

Thunder Bay Transportation Authority

REQUEST FOR PROPOSAL ROOF

REPLACEMENT & INTERIOR

RENOVATION

Sealed proposals will be received at the offices of the Thunder Bay Transportation Authority at 3859 U. S. Highway 23, N. Alpena, MI, 49707 until **2:00 PM, Local Time, on Monday, February 17, 2025**, at which time and place said proposals shall be due for the following item:

Thunder Bay Transportation Roof Replacement & Interior
Renovations
3859 U.S. Highway 23, N. Alpena, MI 49707

All offers must use the proposal forms provided in the procurement package, which may be acquired from the Purchasing department at the above address.

TBTA reserves the right to reject any or all proposals for sound documented business reasons, waive any defects or irregularities, and to accept the proposal which is most advantageous to Thunder Bay Transportation Authority.

Minority owned and Female owned firms are encouraged to respond to this Proposal solicitation.

INSTRUCTIONS AND CONDITIONS FOR PROPOSAL SUBMITTAL

PROPOSAL “ROOF REPLACEMENT & INTERIOR RENOVATIONS”

PROPOSAL SUBMITTAL AND DUE DATE

All envelopes must be sealed and marked "Request for Proposal - ROOF REDESIGN/REPAIR" The T.B.T.A. is not responsible for any proposal not marked as such.

Return proposal to:

Thunder Bay Transportation Roof Redesign/Repair
3859 U.S. Highway 23, N. Alpena, MI 49707

The deadline for submitting proposal is **2:00 PM** Local Time, on **Monday, February 17, 2025**, at which time proposals will be opened in public. Proposals received after that time will not be considered for award or opened.

FAXED PROPOSALS ARE NOT ACCEPTABLE.

PROJECT SCHEDULE

The following schedule represents T.B.T.A.'s commitment to expedite this procurement.

January 6, 2025	RFPs notice mailed to potential offerors. RFP Advertised on web site,
January 20, 2025	Pre Proposal Meeting and site walk through 10:00 AM. **SEE NOTE BELOW**
February 3, 2025	Deadline for potential offerors to request for Approved Equals and/or Clarification of Specifications to T.B.T.A.

February 10, 2025	Deadline for T.B.T.A.'s response to request for Approved Equals and Clarification of Specifications.
February 17, 2025	Proposals Due (<i>Not open to the public</i>)- <i>2:00PM.</i>
February 27, 2025	Recommendation for contract award presented to T.B.T.A.'s Board of Directors for approval or disapproval.
February 28, 2025	Winner Notified

*** Optional Pre-Proposal Meeting will be held at the Thunder Bay Transportation Authority located at 3859 U.S. Highway 23, N. Alpena, MI 49707 @ **10:00 a.m. on Monday January 20, 2025.**

The T.B.T.A. and the successful proposer shall mutually agree when it is necessary to make changes in, additions to, or deductions from the work performed or the material to be furnished, pursuant to the provisions of the contract documents.

STATEMENT OF NO PROPOSAL

NOTE: if you do not intend to make a proposal on this item, please detach and return this form immediately.

Purchasing Department, TBTA
3859 U.S. Highway 23, N.
Alpena, MI 49707

We, the undersigned, have declined to make a proposal on your proposal .(PROPOSAL 2024-06), (CBS Project) for the following reason(s):

_____ Specifications too restrictive, i.e., geared toward one brand or manufacturer only (explain below) Insufficient time to respond to the Request Date Received: ___

_____ We do not offer this product or service

_____ Our schedule would not permit us to perform

_____ Unable to meet specifications

_____ Unable to meet bond requirement

_____ Specifications unclear (explain below)

_____ Unable to meet insurance requirements

_____ Remove us from your Vendor list altogether

_____ Other (specify below)

REMARKS:.....

Business Name:.....

Signature: _____

Telephone: _____

Date: _____

PART I

1. NO CONDITIONAL PROPOSALS

This Request for Proposals calls for proposals that are responsive to the plans and specifications, which are attached hereto and incorporated herein as "Bidding Documents". Conditional proposals, or those which take exception to the specifications, will be considered non-responsive and will be rejected unless specific approval from TBTA is requested in writing by at least 10 days prior to proposal due date. All other eligible proposers or offerors are to be notified of any approved exceptions to the specifications.

2. APPROVED EQUALS AND DEVIATIONS FROM SPECIFICATIONS:

If the offeror or proposer proposes to submit a proposal containing "approved equals" or "deviations" from the specific requirements of these specifications, the offeror or proposer must obtain such approval, confirmed in writing, prior to the date of proposal opening.

Requests for "approved equals" and clarification must be received by the TBTA in writing no less than 10 days before date of proposal opening. Any request for approved equal must be fully supported with technical data, test results or other pertinent information as evidence that the substitute offered is equal to, or better than, the specification requirements. Any unapproved deviations, exceptions, substitutions, alternates, or conditional qualifications contained in a proposal may be cause for its rejection.

The TBTA reserves the right to postpone the proposal opening or receipt of proposals for sound, documentable, business reasons.

Changes to the specifications will be made by addendum only and issued by the TBTA's Purchasing Agent in writing.

Prime Contractors and subcontractors may make appointments to discuss project specifications. This, however, does not relieve them from providing written documented requests.

Request for approved equal (if required) or clarification of specifications by a proposer or offeror must be received in writing by the TBTA's Purchasing Agent not less than ten (10) working days before the date of the scheduled proposal opening or closing date for receipt of proposals. All requests for approved equals or clarification of specifications should be addressed to:

ATTN: Purchasing Agent
Thunder Bay Transportation Authority
3859 U.S. Highway 23, N.
Alpena , MI 49707

The TBTA's Purchasing Agent shall reply to all requests for approved equals or clarification of specifications within eight (8) days after receipt of the request. A copy of the response shall be sent to the requestor and all contractors and subcontractors who requested a copy of the original solicitation and will be posted on thunderbaytransportation.com, and Spicergroup.com.

3. WRITTEN PROTEST PROCEDURE

Contractors wishing to protest procurement decisions or processes must submit the protest in writing to the General Manager at the Thunder Bay Transportation Authority, 3859 US -23 North Alpena, MI 49707. Protests about solicitation specifications or processes must be received 10 business days before the solicitation due date. Protests received after the due date, but before award must be received before 5 business days after the due date. Post award protests must be received by the Thunder Bay Transportation Authority no later than 5 business days after the award decision.

The protester must qualify as an “interested party” in the procurement. An “interested party” is an actual or prospective bidder or offeror whose direct economic interest would be affected by the award or failure to award the procurement at issue.

The written protest must identify the protesting party, clearly define the decision or process being protested and the reason(s) for the protest and relief desired of the Thunder Bay Transportation Authority’s procurement award.

The Thunder Bay Transportation Authority reserves the right to not accept solicitations, postpone or extend the solicitation due date, cancel any award or re-solicit based on the protest received. The Thunder Bay Transportation Authority’s General Manager or her/his designee will review the written protest and provide a written decision to the protestor within 10 business days of receiving the protest.

The protestor can appeal the Thunder Bay Transportation Authority’s General Manager’s of her/his designee’s decision to Thunder Bay Transportation Authority Board. That appeal must be filed with the Thunder Bay Transportation Authority General Manager or her/his designee within 5 business days of the general manager’s or her/his designee’s decision. The Thunder Bay Transportation Authority Board’s decision on the appeal will be final.

4 BONDING REQUIREMENTS

- a. A bid guarantee from each bidder equivalent to five percent of the bid price. The “bid guarantee” must consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of the bid, execute such contractual documents as may be required within the time specified.

- b. A performance bond on the part of the contractor for 100 percent of the contract price. A “performance bond” is one executed in connection with a contract to secure fulfillment of all contractor’s obligations under such contract.
- c. A payment bond on the part of the contractor for 100 percent of the contract price. A “payment bon” is one executed in connection with a contract to assure payment as required by law of all persons supplying labor and material in the execution of the work provided for in the contract.

5. SUBCONTRACTORS

A list of all intended subcontractors must be provided within your proposal and should include contact information for them.

6. WITHDRAWAL OF PROPOSALS

Proposals may be withdrawn upon written request received by TBTA prior to the time fixed for proposal due date. No proposal may be withdrawn for a period of ninety (90) days after the time set herein for due date.

7. PROPOSAL ACCEPTANCE OR REJECTION:

TBTA reserves the right to accept any proposals, or to reject any or all proposals or postpone due date or to contract on such basis as TBTA deems to be in its best interest.

8. BASIS OF AWARD:

See Part II Section 6. PROPOSED SELECTION PROCESS

9. SINGLE PROPOSAL

In the event a single proposal, TBTA will conduct a price and/or cost analysis of the proposal. A price analysis is the process of examining the proposal and evaluating the separate cost elements. It should be recognized that a price analysis, through comparison with other similar procurements, must be based on an established or competitive price of the elements used in the comparison.

The comparison must be made to a purchase of similar quantity and quality, involving similar specifications. Where a difference exists, a detailed analysis must be made of this difference and costs attached thereto.

Where it is impossible to obtain a valid price analysis, it may be necessary for TBTA to conduct a cost analysis of the price.

10 LIMITATIONS:

This Request for Proposals ("RFP") does not commit TBTA to award a contract, to pay any cost incurred in the preparation of a proposal to this RFP, to negotiate with all qualified proposers or offerors, or to preclude TBTA from canceling, in part or in its entirety, this RFP if it is in the best interest of TBTA.

11 NOTICE OF AWARD:

Each proposal will be submitted with the understanding that acceptance in writing by TBTA via a signed Notice of Award shall provide the contractor with legal notice that their proposal has been accepted and that they may begin construction preparations while the contracts are being finalized.

12 WRITTEN AGREEMENT:

Upon acceptance by TBTA of a proposal, a contract will be awarded for furnishing the items described in the proposal in strict conformity with the specifications, these instructions, and the contract proposal. **After the execution of the written agreement**, a "Notice to Proceed" will be issued by TBTA for the services.

13 CONTRACT DOCUMENTS:

Contract terms will be based on the AIA Document AIA A101-2017 Standard Form of Agreement between the Owner and Contractor where the basis of payment is a Stipulated Sum.

14 PROPOSAL DISCLOSURE:

All information on a submitter's proposal, except proprietary financial information and responsibility, is subject to disclosure under the provisions of Public Act NO. 442 of 1976 known as the "Freedom of Information Act". This act also provides for the complete disclosure of contracts and attachments thereto.

Proposals may be inspected at the office of the Purchasing Agent after award is completed. Inspections will be during office hours and within specified time limits as directed by the Purchasing Agent.

Information available for inspection shall include the tabulated price proposals and copies of the proposal documents subject to the exceptions listed above and proprietary legal constraints.

**THUNDER BAY TRANSPORTATION
AUTHORITY
BUILDING COMMITTEE**

**REQUEST FOR PROPOSAL
FOR CONSTRUCTION SERVICES**

**FOR THUNDER BAY TRANSPORTATION AUTHORITY
ROOF REPLACEMENT & INTERIOR RENOVATIONS
ALPENA, MI
PART II**

1. INTRODUCTION

The Building Committee for Thunder Bay Transportation Authority is issuing this Request for Proposal (RFP) for a Construction Firm as General Contractor for Services from qualified firms for re-roof/and Interior Renovations and will be responsible for the overall delivery of the project. The Construction Firm will work with TBTA, TBTA's architect Spicer Group. Time is of the essence as this project must be completed to prevent further damage to the structure.

2. PROJECT DESCRIPTION

2.1. Scope of Work

The installation of a new metal standing seam roof over the existing standing seam roof using standoff framing and additional fiberglass batt insulation, new steel gutters and downspouts. Additionally, Addition of new canopies over doors, work to repair damaged ceiling tiles, walls, insulation and flooring from water leak damage. Bid, payment and performance bonding will be required.

2.2. Schedule

The selected Construction Firm will manage and complete this project within the defined schedule. See Part I for the schedule.

2.3. Federal Clauses that apply to this proposal

- Proposers shall read and agree to the Federal Contract Clause Construction More than \$250,000 See attached
- Davis-Bacon Prevailing Wage Requirements and Certified Payrolls must be submitted weekly. The current Construction Type: Building, wage determination for Alpena County is attached to the RFP

3. CONTRACT

Contract terms will be based on the AIA Document AIA A101-2017 Standard Form of Agreement between the Owner and the Contractor where the basis of payment is a stipulated sum. The Agreement will have to be approved by the Michigan Department of Transportation

4. INSURANCE AND BONDING

Refer to Bonding Requirements in Part I

5. SCOPE OF SERVICES

The contractor will provide roofing renovations and interior renovations per the attached plans and specifications.

- Post-Construction Services
 - Assist in reviewing and preparing all close-out documents including warranties, operating and maintenance manuals.
 - Monitor and follow up on any warranty issues throughout the one-year warranty period.

6. PROPOSED SELECTION PROCESS

The Owner will be selecting the Construction Firm through a Proposal and optional interview process. The proposed schedule for the Proposal' review, notification, and interview is as follows:

- RFP Issued: 1/6/25
- Pre-Proposal Conference (10:00 a.m. EST): 1/20/25
- Questions Deadline (5:00 PM EST): 2/3/25
- Proposals Due (2:00 PM EST): 2/17/25
- Board Meeting and Proposal Approval: 2/28/25

The Owner reserves the right to reject all proposals and re-solicit for new proposals and temporarily or permanently abandon the Project. The Owner makes no representations, written or oral, that it will enter into any form of agreement with any respondent to this RFP for any project and no such representation is intended or should be construed by the issuance of this RFP.

7. PROPOSAL FORMAT

The Firm's proposal shall be prepared SIMPLY AND ECONOMICALLY, providing a straightforward and concise description as possible. Emphasis shall be on the QUALITY, completeness, clarity of content, responsiveness to the requirements, and an understanding of the Owner's needs.

Proposal materials must be enclosed in a sealed envelope (box or container) addressed to the Point of Contact person (See Section 13). The package must clearly identify the submittal deadline and a label stating, TBTA Roof Replacement & Interior Renovations and the name and return address of the respondent.

