Layer 2:	Grout			No Asbestos Detected	2% CELLULOSE FIBER
	Gray, Granular				98% NON FIBROUS MATERIAL
674311-004	02/25/26	A4	Freezer Floor		
Layer 1:	Floor Tile			No Asbestos Detected	2% CELLULOSE FIBER
	Gray, Hard				98% NON FIBROUS MATERIAL
	No mastic found.				
674311-005	02/25/26	A5	Freezer Floor		
Layer 1:	Floor Tile			No Asbestos Detected	2% CELLULOSE FIBER
	Gray, Hard				98% NON FIBROUS MATERIAL
	No mastic found.				

Reporting Limit: 1% Gravimetrically Reduced Reporting Limit: 0.01% PLM analysis is based on Visual Estimation and NESHAP recommends that any friable sample with an asbestos content less than 10 percent be verified by Point Count or TEM Analysis. The EPA recommends that any attic loose fill vermiculite should be treated as asbestos containing material. This report must not be reproduced except in full with the approval of the laboratory. Laboratory estimated asbestos error rates available upon request. The test results apply to the sample as received.

Project: Alger CF Cooler Freezer
Location: Alger County MI
Number: 06112

Method: EPA 600/R-93/116 & 40 CFR App. E Sub. E Pt. 763

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
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EPA Regulatory Limit: 1%

Total layers analyzed on order: 6

674311-03/05/26 01:02 PM



Analyst **Eisen Zhao**



Reviewed By: **Thoria Nadiem**
Microscopy Manager

Reporting Limit: 1% Gravimetrically Reduced Reporting Limit: 0.01% PLM analysis is based on Visual Estimation and NESHAP recommends that any friable sample with an asbestos content less than 10 percent be verified by Point Count or TEM Analysis. The EPA recommends that any attic loose fill vermiculite should be treated as asbestos containing material. This report must not be reproduced except in full with the approval of the laboratory. Laboratory estimated asbestos error rates available upon request. The test results apply to the sample as received.



Schneider Laboratories, Inc.
2512 W. Cary Street, Richmond, VA 23220-5117
1/800-785-5227

Project Name: Alger CF Cooler - Freezer
Project Location: Alger County, MI
Project Number: 06112

Submitting Co.: U.P. Engineers & Architects (Asb)
100 Portage St.
Houghton, MI 49931

Phone #: (906) 482-4810
Fax #: (906) 482-9799

Lab Use - WCF
Pocet #: 2820

Purchase Order No.

Special Instructions (include requests for special reporting or data packages)
Email Results to Sam Genter at UPEA
sgenter@upea.com

ORGANICS TESTS and other Analyses
NOTE: All samples for organics should be kept at 4°C from collection until testing. Schedule rush analyses in advance. Indicate preservatives added & media type. Indicate analysis method for organics tests.

Asbestos Bulk / Asb ID
 PLM (EPA 600, 1993)
 PLM (EPA Point Count)
 PLM (Qualitative only)
 NYELAP 198.11.4
 CAELAP (EPA Interim)
 TEM (Chatfield)

Asbestos Air / Fiber Counts
 PCM (NIOSH 7400)
 TEM (AHERA)
 TEM (EPA Level II)

Miscellaneous Tests
 Total Dust (NIOSH 0500)
 Resp. Dust (NIOSH 0600)
 Silica - FTIR (NIOSH 7602)
 Silica - XRD (NIOSH 7500)

FOR ASBESTOS AIR:
TYPE OF RESPIRATOR USED:

Matrix / Sample Type
 Solid
 Waste
 Wastewater
 Water, Drinking
 Compliance
 Wipe
 Wipe, Composite
 Tape-Lift

Asbestos Bulk / Asb ID
 PLM (EPA 600, 1993)
 PLM (EPA Point Count)
 PLM (Qualitative only)
 NYELAP 198.11.4
 CAELAP (EPA Interim)
 TEM (Chatfield)

Asbestos Air / Fiber Counts
 PCM (NIOSH 7400)
 TEM (AHERA)
 TEM (EPA Level II)

Miscellaneous Tests
 Total Dust (NIOSH 0500)
 Resp. Dust (NIOSH 0600)
 Silica - FTIR (NIOSH 7602)
 Silica - XRD (NIOSH 7500)

FOR ASBESTOS AIR:
TYPE OF RESPIRATOR USED:

Turn Around Time
 12 hour*
 16-8 hours*
 24 hours*
 72 hour*
 STANDARD (5 days)
 Standard Full TCLP (10d)
 Weekend*

* not available for all tests
Schedule rush organics, multi-
metals & weekend tests in advance.

674311
V:16741674311
kfinnemo 2/27/2026 10:00:32 AM
LIPS 174200510262875325

Sample (number)	Date Sampled	Time	Sample Identification (e.g. Employee, SSN, Bldg, Material)	Wipes		Information for Air Samples		Organics	
				Viped Area	Type ¹ A,B,F,E	Time ² Start Stop	Flow Rate ³ Start Stop	Total ⁴ Air Vol	# con- tainers
A1	2/25	1405	Freezer/Cooler Cowlk						
A2	2/25	1407	Freezer/Cooler Cowlk						
A3	2/25	1411	Ceramic Tile Grout						
A4	2/25	1416	Freezer Floor Tile						
A5	2/25	1418	Freezer Floor Tile						

Sample Collection & Custody Information
Sampled by (NAME) _____ (SIGNATURE) _____ (DATE/TIME) _____
Relinquished by (NAME) _____ (SIGNATURE) _____ (DATE/TIME) _____
Waybill# _____

LAB USE ONLY
Date/Time _____
[] Ambient Temp. [] Cool
[] JFX [] JAB [] JUPS [] JUSM [] JCL [] JLD [] JHD [] JDB [] JIB [] JS

STATE where samples were collected: MI
[] Sample return requested
[] Ambient temp [] Cool _____ °C [] pH _____ [] Cl _____
[] JR [] JS
Chain-of-Custody documentation continued internally within lab.

Sample Collection & Custody Information
Sampled by (NAME) _____ (SIGNATURE) _____ (DATE/TIME) _____
Relinquished by (NAME) _____ (SIGNATURE) _____ (DATE/TIME) _____
Waybill# _____

LAB USE ONLY
Date/Time _____
[] Ambient Temp. [] Cool
[] JFX [] JAB [] JUPS [] JUSM [] JCL [] JLD [] JHD [] JDB [] JIB [] JS



Analysis Report

Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

Customer: UP Engineers & Architects (2820)
Address: 100 Portage St
Houghton, MI 49931

Order #:	674310
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Matrix Paint
Received 02/27/26
Analyzed 03/02/26
Reported 03/02/26

Attn:
Project: Alger CF Cooler Freezer
Location: Alger County MI
Number: 06112

PO Number:

Sample ID	Cust. Sample ID	Location	Sample Date	Weight			
Parameter		Method		Total µg	% / Wt.	Conc.	RL*
674310-001	L1	White Ceiling Paint	02/05/26	263 mg			
Lead		EPA 7000B / ME-003		23.4 µg	0.00888 %	88.8 mg/kg	30.4 mg/kg

Analyst: SAJ
674310-03/02/26 03:24 PM

Reviewed By: **Rebecca Robertson**
Analyst

Federal Lead Paint Statute as of 2/1/26

Location	Level	Unit
Lead in paint by wt.	0.50	%
Lead in paint PPM	5000	mg/kg

Lead Minimum Reporting Limit (*RL): 8.0 µg. All internal QC parameters were met. Unusual sample conditions, if any, are described. Do not reproduce this report except in full. The test results apply to the sample as received. PPM = mg/kg | PPB = µg/kg. Values are reported to three significant figures. AIHA LAP, LLC accredited for Lead (Lab ID 100527).

APPENDIX V

STATE OF MICHIGAN PREVAILING WAGE SCHEDULES

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
3.1 Power Equip. Operator - Highway & Heavy	11/01/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$71.46	\$94.57	\$117.67
Apprentice: Level 1 0 - 6 Months	\$57.61	\$73.79	\$89.97
Apprentice: Level 2 7 -12 Months	\$59.93	\$77.28	\$94.61
Apprentice: Level 3 13 - 18 Months	\$62.23	\$80.73	\$99.21
Apprentice: Level 4 19 - 24 Months	\$64.54	\$84.19	\$103.83
Apprentice: Level 5 25 - 30 Months	\$66.85	\$87.66	\$108.45
Apprentice: Level 6 31 - 36 Months	\$69.15	\$91.10	\$113.05

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
3.2 Power Equip. Operator - Highway & Heavy	11/01/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$70.31	\$92.84	\$115.37
Apprentice: Level 1 0 - 6 Months	\$56.81	\$72.59	\$88.37
Apprentice: Level 2 7 -12 Months	\$59.06	\$75.97	\$92.87
Apprentice: Level 3 13 - 18 Months	\$61.31	\$79.35	\$97.37
Apprentice: Level 4 19 - 24 Months	\$63.56	\$82.72	\$101.87
Apprentice: Level 5 25 - 30 Months	\$65.81	\$86.09	\$106.37
Apprentice: Level 6 31 - 36 Months	\$68.06	\$89.47	\$110.87

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
3.3 Power Equip. Operator - Highway & Heavy	11/01/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$63.58	\$82.75	\$101.91
Apprentice: Level 1 0 - 6 Months	\$52.10	\$65.53	\$78.95
Apprentice: Level 2 7 -12 Months	\$54.02	\$68.41	\$82.79
Apprentice: Level 3 13 - 18 Months	\$55.92	\$71.26	\$86.59
Apprentice: Level 4 19 - 24 Months	\$57.84	\$74.14	\$90.43
Apprentice: Level 5 25 - 30 Months	\$59.75	\$77.00	\$94.25
Apprentice: Level 6 31 - 36 Months	\$61.67	\$79.89	\$98.09

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
3.4 Power Equip. Operator - Highway & Heavy	11/01/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$63.02	\$81.91	\$100.79
Apprentice: Level 1 0 - 6 Months	\$51.70	\$64.93	\$78.15
Apprentice: Level 2 7 -12 Months	\$53.59	\$67.76	\$81.93
Apprentice: Level 3 13 - 18 Months	\$55.48	\$70.60	\$85.71
Apprentice: Level 4	\$57.36	\$73.42	\$89.47
Apprentice: Level 5 25 - 30 Months	\$59.25	\$76.25	\$93.25
Apprentice: Level 6 31 - 36 Months	\$61.13	\$79.07	\$97.01

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
3.5 Power Equip. Operator - Highway & Heavy	11/01/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$44.80	\$60.98	\$77.15
Apprentice: Level 1 0 - 6 Months	\$35.09	\$46.42	\$57.73
Apprentice: Level 2 7 -12 Months	\$36.71	\$48.84	\$60.97
Apprentice: Level 3 13 - 18 Months	\$38.33	\$51.27	\$64.21
Apprentice: Level 4 19 - 24 Months	\$39.95	\$53.71	\$67.45
Apprentice: Level 5 25 - 30 Months	\$41.57	\$56.13	\$70.69
Apprentice: Level 6 31 - 36 Months	\$43.18	\$58.55	\$73.91

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
4.1 Power Equip. Operator - Commercial	10/31/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$69.92	\$92.39	\$114.84
Apprentice: Level 1 0 - 6 Months	\$56.45	\$72.18	\$87.90
Apprentice: Level 2 7-12 Months	\$58.70	\$75.55	\$92.40
Apprentice: Level 3 13-18 Months	\$60.95	\$78.93	\$96.90
Apprentice: Level 4 19-24 Months	\$63.19	\$82.29	\$101.38
Apprentice: Level 5 25 - 30 Months	\$65.43	\$84.34	\$104.56
Apprentice: Level 6 31 - 36 Months	\$67.69	\$89.04	\$110.38

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
4.2 Power Equip. Operator - Commercial	10/31/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$69.63	\$91.96	\$114.29
Apprentice: Level 1 0 - 6	\$56.25	\$71.88	\$87.50
Apprentice: Level 2 7 - 12 Months	\$58.48	\$75.23	\$91.96
Apprentice: Level 3 13 - 18 Months	\$60.72	\$78.58	\$96.44
Apprentice: Level 4 19-24 Months	\$62.95	\$81.93	\$100.90
Apprentice: Level 5 25-30 Months	\$65.18	\$82.65	\$100.12
Apprentice: Level 6 31-36 Months	\$67.41	\$88.62	\$109.82

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
4.3 Power Equip Operator - Commercial	10/31/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$68.81	\$90.72	\$112.62
Apprentice: Level 1 0 - 6 Months	\$55.67	\$71.01	\$86.34
Apprentice: Level 2 6 - 12 Months	\$57.86	\$72.15	\$86.43
Apprentice: Level 3 13-18 Months	\$60.05	\$77.58	\$95.10
Apprentice: Level 4 19 - 24 Months	\$62.24	\$80.86	\$99.48
Apprentice: Level 5 25 - 30 Months	\$64.43	\$84.15	\$103.86
Apprentice: Level 6 31 -36 Months	\$66.63	\$87.45	\$108.26

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
4.4 Power Equip. Operator - Commercial	10/31/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$69.81	\$89.30	\$108.78
Apprentice: Level 1 0 - 6 Months	\$56.37	\$72.06	\$87.74
Apprentice: Level 2 7 - 12 Months	\$58.61	\$75.42	\$92.22
Apprentice: Level 3 13 - 18 Months	\$60.86	\$78.79	\$96.72
Apprentice: Level 4 19 - 24 Months	\$63.09	\$82.14	\$101.18
Apprentice: Level 5 25 - 30 Months	\$65.33	\$85.50	\$105.66
Apprentice: Level 6 31 - 36 Months	\$67.57	\$88.86	\$110.14

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
4.5 Power Equip. Operator - Commercial	10/31/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$65.51	\$85.81	\$106.08
Apprentice: Level 1 0 - 6 Months	\$53.38	\$67.57	\$81.76
Apprentice: Level 2 7 - 12 Months	\$55.41	\$70.62	\$85.82
Apprentice: Level 3 13 - 18 Months	\$57.43	\$71.53	\$85.63
Apprentice: Level 4 19 - 24 Months	\$59.45	\$76.68	\$93.90
Apprentice: Level 5 25 - 30 Months	\$61.49	\$79.74	\$97.98
Apprentice: Level 6 31 - 36 Months	\$63.51	\$82.77	\$102.02

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
4.6 Power Equip. Operator - Commercial	10/31/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$61.08	\$79.12	\$97.16
Apprentice: Level 1 0 - 6 Months	\$50.26	\$62.90	\$75.52
Apprentice: Level 2 7 - 12 Months	\$52.07	\$65.61	\$79.14
Apprentice: Level 3 13 - 18 Months	\$53.87	\$68.31	\$82.74
Apprentice: Level 4 19 - 24 Months	\$55.67	\$71.01	\$86.34
Apprentice: Level 5 25 - 30 Months	\$57.48	\$73.72	\$89.96
Apprentice: Level 6 31 -36 Months	\$59.28	\$76.43	\$93.56

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
4.7 Power Equip. Operator - Commercial	10/31/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$60.14	\$77.71	\$95.28
Apprentice: Level 1 0 - 6 Months	\$49.60	\$61.91	\$74.20
Apprentice: Level 2 7 - 12 Months	\$51.36	\$64.54	\$77.72
Apprentice: Level 3 13 - 18 Months	\$53.12	\$67.19	\$81.24
Apprentice: Level 4 19 - 24 Months	\$54.88	\$69.82	\$84.76
Apprentice: Level 5 25 - 30 Months	\$56.63	\$72.45	\$88.26
Apprentice: Level 6 31 - 36 Months	\$58.38	\$75.08	\$91.76

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
4.8 Power Equip. Operator - Commercial	10/31/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$48.36	\$66.30	\$84.22
Apprentice: Level 1 0 - 6 Months	\$37.60	\$50.15	\$62.70
Apprentice: Level 2 7 - 12 Months	\$39.40	\$52.86	\$66.30
Apprentice: Level 3 13 - 18 Months	\$41.19	\$55.54	\$69.88
Apprentice: Level 4 19 - 24 Months	\$42.99	\$58.24	\$73.48
Apprentice: Level 5 25 - 30 months	\$44.78	\$60.93	\$77.06
Apprentice: Level 6 31 - 36 Months	\$46.57	\$63.61	\$80.64

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
Articulated Hauler	10/28/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$63.02	\$81.91	\$100.79
Apprentice: Apprentice Level 1	\$51.70	\$64.93	\$78.15
Apprentice: Apprentice Level 2	\$53.59	\$67.76	\$81.93
Apprentice: Apprentice Level 3	\$55.48	\$70.60	\$85.71
Apprentice: Apprentice Level 4	\$57.36	\$73.42	\$89.47
Apprentice: Apprentice Level 5	\$59.25	\$76.25	\$93.25
Apprentice: Apprentice Level 6	\$61.13	\$79.07	\$97.01

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
Asbestos abatement worker or environmental remediation worker	11/01/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$56.20	\$73.24	\$90.28
Apprentice: Trainee 600 hours + 1 year	\$43.12	\$55.01	\$66.90

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
Boilermaker	10/29/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$79.64	\$119.12	\$158.58
Apprentice: 1st Period	\$58.07	\$86.78	\$115.44
Apprentice: 2nd Period	\$59.89	\$89.50	\$119.08
Apprentice: 3rd Period	\$61.81	\$92.24	\$122.74
Apprentice: 4th Period	\$63.50	\$94.91	\$126.30
Apprentice: 5th Period	\$65.26	\$97.54	\$129.82
Apprentice: 6th Period	\$68.89	\$103.00	\$137.08
Apprentice: 7th Period	\$72.46	\$108.36	\$144.22
Apprentice: 8th Period	\$76.07	\$113.77	\$151.44

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
Boom Truck	10/28/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$70.31	\$92.84	\$115.37
Apprentice: Apprentice Level 1	\$56.81	\$72.59	\$88.37
Apprentice: Apprentice Level 2	\$59.06	\$75.97	\$92.87
Apprentice: Apprentice Level 3	\$61.31	\$79.35	\$97.37
Apprentice: Apprentice Level 4	\$63.56	\$82.72	\$101.87

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
Carpet layers (linoleum)	11/03/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$53.72	\$70.77	\$87.81
Apprentice: Level 1	\$43.49	\$55.42	\$67.35
Apprentice: Level 2	\$45.20	\$57.99	\$70.77
Apprentice: Level 3	\$48.61	\$63.10	\$77.59
Apprentice: Level 4	\$52.02	\$68.22	\$84.41

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
Electrician	10/31/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$67.81	\$92.30	\$116.79
Apprentice: Apprentice Level 1	\$41.00	\$53.74	\$66.47
Apprentice: Apprentice Level 2	\$45.14	\$59.95	\$74.75
Apprentice: Apprentice Level 3	\$49.30	\$66.17	\$83.06
Apprentice: Apprentice Level 4	\$53.43	\$72.38	\$91.34
Apprentice: Apprentice Level 5	\$57.59	\$78.61	\$99.64

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
Elevator Constructors	11/01/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$110.76	\$143.49	\$176.21

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
Ground Person	11/01/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$50.85	\$72.32	\$93.78

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
Heating and Frost insulators	10/31/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$75.97	\$97.84	\$119.71
Apprentice: Level 1	\$54.10	\$71.65	\$84.79
Apprentice: Level 2	\$58.47	\$78.21	\$93.54
Apprentice: Level 3	\$62.85	\$78.16	\$93.47
Apprentice: Level 4	\$67.22	\$84.72	\$102.21

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
Ironworker	10/31/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$68.72	\$95.07	\$121.42
Apprentice: Apprentice Level 1	\$56.16	\$76.23	\$96.30
Apprentice: Apprentice Level 2	\$57.92	\$78.87	\$99.82
Apprentice: Apprentice Level 3	\$59.68	\$81.51	\$103.34
Apprentice: Apprentice Level 4	\$61.44	\$84.15	\$106.86
Apprentice: Apprentice Level 5	\$63.20	\$86.79	\$110.38

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
Laborer, Common - Commercial	11/04/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$42.43	\$56.52	\$70.61
Apprentice: Apprentice Level 1	\$35.39	\$45.96	\$56.53
Apprentice: Apprentice Level 2	\$36.79	\$48.06	\$59.33
Apprentice: Apprentice Level 3	\$38.20	\$50.18	\$62.15
Apprentice: Apprentice Level 4	\$41.02	\$54.41	\$67.79

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
Laborer, Common - Highway & Heavy	11/05/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$47.42	\$61.93	\$76.44
Apprentice: Level 1	\$40.27	\$51.16	\$62.04
Apprentice: Level 2	\$41.72	\$53.33	\$64.94
Apprentice: Level 3	\$43.17	\$55.51	\$67.84
Apprentice: Level 4	\$46.07	\$59.86	\$73.64