- The proposal page limit will be Four pages maximum, including executive summary/cover letter, and fee summary.
- Submit seven (7) identical printed copies and one (1) digital copy of the proposal. The Digital copy must be in pdf format and the file size must be 20 MB or less.
- All proposals must be formatted to 8.5” x 11” sheet size, and portrait or landscape orientation. The PDF shall be exported as single pages (not spreads) to facilitate easier viewing and printing.
- Late received Proposals will be returned to the respondent unopened.
- Failure to comply with all the requirements contained in this Request for Proposals may result in the rejection of the Proposal.
- Properly submitted Proposals will not be returned to respondents and will become the property of TBTA (Owner).

8. PROPOSAL CONTENT

To facilitate an equitable evaluation of your firm’s qualifications, please respond specifically to the following items in the order as described below:

8.1. Executive Summary/Cover Letter – One Page

- Provide a statement of interest for the Project, including a narrative describing the respondent’s unique qualifications as they pertain to this project.
- Provide a statement on the availability and commitment of the respondent, its principal(s), and the assigned professionals to undertake the project.

8.2. Firm Information – One page

- Firm Name, Address, City, State, Zip Code, Website, and Telephone Number
- Firm history and year established
- If your firm has multiple branch offices, list its locations and which office will handle the project.
- Type of Organization (individual, partnership, corporation)
- List of Officer’s Names
- Contact Person’s Name, Address, City, State, Zip Code, Telephone Number, and Email
- How many years has your firm provided construction management services?

- Provide the following information on your firm for the past five (5) fiscal years:
 - Annual number and value, of contracts per year
 - Bonding: The total bonding capacity to include available bonding and current backlog. Attach a letter of intent from a surety company indicating your firm's ability to bond for the entire construction cost of the Project.

8.3 Personnel Information - One Page

Provide a brief bio of key personnel employed by your firm who will be assigned to this Project along with their role in the project.

8.4. Project Experience Information

Provide examples of comparable projects for which your company was the Contractor (Prime or Sub). Include the following information:

- Project Name and Location
- Owner.
- Building Type and Size
- Construction Cost
- Year the project was completed.
- Color images of project if available. (these can be on a separate sheets that do not count against the 4 page maximum).

8.5. Project Understanding, Construction Methodology, Technologies, Best Practices, and Approach – One Page

- Project Understanding – Describe your company's understanding of this project's significant issues.
- Approach and Methodology – Describe your company's approach and methodology to providing Construction services for this Project. Specifically address the following items:
 - Describe your company's, primary role.
 - Describe your company's schedule for the project assuming award as stated in the schedule.
 - Describe your company's construction coordination and quality control process.
 - Describe your company's safety and OSHA compliance program and procedures.
 - Describe your company's unique qualifications for this project.

8.6. Federal Contract Clauses Construction More than \$250,000

- Proposers must read, sign and attach the Federal Contract Clauses with their proposal.

8.7. Fee Proposal

The Fee Proposal shall be submitted in a separate sealed envelope marked with ‘Fee Proposal,’ the project name, and proposing firm’s name.

- See attached Exhibit 3, Fee Summary form. Submit a completed version of Exhibit 3 with your firm’s proposal.

9. CONSTRUCTION FIRM SELECTION

The Owner will score each firm’s proposal according to the evaluation criteria to determine the top candidates in a competitive range. Firms in the competitive range may be interviewed as deemed necessary and the original scoring of the non-price criteria may be modified based on the results of the interview. The Owner reserves the right to reject all proposals for sound, documentable, business reasons, to award to other than the lowest price proposal, and to select a firm and award a contract as is deemed in the best interest of the Owner. The Owner reserves the right to negotiate costs and contract issues. The award will only be to a responsive and responsible firm.

10. EVALUATION CRITERIA

The proposals will be evaluated relative to the following criteria:

- Construction Fees 35%
- Project Understanding, Approach and Methodology 25%
- Firm Qualifications 20%
- Project Experience 20%

11. COST OF PREPARATION

All costs associated with the preparation of the proposal shall be borne by the interested firm. At the completion of the proposal process, the submitted documents shall become the property of the Owner.

12. OPTIONAL PRE-PROPOSAL CONFERENCE

An optional Pre-Proposal conference will be held in person on Monday, January 20, 2025 at 10:00 AM EST at the following address:

Angie Fox
Executive Director
Thunder Bay Transportation
3859 US Highway 23, N.
Alpena, MI
director@thunderbaytransportation.com

13. QUESTIONS AND POINT OF CONTACT

The Owner designates the following person, as its representative and Point-of-Contact for this RFP. Respondents shall restrict all contact with the Owner's Building Committee and other employees. They must direct all questions regarding this RFP, including questions regarding terms and conditions, to the Point-of Contact person. Questions regarding the content of the RFP shall be submitted in writing no later than 5:00 PM EST on Monday, February 3, 2025, and directed to:

Angie Fox
Executive Director
Thunder Bay Transportation
3859 US Highway 23, N.
Alpena, MI
director@thunderbaytransportation.com

- * All written responses to submitted questions and other RFP addenda will be provided via email to the requestor and all contractors and subcontractors who requested a copy of the original solicitation and will be posted on thunderbaytransportation.com.
- * All communication regarding this Project and request for proposal shall be directed at the contact above.

14. PROCEDURE FOR SUBMISSION

Proposing firms wishing to be considered for Construction Firm services shall submit seven (7) hard copies in person or via post, and one (1) electronic copy (in PDF format) submitted by email of their proposal materials to:

Angie Fox
Executive Director
Thunder Bay Transportation
3859 US Highway 23, N.
Alpena, MI
director@thunderbaytransportation.com

- * The Owner must receive the proposal materials electronic submittal and the hard copy packets no later than 2:00 PM EST on Monday, February 17, 2025.

The TBTA Building Committee appreciates the interest and time spent in submitting proposal packages for consideration.

Angie Fox, Executive Director
Thunder Bay Transportation

End of RFP

ACCESS TO RECORDS AND REPORTS

1. Record Retention. The Contractor will retain and will require its subcontractors of all tiers to retain, complete and readily accessible records related in whole or in part to the contract, including, but not limited to, data, documents, reports, statistics, leases, subcontracts, arrangements, other Third-party Contracts of any type, and supporting materials related to those records.
2. Retention Period. The Contractor agrees to comply with the record retention requirements in accordance with 2 CFR § 200.334. The Contractor shall maintain all books, records, accounts and reports required under this Contract for a period of at not less than three (3) years after the date of termination or expiration of this Contract, except in the event of litigation or settlement of claims arising from the performance of this Contract, in which case records shall be maintained until the disposition of all such litigation, appeals, claims or exceptions related thereto.
3. Access to Records. The Contractor agrees to provide sufficient access to FTA and its contractors to inspect and audit records and information related to performance of this contract in accordance with 2 CFR § 200.337.
4. Access to the Sites of Performance. The Contractor agrees to permit FTA and its contractors access to the sites of performance under this contract in accordance with 2 CFR § 200.337.

AMERICANS WITH DISABILITIES ACT (ADA)

The contractor agrees to comply with all applicable requirements of section 504 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794, which prohibits discrimination on the basis of handicaps, with the Americans with Disabilities Act of 1990 (ADA), as amended, 42 U.S.C. §§ 12101 et seq., which requires that accessible facilities and services be made available to persons with disabilities, including any subsequent amendments to that Act, and with the Architectural Barriers act of 1968, as amended, 42 U.S.C. §§ 4151 et seq., which requires that buildings and public accommodations be accessible to persons with disabilities, including any subsequent amendments to that Act. In addition, the contractor agrees to comply with any and all applicable requirements issued by the FTA, DOT, DO , U.S. GSA, U.S. EEOC, U.S. FCC, any subsequent amendments thereto and any other nondiscrimination statute(s) that may apply to the Project.

BUY AMERICA REQUIREMENTS

The contractor agrees to comply with 49 U.S.C. 5323(j) and 49 CFR part 661 and 2 CFR § 200.322 Domestic preferences for procurements, which provide that Federal funds may not be obligated unless all steel, iron, and manufactured products used in FTA funded projects are produced in the United States, unless a waiver has been granted by FTA or the product is subject to a general waiver. General waivers are listed in 49 CFR § 661.7.

Construction materials used in the Project are subject to the domestic preference requirement of the Build America, Buy America Act, Pub. L. 11758, div. G, tit. I , §§ 70911 - 70927 (2021), as implemented by the U.S. Office of Management and Budget, the U.S. Department of Transportation, and FTA. The Recipient acknowledges that this agreement is neither a waiver of § 70914(a) nor a finding under § 70914(b).

Separate requirements for rolling stock are set out at 49 U.S.C. 5323(j)(2)(C), 49 U.S.C. § 5323(u) and 49 CFR § 661.11. Domestic preferences for procurements.

The bidder or offeror must submit to the Agency the appropriate Buy America certification. Bids or offers that are not accompanied by a completed Buy America certification will be rejected as nonresponsive. For more information, please see the FTA's Buy America webpage at: <https://www.transit.dot.gov/buyamerica>.

RESTRICTIONS ON LOBBYING

Conditions on use of funds.

- a) No appropriated funds may be expended by the recipient of a Federal contract, grant, loan, or cooperative agreement to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any of the following covered Federal actions: the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- b) Each person who requests or receives from an agency a Federal contract, grant, loan, or cooperative agreement shall file with that agency a certification, that the person has not made, and will not make, any payment prohibited by paragraph (a) of this section.
- c) Each person who requests or receives from an agency a Federal contract, grant, loan, or a cooperative agreement shall file with that agency a disclosure form if such person has made or has agreed to make any payment using nonappropriated funds (to include profits from any covered Federal action), which would be prohibited under paragraph (a) of this section if paid for with appropriated funds.
- d) Each person who requests or receives from an agency a commitment providing for the United States to insure or guarantee a loan shall file with that agency a statement, whether that person has made or has agreed to make any payment to influence or attempt to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with that loan insurance or guarantee.
- e) Each person who requests or receives from an agency a commitment providing for the United States to insure or guarantee a loan shall file with that agency a disclosure form if that person has made or has agreed to make any payment to influence or attempt to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with that loan insurance or guarantee.

Certification and disclosure.

- a) Each person shall file a certification, and a disclosure form, if required, with each submission that initiates agency consideration of such person for:
 - 1. Award of a Federal contract, grant, or cooperative agreement exceeding \$100,000; or
 - 2. An award of a federal loan or a commitment providing for the United States to insure or guarantee a loan exceeding \$150,000.
- b) Each person shall file a certification, and a disclosure form, if required, upon receipt by such person of:
 - 1. A Federal contract, grant, or cooperative agreement exceeding \$100,000; or
 - 2. A Federal loan or a commitment providing for the United States to insure or guarantee a loan exceeding \$150,000,

Unless such person previously filed a certification, and a disclosure form, if required, under paragraph (a) of this section.

- c) Each person shall file a disclosure form at the end of each calendar quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of the information contained in any disclosure form previously filed by such person under paragraphs (a) or (b) of this section. An event that materially affects the accuracy of the information reported includes:
 - 1. A cumulative increase of \$25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence a covered Federal action; or
 - 2. A change in the person(s) or individual(s) influencing or attempting to influence a covered Federal action; or,
 - 3. A change in the officer(s), employee(s), or Member(s) contacted to influence or attempt to influence a covered Federal action.
- d) Any person who requests or receives from a person referred to in paragraphs (a) or (b) of this section:
 - 1. A subcontract exceeding \$100,000 at any tier under a Federal contract;
 - 2. A subgrant, contract, or subcontract exceeding \$100,000 at any tier under a Federal grant;
 - 3. A contract or subcontract exceeding \$100,000 at any tier under a federal loan exceeding \$150,000; or,
 - 4. A contract or subcontract exceeding \$100,000 at any tier under a federal cooperative agreement. Shall file a certification, and a disclosure form, if required, to the next tier above.
- e) All disclosure forms, but not certifications, shall be forwarded from tier to tier until received by the person referred to in paragraphs (a) or (b) of this section. That person shall forward all disclosure forms to the agency.
- f) Any certification or disclosure form filed under paragraph (e) of this section shall be treated as a material representation of fact upon which all receiving tiers shall rely. All liability arising from an erroneous representation shall be borne solely by the tier filing that representation and shall not be shared by any tier to which the erroneous representation is forwarded. Submitting an erroneous certification or disclosure constitutes a failure to file the required certification or disclosure, respectively. If a person fails to file a required certification or disclosure, the United States may pursue all available remedies, including those authorized by section 1352, title 31, U.S. Code.
- g) For awards and commitments in process prior to December 23, 1989, but not made before that date, certifications shall be required at award or commitment, covering activities occurring between December 23, 1989, and the date of award or commitment. However, for awards and commitments in process prior to the December 23, 1989, effective date of these provisions, but not made before December 23, 1989, disclosure forms shall not be required at time of award or commitment but shall be filed within 30 days.
- h) No reporting is required for an activity paid for with appropriated funds if that activity is allowable under either subpart (b) or (c).

CARGO PREFERENCE REQUIREMENTS

The contractor agrees:

- a) to use privately owned United States-Flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to the underlying contract to the extent such vessels are available at fair and reasonable rates for United States-Flag commercial vessels;
- b) to furnish within 20 working days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, "onboard" commercial ocean bill-of-lading in English for each shipment of cargo described in the preceding paragraph to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590 and to the FTA Recipient (through the contractor in the case of a subcontractor's bill-of-lading); and
- c) to include these requirements in all subcontracts issued pursuant to this contract when the subcontract may involve the transport of equipment, material, or commodities by ocean vessel.

CIVIL RIGHTS LAWS AND REGULATIONS

The following Federal Civil Rights laws and regulations apply to all contracts.

1. Federal Equal Employment Opportunity (EEO) Requirements. These include, but are not limited to:

- a) Nondiscrimination in Federal Public Transportation Programs. 49 U.S.C. § 5332, covering projects, programs, and activities financed under 49 U.S.C. Chapter 53, prohibits discrimination on the basis of race, color, religion, national origin, sex (including sexual orientation and gender identity), disability, or age, and prohibits discrimination in employment or business opportunity.
- b) Prohibition against Employment Discrimination. Title VII of the Civil Rights Act of 1964, as amended, 42 U.S.C. § 2000e, and Executive Order No. 11246, "Equal Employment Opportunity", September 24, 1965, as amended, prohibit discrimination in employment on the basis of race, color, religion, sex, or national origin.

2. **Nondiscrimination on the Basis of Sex.** Title I of the Education Amendments of 1972, as amended, 20 U.S.C. § 1681 et seq. and implementing Federal regulations, "Nondiscrimination on the Basis of Sex in Education Programs or Activities Receiving Federal Financial Assistance," 49 CFR part 25 prohibit discrimination on the basis of sex.
3. **Nondiscrimination on the Basis of Age.** The "Age Discrimination Act of 1975", as amended, 42 U.S.C. § 6101 et seq., and Department of Health and Human Services implementing regulations, "Nondiscrimination on the Basis of Age in Programs or Activities Receiving Federal Financial Assistance", 45 CFR part 90, prohibit discrimination by participants in federally assisted programs against individuals on the basis of age. The Age Discrimination in Employment Act (ADEA), 29 U.S.C. § 621 et seq., and Equal Employment Opportunity Commission (EEOC) implementing regulations, "Age Discrimination in Employment Act", 29 CFR part 1625, also prohibit employment discrimination against individuals aged 40 and over on the basis of age.
4. **Federal Protections for Individuals with Disabilities.** The Americans with Disabilities Act of 1990, as amended (ADA), 42 U.S.C. § 12101 et seq., prohibits discrimination against qualified individuals with disabilities in programs, activities, and services, and imposes specific requirements on public and private entities. Third-party contractors must comply with their responsibilities under Titles I, II, III, IV, and V of the ADA in employment, public services, public accommodations, telecommunications, and other provisions, many of which are subject to regulations issued by other Federal agencies.

Civil Rights and Equal Opportunity

The Agency is an Equal Opportunity Employer. As such, the Agency agrees to comply with all applicable Federal civil rights laws and implementing regulations. Apart from inconsistent requirements imposed by Federal laws or regulations, the Agency agrees to comply with the requirements of 49 U.S.C. § 5323(h) (3) by not using any Federal assistance awarded by FTA to support procurements using exclusionary or discriminatory specifications. Under this Contract, the Contractor shall at all times comply with the following requirements and shall include these requirements in each subcontract entered into as part thereof.

1. **Nondiscrimination.** In accordance with Federal transit law at 49 U.S.C. § 5332, the Contractor agrees that it will not discriminate against any employee or applicant for employment because of race, color, religion, national origin, sex, disability, or age. In addition, the Contractor agrees to comply with applicable Federal implementing regulations and other implementing requirements FTA may issue.
2. **Race, Color, Religion, National Origin, Sex.** In accordance with Title VII of the Civil Rights Act, as amended, 42 U.S.C. § 2000e et seq., and Federal transit laws at 49 U.S.C. § 5332, the Contractor agrees to comply with all applicable equal employment opportunity requirements of U.S. Department of Labor (U.S. DOL) regulations, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor", 41 CFR chapter 60, and Executive Order No. 11246, "Equal Employment Opportunity in Federal Employment", September 24, 1965, 42 U.S.C. § 2000e note, as amended by any later Executive Order that amends or supersedes it, referenced in 42 U.S.C. § 2000e note. The Contractor agrees to take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, national origin, or sex (including sexual orientation and gender identity). Such action shall include, but not be limited to, the following: employment, promotion, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.
3. **Age.** In accordance with the Age Discrimination in Employment Act, 29 U.S.C. §§ 621634, U.S. Equal Employment Opportunity Commission (U.S. EEOC) regulations, "Age Discrimination in Employment Act", 29 CFR part 1625, the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6101 et seq., U.S. Health and Human Services regulations, "Nondiscrimination on the Basis of Age in Programs or Activities Receiving Federal Financial Assistance", 45 CFR part 90, and Federal transit law at 49 U.S.C. § 5332, the Contractor agrees to refrain from discrimination against present and prospective employees for reason of age. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.
4. **Disabilities.** In accordance with section 504 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794, the Americans with Disabilities Act of 1990, as amended, 42 U.S.C. § 12101 et seq., the Architectural Barriers Act of 1968, as amended, 42 U.S.C. § 4151 et seq., and Federal transit law at 49 U.S.C. § 5332, the Contractor agrees that it will not discriminate against individuals on the basis of disability. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.
5. **Promoting Free Speech and Religious Liberty.** The Contractor shall ensure that Federal funding is expended in full accordance with the U.S. Constitution, Federal Law, and statutory and public policy requirements: including, but not limited to, those protecting free speech, religious liberty, public welfare, the environment, and prohibiting discrimination.

CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

The Contractor agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act (42 U.S.C. § 74017671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. § 12511387). Violations must be reported to FTA and the Regional Office of the Environmental Protection Agency. The following applies for contracts of amounts in excess of \$150,000:

Clean Air Act

1. The contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq.
2. The contractor agrees to report each violation to the Agency and understands and agrees that the Agency will, in turn, report each violation as required to assure notification to the Agency, Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.
3. The contractor agrees to include these requirements in each subcontract exceeding \$150,000 financed in whole or in part with Federal assistance provided by FTA.

Federal Water Pollution Control Act

1. The contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq.

2. The contractor agrees to report each violation to the Agency and understands and agrees that the Agency will, in turn, report each violation as required to assure notification to the Agency, Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.
3. The contractor agrees to include these requirements in each subcontract exceeding \$150,000 financed in whole or in part with Federal assistance provided by FTA.

CONFORMANCE WITH ITS NATIONAL ARCHITECTURE

Intelligent Transportation Systems (ITS) projects shall conform to the National ITS Architecture and standards pursuant to 23 CFR § 940. Conformance with the National ITS Architecture is interpreted to mean the use of the National ITS Architecture to develop a regional ITS architecture in support of integration and the subsequent adherence of all ITS projects to that regional ITS architecture. Development of the regional ITS architecture should be consistent with the transportation planning process for Statewide and Metropolitan Transportation Planning (49 CFR Part 613 and 621).

DEBARMENT AND SUSPENSION

The Contractor shall comply and facilitate compliance with U.S. DOT regulations, "Nonprocurement Suspension and Debarment", 2 CFR part 1200, which adopts and supplements the U.S. Office of Management and Budget (U.S. OMB) "Guidelines to Agencies on Governmentwide Debarment and Suspension (Nonprocurement)", 2 CFR part 180. These provisions apply to each contract at any tier of \$25,000 or more, and to each contract at any tier for a federally required audit (irrespective of the contract amount), and to each contract at any tier that must be approved by an FTA official irrespective of the contract amount. As such, the Contractor shall verify that its principals, affiliates, and subcontractors are eligible to participate in this federally funded contract and are not presently declared by any Federal department or agency to be:

- a) Debarred from participation in any federally assisted Award;
- b) Suspended from participation in any federally assisted Award;
- c) Proposed for debarment from participation in any federally assisted Award;
- d) Declared ineligible to participate in any federally assisted Award;
- e) Voluntarily excluded from participation in any federally assisted Award; or
- f) Disqualified from participation in any federally assisted Award.

By signing and submitting its bid or proposal, the bidder or proposer certifies as follows:

The certification in this clause is a material representation of fact relied upon by the AGENCY. If it is later determined by the AGENCY that the bidder or proposer knowingly rendered an erroneous certification, in addition to remedies available to the AGENCY, the Federal Government may pursue available remedies, including but not limited to suspension and or debarment. The bidder or proposer agrees to comply with the requirements of 2 CFR part 180, subpart C, as supplemented by 2 CFR part 1200, while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

DISADVANTAGED BUSINESS ENTERPRISE (DBE)

(Does not apply to projects fully funded by the Tribal Transportation Program (TTP).)

It is the policy of the Agency and the United States Department of Transportation ("DOT") that Disadvantaged Business Enterprises ("DBE's"), as defined herein and in the Federal regulations published at 49 CFR part 26, shall have an equal opportunity to participate in DOT-assisted contracts.

The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the Agency deems appropriate, which may include, but is not limited to:

1. Withholding monthly progress payments;
2. Assessing sanctions;
3. Liquidated damages; and or
4. Disqualifying the contractor from future bidding as non-responsible. 49 CFR § 26.13(b).

Prime contractors are required to pay subcontractors for satisfactory performance of their contracts no later than 30 days from receipt of each payment the Agency makes to the prime contractor. 49 CFR § 26.29(a).

Finally, for contracts with defined DBE contract goals, each FTA Recipient must include in each prime contract a provision stating that the contractor shall utilize the specific DBEs listed unless the contractor obtains the Agency's written consent; and that, unless the Agency's consent is provided, the contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the listed DBE. 49 CFR § 26.53(f) (1).

ENERGY CONSERVATION

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

EQUAL EMPLOYMENT OPPORTUNITY

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

1. The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer, recruitment, or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.
2. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
3. The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.
4. The contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
5. The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
6. The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
7. In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
8. The contractor will include the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

NOTICE TO THIRD-PARTY PARTICIPANTS

Federal requirements that apply to the Recipient or the Award, the accompanying Underlying Agreement, and any Amendments thereto may change due to changes in federal law, regulation, other requirements, or guidance, or changes in the Recipient's Underlying Agreement including any information incorporated by reference and made part of that Underlying Agreement; and

Applicable changes to those federal requirements will apply to each Third-party Agreement and parties thereto at any tier.

FLY AMERICA

- a) Definitions. As used in this clause -
 - 1) "International air transportation" means transportation by air between a place in the United States and a place outside the United States or between two places both of which are outside the United States. 2) "United States" means the 50 States, the District of Columbia, and outlying areas. 3) "U.S.-flag air carrier" means an air carrier holding a certificate under 49 U.S.C. Chapter 411.
- b) When Federal funds are used to fund travel, Section 5 of the International Air Transportation Fair Competitive Practices Act of 1974 (49 U.S.C. 40118) (Fly America Act) requires contractors, Agencies, and others use U.S.-flag air carriers for U.S. Government financed international air transportation of personnel (and their personal effects) or property, to the extent that service by those carriers is available. It requires the Comptroller General of the United States, in the absence of satisfactory proof of the necessity for foreign-flag air transportation, to disallow expenditures from funds, appropriated or otherwise established for the account of the United States, for international air transportation secured aboard a foreign-flag air carrier if a U.S.-flag air carrier is available to provide such services.
- c) If available, the Contractor, in performing work under this contract, shall use U.S.-flag carriers for international air transportation of personnel (and their personal effects) or property.

- d) In the event that the Contractor selects a carrier other than a U.S.-flag air carrier for international air transportation, the Contractor shall include a statement on vouchers involving such transportation essentially as follows:
Statement of Unavailability of U.S.-Flag Air Carriers
 International air transportation of persons (and their personal effects) or property by U.S.-flag air carrier was not available or it was necessary to use foreign-flag air carrier service for the following reasons. See FAR § 47.403 [State reasons].
- e) Contractor shall include the substance of this clause, including this paragraph (e), in each subcontract or purchase under this contract that may involve international air transportation.

FEDERAL TAX LIABILITY AND RECENT FELONY CONVICTIONS

1. The contractor certifies that it:
 - a) Does not have any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability; and
 - b) Was not convicted of the felony criminal violation under any Federal law within the preceding 24 months.

If the contractor cannot so certify, the Recipient will refer the matter to FTA and not enter into any Third-party Agreement with the Third-party Participant without FTA's written approval.
2. Flow-Down. The Recipient agrees to require the contractor to flow this requirement down to participants at all lower tiers, without regard to the value of any subagreement.

INCORPORATION OF FEDERAL TRANSIT ADMINISTRATION (FTA) TERMS

The provisions within include, in part, certain Standard Terms and Conditions required under the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (2 CFR § 200), whether or not expressly set forth in the preceding contract provisions. All contractual provisions required by DOT, detailed in 2 CFR § 200 or as amended by 2 CFR § 1201, or the most recent version of FTA Circular 4220.1 are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Contract. The Contractor shall not perform any act, fail to perform any act, or refuse to comply with any request which would cause a violation of the FTA terms and conditions.

NO GOVERNMENT OBLIGATION TO THIRD PARTIES

The Recipient and Contractor acknowledge and agree that, notwithstanding any concurrence by the Federal Government in or approval of the solicitation or award of the underlying Contract, absent the express written consent by the Federal Government, the Federal Government is not a party to this Contract and shall not be subject to any obligations or liabilities to the Recipient, Contractor or any other party (whether or not a party to that contract) pertaining to any matter resulting from the underlying Contract. The Contractor agrees to include the above clause in each subcontract financed in whole or in part with Federal assistance provided by the FTA. It is further agreed that the clause shall not be modified, except to identify the subcontractor who will be subject to its provisions.

NOTIFICATION TO FTA

If a current or prospective legal matter that may affect the Federal Government emerges, the Recipient must promptly notify the FTA Chief Counsel and FTA Regional Counsel for the Region in which the Recipient is located. The Recipient must include a similar notification requirement in its Third-party Agreements and must require each Third-party Participant to include an equivalent provision in its sub agreements at every tier, for any agreement that is a "covered transaction" according to 2 CFR §§ 180.220 and 1200.220.

1. The types of legal matters that require notification include, but are not limited to, a major dispute, breach, default, litigation, or naming the Federal Government as a party to litigation or a legal disagreement in any forum for any reason.
2. Matters that may affect the Federal Government include, but are not limited to, the Federal Government's interests in the Award, the accompanying Underlying Agreement, and any Amendments thereto, or the Federal Government's administration or enforcement of federal laws, regulations, and requirements.
3. The Recipient must promptly notify the U.S. DOT Inspector General in addition to the FTA Chief Counsel or Regional Counsel for the Region in which the Recipient is located, if the Recipient has knowledge of potential fraud, waste, or abuse occurring on a Project receiving assistance from FTA. The notification provision applies if a person has or may have submitted a false claim under the False Claims Act, 31 U.S.C. § 3729 et seq., or has or may have committed a criminal or civil violation of law pertaining to such matters as fraud, conflict of interest, bribery, gratuity, or similar misconduct. This responsibility occurs whether the Project is subject to this Agreement or another agreement between the Recipient and FTA, or an agreement involving a principal, officer, employee, agent, or Third-party Participant of the Recipient. It also applies to subcontractors at any tier. Knowledge, as used in this paragraph, includes, but is not limited to, knowledge of a criminal or civil investigation by a Federal, state, or local law enforcement or other investigative agency, a criminal indictment or civil complaint, or probable cause that could support a criminal indictment, or any other credible information in the possession of the Recipient.