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
Laborer, Landscaping	11/03/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$36.87	\$49.23	\$61.58
Apprentice: Apprentice Level 1	\$30.69	\$39.96	\$49.22
Apprentice: Apprentice Level 2	\$31.93	\$41.82	\$51.70
Apprentice: Apprentice Level 3	\$33.16	\$43.66	\$54.16
Apprentice: Apprentice Level 4	\$35.63	\$47.37	\$59.10

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
Laborer, Skilled - Commercial	11/04/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$44.66	\$59.87	\$75.07
Apprentice: Apprentice Level 1	\$37.06	\$48.47	\$59.87
Apprentice: Apprentice Level 2	\$38.58	\$50.74	\$62.91
Apprentice: Apprentice Level 3	\$40.10	\$53.03	\$65.95
Apprentice: Apprentice Level 4	\$43.14	\$57.59	\$72.03

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
Laborer, Skilled - Highway & Heavy	11/05/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$48.51	\$63.52	\$78.52
Apprentice: Apprentice Level 1	\$41.01	\$52.27	\$63.52
Apprentice: Apprentice Level 2	\$42.51	\$54.52	\$66.52
Apprentice: Apprentice Level 3	\$44.01	\$56.77	\$69.52
Apprentice: Apprentice Level 4	\$47.01	\$61.27	\$75.52

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
Landscaping equipment	10/28/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$39.09	\$52.56	\$66.02

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
Lineman	10/30/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$76.81	\$111.26	\$145.70
Apprentice: Level 1 0-1000 hours	\$49.26	\$69.94	\$90.60
Apprentice: Level 2 1001-2000 Hours	\$52.71	\$75.11	\$97.50
Apprentice: Level 3 2001-3000 Hours	\$56.15	\$80.28	\$104.38
Apprentice: Level 4 3001-4000 hours	\$59.60	\$85.44	\$111.28
Apprentice: Level 5 4001-5000 Hours	\$63.04	\$90.60	\$118.16
Apprentice: Level 6 5001-6000 Hours	\$66.48	\$95.77	\$125.04
Apprentice: Level 7	\$69.93	\$100.94	\$131.94

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
Off-Road Truck	10/29/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$63.02	\$81.91	\$100.79
Apprentice: Apprentice Level 1	\$51.70	\$64.93	\$78.15
Apprentice: Apprentice Level 2	\$53.59	\$67.76	\$81.93
Apprentice: Apprentice Level 3	\$55.48	\$70.60	\$85.71
Apprentice: Apprentice Level 4	\$57.36	\$73.42	\$89.47
Apprentice: Apprentice Level 5	\$59.25	\$76.25	\$93.25
Apprentice: Apprentice Level 6	\$61.13	\$79.07	\$97.01

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
Pipefitters—Steamfitters	10/31/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$73.18	\$109.78	\$146.36
Apprentice: Apprentice Level 1	\$36.82	\$55.24	\$73.64
Apprentice: Apprentice Level 2	\$39.04	\$58.56	\$78.08
Apprentice: Apprentice Level 3	\$55.37	\$83.06	\$110.74
Apprentice: Apprentice Level 4	\$57.59	\$86.39	\$115.18
Apprentice: Apprentice Level 5	\$59.82	\$89.74	\$119.64
Apprentice: Apprentice Level 6	\$62.05	\$93.08	\$124.10
Apprentice: Apprentice Level 7	\$64.29	\$96.45	\$128.58
Apprentice: Apprentice Level 8	\$66.50	\$99.76	\$133.00

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
Plumber	10/30/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$73.18	\$109.78	\$146.36
Apprentice: Apprentice Level 1	\$36.82	\$55.24	\$73.64
Apprentice: Apprentice Level 10	\$68.73	\$103.10	\$137.46
Apprentice: Apprentice Level 2	\$39.04	\$58.56	\$78.08
Apprentice: Apprentice Level 3	\$55.37	\$83.06	\$110.74
Apprentice: Apprentice Level 4	\$57.59	\$86.39	\$115.18
Apprentice: Apprentice Level 5	\$59.82	\$89.74	\$119.64
Apprentice: Apprentice Level 6	\$62.05	\$93.08	\$124.10
Apprentice: Apprentice Level 7	\$64.27	\$96.41	\$128.54
Apprentice: Apprentice Level 8 & 9	\$66.50	\$99.76	\$133.00

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

A voluntary make up day may be allowed for a 4/10's shift by mutual agreement between the Employer and employees. No employee shall be penalized for electing not to work the voluntary make-up day.

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
Roofer/Waterproofer	11/03/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$41.46	\$53.86	\$66.26
Apprentice: Apprentice 1	\$31.62	\$39.59	\$47.56
Apprentice: Apprentice 2	\$33.03	\$41.66	\$50.29
Apprentice: Apprentice 3	\$34.39	\$43.66	\$52.92
Apprentice: Apprentice 4	\$35.76	\$45.67	\$55.58
Apprentice: Apprentice 5	\$37.12	\$47.67	\$58.21
Apprentice: Apprentice 6	\$37.92	\$48.82	\$59.72

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
Sprinkler Fitters	11/03/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$60.34	\$78.45	\$96.56
Apprentice: Class 1	\$24.57	\$32.72	\$40.87
Apprentice: Class 10	\$52.07	\$68.37	\$84.67
Apprentice: Class 2	\$26.38	\$35.43	\$44.49
Apprentice: Class 3	\$39.14	\$49.10	\$59.06
Apprentice: Class 4	\$40.95	\$51.82	\$62.68
Apprentice: Class 5	\$43.01	\$54.78	\$66.55
Apprentice: Class 6	\$44.82	\$57.49	\$70.17
Apprentice: Class 7	\$46.63	\$60.21	\$73.79
Apprentice: Class 8	\$48.45	\$62.94	\$77.43
Apprentice: Class 9	\$50.26	\$65.65	\$81.05

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Prevailing Wage Rates for State Of Michigan Funded Projects

Official Rate Schedule

Alger

Classification Name	Last Updated		
Tunnel Miner	11/03/2025		
Wage Rates	Straight Time	Time and a Half	Double Time
Journeyman	\$52.82	\$70.02	\$87.22
Apprentice: Level 1	\$44.22	\$57.12	\$70.02
Apprentice: Level 2	\$45.94	\$59.70	\$73.46
Apprentice: Level 3	\$47.66	\$62.28	\$76.90
Apprentice: Level 4	\$51.10	\$61.35	\$75.66

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

TECHNICAL SPECIFICATIONS

SECTION 024119.13 - SELECTIVE BUILDING DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolishing designated building equipment and fixtures.
2. Demolishing designated construction.
3. Cutting and alterations for completion of the Work.
4. Removing designated items for reuse and Owner's retention.
5. Protecting items designated to remain.
6. Removing demolished materials.

1.2 CLOSEOUT SUBMITTALS

A. Section 01700 – Contract Close-Out

B. Operation and Maintenance Data: Submit description of system, inspection data, and parts lists.

1.3 QUALITY ASSURANCE

A. Conform to applicable code for demolition work, dust control, products requiring electrical disconnection and re-connection.

B. Conform to applicable code for procedures when hazardous or contaminated materials are discovered.

C. Obtain required permits from authorities having jurisdiction.

1.4 SCHEDULING

A. Schedule Work to coincide with new construction.

B. Cooperate with Owner in scheduling noisy operations and waste removal that may impact Owners operation.

C. Coordinate utility and building service interruptions with Owner.

1.5 PROJECT CONDITIONS

A. Conduct demolition to minimize interference with adjacent and occupied building areas.

- B. Cease operations immediately if structure appears to be in danger and notify Architect/Engineer. Do not resume operations until directed.

PART 2 - PRODUCTS

- 2.1 Not Used.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Notify affected utility companies before starting work and comply with their requirements.
- B. Mark location and termination of utilities.
- C. Erect, and maintain temporary barriers and security devices, including warning signs and lights, and similar measures, for protection of the Owner, and existing improvements indicated to remain.
- D. Erect and maintain weatherproof closures for exterior openings (where occurs).
- E. Erect and maintain temporary partitions to prevent spread of dust, odors, and noise to permit continued Owner occupancy.
- F. Prevent movement of structure; provide temporary bracing and shoring required to ensure safety of existing structure.
- G. Provide appropriate temporary signage including signage for exit or building egress.
- H. Do not close or obstruct building egress path.

3.2 SALVAGE REQUIREMENTS

- A. Coordinate with Owner to identify building components and equipment required to be removed and delivered to Owner.
- B. Tag components and equipment Owner designates for salvage.
- C. Protect designated salvage items from demolition operations until items can be removed.
- D. Carefully remove building components and equipment indicated to be salvaged.
- E. Disassemble as required to permit removal from building.
- F. Package small and loose parts to avoid loss.

- G. Mark equipment and packaged parts to permit identification and consolidation of components of each salvaged item.
- H. Prepare assembly instructions consistent with disassembled parts. Package assembly instructions in protective envelope and securely attach to each disassembled salvaged item.
- I. Deliver salvaged items to Owner. Obtain signed receipt from Owner.

3.3 DEMOLITION

- A. Conduct demolition to minimize interference with adjacent and occupied building areas.
- B. Maintain protected egress from and access to adjacent existing buildings at all times.
- C. Cease operations immediately when structure appears to be in danger and notify Architect/Engineer.
- D. Demolish in orderly and careful manner. Protect existing improvements, supporting structural members.
- E. Carefully remove building components indicated to be reused.
 - 1. Disassemble components as required to permit removal.
 - 2. Package small and loose parts to avoid loss.
 - 3. Mark components and packaged parts to permit reinstallation.
 - 4. Store components, protected from construction operations, until reinstalled.
- F. Remove demolished materials from site except where specifically noted otherwise. Do not burn or bury materials on site.
- G. Remove materials as Work progresses. Upon completion of Work, leave areas in clean condition.
- H. Remove temporary Work.

END OF SECTION 024119.13

SECTION 03 35 00 – CONCRETE FINISHING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Finishing concrete floors.
 - 2. Floor surface treatment.
- B. Related Sections:
 - 1. Section 03 30 00 - Cast-In-Place Concrete: Prepared concrete floors ready to receive finish; control and formed expansion and contraction joints and joint devices.

1.2 REFERENCES

- A. American Concrete Institute:
 - 1. ACI 301 - Specifications for Structural Concrete.
 - 2. ACI 302.1 - Guide for Concrete Floor and Slab Construction.
- B. ASTM International:
 - 1. ASTM E1155 - Standard Test Method for Determining Floor Flatness and of Levelness Using the F-number System.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Submittal procedures.
- B. Product Data: Submit data on sealer, compatibilities, and limitations.

1.4 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with ACI 301.

1.6 ENVIRONMENTAL REQUIREMENTS

- A. Section 01 60 00 - Product Requirements: Environmental conditions affecting products on site.
- B. Temporary Heat: Ambient temperature of 50 degrees F minimum.
- C. Ventilation: Sufficient to prevent injurious gases from temporary heat or other sources affecting concrete.

1.7 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Coordinate the Work with concrete floor placement and concrete floor curing.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers:
 - 1. BASF Chemical Company
 - 2. Cresset Chemical Company.
 - 3. Dayton Superior Corp.
 - 4. Euclid Chemical Co.
 - 5. L & M Construction Chemicals.
 - 6. Nox-Crete Chemicals.
 - 7. L M Scofield Co.
 - 8. Sika Corp.
 - 9. Substitutions: Section 01 60 00 - Product Requirements.

2.2 COMPOUNDS - HARDENERS AND SEALERS

- A. Chemical Hardener: Magnesium fluorosilicate and zinc fluorosilicate blend liquid type.
- B. Sealer: Clear, saline type.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Verify floor surfaces are acceptable to receive the Work of this section.

3.2 FLOOR FINISHING

- A. Finish concrete floor surfaces in accordance with ACI 301 and ACI 302.1.
- B. Wood float surfaces receiving ceramic tile with full bed setting system.
- C. Steel trowel surfaces receiving carpeting and thin set ceramic tile.
- D. In areas with floor drains, maintain design floor elevation at walls; slope surfaces uniformly to drains at 1/8 inch per foot nominal.

3.3 FLOOR SURFACE TREATMENT

- A. Apply sealer on exterior concrete sidewalks.

3.4 TOLERANCES

- A. CONTRACTOR'S TESTER shall measure for F(F) and F(L) tolerances for floors in accordance with ASTM E1155, within 48 hours after slab installation.
- B. Finish concrete to achieve the following tolerances:
 - 1. Under Carpet and Tile: F(F) 25 and F(L) 20.
 - 2. Exposed Interior: Overall F(F) 50 and local F(F) 35. Overall F(L) 20.
 - 3. Gymnasium: Overall F(F) 50 and local F(F) 35. Overall F(L) 20.
 - 4. Correct slab surface when actual F(F) or F(L) number for floor installation measures less than required.
- C. Correct defects in defined traffic floor by grinding or removal and replacement of defective Work. Areas requiring corrective Work will be identified. Re-measure corrected areas by same process.

END OF SECTION

SECTION 061053 - MISCELLANEOUS ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Roof curbs cants and perimeter nailers.
2. Blocking in roof openings.
3. Wood furring and grounds.
4. Concealed wood blocking for support of wall cabinets and accessories.
5. Telephone and electrical panel backboards.
6. Preservative treatment of wood.

1.2 REFERENCE STANDARDS

A. American National Standards Institute:

1. ANSI A208.1 - Mat-Formed Wood Particleboard.

B. American Wood Protection Association:

1. AWWPA M4 - Standard for the Care of Preservative-Treated Wood Products.
2. AWWPA U1 - Use Category System: User Specification for Treated Wood.

C. ASTM International:

1. ASTM A153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
2. ASTM B695 - Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel.
3. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
4. ASTM F1667 - Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.

D. Southern Pine Inspection Bureau:

1. SPIB - Standard Grading Rules for Southern Pine Lumber.

E. U.S. Department of Commerce National Institute of Standards and Technology:

1. DOC PS 1 - Construction and Industrial Plywood.
2. DOC PS 2 - Performance Standard for Wood-Based Structural-Use Panels.
3. DOC PS 20 - American Softwood Lumber Standard.

F. West Coast Lumber Inspection Bureau:

1. WCLIB - Standard Grading Rules for West Coast Lumber.

G. Western Wood Products Association:

1. WWPA 2011 Western Lumber Grade Rules, including supplements.

1.3 SUBMITTALS

- A. Section 013300 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit technical data and application instructions on wood-preservative and fire-retardant treatment materials.

1.4 QUALITY ASSURANCE

- A. Surface-Burning Characteristics:
 - 1. Fire-Retardant-Treated Materials: Maximum 25/450 flame-spread/smoke-developed index when tested according to ASTM E84.
- B. Apply label from agency approved by authority having jurisdiction to identify each preservative-treated and fire-retardant-treated material.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Miscellaneous Framing: SPF species; 19 percent maximum moisture content after treatment.
- B. Plywood: APA-rated sheathing, Grade C-D; Exposure Durability 1.

2.2 FACTORY WOOD TREATMENT

- A. Wood Preservative (Pressure Treatment): AWWPA U1, commodity specification A-sawn products or F-wood composites using waterborne ACQ preservative.
- B. Fire-Retardant Treatment: Chemically treated and pressure impregnated, having flame spread of 25 or less when tested according to ASTM E 84 and showing no evidence of significant progressive combustion when test is continued for an additional 20-minute period, interior type.
- C. Moisture Content after Treatment: .
 - 1. Lumber: Maximum 19 percent.
 - 2. Structural Panels: Maximum 15 percent.

2.3 ACCESSORIES

- A. Fasteners and Anchors:
 - 1. Fasteners: ASTM A153, hot-dip galvanized steel for high-humidity and treated wood locations, unfinished steel elsewhere.
 - 2. Nails and Staples: ASTM F1667.
 - 3. Anchors:
 - a. Toggle bolt type for anchorage to hollow masonry.
 - b. Expansion shield and lag bolt type for anchorage to solid masonry or concrete.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify that substrate conditions are ready to receive blocking, curbing, and framing.

3.2 PREPARATION

- A. Section 017000 - Execution and Closeout Requirements: Requirements for installation preparation.
- B. Coordinate placement of blocking, curbing, and framing items.

3.3 INSTALLATION

- A. Set members level and plumb, in correct position.
- B. Place horizontal members, crown side up.
- C. Construct curb members of solid wood sections.
- D. Curb roof openings except where prefabricated curbs are provided. Form corners by alternating lapping side members.
- E. Secure sheathing to framing members with ends over firm bearing and staggered.
- F. Install telephone and electrical panel backboards with plywood sheathing material where required. Size backboards 12 inches beyond size of electrical and telephone panel.

END OF SECTION 061053

SECTION 093000 - TILING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes ceramic and porcelain, and quarry tile for floor and wall applications; using a mortar bed application method; cementitious backer board as tile substrate; thresholds at door openings; and ceramic accessories.
- B. Related Sections:
 - 1. Section 033500 - Concrete Finishing: Troweling of floor slab for tile application.
 - 2. Section 035400 - Cast Underlayment.
 - 3. Section 079000 - Joint Protection.

1.2 REFERENCES

- A. American National Standards Institute:
 - 1. ANSI A108.1 - Installation of Ceramic Tile, A collection.
 - 2. ANSI A108.1A - Specifications for Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar.
 - 3. ANSI A108.1B - Specifications for Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex Portland Cement Mortar.
 - 4. ANSI A108.1C - Specifications for Contractors Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar -or- Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex Portland Cement Mortar.
 - 5. ANSI A108.4 - Specifications for Ceramic Tile Installed with Organic Adhesives or Water-Cleanable Tile Setting Epoxy Adhesive.
 - 6. ANSI A108.5 - Specifications for Ceramic Tile Installed with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar.
 - 7. ANSI A108.6 - Specifications for Ceramic Tile Installed with Chemical-Resistant, Water-Cleanable Tile-Setting and -Grouting Epoxy.
 - 8. ANSI A108.7 - Specifications for Electrically Conductive Ceramic Tile Installed with Conductive Dry-Set Portland Cement Mortar.
 - 9. ANSI A108.8 - Specifications for Ceramic Tile Installed with Chemical-Resistant Furan Mortar and Grout.
 - 10. ANSI A108.9 - Specifications for Ceramic Tile Installed with Modified Epoxy Emulsion Mortar/Grout.
 - 11. ANSI A108.10 - Specifications for Installation of Grout in Tilework.
 - 12. ANSI A118.1 - Standard Specification for Dry-Set Portland Cement Mortar.
 - 13. ANSI A118.3 - Chemical-Resistant, Water-Cleanable, Tile-Setting and -Grouting Epoxy and Water-Cleanable Tile-Setting Epoxy Adhesive.
 - 14. ANSI A118.4 - Latex-Portland Cement Mortar.
 - 15. ANSI A118.5 - Chemical-Resistant Furan Mortar and Grout.

16. ANSI A118.6 - Ceramic Tile Grouts.
17. ANSI A118.8 - Modified Epoxy Emulsion Mortar/Grout.
18. ANSI A118.9 - Test Methods and Specifications for Cementitious Backer Units.
19. ANSI A136.1 - Organic Adhesives for Installation of Ceramic Tile.
20. ANSI A137.1 - Ceramic Tile.

B. Tile Council of America:

1. TCA - Handbook for Ceramic Tile Installation.

1.3 SUBMITTALS

- A. Section 013300 - Submittal Procedures: Submittal procedures.
- B. Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints, thresholds, ceramic accessories, and setting details.
- C. Product Data: Submit instructions for using grouts and adhesives.
- D. Samples: Submit mounted tile and grout samples for color.
- E. color variations, and grout joint size variations.

1.4 CLOSEOUT SUBMITTALS

- A. Section 017000 - Execution and Closeout Requirements: Closeout procedures.
- B. Operation and Maintenance Data: Submit recommended cleaning methods, cleaning materials, stain removal methods, and polishes and waxes.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with TCA Handbook and ANSI A108 Series/A118 Series.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.
- B. Installer: Company specializing in performing Work of this section with minimum three years documented experience.

1.7 PRE-INSTALLATION MEETINGS

- A. Section 013000 - Administrative Requirements: Pre-installation meeting.

- B. Convene minimum one week prior to commencing work of this section.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Section 016000 - Product Requirements: Product storage and handling requirements.
- B. Protect adhesives and grouts from freezing or overheating.

1.9 ENVIRONMENTAL REQUIREMENTS

- A. Section 016000 - Product Requirements.
- B. Do not install adhesives and grouts in unventilated environment.
- C. Maintain ambient and substrate temperature of 50 degrees F during installation of mortar materials.

1.10 EXTRA MATERIALS

- A. Section 017000 - Execution and Closeout Requirements: Spare parts and maintenance products.
- B. Supply 8 sq ft of each size, color, and surface finish of tile specified.

PART 2 - PRODUCTS

2.1 TILE

- A. Manufacturers:
 1. Interceramic.
 2. Florida Tile.
 3. DalTile.
 4. Crossville.
 5. American Olean Tile. Co.
 6. Substitutions: Section 016000 - Product Requirements.