SOLID WASTES

A Recipient that is a state agency or agency of a political subdivision of a state and its contractors must comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR part 247 that contain the highest percentage of recovered

materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds \$10,000 or the value of the quantity acquired during the preceding fiscal year exceeded \$10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS AND RELATED ACTS

The Contractor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. § 3801 et seq. and U.S. DOT regulations, "Program Fraud Civil Remedies", 49 CFR part 31, apply to its actions pertaining to this Project. Upon execution of the underlying contract, the Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to the underlying contract or the FTA assisted project for which this contract work is being performed. In addition to other penalties that may be applicable, the Contractor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the Contractor to the extent the Federal Government deems appropriate.

The Contractor also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under a contract connected with a project that is financed in whole or in part with Federal assistance originally awarded by FTA under the authority of 49 U.S.C. chapter 53, the Government reserves the right to impose the penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5323(l) on the Contractor, to the extent the Federal Government deems appropriate.

The Contractor agrees to include the above two clauses in each subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clauses shall not be modified, except to identify the subcontractor who will be subject to the provisions.

PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT

- a) Recipients and subrecipients are prohibited from obligating or expending loan or grant funds to:
 1. Procure or obtain;
 2. Extend or renew a contract to procure or obtain; or
 3. Enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in Public Law 115232, section 889, covered telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or TE Corporation (or any subsidiary or affiliate of such entities).
 - i. For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).
 - ii. Telecommunications or video surveillance services provided by such entities or using such equipment.
 - iii. Telecommunications or video surveillance equipment or services procured or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.
- b) In implementing the prohibition under Public Law 115232, section 889, subsection (f), paragraph (1), heads of executive agencies administering loan, grant, or subsidy programs shall prioritize available funding and technical support to assist affected businesses, institutions and organizations as is reasonably necessary for those affected entities to transition from covered communications equipment and services, to procure replacement equipment and services, and to ensure that communications service to users and customers is sustained.
- c) See Public Law 115-232, section 889 for additional information.
- d) See also § 200.471.

PROMPT PAYMENT

(Does not apply to projects fully funded by the Tribal Transportation Program (TTP).)

The contractor is required to pay its subcontractors performing work related to this contract for satisfactory performance of that work no later than 30 days after the contractor's receipt of payment for that work. In addition, the contractor is required to return any retainage payments to those subcontractors within 30 days after the subcontractor's work related to this contract is satisfactorily completed.

The contractor must promptly notify the Agency, whenever a DBE subcontractor performing work related to this contract is terminated or fails to complete its work and must make good faith efforts to engage another DBE subcontractor to perform at least the same amount of work. The contractor may not terminate any DBE subcontractor and perform that work through its own forces or those of an affiliate without prior written consent of the Agency.

SAFE OPERATION OF MOTOR VEHICLES

Seat Belt Use

The Contractor is encouraged to adopt and promote on-the-job seat belt use policies and programs for its employees and other personnel that operate company-owned vehicles, company rented vehicles, or personally operated vehicles. The terms "company-owned" and "company-leased" refer to vehicles owned or leased either by the Contractor or Agency.

Distracted Driving

The Contractor agrees to adopt and enforce workplace safety policies to decrease crashes caused by distracted drivers, including policies to ban text messaging while using an electronic device supplied by an employer, and driving a vehicle the driver owns or rents, a vehicle Contractor owns, leases, or rents, or a privately-owned vehicle when on official business in connection with the work performed under this Contract.

SPECIAL NOTIFICATION REQUIREMENTS FOR STATES

Applies to States -

- a) To the extent required under federal law, the State, as the Recipient, agrees to provide the following information about federal assistance awarded for its State Program, Project, or related activities:
 1. The Identification of FTA as the federal agency providing the federal assistance for a State Program or Project;
 2. The Catalog of Federal Domestic Assistance Number of the program from which the federal assistance for a State Program or Project is authorized; and
 3. The amount of federal assistance FTA has provided for a State Program or Project.
- b) Documents - The State agrees to provide the information required under this provision in the following documents: (1) applications for federal assistance, (2) requests for proposals or solicitations, (3) forms, (4) notifications, (5) press releases, and (6) other publications.

SIMPLIFIED ACQUISITION THRESHOLD

Contracts for more than the simplified acquisition threshold, which is the inflation adjusted amount determined by the Civilian Agency Acquisition Council and the Defense Acquisition Regulations Council (Councils) as authorized by 41 U.S.C. § 1908, or otherwise set by law, must address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as appropriate. (Note that the simplified acquisition threshold determines the procurement procedures that must be employed pursuant to 2 CFR §§ 200.317- 200.327. The simplified acquisition threshold does not exempt a procurement from other eligibility or processes requirements that may apply. For example, Buy America's eligibility and process requirements apply to any procurement in excess of \$150,000. 49 U.S.C. § 5323(j)(13).

SEVERABILITY

The Contractor agrees that if any provision of this agreement or any amendment thereto is determined to be invalid, then the remaining provisions thereof that conform to federal laws, regulations, requirements, and guidance will continue in effect.

TERMINATION

Termination for Convenience (General Provision)

The Agency may terminate this contract, in whole or in part, at any time by written notice to the Contractor when it is in the Agency's best interest. The Contractor shall be paid its costs, including contract closeout costs, and profit on work performed up to the time of termination. The Contractor shall promptly submit its termination claim to Agency to be paid the Contractor. If the Contractor has any property in its possession belonging to Agency, the Contractor will account for the same, and dispose of it in the manner Agency directs.

Termination for Default [Breach or Cause] (General Provision)

If the Contractor does not deliver supplies in accordance with the contract delivery schedule, or if the contract is for services, the Contractor fails to perform in the manner called for in the contract, or if the Contractor fails to comply with any other provisions of the contract, the Agency may terminate this contract for default. Termination shall be effected by serving a Notice of Termination on the Contractor setting forth the manner in which the Contractor is in default. The Contractor will be paid only the contract price for supplies delivered and accepted, or services performed in accordance with the manner of performance set forth in the contract. If it is later determined by the Agency that the Contractor had an excusable reason for not performing, such as a strike, fire, or flood, events which are not the fault of or are beyond the control of the Contractor, the Agency, after setting up a new delivery of performance schedule, may allow the Contractor to continue work, or treat the termination as a Termination for Convenience.

Opportunity to Cure (General Provision)

The Agency, in its sole discretion may, in the case of a termination for breach or default, allow the Contractor [an appropriately short period of time] in which to cure the defect. In such case, the Notice of Termination will state the time period in which cure is permitted and other appropriate conditions. If Contractor fails to remedy to Agency's satisfaction the breach or default of any of the terms, covenants, or conditions of this Contract within [10 days] after receipt by Contractor of written notice from Agency setting forth the nature of said breach or default, Agency shall have the right to terminate the contract without any further obligation to Contractor. Any such termination for default shall not in any way operate to preclude Agency from also pursuing all available remedies against Contractor and its sureties for said breach or default.

Waiver of Remedies for any Breach

In the event that Agency elects to waive its remedies for any breach by Contractor of any covenant, term or condition of this contract, such waiver by Agency shall not limit Agency's remedies for any succeeding breach of that or of any other covenant, term, or condition of this contract.

Termination for Convenience (Professional or Transit Service Contracts)

The Agency, by written notice, may terminate this contract, in whole or in part, when it is in the Agency's interest. If this contract is terminated, the Agency shall be liable only for payment under the payment provisions of this contract for services rendered before the effective date of termination.

Termination for Default (Supplies and Service)

If the Contractor fails to deliver supplies or to perform the services within the time specified in this contract or any extension, or if the Contractor fails to comply with any other provisions of this contract, the Agency may terminate this contract for default. The Agency shall terminate by delivering to the Contractor a Notice of Termination specifying the nature of the default. The Contractor will only be paid the contract price for supplies delivered and accepted, or services performed in accordance with the manner or performance set forth in this contract. If, after termination for failure to fulfill contract obligations, it is determined that the Contractor was not in default, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of the Agency.

Termination for Default (Transportation Services)

If the Contractor fails to pick up the commodities or to perform the services, including delivery services, within the time specified in this contract or any extension, or if the Contractor fails to comply with any other provisions of this contract, the Agency may terminate this contract for default. The Agency shall terminate by delivering to the Contractor a Notice of Termination specifying the nature of the default. The Contractor will only be paid the contract price for services performed in accordance with the manner of performance set forth in this contract.

If this contract is terminated while the Contractor has possession of Agency goods, the Contractor shall, upon direction of the Agency, protect and preserve the goods until surrendered to the Agency or its agent. The Contractor and Agency shall agree on payment for the preservation and protection of goods. Failure to agree on an amount will be resolved under the Dispute clause.

If, after termination for failure to fulfill contract obligations, it is determined that the Contractor was not in default, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of the Agency.

Termination for Default (Construction)

If the Contractor refuses or fails to prosecute the work or any separable part, with the diligence that will ensure its completion within the time specified in this contract or any extension or fails to complete the work within this time, or if the Contractor fails to comply with any other provision of this contract, Agency may terminate this contract for default. The Agency shall terminate by delivering to the Contractor a Notice of Termination specifying the nature of the default. In this event, the Agency may take over the work and complete it by contract or otherwise, and may take possession of and use any materials, appliances, and plant on the work site necessary for completing the work. The Contractor and its sureties shall be liable for any damage to the Agency resulting from the Contractor's refusal or failure to complete the work within specified time, whether or not the Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the Agency in completing the work.

The Contractor's right to proceed shall not be terminated nor shall the Contractor be charged with damages under this clause if: 1. The delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include: acts of God, acts of Agency, acts of another contractor in the performance of a contract with Agency, epidemics, quarantine restrictions, strikes, freight embargoes; and 2. The Contractor, within [10] days from the beginning of any delay, notifies Agency in writing of the causes of delay. If, in the judgment of Agency, the delay is excusable, the time for completing the work shall be extended. The judgment of Agency shall be final and conclusive for the parties, but subject to appeal under the Disputes clause(s) of this contract. 3. If, after termination of the Contractor's right to proceed, it is determined that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the termination had been issued for the convenience of Agency.

Termination for Convenience or Default (Architect and Engineering)

The Agency may terminate this contract in whole or in part, for the Agency's convenience or because of the failure of the Contractor to fulfill the contract obligations. The Agency shall terminate by delivering to the Contractor a Notice of Termination specifying the nature, extent, and effective date of the termination. Upon receipt of the notice, the Contractor shall (1) immediately discontinue all services affected (unless the notice directs otherwise), and (2) deliver to the Agency's Contracting Officer all data, drawings, specifications, reports, estimates, summaries, and other information and materials accumulated in performing this contract, whether completed or in process. Agency has a royalty-free, nonexclusive, and irrevocable license to reproduce, publish or otherwise use, all such data, drawings, specifications, reports, estimates, summaries, and other information and materials.

If the termination is for the convenience of the Agency, the Agency's Contracting Officer shall make an equitable adjustment in the contract price but shall allow no anticipated profit on unperformed services. If the termination is for failure of the Contractor to fulfill the contract obligations, the Agency may complete the work by contract or otherwise and the Contractor shall be liable for any additional cost incurred by the Agency. If, after termination for failure to fulfill contract obligations, it is determined that the Contractor was not in default, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of Agency.

Termination for Convenience or Default (Cost-Type Contracts)

The Agency may terminate this contract, or any portion of it, by serving a Notice of Termination on the Contractor. The notice shall state whether the termination is for convenience of Agency or for the default of the Contractor. If the termination is for default, the notice shall state the manner in which the Contractor has failed to perform the requirements of the contract. The Contractor shall account for any property in its possession paid for from funds received from the Agency, or property supplied to the Contractor by the Agency. If the termination is for default, the Agency may fix the fee, if the contract provides for a fee, to be paid the Contractor in proportion to the value, if any, of work performed up to the time of termination. The Contractor shall promptly submit its termination claim to the Agency and the parties shall negotiate the termination settlement to be paid the Contractor.

If the termination is for the convenience of Agency, the Contractor shall be paid its contract closeout costs, and a fee, if the contract provided for payment of a fee, in proportion to the work performed up to the time of termination.

If, after serving a Notice of Termination for Default, the Agency determines that the Contractor has an excusable reason for not performing, the Agency, after setting up a new work schedule, may allow the Contractor to continue work, or treat the termination as a Termination for Convenience.

TRAFFICKING IN PERSONS

The contractor agrees that it and its employees that participate in the Recipient's Award, may not:

- a) Engage in severe forms of trafficking in persons during the period of time that the Recipient's Award is in effect;
- b) Procure a commercial sex act during the period of time that the Recipient's Award is in effect; or
- c) Use forced labor in the performance of the Recipient's Award or subagreements thereunder.

VIOLATION AND BREACH OF CONTRACT

Disputes

Disputes arising in the performance of this Contract that are not resolved by agreement of the parties shall be decided in writing by the authorized representative of the agency. This decision shall be final and conclusive unless within [10] days from the date of receipt of its copy, the Contractor mails or otherwise furnishes a written appeal to the agencies authorized representative. In connection with any such appeal, the Contractor shall be afforded an opportunity to be heard and to offer evidence in support of its position. The decision of the agencies authorized representative shall be binding upon the Contractor and the Contractor shall abide by the decision.

Performance during Dispute

Unless otherwise directed by the agencies authorized representative, contractor shall continue performance under this contract while matters in dispute are being resolved.

Claims for Damages

Should either party to the contract suffer injury or damage to person or property because of any act or omission of the party or of any of his employees, agents, or others for whose acts he is legally liable, a claim for damages therefore shall be made in writing to such other party within a reasonable time after the first observance of such injury or damage.

Remedies

Unless this contract provides otherwise, all claims, counterclaims, disputes, and other matters in question between the agencies authorized representative and contractor arising out of or relating to this agreement or its breach will be decided by arbitration if the parties mutually agree, or in a court of competent jurisdiction within the State in which the Agency is located.

Rights and Remedies

Duties and obligations imposed by the contract documents and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights, and remedies otherwise imposed or available by law. No action or failure to act by the Agency or contractor shall constitute a waiver of any right or duty afforded any of them under the contract, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.

BOND REQUIREMENTS

For construction or facility improvement contracts or subcontracts exceeding the Simplified Acquisition Threshold, the Federal awarding agency or pass-through entity may accept the bonding policy and requirements of the non-Federal entity provided that the Federal awarding agency or pass-through entity has made a determination that the Federal interest is adequately protected. If such a determination has not been made, the minimum requirements must be as follows:

- a) A bid guarantee from each bidder equivalent to five percent of the bid price. The "bid guarantee" must consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of the bid, execute such contractual documents as may be required within the time specified.
- b) A performance bond on the part of the contractor for 100 percent of the contract price. A "performance bond" is one executed in connection with a contract to secure fulfillment of all the contractor's requirements under such contract.
- c) A payment bond on the part of the contractor for 100 percent of the contract price. A "payment bond" is one executed in connection with a contract to assure payment as required by law of all persons supplying labor and material in the execution of the work provided for in the contract.

It is also understood and agreed that if the bidder should withdraw any part or all of their bid within [90] days after the bid opening without the written consent of the Agency, or refuse or be unable to enter into this Contract as provided above, or refuse or be unable to furnish adequate and acceptable Performance and Payment Bonds, or refuse or be unable to furnish adequate and acceptable insurance, as provided above, it shall forfeit its bid guaranty to the extent Agency's damages occasioned by such withdrawal, or refusal, or inability to enter into a Contract, or provide adequate security thereof.

It is further understood and agreed that to the extent the defaulting bidder's bid guaranty shall prove inadequate to fully recompense Agency for the damages occasioned by default, then the bidder agrees to indemnify Agency and pay over to Agency the difference between the bid guarantee and Agency's total damages so as to make Agency whole.

The bidder understands that any material alteration of any of the above or any of the material contained herein, other than that requested will render the bid unresponsive.

Performance Guarantee. A Performance Guarantee in the amount of 100% of the Contract value is required by the Agency to ensure faithful performance of the Contract. Either a Performance Bond or an Irrevocable Stand-By Letter of Credit shall be provided by the Contractor and shall remain in full force for the term of the Contract. The successful Bidder shall certify that it will provide the requisite Performance Guarantee to the Agency within ten (10) business days from Contract execution. The Agency requires all Performance Bonds to be provided by a fully qualified surety company acceptable to the Agency and listed as a company currently authorized under 31 CFR part 22 as possessing a Certificate of Authority as described hereunder. Agency may require additional performance bond protection when the contract price is increased. The increase in protection shall generally equal 100 percent of the increase in contract price. The Agency may secure additional protection by directing the Contractor to increase the amount of the existing bond or to obtain an additional bond.

If the Bidder chooses to provide a Letter of Credit as its Performance Guarantee, the Bidder shall furnish with its bid, certification that an Irrevocable Stand-By Letter of Credit will be furnished should the Bidder become the successful Contractor. The Bidder shall also provide a statement from the banking institution certifying that an Irrevocable Stand-By Letter of Credit for the action will be provided if the Contract is awarded to the Bidder. The Irrevocable Stand-By Letter of Credit will only be accepted by the Agency if:

1. A bank in good standing issues it. The Agency will not accept a Letter of Credit from an entity other than a bank.
2. It is in writing and signed by the issuing bank.
3. It conspicuously states that it is an irrevocable, nontransferable, "standby" Letter of Credit.
4. The Agency is identified as the Beneficiary.

5. It is in an amount equal to 100% of the Contract value. This amount must be in U.S. dollars.
6. The effective date of the Letter of Credit is the same as the effective date of the Contract
7. The expiration date of the Letter of Credit coincides with the term of the contract.
8. It indicates that it is being issued in order to support the obligation of the Contractor to perform under the Contract. It must specifically reference the Contract between the Agency and the Contractor the work stipulated herein.

The issuing bank's obligation to pay will arise upon the presentation of the original Letter of Credit and a certificate and draft to the issuing bank's representative at a location and time to be determined by the parties. This documentation will indicate that the Contractor is in default under the Contract.

Payment Bonds. A Labor and Materials Payment Bond equal to the full value of the contract must be furnished by the contractor to Agency as security for payment by the Contractor and subcontractors for labor, materials, and rental of equipment. The bond may be issued by a fully qualified surety company acceptable to (Agency) and listed as a company currently authorized under 31 CFR part 223 as possessing a Certificate of Authority as described thereunder.

CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

- a) Applicability: This requirement applies to all FTA grant and cooperative agreement programs.
- b) Where applicable (see 40 U.S.C. § 3701), all contracts awarded by the non-Federal entity in excess of \$100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. §§ 3702 and 3704, as supplemented by Department of Labor regulations at 29 CFR part 5. See 2 CFR part 200, Appendix II.
- c) Under 40 U.S.C. § 3702, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week.
- d) The requirements of 40 U.S.C. § 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.
- e) The regulation at 29 CFR § 5.5(b) provides the required contract clause concerning compliance with the Contract Work Hours and Safety Standards Act:

Compliance with the Contract Work Hours and Safety Standards Act.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.
2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this section.
3. Withholding for unpaid wages and liquidated damages. The agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this section.
4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this section.

DAVIS BACON ACT AND COPELAND ANTI-KICKBACK ACT

For all prime construction, alteration or repair contracts in excess of \$2,000 awarded by FTA, the Contractor shall comply with the Davis-Bacon Act and the Copeland "Anti-Kickback" Act. Under 49 U.S.C. § 5333(a), prevailing wage protections apply to laborers and mechanics employed on FTA assisted construction, alteration, or repair projects. The Contractor will comply with the Davis-Bacon Act, 40 U.S.C. §§ 3141-3144, and 31463-3148 as supplemented by DOL regulations at 29 CFR part 5, "Labor Standards Provisions Applicable to Contracts Governing Federally Financed and Assisted Construction." In accordance with the statute, the Contractor shall pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, the Contractor agrees to pay wages not less than once a week. The Contractor shall also comply with the Copeland "Anti-Kickback" Act (40 U.S.C. § 3145), as supplemented by DOL regulations at 29 CFR part 3, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in part by Loans or Grants from the United States." The Contractor is prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled.

SEISMIC SAFETY

The contractor agrees that any new building or addition to an existing building will be designed and constructed in accordance with the standards for Seismic Safety required in Department of Transportation (DOT) Seismic Safety Regulations 49 CFR part 41 and will certify to compliance to the extent required by the regulation. The contractor also agrees to ensure that all work performed under this contract, including work performed by a subcontractor, is in compliance with the standards required by the Seismic Safety regulations and the certification of compliance issued on the project.

SPECIAL DOL EEO CLAUSE

The applicant hereby agrees that it will incorporate or cause to be incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR Chapter 60, which is paid for in whole or in part with funds obtained from the Federal Government or borrowed on the credit of the Federal Government pursuant to a grant, contract, loan, insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loan, insurance, or guarantee, the following equal opportunity clause:

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

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

Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
2. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
3. The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.
4. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
5. The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
6. The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
7. In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
8. The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

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

VETERANS HIRING PREFERENCE

Veterans Employment - Recipients and subrecipients of Federal financial assistance shall ensure that contractors working on a capital project funded using such assistance give a hiring preference, to the extent practicable, to veterans (as defined in section 2108 of title 5) who have the requisite skills and abilities to perform the construction work required under the contract. This subsection shall not be understood, construed or enforced in any manner that would require an employer to give a preference to any veteran over any equally qualified applicant who is a member of any racial or ethnic minority, female, an individual with a disability, or a former employee.

Federal Certifications

CERTIFICATION AND RESTRICTIONS ON LOBBYING

I, _____ hereby certify _____
(Name and Title of official)

On behalf of _____ that:
(Name of Bidder Company Name)

- No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.
- If any funds other than federal appropriated funds have been paid or will be paid to any person influencing or attempting to influence an officer or employee of any agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with the federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form - LLL, "Disclosure Form to Report Lobbying", in accordance with its instructions.
- The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

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

NAME OF BIDDER COMPANY NAME	
TYPE OR PRINT NAME	
SIGNATURE OF AUTHORIZED REPRESENTATIVE	DATE

GOVERNMENT-WIDE DEBARMENT AND SUSPENSION (NONPROCUREMENT)

Recipients, contractors, and subcontractors that enter into covered transactions are required to verify that the entity (as well as its principals and affiliates) with which they propose to contract, or subcontract is not excluded or disqualified. This is done by: (a) checking the SAM exclusions; (b) collecting a certification from that person (found below); or (c) adding a clause or condition to the contract or subcontract.

Instructions for Certification: By signing and submitting this bid or proposal, the prospective lower tier participant is providing the signed certification set out below.

1. It will comply and facilitate compliance with U.S. DOT regulations, "Nonprocurement Suspension and Debarment", 2 CFR part 1200, which adopts and supplements the U.S. Office of Management and Budget (U.S. OMB) "Guidelines to Agencies on Governmentwide Debarment and Suspension (Nonprocurement)", 2 CFR part 180,
2. To the best of its knowledge and belief, that its Principals and Subrecipients at the first tier:
 - a. Are eligible to participate in covered transactions of any Federal department or agency and are not presently:
 1. Debarred,
 2. Suspended,
 3. Proposed for debarment,
 4. Declared ineligible,
 5. Voluntarily excluded, or
 6. Disqualified,
 - b. Its management has not within a three-year period preceding its latest application or proposal been convicted of or had a civil judgment rendered against any of them for:
 1. Commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction, or contract under a public transaction,
 2. Violation of any Federal or State antitrust statute, or,
 3. Commission of embezzlement, theft, forgery, bribery, falsification, or destruction of records, making any false statement, or receiving stolen property,
 - c. It is not presently indicted for, or otherwise criminally or civilly charged by a governmental entity (Federal, State, or local) with commission of any of the offenses listed in the preceding subsection 2.b of this Certification,
 - d. It has not had one or more public transactions (Federal, State, or local) terminated for cause or default within a three-year period preceding this Certification,
3. If, at a later time, it receives any information that contradicts the statements of subsections 2.a - 2.d above, it will promptly provide that information to FTA,
 - a. It will treat each lower tier contract or lower tier subcontract under its Project as a covered lower tier contract for purposes of 2 CFR part 1200 and 2 CFR part 180 if it:
 1. Equals or exceeds \$25,000,
 2. Is for audit services, or,
 3. Requires the consent of a federal official, and
 - b. It will require that each covered lower tier contractor and subcontractor:
 1. Comply and facilitate compliance with the Federal requirements of 2 CFR parts 180 and 1200, and
 2. Assure that each lower tier participant in its Project is not presently declared by any Federal department or agency to be:
 - a. Debarred from participation in its federally funded Project,
 - b. Suspended from participation in its federally funded Project,
 - c. Proposed for debarment from participation in its federally funded Project,
 - d. Declared ineligible to participate in its federally funded Project,
 - e. Voluntarily excluded from participation in its federally funded Project, or
 - f. Disqualified from participation in its federally funded Project, and
4. It will provide a written explanation as indicated on a page attached in FTA's TrAMS platform or the Signature Page if it or any of its principals, including any of its first tier Subrecipients or its Third-party Participants at a lower tier, is unable to certify compliance with the preceding statements in this Certification Group.

CERTIFICATION

CONTRACTOR	
SIGNATURE OF AUTHORIZED OFFICIAL	DATE
NAME AND TITLE OF CONTRACTOR'S AUTHORIZED OFFICIAL	

**BUY AMERICA CERTIFICATION
STEEL OR MANUFACTURED PRODUCTS**

If steel, iron, or manufactured products (as defined in 49 CFR 661.3 and 661.5) are being procured, the appropriate certificate as set forth below shall be completed and submitted by each bidder or offeror in accordance with the requirement contained in 49 CFR 661.13(b).

Certificate of Compliance with Buy America Requirements

The bidder or offeror hereby certifies that it will comply with the requirements of 49 U.S.C. 5323(j)(1), and the applicable regulations in 49 CFR part 661.

COMPAN		
NAME		TITLE
SIGNATURE		DATE

Certificate of Non-Compliance with Buy America Steel or Manufactured Products Requirements

The bidder or offeror hereby certifies that it cannot comply with the requirements of 49 U.S.C. 5323(j), but it may qualify for an exception to the requirement pursuant to 49 U.S.C. 5323(j)(2), as amended, and the applicable regulations in 49 C.F.R. 661.7.

COMPAN		
NAME		TITLE
SIGNATURE		DATE

"General Decision Number: MI20240105 11/15/2024

Superseded General Decision Number: MI20230105

State: Michigan

Construction Type: Building

County: Alpena County in Michigan.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

_____ | If the contract is entered |. Executive Order 14026 | | into on or after January 30, | generally applies to the | | 2022, or the contract is | contract. | | renewed or extended (e.g., an |. The contractor must pay | | option is exercised) on or | all covered workers at | | after January 30, 2022: | least \$17.20 per hour (or | | | the applicable wage rate | | | listed on this wage | | | determination, if it is | | | higher) for all hours | | | spent performing on the | | | contract in 2024. | | _____ |

_____ | | If the contract was awarded on |. Executive Order 13658 | | or between January 1, 2015 and | generally applies to the | | January 29, 2022, and the | contract. | | contract is not renewed or |. The contractor must pay all | | extended on or after January | covered workers at least | | 30, 2022: | \$12.90 per hour (or the | | | applicable wage rate listed | | | on this wage determination, | | | if it is higher) for all | | | hours spent performing on | | | that contract in 2024. | | _____ |

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

Modification Number	Publication Date
0	01/05/2024
1	01/19/2024
2	03/08/2024
3	03/15/2024
4	04/05/2024
5	04/19/2024

6 07/05/2024
7 07/12/2024
8 07/19/2024
9 07/26/2024
10 08/30/2024
11 11/15/2024

ASBE0047-005 07/01/2024

Rates Fringes

ASBESTOS WORKER/HEAT & FROST INSULATOR.....\$ 38.00 21.60
----- BOIL0169-
002 01/01/2024

Rates Fringes

BOILERMAKER.....\$ 39.65 35.68 -----
----- BRMI0009-026 08/01/2023

Rates Fringes

TILE SETTER.....\$ 34.32 21.69 -----
----- CARP0202-002 06/01/2023

Rates Fringes

CARPENTER (Drywall Hanger and
Form Work).....\$ 25.61 20.92 -----
----- * ELEC0692-026 06/01/2024

Rates Fringes

ELECTRICIAN.....\$ 35.03 42.29%+10.18 -----
----- ENGI0324-020 06/01/2024

Rates Fringes

POWER EQUIPMENT OPERATOR:

GROUP 1.....\$ 44.13 25.25
GROUP 2.....\$ 43.93 25.25
GROUP 3.....\$ 41.28 25.25
GROUP 4.....\$ 39.57 25.25
GROUP 5.....\$ 39.57 25.25
GROUP 6.....\$ 31.23 25.25

Crane operator with main boom and jib 300' or longer: \$1.50 per hour above
the group 1 rate. Crane operator with main boom and jib 400' or longer: \$3.
00 per hour above the group 1 rate.