2.2 COMPONENTS

- A. Floor Tile: ANSI A137.1, conforming to the following:
 1. Moisture Absorption: 0 to 0.5 percent.
 2. Size: 6 x 6 x 3/8 inch (field verify existing to match).
 3. Shape: Square.
 4. Edge: Match existing.
 5. Surface Finish: Match existing.
 6. Color: Match existing.

B. Base: Same as floor tile, Match floor tile for moisture absorption, surface finish, and color:

1. Length: Tile length 6-inch.
2. Height: 6 inch (field verify existing).
3. Top Edge: Bullnosed.
4. Internal Corner: Coved.
5. External Corner: Bullnosed.
6. Moisture Absorption: 0.5 to 3.0 percent.
7. Surface Finish: To match existing.
8. Color: To match existing.

2.3 ACCESSORIES

A. Adhesive Materials:

1. Organic Adhesive: ANSI A136.1 Type I; thin-set bond type.
2. Epoxy Adhesive: ANSI A118.3, thin-set bond type.
3. Tile Setting Adhesive: Elastomeric, waterproof, liquid applied.

B. Mortar Materials:

1. Mortar Bed Materials: ANSI A108.1A; portland cement, sand, and water; proportioned in accordance with applicable code(s).
2. Mortar Bond Coat Materials:
 - a. Dry-Set Portland Cement type: ANSI A118.1.
 - b. Latex-Portland Cement type: ANSI A118.4.
 - c. Epoxy: ANSI A118.3.
 - d. Furan: ANSI A118.5.

C. Grout Materials:

1. Standard Grout: Portland cement type as specified in ANSI A118.6.
 - a. Color Admixture: Site mixed, where occurs.
 - b. Color: As selected by Owner.
2. Epoxy Grout: ANSI A118.8, modified epoxy emulsion grout, color as selected by Owner.

D. Reinforcing Mesh: 2 x 2 inch size weave of 16/16 wire size; welded fabric, galvanized.

E. Cementitious Backer Board: ANSI A118.9; High density, cementitious, glass fiber reinforced, ½ inch thick; 2 inch wide coated glass fiber tape for joints and corners.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 013000 - Administrative Requirements: Coordination and project conditions.

- B. Verify surfaces are ready to receive work.

3.2 PREPARATION

- A. Protect surrounding work from damage.
- B. Vacuum clean surfaces and damp clean.
- C. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.
- D. Install cementitious backer board. Tape joints and corners, cover with skim coat of dry-set mortar to feather edge.

3.3 EXISTING WORK

- A. Section 017000 - Execution and Closeout Requirements: Requirements for maintenance service.
- B. Prepare and remodel existing tile installations using materials and methods as specified.
- C. Clean and repair existing tile which remains.

3.4 INSTALLATION

- A. Install tile, thresholds, and grout in accordance with applicable requirements of ANSI A108.1 through A108.10, and TCA Handbook recommendations.
- B. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.
- C. Place thresholds edge strips at exposed tile edges.
- D. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor, base and wall joints.
- E. Place tile with joints uniform in width, subject to variance in tolerance allowed in tile size. Make joints watertight, without voids, cracks, excess mortar, or excess grout.
 - 1. Quarry Tile: inch 1/8 inch.
- F. Form internal angles coved and external angles bullnosed.
- G. Install ceramic accessories rigidly in prepared openings.
- H. Sound tile after setting. Replace hollow sounding units.
- I. Keep expansion control joints free of adhesive or grout. Apply sealant to joints.
- J. Allow tile to set for a minimum of 48 hours prior to grouting.

- K. Grout tile joints. Use standard grout unless otherwise indicated.
- L. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.
- M. Installation - Floors - Thin-Set Methods:
 - 1. Over exterior concrete substrates, install in accordance with standard grout.
 - 2. Over interior concrete substrates, install in accordance with dry-set or latex-portland cement bond coat, unless otherwise indicated.
- N. Installation - Floors - Mortar Bed Methods:
 - 1. Over interior concrete substrates, install in accordance with TCA Handbook Method F112, bonded, unless otherwise indicated.
- O. Installation - Wall Tile:
 - 1. Over cementitious backer units install in accordance with TCA Handbook Method W244, kitchens.

3.5 CLEANING

- A. Section 017000 - Execution and Closeout Requirements: Final cleaning.
- B. Clean tile and grout surfaces.

3.6 PROTECTION OF INSTALLED CONSTRUCTION

- A. Section 017000 - Execution and Closeout Requirements: Protecting installed construction.
- B. Do not permit traffic over finished floor surface for 4 days after installation.

3.7 SCHEDULES

- A. Kitchen & Hall Floors:
 - 1. Tile: Quarry, match existing.
 - 2. Size: 6 x 6 inch, match existing.
 - 3. Color: Match existing.
 - a. Base: Coved, 6 inches high, bullnosed top edge.
 - b. Installation method: Mortar bed.
 - c. Grout: Silicone rubber.

END OF SECTION 093000

SECTION 099000 - PAINTING AND COATING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Surface preparation and field application of paints, stains, varnishes, and other coatings.
- B. Related Requirements:
 - 1. Section 055000 - Metal Fabrications: Shop-primed items.
 - 2. Section 099600 - High-Performance Coatings: Paints and coatings with better scrubability and durability than normal or with increased protection from corrosion.
 - 3. Section 220553 - Identification for Plumbing Piping and Equipment: Stenciling, color-coding, and identification banding.
 - 4. Section 230553 - Identification for HVAC Piping and Equipment: Stenciling, color-coding, and identification banding.
 - 5. Section 260553 - Identification for Electrical Systems: Stenciling, color-coding, and identification banding.
 - 6. Section 270553 - Identification for Communications Systems: Stenciling, color-coding, and identification banding.
 - 7. Section 321216 - Pavement markings.

1.2 DEFINITIONS

- A. Refer to ASTM D16 for definitions of terms used in this Section.

1.3 REFERENCE STANDARDS

- A. ASTM International:
 - 1. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications.
 - 2. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials.
 - 3. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- B. California Department of Public Health:
 - 1. CA/DHS/EHLB/R-174 - Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers, including 2004 Addenda.
- C. Green Seal:

1. GS-03 - Anti-Corrosive Paints.
2. GS-11 - Paints and Coatings.

D. Master Painters Institute:

1. MPI - Approved Products List.
2. MPI - Architectural Painting Manual.

E. South Coast Air Quality Management District:

1. SCAQMD Rule 1113 - Architectural Coatings.

1.4 PREINSTALLATION MEETINGS

- A. Section 013000 - Administrative Requirements: Requirements for preinstallation meeting.
- B. Convene minimum one week prior to commencing Work of this Section.

1.5 SEQUENCING

- A. Section 011000 - Summary: Requirements for sequencing.
- B. Do not apply finish coats until paintable sealant is applied.
- C. Back prime wood trim before installation of trim.

1.6 SUBMITTALS

- A. Section 013300 - Submittal Procedures: Requirements for submittals.
- B. Product Data:
 1. Submit manufacturer data on finishing products and special coatings.
 2. Include MPI - Approved Products Lists with proposed products highlighted.
- C. Samples:
 1. Submit two paper chip samples, 4 by 4 inches in size, illustrating range of colors and textures available for each surface finishing product as scheduled.

1.7 CLOSEOUT SUBMITTALS

- A. Section 017000 - Execution and Closeout Requirements: Requirements for submittals.
- B. Operation and Maintenance Data: Submit information on cleaning, touchup, and repair of painted and coated surfaces.

1.8 MAINTENANCE MATERIAL SUBMITTALS

- A. Section 017000 - Execution and Closeout Requirements: Requirements for maintenance materials.
- B. Extra Stock Materials:
 - 1. Furnish 1 remaining gal. of each color, type, and surface texture as provided for Project.
 - 2. Label each container with manufacturer's label, color, type, texture, room number, and Site location.
 - 3. Store where directed by Owner.

1.9 QUALITY ASSURANCE

- A. MPI Standards:
 - 1. Comply with indicated MPI standards.
 - 2. Products: Listed in MPI - Approved Products List.
- B. Surface Burning Characteristics:
 - 1. Fire-Retardant Finishes: Maximum 25/450 flame-spread/smoke-developed index when tested according to ASTM E84.

1.10 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' documented experience.
- B. Applicator: Company specializing in performing Work of this Section with minimum three years' documented experience.

1.11 DELIVERY, STORAGE, AND HANDLING

- A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Container Labeling: 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. Inspection:
 - 1. Accept materials on Site in manufacturer's sealed and labeled containers.
 - 2. Inspect for damage and to verify acceptability.
- D. Store materials in ventilated area and otherwise according to manufacturer instructions.
- E. Protection:

1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Provide additional protection according to manufacturer instructions.

1.12 AMBIENT CONDITIONS

- A. Section 015000 - Temporary Facilities and Controls: Requirements for ambient condition control facilities for product storage and installation.
- B. Storage Conditions:
 1. Minimum Ambient Temperature: 45 degrees F.
 2. Maximum Ambient Temperature: 90 degrees F
- C. Application Conditions:
 1. Do not apply materials when surface and ambient temperatures are outside temperature ranges required by paint manufacturer.
 2. Do not apply exterior coatings during rain or snow, when relative humidity is outside humidity ranges, or when moisture content of surfaces exceeds those required by paint manufacturer.
 3. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors and 50 degrees F for exteriors, unless otherwise indicated by manufacturer instructions.
 4. Minimum Application Temperature for Varnish Finishes: 65 degrees F for interiors and exteriors, unless otherwise indicated by manufacturer instructions.
 5. Lighting Level: 80 fc measured mid-height at substrate surface.

1.13 WARRANTY

- A. Section 017000 - Execution and Closeout Requirements: Requirements for warranties.
- B. Furnish five-year manufacturer's warranty for paint and coatings.

PART 2 - PRODUCTS

2.1 PAINTS AND COATINGS

- A. Manufacturers:
 1. Sherwin Williams
 2. Benjamin Moore
 3. Pittsburgh Paint.
 4. Substitutions: As specified in Section 016000 - Product Requirements.
- B. Materials:
 1. Coatings:
 - a. Ready mixed, except field-catalyzed coatings.

- b. Capable of drying or curing free of streaks or sags.
2. Patching Materials: Latex filler.
3. Fastener Head Cover Materials: Latex filler.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 017000 - Execution and Closeout Requirements: Requirements for application examination.
- B. Verify that surfaces and substrate conditions are ready to receive Work as recommended by product manufacturer.
- C. Examine surfaces scheduled to be finished prior to commencement of Work, and report conditions capable of affecting proper application to Architect/Engineer.
- D. Test shop-applied primer for compatibility with subsequent cover materials.
- E. Moisture Content:
 1. Measure moisture content of surfaces using electronic moisture meter.
 2. Do not apply finishes unless moisture content of surfaces are below following maximums:
 - a. Plaster and Gypsum Wallboard: 12 percent.
 - b. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
 - c. Interior Wood: 15 percent, measured according to ASTM D4442.
 - d. Exterior Wood: 15 percent, measured according to ASTM D4442.
 - e. Concrete Floors: 8 percent.

3.2 PREPARATION

- A. Section 017000 - Execution and Closeout Requirements: Requirements for application preparation.
- B. Prepare coatings as follows:
 1. To soft paste consistency, capable of being readily and uniformly dispersed to homogeneous coating.
 2. For smooth flow and brushing properties.
- C. Surface Appurtenances: Remove or mask electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.
- D. Defects:
 1. Correct defects and clean surfaces capable of affecting Work of this Section.

2. Remove or repair existing coatings exhibiting surface defects.
- E. Marks: Seal marks that may bleed through surface finishes with shellac.
- F. Impervious Surfaces:
1. Remove mildew by scrubbing with solution of tetra-sodium or tri-sodium phosphate and bleach.
 2. Rinse with clean water and allow surface to dry.
- G. Aluminum Surfaces Scheduled for Paint Finish:
1. Remove surface contamination by steam or high-pressure water.
 2. Remove oxidation with acid etch and solvent washing.
 3. Apply etching primer immediately following cleaning.
- H. Asphalt, Creosote, or Bituminous Surfaces Scheduled for Paint Finish:
1. Remove foreign particles to permit adhesion of finishing materials.
 2. Apply latex-based compatible sealer or primer.
- I. Insulated Coverings: Remove dirt, grease, and oil from canvas and cotton.
- J. Concrete Floors (new):
1. Remove contamination, acid etch, and rinse floors with clear water.
 2. Verify that required acid-alkali balance is achieved.
 3. Allow to dry.
- K. Mosaic Tile Floors and ceramic wall base to receive epoxy coating:
1. Tile shall be dull, clean and in sound condition. Patch as required.
 2. Remove contamination, acid etch, and rinse floors and base with clear water.
 3. Verify that required acid-alkali balance is achieved.
 4. Allow to dry.
- L. Copper Surfaces Scheduled for Paint Finish:
1. Remove contamination by steam, high-pressure water, or solvent washing.
 2. Apply vinyl-etch primer immediately following cleaning.
- M. Copper Surfaces Scheduled for Natural Oxidized Finish:
1. Remove contamination by applying oxidizing solution of copper acetate and ammonium chloride in acetic acid.
 2. Rub on repeatedly for required effect, and, once attained, rinse surfaces with clear water and allow to dry.
- N. Gypsum Board Surfaces:
1. Fill minor defects with filler compound.
 2. Spot-prime defects after repair.
- O. Galvanized Surfaces:

1. Remove surface contamination and oils, and wash with solvent.
2. Apply coat of etching primer.

P. Concrete and Unit Masonry Surfaces Scheduled to Receive Paint Finish:

1. Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter.
2. Remove oil and grease with solution of tri-sodium phosphate, rinse well, and allow to dry.
3. Remove stains caused by weathering of corroding metals with solution of sodium metasilicate after thoroughly wetting with water, and allow to dry.

Q. Plaster Surfaces:

1. Fill hairline cracks, small holes, and imperfections with latex patching plaster.
2. Make smooth and flush with adjacent surfaces.
3. Wash and neutralize high-alkali surfaces.

R. Uncoated Steel and Iron Surfaces:

1. Remove grease, mill scale, weld splatter, dirt, and rust.
2. If heavy coatings of scale are evident, remove by power tool wire brushing or by sandblasting.
3. Clean by washing with solvent.
4. Apply treatment of phosphoric acid solution, ensuring that weld joints, bolts, and nuts are similarly cleaned.
5. Spot-prime paint after repairs.

S. Shop-Primed Steel Surfaces:

1. Sand and scrape to remove loose primer and rust.
2. Feather edges to make touch-up patches inconspicuous.
3. Clean surfaces with solvent.
4. Prime bare steel surfaces.

T. Interior Wood Items Scheduled to Receive Paint Finish:

1. Wipe off dust and grit prior to priming.
2. Seal knots, pitch streaks, and sappy sections with sealer.
3. Fill nail holes and cracks after primer has dried.
4. Sand between coats.

U. Interior Wood Items Scheduled to Receive Transparent Finish:

1. Wipe off dust and grit prior to sealing.
2. Seal knots, pitch streaks, and sappy sections with sealer.
3. Fill nail holes and cracks after sealer has dried.
4. Sand lightly between coats.

V. Interior Chalkboard Surfaces Scheduled to Receive Wall Covering:

1. Clean the surface with denatured alcohol.
2. Apply Sherwin Williams Multi-Purpose Latex Primer B51 W450, 1 coat .

- W. Exterior Wood Scheduled to Receive Paint Finish:
 - 1. Remove dust, grit, and foreign matter.
 - 2. Seal knots, pitch streaks, and sappy sections.
 - 3. Fill nail holes with tinted exterior paintable calking compound after prime coat has been applied.
- X. Exterior Wood Scheduled to Receive Transparent Finish:
 - 1. Remove dust, grit, and foreign matter.
 - 2. Seal knots, pitch streaks, and sappy sections with sealer.
 - 3. Fill nail holes with tinted exterior calking compound after sealer has been applied.
- Y. Glued-Laminated Beams: Prior to finishing, wash surfaces with solvent, and remove grease and dirt.
- Z. Wood Doors Scheduled for Painting: Seal wood door top and bottom edge surfaces with tinted primer.
- AA. Metal Doors Scheduled for Painting: Prime metal door at top and bottom edge surfaces.
- BB. Existing Work:
 - 1. Extend existing paint and coatings installations using materials and methods compatible with existing installations and as specified.

3.3 APPLICATION

- A. Comply with MPI - Architectural Painting Manual.
- B. Do not apply finishes to surfaces that are not dry.
- C. Apply each coat to uniform appearance.
- D. Apply each coat of paint slightly darker than preceding coat, unless specified otherwise.
- E. Sand wood and metal surfaces lightly between coats to achieve required finish.
- F. Cleaning:
 - 1. Vacuum surfaces to remove loose particles.
 - 2. Use tack cloth to remove dust and particles just prior to applying next coat.
- G. Fillers:
 - 1. If clear finishes are required, tint fillers to match wood.
 - 2. Work fillers into grain before set, and wipe excess from surface.
- H. Concealed Surfaces:
 - 1. Prime concealed surfaces of interior and exterior woodwork with primer paint.

2. Prime concealed surfaces of interior wood surfaces scheduled to receive stain or varnish finish with gloss varnish reduced 25 percent with thinner.

I. Finishing Mechanical and Electrical Equipment:

1. Schedule of Color-Coding and Identification Banding of Equipment, Ductwork, Piping, and Conduit: As specified in Section(s) 220553 - Identification for Plumbing Piping and Equipment, 230553 - Identification for HVAC Piping and Equipment, 260553 - Identification for Electrical Systems, 270553 - Identification for Communications Systems.
2. Paint shop-primed equipment.
3. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components, and paint separately.
4. Prime and paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, and, except where these items are shop finished.
5. Paint interior surfaces of air ducts and convector and baseboard heating cabinets visible through grilles and louvers with one coat of flat black paint to visible surfaces.
6. Paint dampers exposed behind louvers, grilles, and convector and baseboard cabinets to match face panels.
7. Paint exposed conduit and electrical equipment installed in finished areas.
8. Paint both sides and edges of plywood backboards for electrical and telephone equipment before installing equipment.
9. Color-Coding:
 - a. Color-code equipment, piping, conduit, and exposed duct work according to indicated requirements.
 - b. Color band and identify with flow arrows, names, and numbering.
10. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings that were removed prior to finishing.

3.4 FIELD QUALITY CONTROL

- A. Section 014000 - Quality Requirements: Requirements for inspecting and testing.
- B. Section 017000 - Execution and Closeout Requirements: Requirements for testing, adjusting, and balancing.
- C. Inspecting and Testing: Comply with MPI - Architectural Painting Manual.

3.5 CLEANING

- A. Section 017000 - Execution and Closeout Requirements: Requirements for cleaning.
- B. Collect waste material that may constitute fire hazards, place in closed metal containers, and remove daily from Site.

3.6 ATTACHMENTS

A. Schedule - Shop-Primed Items for Site Finishing:

1. Section 055000 - Metal Fabrications: Exposed surfaces of lintels.

B. Schedule - Exterior Surfaces:

1. Steel - Galvanized:
 - a. One coat galvanize primer Sherwin Williams ProCryl Primer.
 - b. Two coats of latex enamel, semigloss.
 - c. ProCryl Top Coat, as manufactured by Sherwin Williams.

C. Schedule - Interior Surfaces:

1. Wood - Painted:
 - a. One coat of latex prime sealer, Wall and Wood Primer.
 - b. Two coats of latex enamel, satin, S-W ProClassic.
2. Wood - Transparent:
 - a. Filler coat (for open grained wood only) Min Wax wood conditioner.
 - b. One coat of stain. S-W Wood Classics Oil Stain, A49 Series, Minwax or BAC wiping stain.
 - c. Two coats of water based polyurethane with satin finish: S-W A64 Series Wood Classics or Kem Aqua Lacquer T75-F527.
3. Concrete, existing Concrete Block exposed to view
 - a. Existing paint is alkyd base.
 - b. Prime: one coat prime with ProBlock Seals & Bonds B51 W20.
 - c. Paint: two coats ProMar 200 Zero VOC Interior Latex Eg-Shel B20-2600 Series (4 mils wet, 1.4 mils dry per coat).
4. Concrete, new concrete Block exposed to view, Latex system
 - a. Block Filler: Block filler, latex interior/exterior; S-W PrepRite Block Filler B25W25.
 - b. Paint: two coats ProMar 200 Latex Semi-Gloss, B31W2200. (4 mils wet, 1.4 mils dry per coat).
5. Steel – Unprimed:
 - a. One coat of latex primer, S-W ProCryl.
 - b. Two coats of latex enamel, semi-gloss SherCryl. (4 mils wet, 1.4 mils dry per coat).
6. Steel - Primed:
 - a. Touch-up with latex primer.
 - b. Two coats of latex enamel, semi-gloss. (4 mils wet, 1.4 mils dry per coat).
 - c. S_W ProMar 200 Latex Semi-Gloss, B31W2200.
7. Steel – Primed, Exposed Structure and Deck:
 - a. One coat water based flat Dryfall B42W, Gray.
8. Concrete Floors (new):
 - a. 1st coat General Polymers GP 3579 Primer 6-15 mils.
 - b. 2nd coat General Polymers GP3744 Epoxy at 6-10 mils
 - c. Total Mils 12-25 Dry film thickness (standard epoxy colors).
9. Tile Floors and Walls:
 - a. Primer - General Polymers GP5513 Primer over mosaic tile floor and ceramic base.
 - b. 1st coat GP 3744 6-10 mils

- c. 2nd coat GP 3744 6-10 mils
- d. Total film thickness 12-2- mils.
- 10. Gypsum Board and Plaster Walls:
 - a. One coat of latex primer sealer. S-W Latex Primer B28WF162.
 - b. Two coats of latex enamel, eggshell.
 - c. S-W ProMar 200 Latex Eg-Shell.
- 11. Gypsum Board Walls in Bathrooms and Janitor Rooms:
 - a. One coat of latex primer sealer. S-W Contractor Latex Primer B28WF162.
 - b. Two coats of latex enamel, semi-gloss, Industrial PreCat SemiGloss K46W151 (4 mils wet, 1.4 mils dry per coat).
- 12. Gypsum Board and Plaster Ceilings:
 - a. One coat of latex primer sealer. S-W ProMar 200 Latex Primer.
 - b. Two coats of latex enamel, flat finish, S-W ProMar 200, extra white, flat (4 mils wet, 1.4 mils dry per coat).