PAID HOLIDAYS: New Year's Day, Memorial Day, Fourth of July, Labor Day,
Thanksgiving Day and Christmas Day.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Crane operator with main boom and jib 400', 300', or 220' or

longer.

GROUP 2: Crane operator with main boom and jib 140' or longer; tower crane, gantry crane and whirley derrick

GROUP 3: Backhoe/Excavator; Bulldozer; Crane; Loader; Paver; Roller; Scraper; Stiff Leg Derrick

GROUP 4: Bobcat/Skid Loader; Fork Truck (over 20' lift)

GROUP 5: Fork Truck (20' lift and under for masonry work) GROUP 6: Oiler

----- IRON0025-
010 06/01/2024

Rates Fringes

IRONWORKER, REINFORCING.....\$ 33.43 37.15 IRONWORKER, STRUCTURAL
.....\$ 35.55 35.83 -----
----- LABO1098-025 07/01/2024

Rates Fringes

LABORER

Mason Tender -
Cement/Concrete and
Pipelayer.....\$ 23.32 13.45 Sandblaster.....\$ 24.
53 13.45 -----
PAIN1803-004 06/01/2024

Rates Fringes

PAINTER: Brush Only.....\$ 27.78 19.05 -----
----- PLAS0016-036 04/01/2014

Rates Fringes

CEMENT MASON/CONCRETE FINISHER...\$ 23.10 12.38 -----
----- PLUM0085-001 05/04/2023

Rates Fringes

PIPEFITTER (Excluding HVAC
Pipe & System Installation).....\$ 38.01 21.73 PIPEFITTER (HVAC Pipe
Installation Only).....\$ 38.01 21.73 PLUMBER (Excluding HVAC Pipe
& System Installation).....\$ 38.01 21.73 PLUMBER (HVAC System
Installation Only).....\$ 38.01 21.73 -----
----- SFMI0669-003 01/02/2024

Rates Fringes

SPRINKLER FITTER (Fire
Sprinklers).....\$ 41.34 26.80 -----
----- SHEE0007-003 05/01/2023

Rates Fringes

SHEET METAL WORKER (Excluding

HVAC Duct & System
 Installation).....\$ 31.05 25.07
 SHEET METAL WORKER (HVAC Duct
 Installation Only).....\$ 31.05 25.07 -----
 ----- * SUMI2011-030 02/14/2011

Rates Fringes

BRICKLAYER.....\$ 22.25 3.10

 CARPENTER (Metal Stud
 Installation Only).....\$ 14.80 ** 4.86

 CARPENTER, Excludes Drywall
 Hanging, Form Work, and Metal
 Stud Installation.....\$ 20.63 5.80

 LABORER: Common or General.....\$ 15.46 ** 6.09

 LABORER: Landscape &
 Irrigation.....\$ 14.63 ** 0.00

 LABORER: Mason Tender - Brick...\$ 14.89 ** 3.10

 OPERATOR: Grader/Blade.....\$ 24.04 6.03

 OPERATOR: Tractor.....\$ 19.60 7.31

 PAINTER: Roller.....\$ 18.06 4.34

 PAINTER: Spray.....\$ 17.00 ** 3.82

 ROOFER.....\$ 15.28 ** 6.61

 TRUCK DRIVER, Includes Dump
 and Tandem Truck.....\$ 16.56 ** 3.50

 TRUCK DRIVER: Flatbed Truck.....\$ 17.44 4.51 -----

WELDERS - Receive rate prescribed for craft performing operation to which
 welding is incidental.

=====
 ** Workers in this classification may be entitled to a higher minimum wage
 under Executive Order 14026 (\$17.20) or 13658 (\$12.90). Please see the Note
 at the top of the wage determination for more information. Please also note
 that the minimum wage requirements of Executive Order 14026 are not currently
 being enforced as to any contract or subcontract to which the states of Texas
 , Louisiana, or Mississippi, including their agencies, are a party.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal
 Contractors applies to all contracts subject to the Davis-Bacon Act for which
 the contract is awarded (and any solicitation was issued) on or after January

1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on

which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

State Adopted Rate Identifiers

Classifications listed under the "SA" identifier indicate that the prevailing wage rate set by a state (or local) government was adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 01/03/2024 reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described

here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to :

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party 's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

=====

END OF GENERAL DECISION"

ROOFING CORRECTIVE MEASURES ALPENA, MI

PLAN INDEX			
FILE NO.	DESCRIPTION	DWG #	SHT #
DA-1495- 1	COVER	T1.0	1
DA-1495- 2	REFERENCE SHEET	T2.0	2
DA-1495- 3	ROOF DEMOLITION PLAN	D1.1	3
DA-1495- 4	ROOF DEMOLITION DETAILS	D1.2	4
DA-1495- 5	ROOF DEMOLITION DETAILS	D1.3	5
DA-1495- 6	PROPOSED ROOF PLAN	A1.1	6
DA-1495- 7	ROOF DETAILS	A1.2	7
DA-1495- 8	ROOF DETAILS	A1.3	8
DA-1495- 9	ROOF DETAILS	A1.4	9
DA-1495- 10	INTERIOR REPAIRS FLOOR PLAN	A2.1	10
DA-1495- 11	PHOTOS - INTERIOR REPAIRS	A2.2	11
DA-1495- 12	MEP DEMOLITION FLOOR PLAN	MEP 1.0	12
DA-1495- 13	MEP FLOOR PLAN	MEP2.0	13
DA-1495- 14	MECHANICAL SCHEDULES AND DETAILS	MEP 3.0	14

BUILDING DATA

- OCCUPANCY CLASSIFICATION:

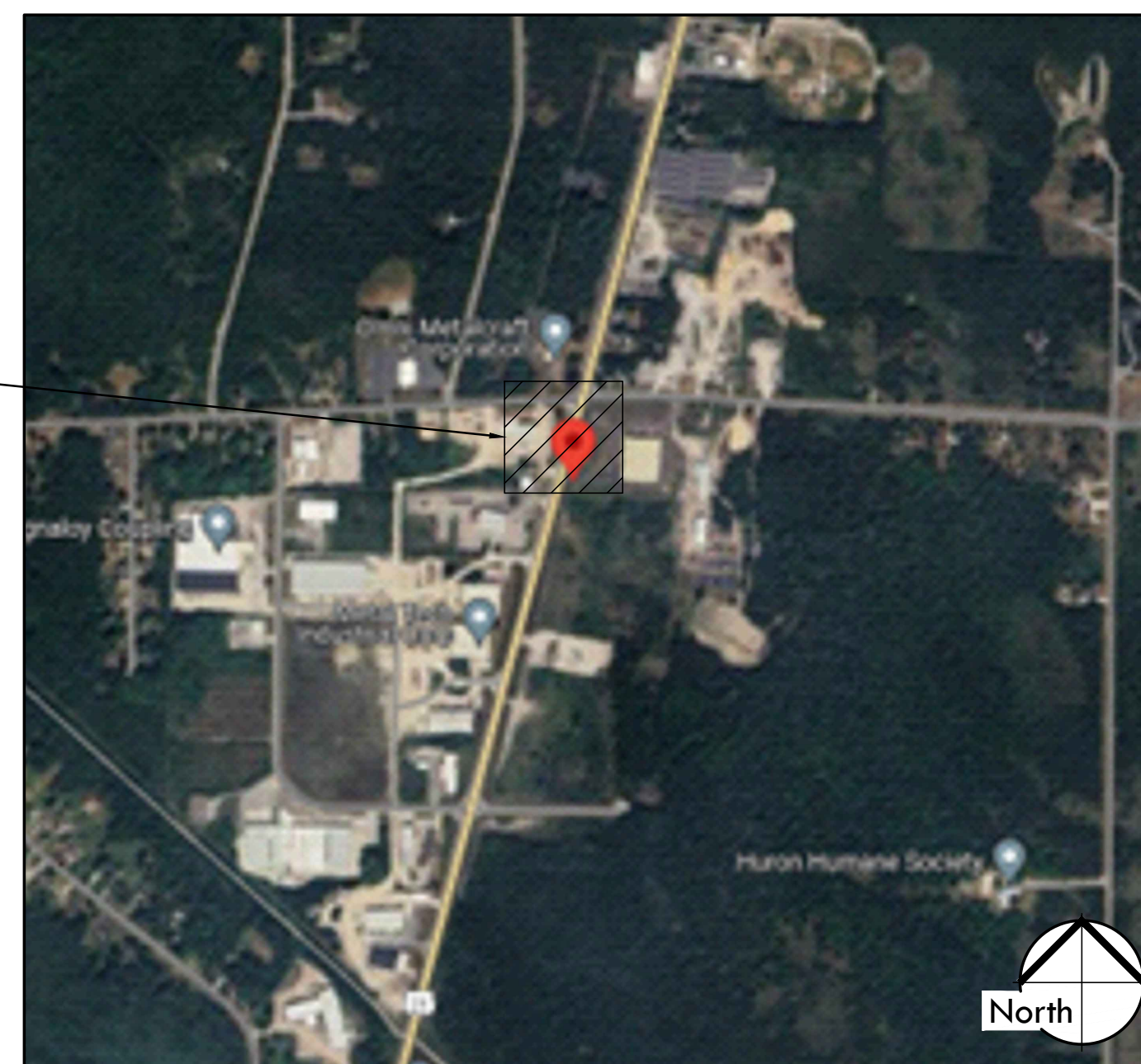
USE GROUP	SQUARE FEET
B	7,040 SF
S-2	36,000 SF
TOTAL	43,040 SF
- TYPE OF CONSTRUCTION: 2B
TABLE 601-FIRE RESISTANCE RATING FOR BUILDING ELEMENTS: 1 HOURS
- BUILDING AREA/HEIGHT:

CODE REQ'D	PROVIDED
BUILDING AREA: 92,000 SF	43,040 SF
BUILDING HEIGHT: 75 FT	28 FT
STORIES: 4	1
- CODES
2015 MICHIGAN BUILDING
2015 MICHIGAN MECHANICAL
2018 MICHIGAN PLUMBING
2017 NATIONAL ELECTRICAL CODE
MICHIGAN BARRIER FREE, ANSI 117.1
- FIRE PROTECTION: SUPPRESSED
- SPACES REQUIRING RATED WALLS: 1 HR
- OCCUPANT LOAD:

USE	PERSONS
BUSINESS	237 PERSONS



AREA MAP
NOT TO SCALE



PROJECT SITE

LOCATION MAP
SECTION 09
T.31N. - R.8E.
ALPENA COUNTY, MICHIGAN

GENERAL NOTES

- ALL PRODUCTS SHALL BE MANUFACTURER'S BEST BRAND OR GRADE AND INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS.
- ALL WORK SHALL BE GUARANTEED FOR A MINIMUM OF ONE YEAR FROM THE DATE OF FINAL PAYMENT.
- CONSTRUCT ALL MATERIALS STRAIGHT, PLUMB, AND LEVEL UNLESS SPECIFICALLY NOTED OR INDICATED OTHERWISE.
- ALL WORK SHALL BE INSTALLED IN CONFORMANCE WITH FEDERAL, STATE, AND LOCAL - CODES, RULES, AND REGULATIONS.
- ALL MATERIALS SHALL BE INSTALLED IN CONFORMANCE WITH INDUSTRY STANDARDS AND THE ASSOCIATION THAT PERTAINS TO THE PARTICULAR PRODUCT. FOR EXAMPLE, AISC - AMERICAN INSTITUTE FOR STEEL CONSTRUCTION. USE THE MOST CURRENT EDITION WHEN REFERRING TO INDUSTRY STANDARDS.
- SITE PROTECTION: THE CONTRACTOR WILL BE RESPONSIBLE FOR PROTECTING ANY AND ALL ADJACENT EXISTING STRUCTURES AND UTILITIES DURING CONSTRUCTION. ANY DAMAGE INCURRED DURING CONSTRUCTION SHALL, AT A MINIMUM, BE RESTORED TO A STATE EQUAL TO ITS PRE-CONSTRUCTION STATE AT THE CONTRACTOR'S EXPENSE.
- SITE RESTORATION: ALL DISTURBED AREAS SHALL BE RESTORED AS NOTED ON THE PLANS AND IN ACCORDANCE WITH THE SPECIFICATIONS. ALL SEEDED AREAS SHALL RECEIVE A MINIMUM OF 3 INCHES OF TOPSOIL UNLESS OTHERWISE NOTED. THE RESTORED AREAS SHALL BE MAINTAINED UNTIL VEGETATION IS WELL ESTABLISHED. ANY AREAS DISTURBED FOR ANY REASON PRIOR TO FINAL ACCEPTANCE OF THE PROJECT WILL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