END OF SECTION 099000

SECTION 114000 - FOODSERVICE EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes food service equipment and casework; and connections to utilities.
- B. Related Sections:
 - 1. Section 079000 - Joint Protection.
 - 2. Section 224000 - Plumbing Fixtures.
 - 3. Section 260503 - Equipment Wiring Connections: Electrical characteristics and wiring connections.
 - 4. Section 233813-Commercial Kitchen Hoods: Hood fire suppression system.

1.2 REFERENCES

- A. ASTM International:
 - 1. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - 2. ASTM A666 - Standard Specification for Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
 - 3. ASTM C1036 - Standard Specification for Flat Glass.
 - 4. ASTM C1048 - Standard Specification for Heat-Treated Flat Glass-Kind HS, Kind FT Coated and Uncoated Glass.
- B. National Electrical Manufacturers Association:
 - 1. NEMA LD 3 - High Pressure Decorative Laminates.
 - 2. NEMA MG 1 - Motors and Generators.
- C. National Fire Protection Association:
 - 1. NFPA 96 - Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations.
- D. Sheet Metal and Air Conditioning Contractors:
 - 1. SMACNA - Kitchen Equipment Fabrication Guidelines.
- E. Underwriters Laboratories Inc.:
 - 1. UL - Electrical Appliance and Utilization Equipment Directory.

1.3 PERFORMANCE REQUIREMENTS

- A. Load Supporting Components: Reinforced frame support system and surfaces so surfaces safely support load of lbs concentrated on one square foot in any area on component surface, with no indentation showing on surface, and with permanent set not exceeding 0.005 inches.

1.4 SUBMITTALS

- A. Section 013300 - Submittal Procedures: Submittal requirements.
- B. Shop Drawings:
 - 1. Indicate in large scale detail, fabricated equipment showing construction methods, type and gage of metal, hardware and fittings, plan, front elevation, minimum of one cross-section, and utility requirements as to types and sizes and locations.
 - 2. Illustrate complicated parts of typical items in cut-away perspective.
 - 3. For control systems, indicate service connections, characteristics, and wiring diagrams.
- C. Product Data: Submit data on appliances; indicate configuration, sizes, materials, finishes, locations, and utility connections and locations.
- D. Manufacturer's Installation Instructions: Submit special procedures and perimeter conditions requiring special attention.
- E. Manufacturer's Certificate: Certify Products meet or exceed UL specified requirements.

1.5 CLOSEOUT SUBMITTALS

- A. Section 017000 - Execution and Closeout Requirements: Closeout procedures.
- B. Operation and Maintenance Data: Submit operating data for specified equipment. Submit lubrication and periodic maintenance requirement schedules.

1.6 QUALITY ASSURANCE

- A. Perform Work as follows:
 - 1. Cooler and Freezer Units: Listed by UL standards.
 - 2. Electrical Wiring and Components and Self-Contained Refrigeration Systems: Conform to UL standards.
 - 3. Exhaust Hoods: NFPA 96.
- B. Perform Work in accordance with State of Michigan standard.
- C. Maintain one copy of each document on site.

1.7 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience, and with service facilities within 200 miles of Project.
- B. Fabricator: Company specializing in performing Work of this section with minimum three years documented experience.

1.8 PRE-INSTALLATION MEETINGS

- A. Section 013000 - Administrative Requirements: Pre-installation meeting.
- B. Convene minimum one week prior to commencing work of this section.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Section 016000 - Product Requirements: Product storage and handling requirements.
- B. Store products clear of floor in manner to prevent damage.
- C. Coordinate size of access and route to place of installation.

1.10 COORDINATION

- A. Section 013000 - Administrative Requirements: Coordination and project conditions.
- B. Coordinate Work with location and placement of utilities. Coordinate characteristics of utilities with requirements of food service equipment.
- C. Schedule Work to immediately follow installation of utilities and precede installation of room finishes.
- D. Sequence installation to accommodate required utility connections.

1.11 WARRANTY

- A. Section 017000 - Execution and Closeout Requirements: Product warranties and product bonds.
- B. Furnish a one year manufacturer warranty for food service equipment.

PART 2 - PRODUCTS

2.1 FOOD SERVICE EQUIPMENT

- A. Manufacturers:

1. Nor-Lake
2. Amerikooler
3. Arctic Industries
4. Leer
5. Polar King
6. Bush Refrigeration
7. Everidge Crown Tonka
8. Substitutions: Section 016000 - Product Requirements.

2.2 COMPONENTS

- A. Equipment Schedule: Refer to schedule at end of this section.
- B. Furnish rough-in hardware, supports and connections, attachment devices, closure trim, and accessories.
- C. Sheet Steel: ASTM A653/A653M, G60 galvanized coating.
- D. Stainless Steel: ASTM A666, Type 304 316 commercial grade, No. 4 finish.
- E. Safety Glass: ASTM C1036, Type 1, Quality Q3; clear; heat strengthened fully tempered or laminated as required, exposed edges ground, cut or drilled to receive hardware.
- F. Laminate Backing Sheets: NEMA LD 3 Type BK20, 0.020 inch thick, unfinished, plastic laminate.
- G. Finish Hardware: Manufacturer's standard.
- H. Work Surfaces: Stainless steel.
- I. Fittings (where occurs): Sink drains with crumb cup and waste fittings, faucets electrical outlets, manufactured by.
- J. Service Outlet Covers and Escutcheons (where occurs): Stainless Steel.
- K. Sealants: Silicone, bacteria resistant type, as specified in Section 079000.

2.3 FABRICATION

- A. Fabricate sheet material for work surfaces, facings, and shelves of straight lengths in one continuous sheet when less than 12 ft in length. Weld metal joints for lengths over 12 ft.
- B. Weld and form edges, ends, and joints smooth. Grind welds of stainless steel smooth and flush; polish to match adjacent surfaces.
- C. Cut and drill components for service outlets and fixtures as required.
- D. Fix leg mounted units by doweling to floor with 1/4 inch stainless steel pins, where vibration or oscillation is anticipated.

- E. Furnish stainless steel legs with adjustable feet. Fasten legs to equipment securely and rigidly.
- F. Furnish rubber or nylon button feet on bearing surface of items positioned on finished surface.
- G. Isolate rotating or reciprocating machinery to prevent noise and vibration.
- H. Maintain existing indirect drain piping from equipment to terminate over nearest waste receptor.
- I. Accommodate site installation of other services or equipment.
- J. Shop assemble work where possible.
- K. Stainless Steel Fastenings and Fittings: Bolt and screw with countersunk flat heads at visible or accessible surfaces. Use concealed fastenings where possible.

2.4 SHOP FINISHING

- A. Shop finish components.
- B. Metal (Except Stainless Steel): Degrease and phosphate etch, prime and apply minimum two coats enamel, color as selected.
- C. Stainless Steel: No. 4 finish.
- D. Bituminous Coating: Sound deaden internal surfaces of metal work and underside of metal counters and sinks.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 013000 - Administrative Requirements: Coordination and project conditions.
- B. Verify ventilation outlets, service connections, and supports are correct and in required location.
- C. Verify electric power is available and of correct characteristics.

3.2 EXISTING EQUIPMENT

- A. Coordinate Work with Owner to minimize interruption to Owner's normal operations.
- B. Re-used Equipment: Refer to schedule on Drawings for re-used equipment, if any.

3.3 INSTALLATION

- A. Uncrate, set in place, level, and ready for final connections by mechanical and electrical contractors.

- B. Sequence installation and erection to accommodate required utility connections.
- C. Cut, fit, and patch items of this section required for installation or services for equipment.
- D. Use anchoring devices appropriate for equipment and expected usage.
- E. Install sealant to achieve clean joint with adjacent building finishes and between abutting components.

3.4 MANUFACTURER'S FIELD SERVICES

- A. At completion of work, demonstrate operation of each item of equipment and instruct Owner in operating procedures and maintenance.
- B. Individual Performing Demonstration: Fully knowledgeable of operating and service aspects of equipment.

3.5 ADJUSTING

- A. Section 017000 - Execution and Closeout Requirements: Testing, adjusting, and balancing.
- B. Adjust equipment and apparatus to ensure proper working order and conditions.
- C. Remove and replace equipment creating excessive noise or vibration.

3.6 CLEANING

- A. Section 017000 - Execution and Closeout Requirements: Final cleaning.
- B. Remove masking or protective covering from stainless steel and other finished surfaces.
- C. Wash and clean equipment.
- D. Polish glass, plastic, hardware, accessories, fixtures, and fittings.

3.7 DEMONSTRATION AND TRAINING

- A. Test equipment prior to demonstration. Demonstrate operation of components scheduled.
 - 1. One Day, (8 hour) training included.

3.8 PROTECTION OF FINISHED WORK

- A. Section 017000 - Execution and Closeout Requirements: Protecting finished work.
- B. Remove protective coverings from prefinished work.

3.9 SCHEDULE

- A. Walk in combination Cooler/Freezer overall size 20'-0" x 17'-6", Walk-In Cooler/Freezer, two compartment, size and shape per plan. Includes 4 inch insulated walls, 72" sliding doors, insulated smooth aluminum floor and LED lighting. Remote capsule pack includes compressor and condenser, exterior thermometer and lighting located along the exterior wall outside. Refer to architectural drawings for more information.

END OF SECTION 114000

SECTION 26 05 00 – GENERAL ELECTRICAL REQUIREMENTS

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. Electrical equipment coordination and installation.
2. Sleeves for raceways and cables.
3. Sleeve seals.
4. Grout.
5. Common electrical installation requirements.

B. Provide all interior & exterior electric wiring including, but not limited to:

1. Proposed equipment and other equipment as detailed.
2. Branch circuit wiring from the distribution and proposed equipment and other detailed circuit wiring.
3. Conduits and boxes for communication system locations.
4. Conduit, boxes and wire for extensions/additions to existing security and communication systems. Contractor is responsible for providing and pulling all cables.

C. Obtain and pay for all electrical permits and inspections from the Authority Having Jurisdiction

1.03 DEFINITIONS

- A. EPDM: Ethylene-propylene-diene terpolymer rubber.
- B. NBR: Acrylonitrile-butadiene rubber.

1.04 SUBMITTALS

- A. Product Data: Provide certified submittals (approved by the Prime contractor) for the following items and any other items where indicated in other specification sections:
 1. Circuit Breakers
 2. Disconnect Switches and Fuses
 3. Conduit, boxes, fittings, and support items
 4. Wire and Cable
 5. Electrical Devices, including receptacles, switches, and device cover plates.
 6. Light fixtures

1.05 COORDINATION

- A. Coordinate arrangement, mounting, and support of electrical equipment:
 - 1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
 - 2. To provide for ease of disconnecting the equipment with minimum interference to other installations.
 - 3. To allow right of way for piping and conduit installed at required slope.
 - 4. So connecting raceways and cables will be clear of obstructions and of the working and access space of other equipment.
- B. Coordinate installation of required supporting devices and set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.
- C. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 07 Section "Penetration Firestopping."

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Provide like items from one manufacturer; such as, luminaire types, switches, receptacles, breakers, panels, and the like.
- B. Provide new electrical materials of the type and quality detailed, listed by UL, bearing their label wherever standards have been established.
- C. Provide incidentals not specifically mentioned herein or noted on Drawings, but needed to complete the system or systems, in a safe and satisfactory working condition.
- D. Where materials, equipment, apparatus or other products are specified by manufacturer, brand name, type, or catalog number, such designation is to establish standards of desired quality and style and shall be the basis of the bid.

2.02 SLEEVES FOR RACEWAYS AND CABLES

- A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.
- B. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.
- C. Sleeves for Rectangular Openings: Galvanized sheet steel.
 - 1. Minimum Metal Thickness:
 - a. For sleeve cross-section rectangle perimeter less than 50 inches and no side more than 16 inches, thickness shall be 0.052-inch.

- b. For sleeve cross-section rectangle perimeter equal to, or more than, 50 inches and 1 or more sides equal to, or more than, 16 inches, thickness shall be 0.138-inch.

2.03 SLEEVE SEALS

- A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Advance Products & Systems, Inc.
 - b. Calpico, Inc.
 - c. Metraflex Co.
 - d. Pipeline Seal and Insulator, Inc.
 - 2. Sealing Elements: EPDM interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.
 - 3. Pressure Plates: Plastic. Include two for each sealing element.
 - 4. Connecting Bolts and Nuts: Stainless steel of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.04 GROUT

- A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

PART 3 - EXECUTION

3.01 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION

- A. Comply with NECA 1, NFPA 70 (National Electrical Code – current edition adopted by the Authority Having Jurisdiction), and any local amendments.
- B. Measure indicated mounting heights to bottom of unit for suspended items and to center of unit for wall-mounting items.
- C. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide maximum possible headroom consistent with these requirements.
- D. Equipment: Install to facilitate service, maintenance, and repair or replacement of components of both electrical equipment and other nearby installations. Connect in such a way as to facilitate future disconnecting with minimum interference with other items in the vicinity.

- E. Right of Way: Give to piping systems installed at a required slope.

3.02 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Electrical penetrations occur when raceways, cables, wireways, cable trays, or busways penetrate concrete slabs, concrete or masonry walls, or fire-rated floor and wall assemblies.
- B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.
- C. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
- D. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.
- E. Cut sleeves to length for mounting flush with both surfaces of walls.
- F. Extend sleeves installed in floors 2 inches above finished floor level.
- G. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway or cable, unless indicated otherwise.
- H. Seal space outside of sleeves with grout for penetrations of concrete and masonry
 - 1. Promptly pack grout solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect grout while curing.
- I. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint. Comply with requirements in Division 07 Section "Joint Sealants."
- J. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at raceway and cable penetrations. Install sleeves and seal raceway and cable penetration sleeves with firestop materials. Comply with requirements in Division 07 Section "Penetration Firestopping."
- K. Aboveground, Exterior-Wall Penetrations: Seal penetrations using steel pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.
- L. Underground, Exterior-Wall Penetrations: Install cast-iron pipe sleeves. Size sleeves to allow for 1-inch annular clear space between raceway or cable and sleeve for installing mechanical sleeve seals.

3.03 SLEEVE-SEAL INSTALLATION

- A. Install to seal exterior wall penetrations.

- B. Use type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.04 FIRESTOPPING

- A. Apply firestopping to penetrations of fire-rated floor and wall assemblies for electrical installations to restore original fire-resistance rating of assembly. Firestopping materials and installation requirements are specified in Division 07 Section "Penetration Firestopping."

END OF SECTION

SECTION 26 05 03 – EQUIPMENT WIRING CONNECTIONS

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes electrical connections to equipment.
- B. Related Sections:
 - 1. Section 26 05 19 - Low-Voltage Electrical Power Conductors and Cables.
 - 2. Section 26 05 33 - Raceway and Boxes for Electrical Systems.

1.2 REFERENCES

- A. National Electrical Manufacturers Association:
 - 1. NEMA WD 1 - General Requirements for Wiring Devices.
 - 2. NEMA WD 6 - Wiring Devices-Dimensional Requirements.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Submittal procedures.
- B. Product Data: Submit wiring device manufacturer's catalog information showing dimensions, configurations, and construction.
- C. Manufacturer's installation instructions.

1.4 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Submittal procedures.
- B. Project Record Documents: Record actual locations, sizes, and configurations of equipment connections.

1.5 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Obtain and review shop drawings, product data, manufacturer's wiring diagrams, and manufacturer's instructions for equipment furnished under other sections.
- C. Determine connection locations and requirements.
- D. Sequence rough-in of electrical connections to coordinate with installation of equipment.
- E. Sequence electrical connections to coordinate with start-up of equipment.

PART 2 PRODUCTS

2.1 CORD AND PLUGS

- A. Attachment Plug Construction: Conform to NEMA WD 1.
- B. Must be UL Listed and Labeled.
- C. Configuration: NEMA WD 6; match receptacle configuration at outlet furnished for equipment.
- D. Cord Construction: Type SO multiconductor flexible cord with identified equipment grounding conductor, suitable for use in damp locations.
- E. Size: Suitable for connected load of equipment, length of cord, and rating of branch circuit overcurrent protection.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Verify equipment is ready for electrical connection, for wiring, and to be energized.

3.2 EXISTING WORK

- A. Remove exposed abandoned equipment wiring connections, including abandoned connections above accessible ceiling finishes.
- B. Disconnect abandoned utilization equipment and remove wiring connections. Remove abandoned components when connected raceway is abandoned and removed. Install blank cover for abandoned boxes and enclosures not removed.
- C. Extend existing equipment connections using materials and methods compatible with existing electrical installations, or as specified.

3.3 INSTALLATION

- A. Make electrical connections.
- B. Make conduit connections to equipment using flexible conduit. Use liquidtight flexible conduit with watertight connectors in damp or wet locations.
- C. Connect heat producing equipment using wire and cable with insulation suitable for temperatures encountered.
- D. Install receptacle outlet to accommodate connection with attachment plug.
- E. Install cord and cap for field-supplied attachment plug.

- F. Install suitable strain-relief clamps and fittings for cord connections at outlet boxes and equipment connection boxes.
- G. Install disconnect switches, controllers, control stations, and control devices to complete equipment wiring requirements.
- H. Install terminal block jumpers to complete equipment wiring requirements.
- I. Install interconnecting conduit and wiring between devices and equipment to complete equipment wiring requirements.

3.4 ADJUSTING

- A. Section 01 70 00 - Execution and Closeout Requirements: Testing, adjusting, and balancing.
- B. Cooperate with utilization equipment installers and field service personnel during checkout and starting of equipment to allow testing and balancing and other startup operations. Provide personnel to operate electrical system and checkout wiring connection components and configurations.

3.5 EQUIPMENT CONNECTION SCHEDULE

- A. Provide electrical connection of equipment (voltage, amperage, fusing, etc.) per equipment manufacturer's requirements.

END OF SECTION

SECTION 26 05 19 – LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes building wire and cable; metal clad cable; and wiring connectors and connections.

1.2 REFERENCES

- A. International Electrical Testing Association:
 - 1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.
- B. National Fire Protection Association:
 - 1. NFPA 70 - National Electrical Code.
 - 2. NFPA 262 - Standard Method of Test for Flame Travel and Smoke of Wires and Cables for Use in Air-Handling Spaces.
- C. Underwriters Laboratories, Inc.:
 - 1. UL 1277 - Standard for Safety for Electrical Power and Control Tray Cables with Optional Optical-Fiber Members.

1.3 SYSTEM DESCRIPTION

- A. Product Requirements: Provide products as follows:
 - 1. Stranded conductors.
 - 2. Conductor not smaller than 12 AWG for power and lighting circuits.
 - 3. Conductor not smaller than 16 AWG for control circuits.
- B. Conduit:
 - 1. Wire shall be installed in conduit.
 - 2. Conduit may be used in exposed locations only in unfinished spaces (such as mechanical rooms). All conduit in finished spaces shall be concealed in walls and above ceilings.
 - 3. MC cable may be used as fixture whips when concealed.

1.4 DESIGN REQUIREMENTS

- A. Conductor sizes are based on copper. DO NOT use aluminum wire.

1.5 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures.
- B. Material information.

1.6 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout.
- B. Project Record Documents: Record actual locations of components and circuits.

1.7 QUALITY ASSURANCE

- A. Provide wiring materials located in plenums with peak optical density not greater than 0.5, average optical density not greater than 0.15, and flame spread not greater than 5 feet (1.5 m) when tested in accordance with NFPA 262.

1.8 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

1.9 FIELD MEASUREMENTS

- A. Verify field measurements are as indicated on Drawings.