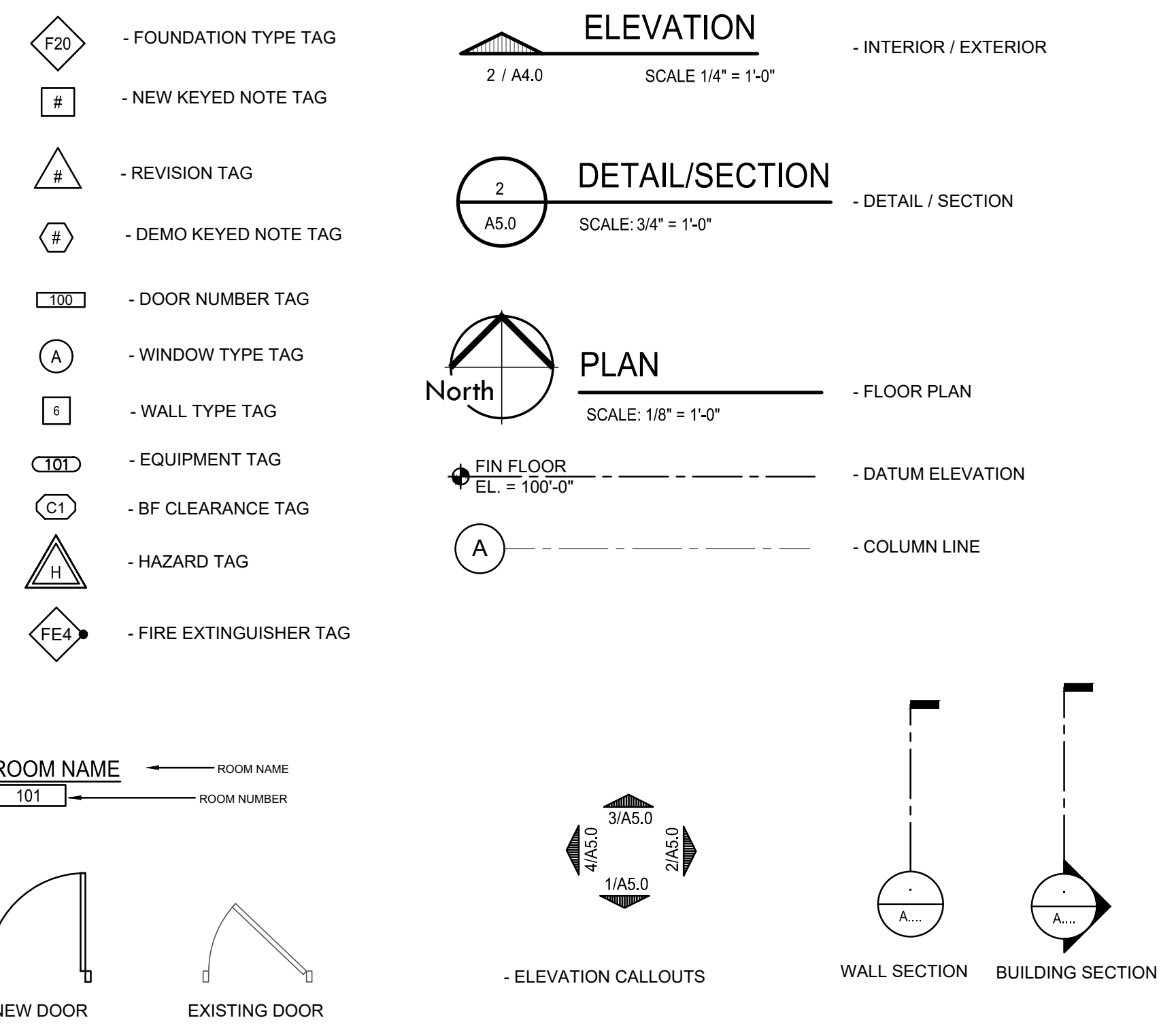
BY	MARK	REVISIONS	DATE
<small>THE WORK REPRESENTED BY THIS DRAWING WAS DESIGNED BY THE ENGINEER FOR THIS SPECIFIC APPLICATION AND SPECIFIC LOCATION DESCRIBED HEREON IN ACCORDANCE WITH THE CONDITIONS PREVALENT AT THE TIME THE DESIGN WAS DONE. THE ENGINEER DOES NOT GUARANTEE AND WILL NOT BE LIABLE FOR ANY OTHER LOCATION, CONDITION, DESIGN OR PURPOSE.</small>			
ROOFING CORRECTIVE MEASURES THUNDER BAY TRANSPORTATION AUTHORITY ALPENA, MICHIGAN			
COVER SHEET			
		<small>SAGINAW OFFICE 230 S. Washington Ave. Saginaw, MI 48607 Tel: 989-754-4717 Fax: 989-754-4440 www.SpicerGroup.com</small>	
DE. BY: DWM	CH. BY: DWM	PROJECT NO. 134153SG2023	
DR. BY: ELT	APP. BY: DWM		
STDS.	SHEET 1 OF 14	T	
DATE SCALE	APRIL 2024 NONE	FILE NO. DA-1495 -01	1.0

AC	AIR CONDITIONING	CSK	COUNTERSUNK	GC	GENERAL CONTRACTOR	MO	MASONRY OPENING	SAN	SANITARY
ACOUST	ACOUSTICAL	CT	CERAMIC TILE	GL	GLASS	MS	METAL STUD	SCHED	SCHEDULE
ACT	ACOUSTICAL CEILING TILE	CU	CONDENSING UNIT	GLZD/GLZ	GLAZED/GLAZING	MT	METAL THRESHOLD	SECT	SECTION
ADA	AMERICANS WITH DISABILITIES ACT	CUH	CABINET UNIT HEATER	G	GRAVEL	MTP	METAL TOILET PARTITION	SF	SPLIT FACE
ADJ	ADJUSTABLE	DAMPG	DAMP-PROOFING	GRV	GRAVEL	NIC	NOT IN CONTRACT	SHT	SHEET
AFF	ABOVE FINISHED FLOOR	DEG / °	DEGREE	GYP	GYP-SUM	NO/#	NUMBER	SIM	SIMILAR
AGG	AGGREGATE	DEMO	DEMOLITION	HB	HOSE BIB	NOM	NOMINAL	SKYLT	SKYLIGHT
AL	ALUMINUM	DF	DRINKING FOUNTAIN	HDCP	HANDICAP	NTS	NOT TO SCALE	SLDR	SOLDER
ALT	ALTERNATE	DIA	DIAMETER	HDR CO	HEADER COURSE	OC	ON CENTER	SLNT	SEALANT
ANCH	ANCHOR	DIM	DIMENSION	HDWR	HARDWARE	OD	OUTSIDE DIAMETER	SPEC(S)	SPECIFICATION(S)
ANGL / L	ANGLE	DIV	DIVISION	HGT/HT	HEIGHT	OH	OVERHEAD DOOR	SPKR	SPEAKER
APPROX	APPROXIMATE (LY)	DP	DEPTH/DEEP	HM	HOLLOW METAL	OPNG	OPENING	SQ	SQUARE
ARCH	ARCHITECT (URAL)	DR	DOOR	HORZ	HORIZONTAL	OPP	OPPOSITE	SS	SERVICE SINK/STAINLESS STEEL
ASPH	ASPHALT	DS	DOWNSPOUT	HP	HIGH POINT	PARG	PARGING	ST	STORM
AV	AUDIO/VISUAL	DTL	DETAIL	HR	HOUR	PART	PARTICLE	STD	STANDARD
BB	BACK TO BACK	DWG	DRAWING	HVAC	HEATING, VENTILATION, AIR CONDITIONING	PARTN	PARTITION	STL	STEEL
BD	BOARD	DWL	DOWEL	ID	INSIDE DIAMETER	PERF	PERFORATED	STRUCT	STRUCTURAL
BF	BARRIER FREE	EF	EXHAUST FAN	IN	INCH	PL	PLATE/PROPERTY LINE	SUSP	SUSPENDED
BIT	BITUMINOUS	EIFS	EXTERIOR INSULATED FINISH SYSTEM	INCL	INCLUDED	PLAM	PLASTIC LAMINATE	T	TREAD
BLDG	BUILDING	EJ	EXPANSION JOINT	INSUL	INSULATION	PLAS	PLASTER	T&B / TB	TOP & BOTTOM
BLK	BLOCK	EL	ELEVATION	INT	INTERIOR	PLUMB	PLUMBING	TB	TACK BOARD
BLKG	BLOCKING	ELEV	ELEVATOR	JST	JOIST	PLYWD	PLYWOOD	TC	TOP OF CURB
BM	BEAM/BENCH MARK	EP	ELECTRICAL PANEL	JT	JOINT	PORC	PORCELAIN	TEMP	TEMPERED/TEMPORARY
BOT	BOTTOM	EQ	EQUAL	LAM	LAMINATE(D)	PREFAB	PREFABRICATED	TERR	TERRAZZO
BRCKT	BRACKET	EQUIP	EQUIPMENT	LAV	LAVATORY	PSF	POUNDS PER SQUARE FEET	TH	THRESHOLD
BRG	BEARING	ES	EACH SIDE	LB#	LOADING	PSI	POUNDS PER SQUARE INCH	TOC	TOP OF CONCRETE
BUR	BUILT-UP ROOF	EWC	ELECTRICAL WATER COOLER	LG	LENGTH	PTD	PAINTED/PAPER TOWEL DISPENSER	TOF	TOP OF FOOTING
CAB	CABINET	EX/EXIST	EXISTING	LKR	LOCKER	PVC	POLYVINYL CHLORIDE	TOM	TOP OF MASONRY
CB	CATCH BASIN	EXP	EXPANSION	LLH	LONG LEG HORIZONTAL	QT	QUARRY TILE	TOS	TOP OF STEEL
CC	CLOSED CELL (FOAM INSULATION)	EXT	EXTERIOR	LLV	LONG LEG VERTICAL	R	RADIUS/RISER	TR	TREATED
CEM	CEMENT	FA	FRESH AIR	LOC	LOCATIONS	RAG	RETURN AIR GRILLE	TV	TELEVISION
CER	CERAMIC	FD	FLOOR DRAIN	LP	LOW POINT	RB	RUBBER BASE	TYP	TYPICAL
CFM	CUBIC FEET PER MINUTE	FE	FIRE EXTINGUISHER	LT FIX	LIGHT FIXTURE	RC	RAIN CONDUCTOR	UNO	UNLESS NOTED OTHERWISE
CFS	COLD FORMED STEEL	FEC	FIRE EXTINGUISHER CABINET	LT WT	LIGHT WEIGHT	REF	REFERENCE/REFRIGERATOR	UV	UNIT VENTILATOR
CI	CONTINUOUS INSULATION	FF	FORCED FLOW CABINET HEATER	MAR	MARBLE	REINF	REINFORCING	VAP BAR	VAPOR BARRIER
CIP	COMPACTED IN PLACE/ CAST IN PLACE	FHC	FIRE HOSE CABINET	MAS	MASONRY	REQD	REQUIRED	VB	VINYL BASE
CJ	CONTROL JOINT	FIN	FINISH	MAT	MATERIAL	RES	RESILIENT	VCT	VINYL COMPOSITE TILE
CL	CENTERLINE	FIP	FOAMED IN PLACE INSULATION	MAU	MAKE UP AIR UNIT	REV	REVISION	VERT	VERTICAL
CLG	CEILING	FLR	FLOOR	MAX	MAXIMUM	RF	ROOF EXHAUST FAN	VIF	VERIFY IN FIELD
CLK	CAULK	FOUND	FOUNDATION	MECH	MECHANICAL	RLGT	REGLET	VWC	VINYL WALL COVERING
CMU	CONCRETE MASONRY UNIT	FRMG	FRAMING	MET / MTL	METAL	RM	REMOVABLE MULLION/ROOM	W	WATER
COL	COLUMN	FT	FEET	MEZZ	MEZZANINE	RO	ROUGH OPENING	WI	WITH
COMP	COMPACTED	FTG	FOOTING	MH	MANHOLE	ROW	RIGHT OF WAY	W/O	WITHOUT
CONC	CONCRETE	FURG	FURRING	GA	GAUGE	ROWLK	ROWLOCK	WC	WATER CLOSET
CONST	CONSTRUCTION	G	GAS	MISC	MISCELLANEOUS	RS	ROOF SUMP	WD	WIDTH/WOOD
CONT	CONTINUOUS	GB	GRAB BAR	ML	METAL LATH	RTU	ROOF TOP UNIT	WH	WATER HEATER
CONTR	CONTRACTOR					RV	ROOF VENT	WP	WATERPROOFING / WEATHERPROOF / WORKING POINT
CORR	CORRIDOR					SK	SINK	WWF	WELDED WIRE FABRIC
CRS	COURSES					S & V	STAIN & VARNISH		
CPT	CARPET					SAG	SUPPLY AIR GRILLE		

HATCH / MATERIAL LEGEND

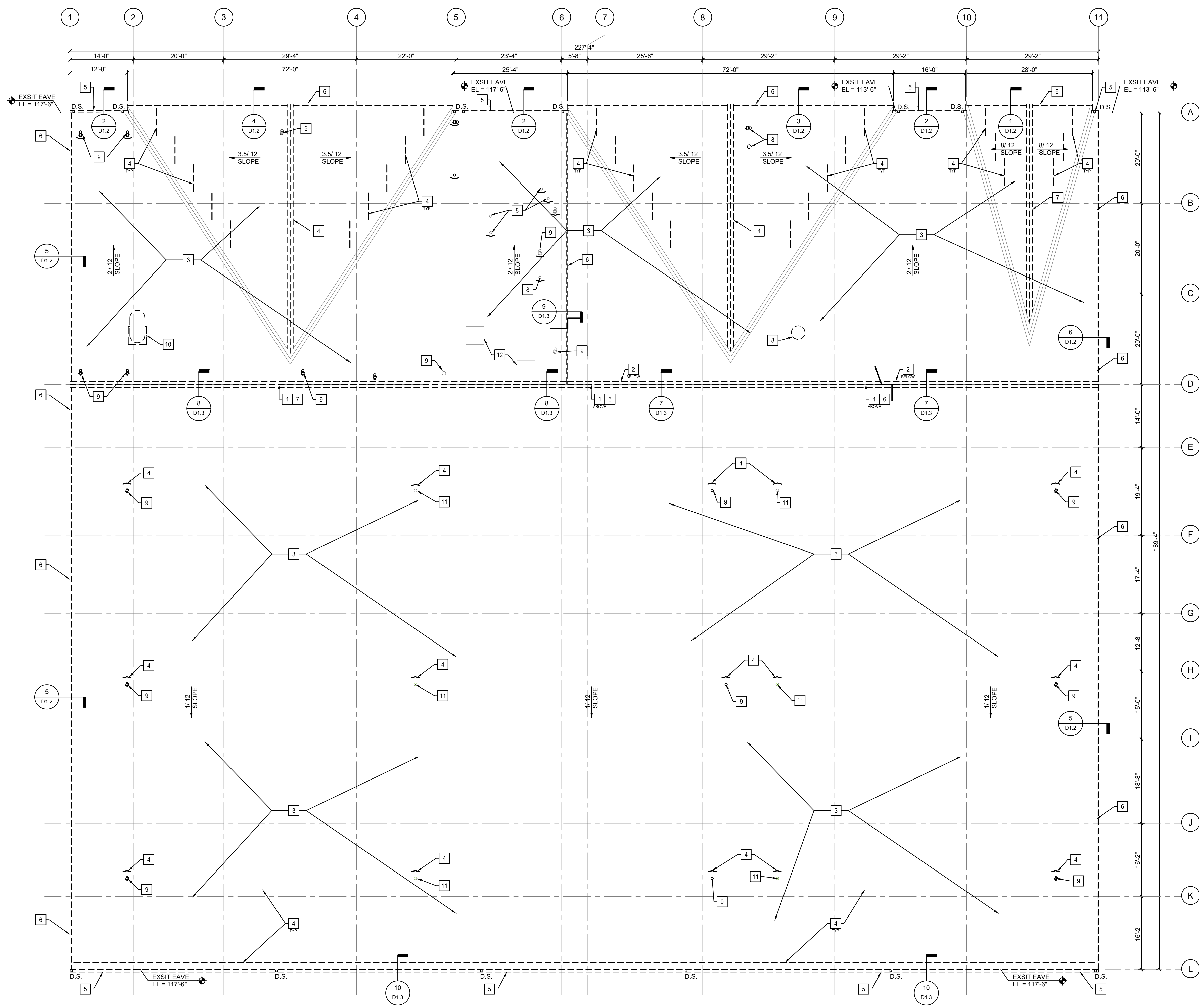
	- ACOUSTICAL PANEL OR TILE
	- ASPHALT ON AGGREGATE
	- BATT INSULATION
	- BRICK
	- COMPOSITION/PLYWOOD
	- CONCRETE
	- CONCRETE MASONRY UNIT
	- CONTINUOUS WOOD FRAMING OR BLOCKING
	- FINISH WOOD
	- GRANULAR FILL
	- CEMENT GROUT
	- INTERRUPTED WOOD BLOCKING/SHIMS
	- MARBLE
	- PLASTER/GYPSUM BOARD
	- RIGID INSULATION
	- SOIL
	- STONE/GRAVEL
	- SPRAY FOAM INSULATION