1.10 COORDINATION

- A. Section 01 30 00 - Administrative.
- B. Where wire and cable destination is indicated and routing is not shown, determine routing and lengths required.
- C. Wire and cable routing indicated is approximate unless dimensioned. Include wire and cable lengths within 10 ft of length shown.

1.11 DEFINITIONS

- A. Furnish: To supply and deliver, unload and inspect for damage.
- B. Install: To unpack, assemble, erect, mount, apply, place, finish, cure, protect, clean, energize, program, adjust, test and make completely functional and operational.
- C. Provide: To furnish and install.

PART 2 PRODUCTS

2.1 BUILDING WIRE

- A. Manufacturers:
 - 1. General Cable Co.
 - 2. Rome Cable.
 - 3. Southwire.

- B. Product Description: Single conductor insulated wire.
- C. Conductor: Stranded copper.
- D. Insulation Voltage Rating: 600 volts.
- E. Insulation Temperature Rating: 90 degrees C.

2.2 METAL CLAD CABLE

- A. Conductor: Copper.
- B. Insulation Voltage Rating: 600 volts.
- C. Insulation Temperature Rating: 90 degrees C.
- D. Armor Material: Aluminum.
- E. Armor Design: Interlocked metal tape or corrugated tube.
- F. Jacket: None.

2.3 WIRING CONNECTORS

- A. Split Bolt Connectors:
- B. Solderless Pressure Connectors:
- C. Spring Wire Connectors:
- D. Compression Connectors:

2.4 TERMINATIONS

- A. Terminal Lugs for Wires 6 AWG and Smaller: Solderless, compression type copper.
- B. Lugs for Wires 4 AWG and Larger: Color keyed, compression type copper, with insulating sealing collars.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements.
- B. Verify interior of building has been protected from weather.
- C. Verify mechanical work likely to damage wire and cable has been completed.

- D. Verify raceway installation is complete and supported.

3.2 PREPARATION

- A. Completely and thoroughly swab raceway before installing wire.

3.3 INSTALLATION

- A. Route wire and cable to meet Project conditions.
- B. Neatly train and lace wiring inside boxes, equipment, and panelboards.
- C. Identify and color code wire and cable. Identify each conductor with its circuit number or other designation indicated.
- D. Special Techniques--Building Wire in Raceway:
 1. Pull conductors into raceway at same time.
 2. Install building wire 4 AWG and larger with pulling equipment.
- E. Special Techniques - Cable:
 1. Protect exposed cable from damage.
 2. Support cables above accessible ceiling, using spring metal clips or metal cable ties to support cables from structure or ceiling suspension system. Do not rest cable on ceiling panels.
 3. Use suitable cable fittings and connectors.
- F. Special Techniques - Wiring Connections:
 1. Clean conductor surfaces before installing lugs and connectors.
 2. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.
 3. Tape uninsulated conductors and connectors with electrical tape to 150 percent of insulation rating of conductor.
 4. Install split bolt connectors for copper conductor splices and taps, 6 AWG and larger.
 5. Install solderless pressure connectors with insulating covers for copper conductor splices and taps, 8 AWG and smaller.
 6. Install insulated spring wire connectors with plastic caps for copper conductor splices and taps, 10 AWG and smaller.
- G. Install stranded conductors for branch circuits 10 AWG and smaller. Install crimp on fork terminals for device terminations. Do not place bare stranded conductors directly under screws.
- H. Install terminal lugs on ends of 600 volt wires unless lugs are furnished on connected device, such as circuit breakers.
- I. Size lugs in accordance with manufacturer's recommendations terminating wire sizes. Install 2-hole type lugs to connect wires 4 AWG and larger to copper bus bars.

- J. For terminal lugs fastened together such as on motors, transformers, and other apparatus, or when space between studs is small enough that lugs can turn and touch each other, insulate for dielectric strength of 2-1/2 times normal potential of circuit.

3.4 WIRE COLOR

- A. General:
 - 1. For wire sizes 10 AWG and smaller, install wire colors in accordance with the following:
 - a. Black and red for single phase circuits at 120/240 volts.
 - b. Black, red, and blue for circuits at 120/208 volts single or three phase.
 - c. Orange, brown, and yellow for circuits at 277/480 volts single or three phase.
 - 2. For wire sizes 8 AWG and larger, identify wire with colored tape at terminals, splices and boxes. Colors are as follows:
 - a. Black and red for single phase circuits at 120/240 volts.
 - b. Black, red, and blue for circuits at 120/208 volts single or three phase.
 - c. Orange, brown, and yellow for circuits at 277/480 volts single or three phase.
- B. Neutral Conductors: White. When two or more neutrals are located in one conduit, individually identify each with proper circuit number.
- C. Branch Circuit Conductors: Install three or four wire home runs with each phase uniquely color coded.
- D. Feeder Circuit Conductors: Uniquely color code each phase.
- E. Ground Conductors:
 - 1. For 6 AWG and smaller: Green.
 - 2. For 4 AWG and larger: Identify with green tape at both ends and visible points including junction boxes.

3.5 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 7.3.1.

END OF SECTION

SECTION 26 05 26 – GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Rod electrodes.
 - 2. Wire.
 - 3. Mechanical connectors.
 - 4. Exothermic connections.
 - 5. Equipment grounding.

1.2 REFERENCES

- A. Institute of Electrical and Electronics Engineers:
 - 1. IEEE 142 - Recommended Practice for Grounding of Industrial and Commercial Power Systems.
 - 2. IEEE 1100 - Recommended Practice for Powering and Grounding Electronic Equipment.
- B. International Electrical Testing Association:
 - 1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.
- C. National Fire Protection Association:
 - 1. NFPA 70 - National Electrical Code.

1.3 SYSTEM DESCRIPTION

- A. Grounding systems use the following elements as grounding electrodes:
 - 1. Metal underground water pipe.
 - 2. Metal building frame.
 - 3. Concrete-encased electrode (ufer).
 - 4. Ground ring.
 - 5. Metal underground gas piping system.
 - 6. Rod electrode.
 - 7. Plate electrode.
- B. Equipment Ground.
 - 1. Provide separate insulated equipment grounding conductor in each conduit and raceway. DO NOT rely on conduit as the sole means of equipment grounding.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures.
- B. Product Data: Submit data on grounding electrodes and connections.

- C. Test Reports: Indicate overall resistance to ground and resistance of each electrode.

1.5 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout.
- B. Project Record Documents: Record actual locations of components and grounding electrodes.

1.6 QUALITY ASSURANCE

- A. Provide grounding materials conforming to requirements of NEC, IEEE 142, and UL labeled.

1.7 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years documented experience.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements.
- B. Accept materials on site in original factory packaging, labeled with manufacturer's identification.
- C. Protect from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original packaging.
- D. Do not deliver items to project before time of installation. Limit shipment of bulk and multiple-use materials to quantities needed for immediate installation.

1.9 COORDINATION

- A. Section 01 30 00 - Administrative Requirements.
- B. Complete grounding and bonding of building reinforcing steel prior concrete placement.

PART 2 PRODUCTS

2.1 ROD ELECTRODES

- A. Manufacturers:
 1. Erico, Inc.
 2. O-Z Gedney Co.
 3. Thomas & Betts, Electrical.
- B. Product Description:

1. Material: Copper-clad steel.
2. Diameter: 3/4 inch.
3. Length: 10 feet.

C. Connector: Connector for exothermic welded connection.

2.2 WIRE

A. Material: Stranded copper.

B. Foundation Electrodes: match size of service grounding conductor.

C. Grounding Electrode Conductor: Copper conductor bare.

D. Bonding Conductor: Copper conductor bare or insulated.

2.3 MECHANICAL CONNECTORS

A. Description: Bronze connectors, suitable for grounding and bonding applications, in configurations required for particular installation.

2.4 EXOTHERMIC CONNECTIONS

A. Product Description: Exothermic materials, accessories, and tools for preparing and making permanent field connections between grounding system components.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify final backfill and compaction has been completed before driving rod electrodes.

3.2 PREPARATION

A. Remove paint, rust, mill oils and surface contaminants at connection points.

3.3 INSTALLATION

A. Install in accordance with IEEE 142.

B. Install rod electrodes at locations as indicated on Drawings.

C. Install grounding and bonding conductors concealed from view.

D. Install grounding electrode conductor and connect to reinforcing steel in foundation footing as indicated on Drawings. Electrically bond steel together.

- E. Bond together metal siding not attached to grounded structure; bond to ground.
- F. Bond together each metallic raceway, pipe, duct and other metal objects.
- G. Provide separate insulated equipment grounding conductor in each conduit and raceway. Conductor shall be sized per National Electrical Code requirements.

3.4 FIELD QUALITY CONTROL

- A. Inspect and test in accordance with NETA ATS, except Section 4.
- B. Grounding and Bonding: Perform inspections and tests listed in NETA ATS, Section 7.13.
- C. Perform ground resistance testing in accordance with IEEE 142.
- D. Perform leakage current tests in accordance with NFPA 99.
- E. Perform continuity testing in accordance with IEEE 142.
- F. When improper grounding is found on receptacles, check receptacles in entire project and correct. Perform retest.

END OF SECTION

SECTION 26 05 29 – HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Conduit supports.
 - 2. Formed steel channel.
 - 3. Spring steel clips.
 - 4. Sleeves.
 - 5. Mechanical sleeve seals.
 - 6. Firestopping relating to electrical work.
 - 7. Firestopping accessories.
 - 8. Equipment bases and supports.

1.2 REFERENCES

- A. ASTM International:
 - 1. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
 - 2. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
 - 3. ASTM E814 - Standard Test Method for Fire Tests of Through-Penetration Fire Stops.
 - 4. ASTM E1966 - Standard Test Method for Fire-Resistive Joint Systems.
- B. FM Global:
 - 1. FM - Approval Guide, A Guide to Equipment, Materials & Services Approved By Factory Mutual Research For Property Conservation.
- C. National Fire Protection Association:
 - 1. NFPA 70 - National Electrical Code.
- D. Underwriters Laboratories Inc.:
 - 1. UL 263 - Fire Tests of Building Construction and Materials.
 - 2. UL 723 - Tests for Surface Burning Characteristics of Building Materials.
 - 3. UL 1479 - Fire Tests of Through-Penetration Firestops.
 - 4. UL 2079 - Tests for Fire Resistance of Building Joint Systems.
 - 5. UL - Fire Resistance Directory.
- E. Intertek Testing Services (Warnock Hersey Listed):
 - 1. WH - Certification Listings.

1.3 DEFINITIONS

- A. Firestopping (Through-Penetration Protection System): Sealing or stuffing material or assembly placed in spaces between and penetrations through building materials to arrest movement of fire, smoke, heat, and hot gases through fire rated construction.

1.4 SYSTEM DESCRIPTION

- A. Firestopping Materials: ASTM E119, ASTM E814, UL 263, UL 1479] to achieve fire ratings as noted on Drawings for adjacent construction, but not less than 1 hour fire rating.
 - 1. Ratings may be 3-hours for firestopping in through-penetrations of 4-hour fire rated assemblies unless otherwise required by applicable codes.
- B. Firestop interruptions to fire rated assemblies, materials, and components.

1.5 PERFORMANCE REQUIREMENTS

- A. Firestopping: Conform to applicable code for fire resistance ratings and surface burning characteristics.
- B. Firestopping: Provide certificate of compliance from authority having jurisdiction indicating approval of materials used.

1.6 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures.
- B. Shop Drawings: Indicate system layout with location and detail of trapeze hangers.
- C. Product Data:
 - 1. Hangers and Supports: Submit manufacturers catalog data including load capacity.
 - 2. Firestopping: Submit data on product characteristics, performance and limitation criteria.
- D. Firestopping Schedule: Submit schedule of opening locations and sizes, penetrating items, and required listed design numbers to seal openings to maintain fire resistance rating of adjacent assembly.
- E. Design Data: Indicate load carrying capacity of trapeze hangers and hangers and supports.
- F. Manufacturer's Installation Instructions:
 - 1. Hangers and Supports: Submit special procedures and assembly of components.
 - 2. Firestopping: Submit preparation and installation instructions.
- G. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

- H. Engineering Judgements: For conditions not covered by UL or WH listed designs, submit judgements by licensed professional engineer suitable for presentation to authority having jurisdiction for acceptance as meeting code fire protection requirements.

1.7 QUALITY ASSURANCE

- A. Through Penetration Firestopping of Fire Rated Assemblies: UL 1479 or ASTM E814 with 0.10 inch water gage minimum positive pressure differential to achieve fire F-Ratings and temperature T-Ratings as indicated on Drawings, but not less than 1-hour.
 - 1. Wall Penetrations: Fire F-Ratings as indicated on Drawings, but not less than 1-hour.
 - 2. Floor and Roof Penetrations: Fire F-Ratings and temperature T-Ratings as indicated on Drawings, but not less than 1-hour.
 - a. Floor Penetrations Within Wall Cavities: T-Rating is not required.
- B. Through Penetration Firestopping of Non-Fire Rated Floor [and Roof] Assemblies: Materials to resist free passage of flame and products of combustion.
 - 1. Noncombustible Penetrating Items: Noncombustible materials for penetrating items connecting maximum of three stories.
 - 2. Penetrating Items: Materials approved by authorities having jurisdiction for penetrating items connecting maximum of two stories.
- C. Fire Resistant Joints in Fire Rated Floor, Roof, and Wall Assemblies: ASTM E1966 or UL 2079 to achieve fire resistant rating as indicated on Drawings for assembly in which joint is installed.
- D. Fire Resistant Joints Between Floor Slabs and Exterior Walls: ASTM E119 with 0.10 inch water gage minimum positive pressure differential to achieve fire resistant rating as indicated on Drawings for floor assembly.
- E. Surface Burning Characteristics: Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements.
- B. Accept materials on site in original factory packaging, labeled with manufacturer's identification.
- C. Protect from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original packaging.

1.9 ENVIRONMENTAL REQUIREMENTS

- A. Section 01 60 00 - Product Requirements.
- B. Do not apply firestopping materials when temperature of substrate material and ambient air is below 60 degrees F.

- C. Maintain this minimum temperature before, during, and for minimum 3 days after installation of firestopping materials.
- D. Provide ventilation in areas to receive solvent cured materials.

PART 2 PRODUCTS

2.1 CONDUIT SUPPORTS

- A. Manufacturers:
 - 1. Allied Tube & Conduit Corp.
 - 2. Electroline Manufacturing Company.
 - 3. O-Z Gedney Co.
- B. Hanger Rods: Threaded high tensile strength galvanized carbon steel with free running threads.
- C. Beam Clamps: Malleable Iron, with tapered hole in base and back to accept either bolt or hanger rod. Set screw: hardened steel.
- D. Conduit clamps for trapeze hangers: Galvanized steel, notched to fit trapeze with single bolt to tighten.
- E. Conduit clamps - general purpose: One hole malleable iron for surface mounted conduits.
- F. Cable Ties: High strength nylon temperature rated to 185 degrees F. Self locking.

2.2 FORMED STEEL CHANNEL

- A. Product Description: Galvanized 12 gage thick steel. With holes 1-1/2 inches on center.

2.3 SPRING STEEL CLIPS

- A. Product Description: Mounting hole and screw closure.

2.4 MECHANICAL SLEEVE SEALS

- A. Product Description: Modular mechanical type, consisting of interlocking synthetic rubber links shaped to continuously fill annular space between object and sleeve, connected with bolts and pressure plates causing rubber sealing elements to expand when tightened, providing watertight seal and electrical insulation.

2.5 FIRESTOPPING

- A. Product Description: Different types of products by multiple manufacturers are acceptable as required to meet specified system description and performance requirements; provide only one type for each similar application.

1. Silicone Firestopping Elastomeric Firestopping: Single or Multiple component silicone elastomeric compound and compatible silicone sealant.
2. Foam Firestopping Compounds: Single or Multiple component foam compound.
3. Formulated Firestopping Compound of Incombustible Fibers: Formulated compound mixed with incombustible non-asbestos fibers.
4. Fiber Stuffing and Sealant Firestopping: Composite of mineral or ceramic fiber stuffing insulation with silicone elastomer for smoke stopping.
5. Mechanical Firestopping Device with Fillers: Mechanical device with incombustible fillers and silicone elastomer, covered with sheet stainless steel jacket, joined with collars, penetration sealed with flanged stops.
6. Intumescent Firestopping: Intumescent putty compound which expands on exposure to surface heat gain.
7. Firestop Pillows: Formed mineral fiber pillows.

2.6 FIRESTOPPING ACCESSORIES

- A. Primer: Type recommended by firestopping manufacturer for specific substrate surfaces and suitable for required fire ratings.
- B. Installation Accessories: Provide clips, collars, fasteners, temporary stops or dams, and other devices required to position and retain materials in place.
- C. General:
 1. Furnish UL listed products or products tested by independent testing laboratory.
 2. Select products with rating not less than rating of wall or floor being penetrated.
- D. Non-Rated Surfaces:
 1. Stamped steel, chrome plated, hinged, split ring escutcheons or floor plates or ceiling plates for covering openings in occupied areas where conduit is exposed.
 2. For exterior wall openings below grade, furnish modular mechanical type seal consisting of interlocking synthetic rubber links shaped to continuously fill annular space between conduit and cored opening or water-stop type wall sleeve.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify openings are ready to receive sleeves.
- B. Verify openings are ready to receive firestopping.

3.2 PREPARATION

- A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter affecting bond of firestopping material.
- B. Remove incompatible materials affecting bond.

- C. Do not drill or cut structural members.

3.3 INSTALLATION - HANGERS AND SUPPORTS

- A. Anchors and Fasteners:
 1. Concrete Structural Elements: Provide precast inserts, expansion anchors, powder actuated anchors and preset inserts.
 2. Steel Structural Elements: Provide beam clamps, spring steel clips, steel ramset fasteners, and welded fasteners.
 3. Concrete Surfaces: Provide expansion anchors.
 4. Hollow Masonry, Plaster, and Gypsum Board Partitions: Provide toggle bolts and hollow wall fasteners.
 5. Solid Masonry Walls: Provide expansion anchors.
 6. Sheet Metal: Provide sheet metal screws.
 7. Wood Elements: Provide wood screws.
- B. Inserts:
 1. Install inserts for placement in concrete forms.
 2. Install inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.
 3. Provide hooked rod to concrete reinforcement section for inserts carrying pipe over 4 inches.
 4. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.
- C. Install conduit and raceway support and spacing in accordance with NEC.
- D. Do not fasten supports to pipes, ducts, mechanical equipment, or conduit.
- E. Install multiple conduit runs on common hangers.
- F. Supports:
 1. Fabricate supports from structural steel or formed steel channel. Install hexagon head bolts to present neat appearance with adequate strength and rigidity. Install spring lock washers under nuts.
 2. Install surface mounted cabinets and panelboards with minimum of four anchors.
 3. In wet and damp locations install steel channel supports to stand cabinets and panelboards 1 inch off wall.
 4. Support vertical conduit at every floor.

3.4 INSTALLATION - FIRESTOPPING

- A. Install material at fire rated construction perimeters and openings containing penetrating sleeves, piping, ductwork, conduit and other items, requiring firestopping.
- B. Apply primer where recommended by manufacturer for type of firestopping material and substrate involved, and as required for compliance with required fire ratings.
- C. Apply firestopping material in sufficient thickness to achieve required fire and smoke rating.

3.5 INSTALLATION - EQUIPMENT BASES AND SUPPORTS

- A. Provide housekeeping pads of concrete, minimum 3-1/2 inches thick and extending 6 inches beyond supported equipment.
- B. Using templates furnished with equipment, install anchor bolts, and accessories for mounting and anchoring equipment.

3.6 INSTALLATION - SLEEVES

- A. Exterior watertight entries: Seal with adjustable interlocking rubber links.
- B. Conduit penetrations not required to be watertight: Sleeve and fill with silicon foam.
- C. Set sleeves in position in forms. Provide reinforcing around sleeves.
- D. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.
- E. Where conduit or raceway penetrates floor, ceiling, or wall, close off space between conduit or raceway and adjacent work with fire stopping insulation and caulk airtight. Provide close fitting metal collar or escutcheon covers at both sides of penetration.

3.7 FIELD QUALITY CONTROL

- A. Inspect installed firestopping for compliance with specifications.

3.8 CLEANING

- A. Clean adjacent surfaces of firestopping materials.

3.9 PROTECTION OF FINISHED WORK

- A. Protect adjacent surfaces from damage by material installation.

END OF SECTION

SECTION 26 05 33 – RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes conduit and tubing, surface raceways, wireways, outlet boxes, pull and junction boxes, and handholes.

1.2 REFERENCES

- A. American National Standards Institute:
 - 1. ANSI C80.1 - Rigid Steel Conduit, Zinc Coated.
 - 2. ANSI C80.3 - Specification for Electrical Metallic Tubing, Zinc Coated.
 - 3. ANSI C80.5 - Aluminum Rigid Conduit - (ARC).
- B. National Electrical Manufacturers Association:
 - 1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
 - 2. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.
 - 3. NEMA OS 1 - Sheet Steel Outlet Boxes, Device Boxes, Covers, and Box Supports.
 - 4. NEMA OS 2 - Nonmetallic Outlet Boxes, Device Boxes, Covers, and Box Supports.
 - 5. NEMA RN 1 - Polyvinyl Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit.
 - 6. NEMA TC 2 - Electrical Polyvinyl Chloride (PVC) Tubing and Conduit.
 - 7. NEMA TC 3 - PVC Fittings for Use with Rigid PVC Conduit and Tubing.

1.3 SYSTEM DESCRIPTION

- A. Raceway and boxes located as indicated on Drawings, and at other locations required for splices, taps, wire pulling, equipment connections, and compliance with regulatory requirements. Raceway and boxes are shown in approximate locations unless dimensioned. Provide raceway to complete wiring system.

1.4 DESIGN REQUIREMENTS

- A. Minimum Raceway Size: 3/4 inch unless otherwise specified.
- B. Underslab conduit shall be 1 inch minimum.

1.5 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures.
- B. Product Data: Submit for the following:
 - 1. Flexible metal conduit.
 - 2. Liquidtight flexible metal conduit.

3. Nonmetallic conduit.
4. Flexible nonmetallic conduit.
5. Nonmetallic tubing.
6. Raceway fittings.
7. Conduit bodies.
8. Surface raceway.
9. Wireway.
10. Pull and junction boxes.
11. Handholes.

- C. Manufacturer's Installation Instructions: Submit application conditions and limitations of use stipulated by Product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, and installation of Product.

1.6 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements.
- B. Project Record Documents:
 1. Record actual routing of conduits larger than 2 inch .
 2. Record actual locations and mounting heights of outlet, pull, and junction boxes.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements.
- B. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.
- C. Protect PVC conduit from sunlight.

1.8 COORDINATION

- A. Section 01 30 00 - Administrative Requirements.
- B. Coordinate installation of outlet boxes for equipment.
- C. Coordinate mounting heights, orientation and locations of outlets mounted above counters, benches, and backsplashes.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Carlon Electrical Products.
- B. Allied Tube.
- C. Wheatland.

2.2 METAL CONDUIT

- A. Rigid Steel Conduit: ANSI C80.1.
- B. Rigid Aluminum Conduit: ANSI C80.5.
- C. Intermediate Metal Conduit (IMC): Rigid steel.

2.3 LIQUIDTIGHT FLEXIBLE METAL CONDUIT

- A. Product Description: Interlocked aluminum construction with PVC jacket.
- B. Fittings: NEMA FB 1.

2.4 ELECTRICAL METALLIC TUBING (EMT)

- A. Product Description: ANSI C80.3; galvanized tubing.
- B. Fittings and Conduit Bodies: NEMA FB 1; steel or malleable iron, compression type.

2.5 NONMETALLIC CONDUIT

- A. Product Description: NEMA TC 2; Schedule 40 or 80 PVC as indicated on the drawings.
- B. Fittings and Conduit Bodies: NEMA TC 3.

2.6 SURFACE METAL RACEWAY

- A. Product Description: Sheet metal channel with fitted cover, suitable for use as surface metal raceway.
- B. Acceptable Manufacturers:
 - 1. Thomas & Betts
 - 2. Wiremold
- C. Size: as required for circuits, conductors, and cables to be installed. DO NOT exceed fill capacity as determined by the National Electrical Code and manufacturer's requirements.
- D. Finish: manufacturer's standard primer, suitable for field painting.
- E. Fittings, Boxes, and Extension Rings: Furnish manufacturer's standard accessories; match finish on raceway.

2.7 WIREWAY

- A. Product Description: General purpose, oiltight and dust-tight or raintight type wireway as suited for location installed.
- B. Knockouts: Manufacturer's standard on bottom only.
- C. Size: As indicated on Drawings.

- D. Cover: Hinged with full gaskets.
- E. Connector: Flanged.
- F. Finish: Rust inhibiting primer coating with gray enamel finish.

2.8 OUTLET BOXES

- A. Sheet Metal Outlet Boxes: NEMA OS 1, galvanized steel.
 - 1. Luminaire and Equipment Supporting Boxes: Rated for weight of equipment supported; furnish 1/2 inch male fixture studs where required.
 - 2. Concrete Ceiling Boxes: Concrete type.
- B. Nonmetallic Outlet Boxes: NEMA OS 2.
- C. Cast Boxes: NEMA FB 1, Type FD, cast ferrous alloy. Furnish gasketed cover by box manufacturer. Furnish threaded hubs.
- D. Wall Plates for Finished Areas: As specified in Section 26 27 26.
- E. Wall Plates for Unfinished Areas: Furnish gasketed cover.

2.9 PULL AND JUNCTION BOXES

- A. Sheet Metal Boxes: NEMA OS 1, galvanized steel.
- B. Hinged Enclosures: As specified in Section 26 27 16.
- C. Surface Mounted Cast Metal Box: NEMA 250, Type 4; flat-flanged, surface mounted junction box:
 - 1. Material: Galvanized cast iron.
 - 2. Cover: Furnish with ground flange, neoprene gasket, and stainless steel cover screws.
- D. Concrete composite Handholes: Die-molded:
 - 1. Cable Entrance: Pre-cut 6 inch x 6 inch cable entrance at center bottom of each side.
 - 2. Cover: concrete composite, weatherproof cover with nonskid finish.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify outlet locations and routing and termination locations of raceway prior to rough-in.

3.2 EXISTING WORK

- A. Remove exposed abandoned raceway, including abandoned raceway above accessible ceiling finishes. Cut raceway flush with walls and floors, and patch surfaces.

- B. Remove concealed abandoned raceway to its source.
- C. Disconnect abandoned outlets and remove devices. Remove abandoned outlets when raceway is abandoned and removed. Install blank cover for abandoned outlets not removed.
- D. Maintain access to existing boxes and other installations remaining active and requiring access. Modify installation or provide access panel.
- E. Extend existing raceway and box installations using materials and methods [compatible with existing electrical installations, or] as specified.
- F. Clean and repair existing raceway and boxes to remain or to be reinstalled.

3.3 INSTALLATION

- A. Ground and bond raceway and boxes.
- B. Fasten raceway and box supports to structure and finishes.
- C. Identify raceway and boxes.
- D. Arrange raceway and boxes to maintain headroom and present neat appearance.

3.4 INSTALLATION - RACEWAY

- A. Raceway routing is shown in approximate locations unless dimensioned. Route to complete wiring system.
- B. Use surface raceway (wiremold) only on existing brick walls where it is not possible to “fish” in the existing wall cavity. All other walls shall utilize conduit concealed within the wall.
- C. Arrange raceway supports to prevent misalignment during wiring installation.
- D. Support raceway using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.
- E. Group related raceway; support using conduit rack. Construct rack using steel channel. Provide space on each for 25 percent additional raceways.
- F. Do not support raceway with wire or perforated pipe straps. Remove wire used for temporary supports
- G. Do not attach raceway to ceiling support wires or other piping systems.
- H. Construct wireway supports from steel channel.
- I. Route exposed raceway parallel and perpendicular to walls.
- J. Route raceway installed above accessible ceilings parallel and perpendicular to walls.

- K. Route conduit in and under slab from point-to-point.
- L. Minimum Size Conduit under Slab: 1 inch.
- M. Maintain clearance between raceway and piping for maintenance purposes.
- N. Maintain 12 inch clearance between raceway and surfaces with temperatures exceeding 104 degrees F.
- O. Cut conduit square using saw or pipe cutter; de-burr cut ends.
- P. Bring conduit to shoulder of fittings; fasten securely.
- Q. Join nonmetallic conduit using cement as recommended by manufacturer. Wipe nonmetallic conduit dry and clean before joining. Apply full even coat of cement to entire area inserted in fitting. Allow joint to cure for minimum 20 minutes.
- R. Install conduit hubs to fasten conduit to sheet metal boxes in damp and wet locations and to cast boxes.
- S. Avoid moisture traps; install junction box with drain fitting at low points in conduit system.
- T. Install suitable pull string or cord in each empty raceway except sleeves and nipples.
- U. Install suitable caps to protect installed conduit against entrance of dirt and moisture.
- V. Surface Raceway: Install flat-head screws, clips, and straps to fasten raceway channel to surfaces; mount plumb and level. Install insulating bushings and inserts at connections to outlets and corner fittings.
- W. Close ends and unused openings in wireway.

3.5 INSTALLATION - BOXES

- A. Adjust box location up to 10 feet prior to rough-in to accommodate intended purpose.
- B. Orient boxes to accommodate wiring devices.
- C. Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only.
- D. In Accessible Ceiling Areas: Install outlet and junction boxes no more than 6 inches from ceiling access panel or from removable recessed luminaire.
- E. Locate flush mounting box in masonry wall to require cutting of masonry unit corner only. Coordinate masonry cutting to achieve neat opening.
- F. Do not install flush mounting box back-to-back in walls; install with minimum 6 inches separation. Install with minimum 24 inches separation in acoustic rated walls.

- G. Secure flush mounting box to interior wall and partition studs. Accurately position to allow for surface finish thickness.
- H. Install stamped steel bridges to fasten flush mounting outlet box between studs.
- I. Install flush mounting box without damaging wall insulation or reducing its effectiveness.
- J. Install adjustable steel channel fasteners for hung ceiling outlet box.
- K. Do not fasten boxes to ceiling support wires or other piping systems.
- L. Support boxes independently of conduit.
- M. Install gang box where more than one device is mounted together. Do not use sectional box.
- N. Install gang box with plaster ring for single device outlets.

3.6 INTERFACE WITH OTHER PRODUCTS

- A. Route conduit through roof openings for piping and ductwork or through suitable roof jack with pitch pocket. Coordinate location with roofing installation.
- B. Locate outlet boxes to allow luminaires positioned as indicated.
- C. Align adjacent wall mounted outlet boxes for switches, thermostats, and similar devices.

3.7 ADJUSTING

- A. Adjust flush-mounting outlets to make front flush with finished wall material.
- B. Install knockout closures in unused openings in boxes.

3.8 CLEANING

- A. Clean interior of boxes to remove dust, debris, and other material.
- B. Clean exposed surfaces and restore finish.

END OF SECTION

SECTION 26 05 53 – IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Nameplates.
 - 2. Labels.
 - 3. Wire markers.
 - 4. Conduit markers.
 - 5. Stencils.
 - 6. Underground Warning Tape.
 - 7. Lockout Devices.

1.2 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures.
- B. Product Data:
 - 1. Submit manufacturer's catalog literature for each product required.
 - 2. Submit electrical identification schedule including list of wording, symbols, letter size, color coding, tag number, location, and function.
- C. Manufacturer's Installation Instructions: Indicate installation instructions, special procedures, and installation.

1.3 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements.
- B. Project Record Documents: Record actual locations of tagged devices; include tag numbers.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements.
- B. Accept identification products on site in original containers. Inspect for damage.
- C. Accept materials on site in original factory packaging, labeled with manufacturer's identification, including product density and thickness.
- D. Protect insulation from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original wrapping.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. Section 01 60 00 - Product Requirements.
- B. Install labels and nameplates only when ambient temperature and humidity conditions for adhesive are within range recommended by manufacturer.

PART 2 PRODUCTS

2.1 NAMEPLATES

- A. Product Description: Laminated three-layer plastic with engraved black letters on white contrasting background color.
- B. Letter Size:
 - 1. 1/8 inch high letters for identifying individual equipment and loads.
 - 2. 1/4 inch high letters for identifying grouped equipment and loads.
- C. Minimum nameplate thickness: 1/8 inch.

2.2 LABELS

- A. Labels: Embossed adhesive tape, with 3/16 inch white letters on black background.

2.3 WIRE MARKERS

- A. Description: Cloth tape, split sleeve, or tubing type wire markers.
- B. Legend:
 - 1. Power and Lighting Circuits: Branch circuit or feeder number as indicated on Drawings.
 - 2. Control Circuits: Control wire number as indicated on shop drawings.

2.4 STENCILS

- A. Stencils: With clean cut symbols and letters of following size:
 - 1. Up to 2 inches Outside Diameter of Raceway: 1/2 inch high letters.
 - 2. 2-1/2 to 6 inches Outside Diameter of Raceway: 1 inch high letters.
- B. Stencil Paint: semi-gloss enamel.

2.5 UNDERGROUND WARNING TAPE

- A. Description: 4 inch wide plastic detectible type tape, colored yellow with suitable warning legend describing buried electrical lines.

PART 3 EXECUTION

3.1 PREPARATION

- A. Degrease and clean surfaces to receive adhesive for identification materials.

3.2 INSTALLATION

- A. Install identifying devices after completion of painting.
- B. Nameplate Installation:
 - 1. Install nameplate parallel to equipment lines.
 - 2. Install nameplate for each electrical distribution and control equipment enclosure with corrosive-resistant mechanical fasteners, or adhesive.
 - 3. Install nameplates for each control panel and major control components located outside panel with corrosive-resistant mechanical fasteners, or adhesive.
 - 4. Secure nameplate to equipment front using screws, rivets, or adhesive.
 - 5. Secure nameplate to inside surface of door on recessed panelboard in finished locations.
 - 6. Install nameplates for the following:
 - a. Switchboards.
 - b. Panelboards.
 - c. Transformers.
 - d. Service Disconnects.
- C. Label Installation:
 - 1. Install label parallel to equipment lines.
 - 2. Install label for identification of individual control device stations.
 - 3. Install labels for permanent adhesion and seal with clear lacquer.
- D. Wire Marker Installation:
 - 1. Install wire marker for each conductor at panelboard gutters, pull boxes, outlet and junction boxes for each load connection.
 - 2. Mark data cabling at each end. Install additional marking at accessible locations along the cable run.
 - 3. Install labels at data outlets identifying patch panel and port designation.
- E. Underground Warning Tape Installation:
 - 1. Install underground warning tape along length of each underground conduit, raceway, or cable 12 inches below finished grade, directly above buried conduit, raceway, or cable.

END OF SECTION

SECTION 26 09 23 – LIGHTING CONTROL DEVICES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Remote control lighting relays.
 - 2. Lighting contactors.
 - 3. Switches.
 - 4. Switch plates.
 - 5. Occupancy sensors.
 - 6. Photocells.
 - 7. Photocell control unit.

1.2 REFERENCES

- A. National Electrical Manufacturers Association:
 - 1. NEMA AB 1 - Molded Case Circuit Breakers and Molded Case Switches.
 - 2. NEMA FU 1 - Low Voltage Cartridge Fuses.
 - 3. NEMA ICS 2 - Industrial Control and Systems: Controllers, Contractors, and Overload Relays, Rated Not More Than 2000 Volts AC or 750 Volts DC.
 - 4. NEMA ICS 4 - Industrial Control and Systems: Terminal Blocks.
 - 5. NEMA ICS 5 - Industrial Control and Systems: Control Circuit and Pilot Devices.
 - 6. NEMA ICS 6 - Industrial Control and Systems: Enclosures.
 - 7. NEMA KS 1 - Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum).

1.3 SYSTEM DESCRIPTION

- A. Distributed switching control using self contained individually mounted lighting relays.
- B. Where indicated on drawings or required by applicable code, provide automatic shutoff for lighting inside building larger than 5000 square feet. Control shutoff by method conforming to ICC IECC.
- C. Where indicated on drawings or required by applicable code, provide automatic shutoff for lighting outside building. Control shutoff by method conforming to ICC IECC.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures.
- B. Shop Drawings: Indicate dimensioned drawings of lighting control system components and accessories.
 - 1. One Line Diagram: Indicating system configuration indicating panels, number and type of switches or devices.
 - 2. Include typical wiring diagrams for each component.

- C. Product Data: Submit manufacturer's standard product data for each system component.
- D. Manufacturer's Installation Instructions: Submit for each system component.
- E. O&M Manual: Submit programming manuals.

1.5 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements.
- B. Project Record Documents: Record the following information:
 - 1. Actual locations of components and record circuiting and switching arrangements.
 - 2. Wiring diagrams reflecting field installed conditions with identified and numbered, system components and devices.
- C. Operation and Maintenance Data:
 - 1. Submit replacement parts numbers.
 - 2. Submit manufacturer's published installation instructions and operating instructions.
 - 3. Recommended renewal parts list.

1.6 PRE-INSTALLATION MEETINGS

- A. Section 01 30 00 - Administrative Requirements.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements.
- B. Accept components on site in manufacturer's packaging. Inspect for damage.
- C. Protect components by storing in manufacturer's containers indoor protected from weather.

1.8 WARRANTY

- A. Section 01 70 00 - Execution and Closeout Requirements.
- B. Furnish five year manufacturer warranty for components.

1.9 EXTRA MATERIALS

- A. Section 01 70 00 - Execution and Closeout Requirements.
- B. Furnish two of each switch type.
- C. Furnish two of each occupancy sensor type.
- D. Furnish two of each photocell type.

1.10 DEFINITIONS

- A. Furnish: To supply and deliver, unload and inspect for damage.
- B. Install: To unpack, assemble, erect, mount, apply, place, finish, cure, protect, clean, energize, program, adjust, test and make completely functional and operational.
- C. Provide: To furnish and install.

PART 2 PRODUCTS

2.1 LIGHTING CONTACTORS

- A. Product Description: NEMA ICS 2, magnetic lighting contactor.
- B. Configuration: Mechanically held, with 3 wire control.
- C. Coil Operating Voltage: as shown on the drawing or as determined by contractor to meet manufacturer's requirements, 60 Hertz.
- D. Poles: To match circuit configuration and control function.
- E. Contact Rating: Conductor overcurrent protection, considering derating for continuous loads.
- F. Accessories:
 - 1. Cover Mounted Pilot Devices: NEMA ICS 5, heavy-duty oiltight type with Form C contacts.
 - 2. Pushbutton: ON and OFF.
 - 3. Selector Switch: ON/OFF/AUTOMATIC function, with rotary action.
 - 4. Indicating Light: Red/Green lens, transformer type, with led lamp.
 - 5. Auxiliary Contacts: One form C.
 - 6. Control Power Transformers: 120 volt secondary, 150 VA minimum, in each enclosed contactor. Furnish fused primary and secondary, and bond unfused leg of secondary to enclosure.
- G. Enclosure: NEMA ICS 6, to meet conditions. Fabricate enclosure from steel finished with manufacturer's standard gray.
 - 1. Interior Dry Locations: Type 1.
 - 2. Exterior Locations: Type 3R with gasketed door.

2.2 SWITCHES

- A. Wall Switch: Specification Grade locator light, momentary pushbutton type for overriding relays.
- B. Wall Switch: Industrial Grade non-pilot light toggle switches for overriding relays .

2.3 SWITCH PLATES

- A. Product Description: Specification Grade.
 - 1. Material: Stainless steel.

2.4 OCCUPANCY SENSOR

- A. Compatible with modular relay panels. Capable of being wired directly to Class 2P wiring without auxiliary components or devices.
- B. Separate sensitivity and time delay adjustments with LED indication of sensed movement. User adjustable time-delay: 30 seconds to 12 minutes.
- C. Furnish with manual override.
- D. Operation: Silent.
- E. Room Sensors: 180°, multi-technology.
- F. Corridor and Hallway Sensors:
 - 1. Capable of detecting motion 14 feet wide and 80 feet long with one sensor mounted 10 feet above floor.
 - 2. Capable of detecting motion in warehouse aisle 10 feet wide and 60 feet long or 100 feet long when mounted 22 feet above floor.
 - 3. Capable of being wired in master-slave configuration to extend area of coverage.

2.5 PHOTOCELLS

- A. General: Consist of sensor mounted with separate daylighting control module. Sensor connected to module via single shielded conductor with maximum distance of 500 feet.
- B. Sensor Devices: Each sensor employs photo diode technology to allow linear response to daylight within illuminance range.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Use only properly color coded, stranded wire. Install wire sizes as indicated on Drawings.
- B. Label each low voltage wire clearly indicating connecting relay panel.
- C. Mount relay as indicated on Drawings. Wire numbered relays in panel to control power to each load. Install relays to be accessible. Allow space around relays for ventilation and circulation of air.
- D. Identify power wiring with circuit breaker number controlling load. When multiple circuit breaker panels are feeding into relay panel, label wires to indicate originating panel designation.
- E. Label each low voltage wire with relay number at each switch or sensor.

3.2 ADJUSTING

- A. Test each system component after installation to verify proper operation.

- B. Test controls and switches after installation to confirm proper operation.
- C. Confirm correct loads are recorded on directory card in each panel.

3.3 DEMONSTRATION

- A. Demonstrate operation of the following system components:
 - 1. Operation of switches.
 - 2. Operation and adjustments of occupancy sensors.
 - 3. Operation and adjustments of photocell.
 - 4. Operation and setting parameters for control units.
- B. Instruct Owner's personnel in operation and maintenance of system. Schedule training with Owner, provide at least 7 days notice to Architect of training date.
- C. Allow for a minimum of four hours instructional time.

END OF SECTION

SECTION 26 27 26 – WIRING DEVICES

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes wall switches; wall dimmers; receptacles; and device plates and decorative box covers.

1.2 REFERENCES

- A. National Electrical Manufacturers Association:
 - 1. NEMA WD 1 - General Requirements for Wiring Devices.
 - 2. NEMA WD 6 - Wiring Devices-Dimensional Requirements.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures.
- B. Product Data: Submit manufacturer's catalog information showing dimensions, colors, and configurations.

PART 2 PRODUCTS

2.1 WALL SWITCHES

- A. Product Description: NEMA WD 1, Specification grade, AC only general-use snap switch.
- B. Body and Handle: plastic with rocker handle, color to match existing.
- C. Ratings:
 - 1. Voltage: 120-277 volts, AC.
 - 2. Current: 20 amperes.

2.2 RECEPTACLES

- A. Product Description: NEMA WD 1, Heavy-duty general use receptacle.
- B. Device Body: plastic, color to match existing.
- C. Configuration: NEMA WD 6, type.
- D. Convenience Receptacle: Type 5-20.
- E. GFCI Receptacle: Convenience receptacle with integral ground fault circuit interrupter to meet regulatory requirements.

2.3 DEVICE PLATES

- A. All device plates shall be of type, style, and color to match existing.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify outlet boxes are installed at proper height.
- B. Verify wall openings are neatly cut and completely covered by wall plates.
- C. Verify branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.

3.2 PREPARATION

- A. Clean debris from outlet boxes.

3.3 EXISTING WORK

- A. Disconnect and remove abandoned wiring devices.
- B. Modify installation to maintain access to existing wiring devices to remain active.
- C. Clean and repair existing wiring devices to remain or to be reinstalled.

3.4 INSTALLATION

- A. Install devices plumb and level.
- B. Install switches with OFF position down.
- C. Connect wiring device grounding terminal to ground system.
- D. Install cover plates on switch, receptacle, and blank outlets.

3.5 INTERFACE WITH OTHER PRODUCTS

- A. Install wall switch 48 inches above finished floor.
- B. Install convenience receptacle 18 inches above finished floor.
- C. Install convenience receptacle 6 inches above back splash of counter.

3.6 FIELD QUALITY CONTROL

- A. Inspect each wiring device for defects.

- B. Operate each wall switch with circuit energized and verify proper operation.
- C. Verify each receptacle device is energized.
- D. Test each receptacle device for proper polarity.
- E. Test each GFCI receptacle device for proper operation.

3.7 ADJUSTING

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

3.8 CLEANING

- A. Clean exposed surfaces to remove splatters and restore finish.

END OF SECTION

SECTION 26 28 13 – FUSES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Fuses.

1.2 REFERENCE STANDARDS

- A. National Electrical Manufacturers Association:
 - 1. NEMA FU 1 - Low Voltage Cartridge Fuses.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Submittal procedures.
- B. Product Data: Submit data sheets showing electrical characteristics, including time-current curves.

1.4 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.
- B. Project Record Documents: Record actual sizes, ratings, and locations of fuses.

1.5 MAINTENANCE MATERIALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for maintenance materials
- B. Spare Parts:
 - 1. Furnish two fuse pullers.
- C. Extra Materials:
 - 1. Furnish three spare fuses of each Class, size, and rating installed.

1.6 QUALITY ASSURANCE

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

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Manufacturer List:

1. Bussman

B. Substitution Limitations:

1. Section 01 60 00 - Product Requirements: Requirements for substitutions for other manufacturers and products.

2.2 DESIGN REQUIREMENTS

A. Select fuses to provide appropriate levels of short circuit and overcurrent protection for the following components: wire, cable, bus structures, and other equipment. Design system to maintain component damage within acceptable levels during faults.

B. Select fuses to coordinate with time current characteristics of other overcurrent protective elements, including other fuses, circuit breakers, and protective relays. Design system to maintain operation of device closest to fault operates.

2.3 FUSES

A. Dimensions and Performance: NEMA FU 1, Class as specified or as indicated on Drawings.

B. Voltage: Rating suitable for circuit phase-to-phase voltage.

2.4 CLASS RK1 (TIME DELAY) FUSES

A. Dimensions and Performance: NEMA FU 1.

B. Voltage: Rating suitable for circuit phase-to-phase voltage.

2.5 CLASS RK1 (NON-TIME-DELAY) FUSES

A. Dimensions and Performance: NEMA FU 1.

B. Voltage: Rating suitable for circuit phase-to-phase voltage.

2.6 CLASS RK5 FUSES

A. Dimensions and Performance: NEMA FU 1.

B. Voltage: Rating suitable for circuit phase-to-phase voltage.

2.7 CLASS J (TIME DELAY) FUSES

A. Dimensions and Performance: NEMA FU 1.

B. Voltage: Rating suitable for circuit phase-to-phase voltage.

2.8 CLASS J (NON-TIME-DELAY) FUSES

- A. Dimensions and Performance: NEMA FU 1.
- B. Voltage: Rating suitable for circuit phase-to-phase voltage.

2.9 CLASS T FUSES

- A. Dimensions and Performance: NEMA FU 1.
- B. Voltage: Rating suitable for circuit phase-to-phase voltage.

2.10 CLASS L (FAST-ACTING) FUSES

- A. Dimensions and Performance: NEMA FU 1.
- B. Voltage: Rating suitable for circuit phase-to-phase voltage.

2.11 CLASS L (TIME DELAY) FUSES

- A. Dimensions and Performance: NEMA FU 1.
- B. Voltage: Rating suitable for circuit phase-to-phase voltage.

2.12 CLASS G FUSES

- A. Dimensions and Performance: NEMA FU 1.
- B. Voltage: Rating suitable for circuit phase-to-phase voltage.

PART 3 EXECUTION

3.1 DOMOLITION

- A. Remove fuses from abandoned circuits.
- B. Maintain access to existing fuses and other installations remaining active and requiring access.
Modify installation or provide access panel.

3.2 INSTALLATION

- A. Install fuse with label oriented so manufacturer, type, and size are easily read.

END OF SECTION

SECTION 26 28 19 – ENCLOSED SWITCHES

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes fusible and nonfusible switches.

1.2 REFERENCES

- A. National Electrical Manufacturers Association:
 - 1. NEMA FU 1 - Low Voltage Cartridge Fuses.
 - 2. NEMA KS 1 - Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum).
- B. International Electrical Testing Association:
 - 1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures.
- B. Product Data: Submit switch ratings and enclosure dimensions.

1.4 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements.
- B. Project Record Documents: Record actual locations of enclosed switches and ratings of installed fuses.

1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

PART 2 PRODUCTS

2.1 FUSIBLE SWITCH ASSEMBLIES

- A. Product Description: NEMA KS 1, Type HD with externally operable handle interlocked to prevent opening front cover with switch in ON position, enclosed load interrupter knife switch. Handle lockable in OFF position.
- B. Fuse clips: Designed to accommodate NEMA FU 1, Class R fuses.

- C. Enclosure: NEMA KS 1, to meet conditions. Fabricate enclosure from steel finished with manufacturer's standard gray.
 - 1. Interior Dry Locations: Type 1.
 - 2. Exterior Locations: Type 3R.

2.2 NONFUSIBLE SWITCH ASSEMBLIES

- A. Product Description: NEMA KS 1, Type HD with externally operable handle interlocked to prevent opening front cover with switch in ON position enclosed load interrupter knife switch. Handle lockable in OFF position.
- B. Enclosure: NEMA KS 1, to meet conditions. Fabricate enclosure from steel finished with manufacturer's standard gray.
 - 1. Interior Dry Locations: Type 1.
 - 2. Exterior Locations: Type 3R.

2.3 SWITCH RATINGS

- A. Switch Rating: Horsepower rated for AC or DC as indicated on Drawings, 30A minimum.
- B. Short Circuit Current Rating: UL listed for 200,000 rms symmetrical amperes when used with or protected by Class R fuses.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install fuses for fusible disconnect switches.
- B. Install engraved plastic nameplates.
- C. Apply adhesive tag on inside door of each fused switch indicating NEMA fuse class and size installed.

3.2 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 7.5.

END OF SECTION

SECTION 26 28 23 – ENCLOSED CIRCUIT BREAKERS

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes molded-case and insulated-case circuit breakers in individual enclosures.
- B. Related Sections:
 - 1. Section 26 05 26 - Grounding and Bonding for Electrical Systems.
 - 2. Section 26 05 29 - Hangers and Supports for Electrical Systems.
 - 3. Section 26 05 53 - Identification for Electrical Systems.

1.2 REFERENCES

- A. International Electrical Testing Association:
 - 1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.
- B. Underwriters Laboratories Inc.:
 - 1. UL 489 - Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Submittal procedures.
- B. Product Data: Submit catalog sheets showing ratings, trip units, time current curves, dimensions, and enclosure details.

1.4 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.
- B. Project Record Documents: Record actual locations and continuous current ratings of enclosed circuit breakers.

1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

PART 2 PRODUCTS

2.1 MOLDED CASE CIRCUIT BREAKER

- A. Manufacturers:

1. Square D Company.
 2. Substitutions: Section 01 60 00 - Product Requirements.
- B. Product Description: Enclosed, molded-case circuit breaker conforming to UL 489.
- C. Accessories: Conform to UL 489.
1. Grounding Lug: In each enclosure.
- D. Enclosure: UL 489, to meet conditions. Fabricate enclosure from steel finished with manufacturer's standard enamel.
1. Interior Dry Locations: Type 1.
 2. Exterior Locations: Type 3R.

PART 3 EXECUTION

3.1 EXISTING WORK

- A. Disconnect and remove abandoned enclosed circuit breakers.
- B. Maintain access to existing enclosed circuit breakers and other installations remaining active and requiring access. Modify installation or provide access panel.
- C. Clean and repair existing enclosed circuit breakers to remain or to be reinstalled.

3.2 INSTALLATION

- A. Install enclosed circuit breakers plumb. Provide supports in accordance with Section 26 05 29.
- B. Height: 5 feet to operating handle.
- C. Install grounding and bonding in accordance with requirements of Section 26 05 26.
- D. Locate and install engraved plastic nameplates in accordance with Section 26 05 53.

3.3 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements and 01 70 00 - Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Inspect and test in accordance with NETA ATS.

END OF SECTION

SECTION 26 51 00 - INTERIOR LIGHTING

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes interior luminaires, lamps, ballasts, drivers, and accessories.
- B. Related Sections:
 - 1. Section 26 05 26 - Grounding and Bonding for Electrical Systems.
 - 2. Section 26 05 33 - Raceway and Boxes for Electrical Systems.
 - 3. Section 26 52 00 - Emergency Lighting.

1.2 REFERENCES

- A. American National Standards Institute:
 - 1. ANSI C82.1 - American National Standard for Lamp Ballast-Line Frequency Fluorescent Lamp Ballast.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Submittal procedures.
- B. Shop Drawings: Indicate dimensions and components for each luminaire not standard product of manufacturer.
- C. Product Data: Submit dimensions, ratings, and performance data.

1.4 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

1.5 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

1.6 MAINTENANCE MATERIALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Spare parts and maintenance products.
- B. Furnish two of each plastic lens type.
- C. Furnish one box of replacement lamps for each type of lamp installed.
- D. Furnish two of each ballast or driver type.

PART 2 PRODUCTS

2.1 INTERIOR LUMINAIRES

- A. Product Description: Complete interior luminaire assemblies, with features, options, and accessories as scheduled.
- B. Refer to Section 01 60 00 - Product Requirements for product options. Substitutions are not permitted.

2.2 LED FIXTURES

- A. Manufacturers:
 - 1. Cooper Lighting
 - 2. Lithonia
 - 3. Substitutions: When approved in writing prior to bidding by the Engineer.
- B. Product Description: LED solid state lighting fixtures, complete with LED arrays, LED drivers, fixture disconnect per NEC, all required mounting hardware, accessories, wireguards, and similar components.
- C. LED Drivers
 - 1. Universal Voltage (120-277 Volts, single-phase) input.
 - 2. UL Listed.

PART 3 EXECUTION

3.1 EXISTING WORK

- A. Disconnect and remove abandoned luminaires, lamps, and accessories.
- B. Extend existing interior luminaire installations using materials and methods compatible with existing installations, or as specified.
- C. Clean and repair existing interior luminaires to remain or to be reinstalled.

3.2 INSTALLATION

- A. Install suspended luminaires using pendants supported from swivel hangers. Install pendant length required to suspend luminaire at indicated height.
- B. Support luminaires independent of ceiling framing.
- C. Locate recessed ceiling luminaires as indicated on reflected ceiling plan.
- D. Install surface mounted luminaires plumb and adjust to align with building lines and with each other. Secure to prevent movement.

- E. Exposed Grid Ceilings: Support surface-mounted luminaires on grid ceiling directly from building structure.
- F. Install recessed luminaires to permit removal from below.
- G. Install recessed luminaires using accessories and firestopping materials to meet regulatory requirements for fire rating.
- H. Install clips to secure recessed grid-supported luminaires in place.
- I. Install wall-mounted luminaires at height as indicated on Drawings.
- J. Install accessories furnished with each luminaire.
- K. Connect luminaires to branch circuit outlets provided under Section 26 05 33 using flexible conduit.
- L. Make wiring connections to branch circuit using building wire with insulation suitable for temperature conditions within luminaire.
- M. Provide disconnect in each fixture per National Electrical Code requirements.
- N. Install specified lamps in each luminaire.
- O. Ground and bond interior luminaires in accordance with Section 26 05 26.

3.3 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements and 01 70 00 - Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Operate each luminaire after installation and connection. Inspect for proper connection and operation.

3.4 ADJUSTING

- A. Section 01 70 00 - Execution and Closeout Requirements: Testing, adjusting, and balancing.
- B. Aim and adjust luminaires.

3.5 CLEANING

- A. Section 01 70 00 - Execution and Closeout Requirements: Final cleaning.
- B. Remove dirt and debris from enclosures.
- C. Clean photometric control surfaces as recommended by manufacturer.
- D. Clean finishes and touch up damage.

3.6 PROTECTION OF FINISHED WORK

- A. Section 01 70 00 - Execution and Closeout Requirements: Protecting finished work.
- B. Relamp luminaires having failed lamps at Substantial Completion.

END OF SECTION

SECTION 28 00 10 – ELECTRICAL, ETHERNET, FIBER & IP

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. This section includes parts, equipment, and installation standards for the State of Michigan Department of Corrections

1.02 SYSTEM DESCRIPTION

- A. When conducting infrastructure and technology / security projects the Michigan Department of Corrections has certain standards for types of equipment and installation standards that must be met for all contractor
- B. This document details the current standards for equipment and installation.

1.03 STANDARDS TO BE MET

- A. Reference to codes, standards, specifications and recommendations of technical societies, trade organizations and governmental agencies shall mean that latest edition of such publications adopted and published prior to submittal of the bid. Consider such codes or standards a part of this Specification as though fully repeated herein.
- B. Codes: Perform Work executed under this Section in accordance with applicable requirements of the latest edition of governing codes, rules and regulations including but not limited to the following minimum standards, whether statutory or not:
 1. United States Department Of Labor (DOL) Regulations (Standards - 29 CFR)
 - a. Part 1910, "Occupational Safety and Health Standards"
 2. National Fire Protection Agency (NFPA)
 - a. NFPA 70, "National Electrical Code" (NEC).
 - b. NFPA 75, "Protection Of Information Technology Equipment"
 3. Uniform Building Code (UBC).
 4. Uniform Fire Code (UFC).
 5. Uniform Mechanical Code (UMC).
 6. National, State, Local and any other binding building and fire codes.
 7. FCC Regulations:
 - a. Part 15 – Radio Frequency Devices & Radiation Limits
 - b. Part 68 – Connection of Terminal Equipment to the Telephone Network
- C. Standards: Equipment and materials furnished under this Section shall conform to the following standards where applicable:
 1. Underwriter's Laboratories (UL): Applicable listing and ratings, including but not limited to the following standards:
 - a. UL 444: Communications Cables
 - b. UL 497: Protectors for Paired-Conductor Communication Circuits.
 - c. UL 1690: Data-Processing Cable
 - d. UL 1963: Communications-Circuit Accessories
 2. TIA/EIA-526-7 Measurement of Optical Power Loss of Installed Single-Mode Fiber Cable Plant.
 3. TIA/EIA-526-14-A Optical Power Loss Measurements of Installed Multimode Fiber Cable Plant.
 4. ANSI/TIA/EIA-568-C.0 Generic Telecommunications Cabling for Customer Premises.
 5. ANSI/TIA/EIA-568-C.1 Commercial Building Telecommunications Cabling Standard
 6. ANSI/TIA/EIA-568-C.2 Balanced Twisted-Pair Telecommunication Cabling and Components Standard

7. ANSI/TIA/EIA-569-A Commercial Building Standard for Telecommunications Pathways and Spaces, including the following addenda:
 - a. TIA/EIA-569-A-1 Surface Raceways
 - b. TIA/EIA-569-A-2 Furniture Pathways and Spaces
 - c. TIA/EIA-569-A-3 Access Floors
 - d. TIA/EIA-569-A-4 Poke-Thru Fittings
 - e. TIA/EIA-569-A-6 Multi-Tenant Pathways and Spaces
 - f. TIA/EIA-569-A-7 Cable Trays and Wirelines
8. EIA/TIA-570-A: Residential and Light Commercial Telecommunication Wiring Standard
9. ANSI/TIA/EIA-606-A Administration Standard for the Telecommunications Infrastructure of Commercial Buildings.
10. ANSI/J-STD-607-A Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications.
11. ANSI/TIA/EIA-758 Customer-Owner Outside Plant Telecommunications Cabling Standard.
 - a. TIA/EIA-758-1 Addendum No. 1
12. EIA testing standards.
13. Insulated Cable Engineers Association (ICEA):
 - a. ANSI/ICEA S-80-576-2002 Category 1 & 2 Individually Unshielded Twisted Pair Indoor Cables for Use in Communications Wiring Systems
 - b. ANSI/ICEA S-83-596-1994 Fiber Optic Premises Distribution Cable
 - c. ANSI/ICEA S-87-640-1999 Fiber Optic Outside Plant Communications Cable
 - d. ANSI/ICEA S-90-661-2002 Category 3, 5, & 5e Individually Unshielded Twisted Pair Indoor Cable for Use In General Purpose and LAN Communication Wiring Systems
 - e. ICEA S-104-696-2001 Standard For Indoor-Outdoor Optical Cable
14. IEEE 802.3-1990: (also known as ANSI/IEEE Standard 802.3-1990) or ISO 8802-3 - 1990 (E), Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications.
15. Building Industry Consulting Services International (BICSI):
 - a. Telecommunications Distribution Methods Manual (TDMM)
 - b. Customer-Owner Outside Plant Design Manual
- D. All work and materials shall conform in every detail to the rules and requirements of the National Fire Protection Association, the local Electrical Code and present manufacturing standards.
- E. All materials shall be UL Listed and shall be marked as such. If UL has no published standards for a particular item, then other national independent testing standards shall apply and such items shall bear those labels. Where UL has an applicable system listing and label, the entire system shall be so labeled.
- F. If this document and any of the documents listed above are in conflict, then the more stringent requirement shall apply. All documents listed are believed to be the most current releases of the documents. The Contractor has the responsibility to determine and adhere to the most recent release when developing the proposal for installation.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Approved manufacturers for Cat 6 copper horizontal distribution cables are:
 1. Belden.
 2. Berk Tek
 3. General Cable

- 4. Mohawk
- B. Approved manufacturer for CAT-6 termination equipment are:
 - 1. Belden
 - 2. Hubbell.
 - 3. Ortronics.
 - 4. Panduit
- C. Approved manufacturers for Video Security Management Software:
 - 1. Genetec
- D. Approved manufacturers for Access Control Software:
 - 1. Genetec
- E. Approved manufacturers for Ethernet Switches:
 - 1. Cisco for standard indoor
 - 2. Comnet for outdoor or high/low temperature areas

2.02 MATERIALS

- A. When installing CAT-6 cables the following are the MDOC Standard colors

B. IP	Green CAT-6	Cameras and Fence Detection
	Orange CAT-6	PELS / PPD System
	Yellow CAT-6	Wireless Tablets
	Blue CAT-6	Standard color for State of Michigan CAT-6 cabling
	Red CAT-6	Fire Alarm
	Gray CAT-6	Telephone Systems
	Purple CAT-6	Control Systems such as HVAC
	Black CAT-6	Wired Educational System
	Pink CAT-6	Braille Network

Address standards:

- 1. When working on the secure network the following standards shall be met for the different systems.
- 2. Coordinate Commtech Design by contacting bret@commtechdesign.com for a full listing of all IP addressing and VLAN requirements.

PART 3 - INSTALLATION STARNARDS

3.01 EACH CONTRACTOR SHALL ENSURE THAT THE FOLLOWING STANDARDS ARE MET DURING INSTALLATION.

- A. All installations shall meet NEC 2017 code book and follow the guidelines for NFPA 70.

3.02 DATA CABLING

- A. All data cabling shall be a minimum of CAT-6 rated cabling
- B. See color codes above for cable and jack color.
- C. Data Cabling shall be installed inside conduit with the following exceptions:
 - 1. Above a drop ceiling cabling can be installed in free-air but shall be supported by J-hooks or cable tray.
 - 2. In an open ceiling above 10" AFF
 - 3. In mechanical rooms that are inaccessible to inmates
- D. All jacks shall be mounted into patch panels that accept individual 8-pin modular jacks.
 - 1. Terminate in a patch panel in the rack/cabinet in each comm room.



- E. 2. Shall be terminated with a gray 8-Pin modular connector at each end: Match connector color to the cable color



- F. 1. Cabling shall be in conduit in all exposed areas
- G. Above ceilings the cable shall be supported with J-hooks every 5 feet.
1. Use J-hooks to support cabling. J-hooks shall not be attached to drop ceiling wire.



2. J-hook

3.03 CONDUITS

- A. The MDOC has certain criteria for electrical / communications conduit installations.
1. Minimum conduit size is to be $\frac{3}{4}$ ".
 2. Below 10' AFF the contractor shall use only security fasteners as noted below
 3. Backboxes that are surface mounted and are installed below 10' AFF shall have no knockouts or shall be equipped with plugs with square screw holes. See below
 4. No wire mold or plastic conduits are to be used or installed.
- B. Conduit inside a building can be EMT type.
- C. Conduit outside a building that is within 36" AFG shall be RIGID type.
1. Conduit outside a building that is above 36" AFG can be EMT type
- D. Conduit underground can be PVC type or HDPE type
1. All transitions from below grade to above grade shall transition to RIGID type conduit for all 90 bends as the conduit transitions to above grade
- E. Conduit shall meet the following requirements:
1. Conduit shall be $\frac{3}{4}$ " minimum trade size
 2. Conduits shall be attached to structures with two-hole straps. Single hole straps are not allowed.



- 3.
- 4. Conduit connectors for EMT type conduit shall be Compression fittings. No set Screw fittings are allowed
 - a. Use exterior rated conduit connectors on exterior conduit
- F. Where there is a difficult transition or metal conduit absolutely cannot be used the contractor may use Seal-tite raceway with compression couplers.



- G.
- H. Seal-type conduit can be use to connect exterior cameras and camera backboxes to conduit for transition of the camera cables

3.04 SCREWS AND FASTENERS

- A. Security screws shall be used. No standard or Philips head screws shall be allowed
- B. 2-pin "Snake Eye" type security screws are not allowed
- C. Approved screws and fastener include:
 - 1. Torx type



- a.
- D. Hex head concrete screws that do not have a screwdriver slot



- 1.
- E. Expansion pound-in anchors that do not have a screwdriver slot



1.

3.05 BACKBOXES

- A. Backboxes for faceplates and power, that are installed below 12' AFF or AFG shall not have any punchouts. All backboxes and junction boxes shall be either:
1. Solid with drilled holes for conduits
 2. Pre-cast with screw type blanks that use a square plug and do not allow a standard screwdriver to remove the blank



3.

END OF SECTION

SECTION 28 2150 – ELECTRICAL AND TECHNOLOGY INSTALLATION STANDARDS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. This section includes parts, equipment, and installation standards for the State of Michigan Department of Corrections.

1.02 SYSTEM DESCRIPTION

- A. When conducting infrastructure and technology / security projects the Michigan Department of Corrections has certain standards for types of equipment and installation standards that must be met for all contractors.
- B. This document details the current standards for equipment and installation.

1.03 STANDARDS TO BE MET

- A. Reference to codes, standards, specifications and recommendations of technical societies, trade organizations and governmental agencies shall mean that latest edition of such publications adopted and published prior to submittal of the bid. Consider such codes or standards a part of this Specification as though fully repeated herein.
- B. Codes: Perform Work executed under this Section in accordance with applicable requirements of the latest edition of governing codes, rules and regulations including but not limited to the following minimum standards, whether statutory or not:
 1. United States Department of Labor (DOL) Regulations (Standards - 29 CFR)
 - a. Part 1910, "Occupational Safety and Health Standards"
 2. National Fire Protection Agency (NFPA)
 - a. NFPA 70, "National Electrical Code" (NEC).
 - b. NFPA 75, "Protection of Information Technology Equipment"
 3. Uniform Building Code (UBC)
 4. Uniform Fire Code (UFC)
 5. Uniform Mechanical Code (UMC)
 6. National, State, Local and any other binding building and fire codes.
 7. FCC Regulations:
 - a. Part 15 – Radio Frequency Devices & Radiation Limits
 - b. Part 68 – Connection of Terminal Equipment to the Telephone Network
- C. Standards: Equipment and materials furnished under this Section shall conform to the following standards where applicable.
 1. Underwriter's Laboratories (UL): Applicable listing and ratings, including but not limited to the following standards:
 - a. UL 444: Communications Cables
 - b. UL 497: Protectors for Paired-Conductor Communication Circuits.
 - c. UL 1690: Data-Processing Cable
 - d. UL 1963: Communications-Circuit Accessories
 2. TIA/EIA-526-7 Measurement of Optical Power Loss of Installed Single-Mode Fiber Cable Plant.
 3. TIA/EIA-526-14-A Optical Power Loss Measurements of Installed Multimode Fiber Cable Plant.
 4. ANSI/TIA/EIA-568-C.0 Generic Telecommunications Cabling for Customer Premises.
 5. ANSI/TIA/EIA-568-C.1 Commercial Building Telecommunications Cabling Standard.
 6. ANSI/TIA/EIA-568-C.2 Balanced Twisted-Pair Telecommunication Cabling and Components Standard.

7. ANSI/TIA/EIA-569-A Commercial Building Standard for Telecommunications Pathways and Spaces, including the following addenda:
 - a. TIA/EIA-569-A-1 Surface Raceways
 - b. TIA/EIA-569-A-2 Furniture Pathways and Spaces
 - c. TIA/EIA-569-A-3 Access Floors
 - d. TIA/EIA-569-A-4 Poke-Thru Fittings
 - e. TIA/EIA-569-A-6 Multi-Tenant Pathways and Spaces
 - f. TIA/EIA-569-A-7 Cable Trays and Wirelines
8. EIA/TIA-570-A: Residential and Light Commercial Telecommunication Wiring Standard.
9. ANSI/TIA/EIA-606-A Administration Standard for the Telecommunications Infrastructure of Commercial Buildings.
10. ANSI/J-STD-607-A Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications.
11. ANSI/TIA/EIA-758 Customer-Owner Outside Plant Telecommunications Cabling Standard.
 - a. TIA/EIA-758-1 Addendum No. 1
12. EIA testing standards.
13. Insulated Cable Engineers Association (ICEA):
 - a. ANSI/ICEA S-80-576-2002 Category 1 & 2 Individually Unshielded Twisted Pair Indoor Cables for Use in Communications Wiring Systems.
 - b. ANSI/ICEA S-83-596-1994 Fiber Optic Premises Distribution Cable.
 - c. ANSI/ICEA S-87-640-1999 Fiber Optic Outside Plant Communications Cable.
 - d. ANSI/ICEA S-90-661-2002 Category 3, 5, & 5e Individually Unshielded Twisted Pair Indoor Cable for Use in General Purpose and LAN Communication Wiring Systems.
 - e. ICEA S-104-696-2001 Standard for Indoor-Outdoor Optical Cable.
14. IEEE 802.3-1990: (also known as ANSI/IEEE Standard 802.3-1990) or ISO 8802-3 - 1990 (E), Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications.
15. Building Industry Consulting Services International (BICSI):
 - a. Telecommunications Distribution Methods Manual (TDMM)
 - b. Customer-Owner Outside Plant Design Manual
- D. All work and materials shall conform in every detail to the rules and requirements of the National Fire Protection Association, the local Electrical Code and present manufacturing standards.
- E. All materials shall be UL Listed and shall be marked as such. If UL has no published standards for a particular item, then other national independent testing standards shall apply, and such items shall bear those labels. Where UL has an applicable system listing and label, the entire system shall be so labeled.
- F. If this document and any of the documents listed above are in conflict, then the more stringent requirement shall apply. All documents listed are believed to be the most current releases of the documents. The Contractor has the responsibility to determine and adhere to the most recent release when developing the proposal for installation.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Approved manufacturers for Cat 6/6A copper horizontal distribution cables are:
 1. Belden.
 2. Berk Tek.
 3. General Cable.
 4. Mohawk.

- B. For locations where the IP connection will be longer than 300' the contractor shall install long-distance rated Unshielded Twisted Pair cable. Approved manufacturers:
 - 1. Paige Telecom.
 - 2. Belden.
 - 3. Hubbell.
 - 4. Panduit.
- C. Approved Manufacturers for Fiber Cable are:
 - 1. OCC Fiber.
 - 2. Corning.
 - 3. Belden.
 - 4. Commscope.
 - 5. Others as approved.
- D. Approved manufacturer for CAT-6 termination equipment are:
 - 1. Belden.
 - 2. Hubbell.
 - 3. Ortronics.
 - 4. Panduit.
- E. Approved manufacturers for Video Security Management Software:
 - 1. Genetec.
- F. Approved manufacturers for Access Control Software:
 - 1. Genetec.
- G. Approved manufacturers for Security Cameras are:
 - 1. I-Pro.
 - 2. Axis.
 - 3. Hanwha.
 - 4. Pelco.
- H. Approved manufacturers for Ethernet Switches:
 - 1. Cisco.
 - 2. Aruba.
 - 3. Comnet for outdoor or high/low temperature areas.

2.02 MATERIALS

- A. When installing CAT-6 cables the following are the MDOC Standard colors:

Green CAT-6	Cameras and Fence Detection
Orange CAT-6	PELS / PPD System
Yellow CAT-6	Wireless Tablets
Blue CAT-6	Standard color for State of Michigan CAT-6 cabling
Red CAT-6	Fire Alarm
Gray CAT-6	Telephone Systems
Purple CAT-6	Control Systems such as HVAC
Black CAT-6	Wired Educational System
Pink CAT-6	Access Control

- B. IP Address Standards:
 - 1. When working on the secure network the following standards shall be met for the different systems.
 - 2. See Commtech Design at bret@commtechdesign.com for a full listing of all IP addressing and VLAN requirements.

Correctional Facility	VLAN ID	VLAN Name	Begin Address	Subnet Mask	# IPs	Building Network Usable Range

Example below:

Site	VLAN ID	VLAN Name	Begin Address	Subnet mask	# IPs	Building Network Usable Range
Alger	1600	Management	172.16.0.0	255.255.252.0	1020	172.16.0.1 - 172.16.15.254
Alger	1604	Surveillance	172.16.4.0	255.255.252.0	1020	
Alger	1608	Fence	172.16.8.0	255.255.252.0	1020	
Alger	1612	Rounding	172.16.12.0	255.255.252.0	1020	
Alger	3000	HVAC	172.30.0.0	255.255.252.0	1020	
Alger	3004	Fire	172.30.4.0	255.255.252.0	1020	
Alger	3272	Audio	172.32.72.0	255.255.252.0	1020	

C. Fiber Cable Standards:

1. All fiber cables that are installed shall be single-mode fiber.
2. Indoor single-mode fiber cable shall be Yellow in color.
3. Outdoor single-mode fiber cable shall be Yellow or Black in color.
4. When installing fiber cable between buildings or between comm rooms the fiber shall be no less than 24 strands.
5. Terminate all fiber cable with fusion spliced, pre-connectorized pigtails. No field polish connectors are allowed.

2.03 INSTALLATION STANDARDS

- A. Each contractor shall ensure that the following standards are met during installation.
- B. All installations shall meet NEC 2017 code book and follow the guidelines for NFPA 70.
- C. All CAT-6 cabling shall be installed as per the color code in section 2.02 A.
 1. All CAT-6 cabling shall be terminated in a patch panel in the rack/cabinet in each comm room.



2. Cables shall be terminated with a modular jack matching the color and category of the cable installed.

- D. Shall be terminated with an 8-Pin modular connector at each end: Match color of the cable.



- E. For cables that are to be used for the SOM (State of Michigan) network, fully loaded CAT-6 patch panels shall be used. See image below.



- F. Cable support:

1. Cabling shall be in conduit in all exposed areas below 10' AFF.
 - a. See conduit standards below.
2. Above ceilings, the cables shall be supported with J-hooks every 5 feet.
3. Cables installed in an open ceiling are not required to be in conduit when installed above 10' AFF.
4. Use J-hooks to support cabling. J-hooks shall not be attached to drop ceiling wire. J-hook shown below.



- G. Screws and Fasteners:

1. Security Torx T-25 screws shall be used. No standard or Philips head screws shall be allowed. Provide Torx T-25 bit to owner upon completion of the project.
2. 2-pin "Snake Eye" type security screws are not allowed.
3. Approved include:
 - a. Torx type T-25



- b. Hex head concrete screws that do not have a screwdriver slot.
- c. Expansion pound-in anchors that do not have a screwdriver slot. See image below.



2.04 RACEWAYS

- A. Underground conduit:
1. All underground conduits shall be PVC or HDPE
 2. Trenched conduits shall be HDPE or PVC
 3. Directional bore conduits shall be HDPE type. 1" minimum
 4. When installing multiple HDPE conduits along same route the conduits shall be different colors.
 5. When transitioning from underground conduit to above ground the contractor shall transition to RGC type conduit a minimum of 12" below grade to 36" Above grade.
 6. When transitioning from below grade to a cabinet or to the side of a building, transition from HDPE/PVC to RGS conduit below grade and up to the cabinet or to 36" AFG.
 7. This applies to external camera cabinets, the side of a building and light poles etc.
 8. Conduits along a pole or outside on a building can be EMT above 36" AFG.
- B. Exposed Raceway inside a building:
1. Install conduit and backboxes for low voltage cabling along walls from outlet location to the above ceiling or open ceiling area above 10" AFF.
 2. Use bushed fitting at end of conduit.
 3. Cables installed in an open ceiling are not required to be in conduit when installed above 10' AFF or above fixed or drop ceilings.
 4. Install low voltage cabling inside conduit vertically along all walls up to bottom of ceiling structure. (Such as in a gym where the bottom of the building structure is higher than 10').
 5. No PVC conduit or metal Wiremold type surface mount raceway is allowed inside of buildings.
 6. All metal and flexible conduits must follow NEC code requirements and MUST be approved by PSC and MDOC Project Manager.
 7. EMT Conduit shall meet the following requirements:
 - a. $\frac{3}{4}$ " minimum trade size
 - b. Use only compression fittings. No set screw type fitting shall be allowed.
 - c. When conduit is installed to the exterior of a building use Rainproof EMT connectors.
 - d. Conduits shall be attached with two-hole straps. Single hole straps are not allowed.



- e. Conduits shall be attached to the wall or ceiling every 36" when installed below 10 feet AFF and within 12" of boxes.

- C. RGS (RIGID) Conduit shall meet the following requirements:
1. $\frac{3}{4}$ " minimum trade size
 2. Install RGS conduit as transitions from below grade to cabinet or pull boxes on a building or on a pole.
 3. Conduits shall be attached with two-hole straps. Single hole straps are not allowed.
 4. Conduits shall be attached to the wall or ceiling every 36" when installed below 10 feet AFF and within 12" of boxes.
- D. Flexible Conduit:
1. Where there is a difficult transition or metal conduit absolutely cannot be used on the exterior of a building or on a pole, the contractor may use Seal-tite raceway with compression couplers.

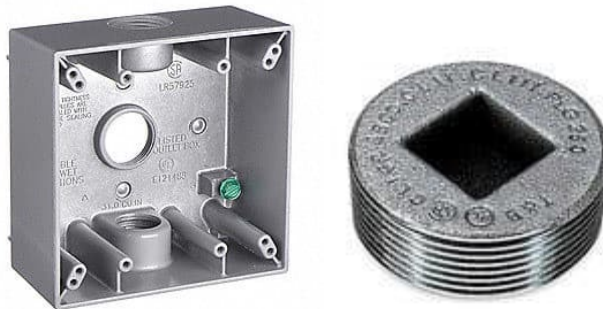
2. Maximum length shall not exceed 36".



3. When installing an exterior corner mount camera or camera on a pole, the contractor can install flexible conduit from camera to a pull box.
4. Attach flexible conduit to the structure every 24" minimum and within 12" of boxes.

2.05 BACKBOXES

- A. Backboxes shall not have any concentric knock-out holes. All backboxes and junction boxes shall be either:
 1. Cast with no hubs/holes. Drill the holes to standard conduit knockout size.
 2. Pre-cast or type FS or FD, with screw type blanks that use a square plug and do not allow a standard screwdriver to remove the blank.



- B. Recessed Square plug: <https://www.platt.com/platt-electric-supply/Weatherproof-Box-AccessoriesClosure-Plugs/Thomas-Betts/PLG8-TB/product.aspx?zpid=862571>
1. Size the plug to match hole size in the backbox.
- C. Size the backboxes to match the requirements of the plate and incoming conduits.
- D. Single gang backbox shall be:
 1. 3/4" knockouts Crouse-Hinds # TP7078 or equal.
 2. 1" knockouts Crouse-Hinds # TP7082 or equal.
 3. Fill all unused holes with a plug as noted above.
- E. Double gang backbox shall be:
 1. 3/4" knockouts Crouse-Hinds # TP7090 or equal.
 2. 1" knockouts Crouse-Hinds # TP7093 or equal.
 3. Fill all unused holes with a plug as noted above.

2.06 FIRESTOP PRODUCTS

- A. Each contractor shall be responsible for firestopping around their cables and the raceways.
- B. Firestopping shall be completed inside and around all conduits after cable installation.
- C. Firestop for the area between the cable and the edge of the conduit shall be Nelson No. FSP, CLK or LBS+. Contractor shall install the best firestop for each individual installation.
 1. Firestop shall be installed with regard to local and national building codes.
 2. The firestop shall be a putty like substance that expands under heat and will not allow flame to pass for a designated period of time.
 3. Firestop shall conform to all NEC, NFPA, and UL requirements.

4. Some wall pass-throughs are shown on the drawings. The Contractor shall utilize these where possible.
 5. Where the contractor must install cables through a wall where there is no pass-thru already provided, the Contractor shall be responsible for installing a fire-rated pass-thru and fire-stopping the conduit after cable installation.
- D. Firestopping is required at all riser conduits and all pass throughs.
1. Each cable tray penetration of a wall shall be fire stopped after cable installation. Use pillow type firestop to allow additional cables to be installed in the future.
 2. Where riser conduits pass through floors, the area between the concrete and the conduit shall be fire stopped. This shall be completed with a putty or liquid firestop product. Fill in the space with mineral wool, and then install the firestop on top. All firestops shall be of sufficient thickness to secure the rating required by code.
 3. After final cable installation, install a putty firestop around all cables where they enter and exit conduit pass throughs and conduit risers.
 4. All firestops shall be installed to provide the fire rating as described by local fire code.
 5. It shall be the responsibility of the Contractor to verify that all conduits, walls, and raceways required to be fire stopped have been fire stopped.
- E. Contractor shall provide a label at each penetration and firestop location detailing the UL rated fireproofing solution that was used in the specific application.
1. **Apply sticker to the wall near the fire stopped conduit.**
 2. **Provide a sample of the label to the designer for review as part of the submittals.**

2.07 SLEEVES AND PASS-THROUGHS

- A. Install conduit sleeves thru walls and thru floors to meet local and national codes.
- B. Round sleeves
 1. Wall Sleeves, Steel: EMT type.
 2. Equipped with nylon grommets on each end.
 3. No set screw couplers are allowed.
- C. Pass thru and sleeve seal systems:
 1. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and pathway or cable or between pathway and cable.
 - a. Sealing Elements: EPDM or Nitrile (Buna N) rubber interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
 - b. Pressure Plates: Carbon steel or Fiber-reinforced plastic.
 - c. Connecting Bolts and Nuts: Carbon steel, with corrosion-resistant coating of length required to secure pressure plates to sealing elements.
- D. Grout, Use when:
 1. Description: Non-shrink; recommended for interior and exterior sealing openings in non-fire-rated walls or floors.
 - a. Standard: ASTM C1107/C1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.
 - b. Design Mix: 5000-psi, 28-day compressive strength.
 - c. Packaging: Premixed and factory packaged.
- E. Pourable sealants:
 1. Description: Single-component, neutral-curing elastomeric sealants of grade indicated below.
 - a. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces that are not fire rated.
- F. Foam sealants:
 1. Description: Multi-component, liquid elastomers that, when mixed, expand and cure in place to produce a flexible, non-shrinking foam. Foam expansion must not damage cables or crack penetrated structure.

END OF SECTION 282150