SYMBOL LEGEND



BY	MARK	REVISIONS	DATE
THE WORK REPRESENTED BY THIS DRAWING WAS DESIGNED BY THE ENGINEER FOR THIS SPECIFIC APPLICATION AND SPECIFIC LOCATION DESCRIBED HEREON IN ACCORDANCE WITH THE CONDITIONS PREVALENT AT THE TIME THE DESIGN WAS DONE. THE ENGINEER DOES NOT GUARANTEE AND WILL NOT BE LIABLE FOR ANY OTHER LOCATION, CONDITION, DESIGN OR PURPOSE.			
ROOFING CORRECTIVE MEASURES THUNDER BAY TRANSPORTATION AUTHORITY ALPENA, MICHIGAN			
REFERENCE SHEET			
		SAGINAW OFFICE 230 S. Washington Ave. Saginaw, MI 48607 Tel: 989-754-4717 Fax: 989-754-4440 www.SpicerGroup.com	
DE. BY: DWM	CH. BY: DWM	PROJECT NO. 134153SG2023	
DR. BY: ELT	APP. BY: DWM		
STDS.	SHEET 2 OF 14	T	
DATE SCALE	APRIL 2024 NONE	FILE NO. DA-1495 -02	2.0

P:\042023\1495\2023_1495_Roofing\spicer\1495-CORRECTIVE MEASURES-THUNDER BAY TRANSPORTATION AUTHORITY.dwg, 4/23/2024 10:45:41 AM, Tag: Owner, PLOT DATE: 4/23/2024 10:45:41 AM, PLOT SCALE: 1/8" = 1'-0", PLOT FILE: 1495-REF.dwg



DEMOLITION NOTES

- §3303.1 MBC 2015 DEMOLITION
- §3303.1 CONSTRUCTION DOCUMENTS. CONSTRUCTION DOCUMENTS AND A SCHEDULE FOR DEMOLITION SHALL BE SUBMITTED WHERE REQUIRED BY THE BUILDING OFFICIAL. WHERE SUCH INFORMATION IS REQUIRED, NO WORK SHALL BE DONE UNTIL SUCH CONSTRUCTION DOCUMENTS OR SCHEDULE, OR BOTH, ARE APPROVED.
- §3303.2 PEDESTRIAN PROTECTION. THE WORK OF DEMOLISHING ANY BUILDING SHALL NOT BE COMMENCED UNTIL PEDESTRIAN PROTECTION IS IN PLACE AS REQUIRED BY THIS CHAPTER.
- §3303.5 WATER ACCUMULATION. PROVISION SHALL BE MADE TO PREVENT THE ACCUMULATION OF WATER OR DAMAGE TO ANY FOUNDATIONS ON THE PREMISES.
- §3303.6 UTILITY CONNECTIONS. SERVICE UTILITY CONNECTIONS SHALL BE DISCONTINUED AND CAPPED IN ACCORDANCE WITH THE APPROVED RULES AND THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.

GENERAL NOTES FOR DEMOLITION:

1. FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS. IF FIELD CONDITIONS ARE NOT AS SHOWN ON PLAN, CONTACT THE PROJECT ARCHITECT OR ENGINEER IMMEDIATELY PRIOR TO PROCEEDING WITH ANY WORK.
2. PROVIDE APPROPRIATE BARRICADES, SIGNAGE, AND OTHER SAFETY PRECAUTIONS SO AS TO PROTECT VISITORS, TRADESMEN, AND EXISTING REMAINING CONDITIONS.
3. COMPLETELY REMOVE ALL WORK AND RELATED WORK IN AREAS DESIGNATED ON THE PLAN. DISCONNECT, REMOVE, AND CAP ALL EXISTING UTILITIES AS INDICATED AND REQUIRED TO PERMIT NEW WORK.
4. ALL WORK TO BE COMPLETED BY APPROPRIATE, EXPERIENCED TRADES (I.E. ELECTRICAL DEMOLITION BY ELECTRICIANS, ETC.).
5. RESTORE EXISTING AREAS WHICH ARE DAMAGED DURING DEMOLITION. MATCH EXISTING MATERIALS, AND FINISHES.
6. DO NOT USE EXPLOSIVES OR UNSAFE DEMOLITION METHODS.
7. REMOVE ALL DEBRIS FROM THE SITE. DO NOT BURN REFUSE ON SITE. MATERIAL TO BE TRANSPORTED TO AN APPROVED SITE. COORDINATE SALVAGEABLE ITEMS WITH THE OWNER. STORE SALVAGEABLE ITEMS WITHIN DESIGNATED AREAS.
8. THE CONTRACTOR SHALL PROVIDE PROPER SHORING AND BRACING WHERE NEEDED.
9. ANY AREAS WITH LEAD PAINT WILL NOT BE ABRADED, CUT, OR IGNITED TO REDUCE POTENTIAL HARMFUL IMPACT TO WORKERS.
11. ARCHITECT/ENGINEER IS NOT RESPONSIBLE FOR THE LOCATIONS OF EXISTING UTILITIES AS SHOWN ON PLANS. DISCREPANCIES IN LOCATION, SIZE AND MATERIAL ARE LIKELY TO EXIST. CONCRETE DEMOLITION LOCATIONS MAY CHANGE DUE TO THE ACTUAL LOCATION OF THE U.G. UTILITIES WHICH ARE TO BE LOCATED BY GC IN THE FIELD.
12. GC SHALL BE RESPONSIBLE FOR SAW CUTTING AND REMOVAL OF CONCRETE, AND REPLACEMENT OF CONCRETE. CONCRETE SHALL BE DISPOSED OF PROPERLY.
13. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE TO EXCAVATE, BED PIPING, AND BACK FILL.

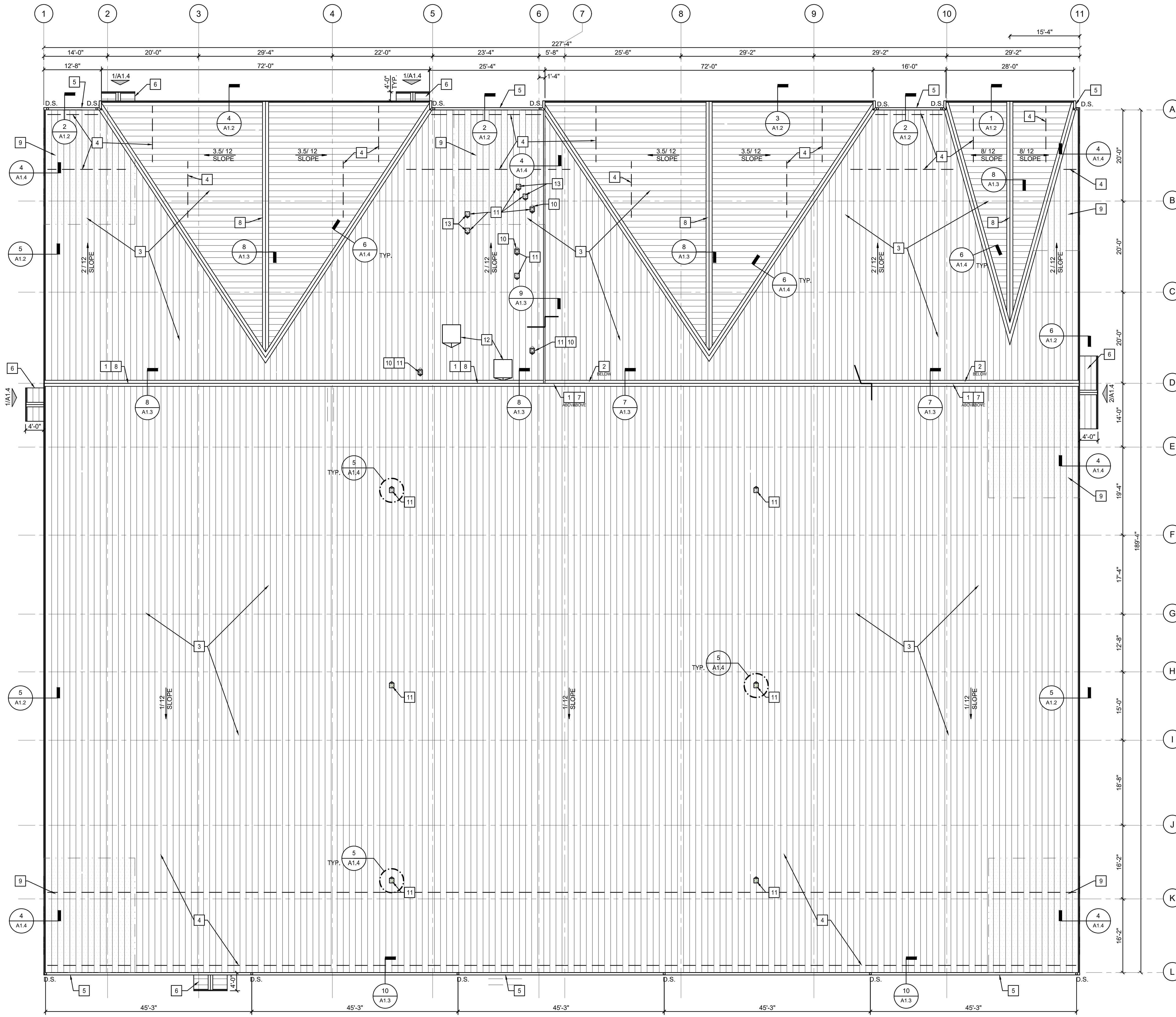
NOTE:
COORDINATE DEMOLITION OF ALL ROOF PENETRATIONS WITH MEP1.0 AND MECHANICAL CONTRACTOR.

KEYED NOTES

- 1 ROOF RIDGE ELEVATION 128'-3".
- 2 LOWER ROOF @ TRANSITION ELEVATION 124'-1".
- 3 PROTECT EXISTING METAL STANDING SEAM ROOM FROM DAMAGE.
- 4 REMOVE EXISTING SNOW GUARDS AND DIVERSION BRACKETS.
- 5 REMOVE EXISTING METAL GUTTERS AND DOWNSPOUTS.
- 6 REMOVE EXISTING METAL EAVE/RAKE TRIM AND FLASHING AT PERIMETER OF BUILDING PER ROOF DETAILS.
- 7 REMOVE EXISTING METAL RIDGE CAP PER ROOF DETAILS.
- 8 REMOVE/RELOCATE EXISTING WASTE VENT THRU ROOF (VTR) AS SHOWN. REFER TO PLUMBING PLANS FOR NEW LOCATIONS AND NOTES.
- 9 REMOVE/RELOCATE EXISTING HEATER EXHAUST VENT EXTENSION AS REQUIRED FOR NEW ROOF INSTALLATION.
- 10 REMOVE/RELOCATE EXISTING GRAVITY VENTILATOR VENT.
- 11 PROTECT EXISTING EXHAUST VENT FROM DAMAGE.
- 12 PROTECT EXISTING MECHANICAL INTAKE FROM DAMAGE. REMOVE EXISTING VENT CAPS AS REQUIRED FOR NEW METAL CURB.

BY	MARK	REVISIONS	DATE
<p>THE WORK REPRESENTED BY THIS DRAWING WAS DESIGNED BY THE ENGINEER FOR THIS SPECIFIC APPLICATION AND SPECIFIC LOCATION DESCRIBED HEREON IN ACCORDANCE WITH THE CONDITIONS PREVALENT AT THE TIME THE DESIGN WAS DONE. THE ENGINEER DOES NOT GUARANTEE AND WILL NOT BE LIABLE FOR ANY OTHER LOCATION, CONDITION, DESIGN OR PURPOSE.</p>			
<p>ROOFING CORRECTIVE MEASURES THUNDER BAY TRANSPORTATION AUTHORITY ALPENA, MICHIGAN</p>			
<p>ROOF DEMOLITION PLAN</p>			
<p>DE. BY: DWM DR. BY: ELT</p>		<p>CH. BY: DWM APP. BY: DWM</p>	
<p>STDS.</p>		<p>PROJECT NO. 134153SG2023</p>	
<p>DATE: APRIL 2024 SCALE: AS SHOWN</p>		<p>SHEET 3 OF 14 FILE NO. DA-1495 -3</p>	
<p>North</p>		<p>Spicer Group SAGINAW OFFICE 230 S. Washington Ave. Saginaw, MI 48607 Tel: 989-754-4717 Fax: 989-754-4440 www.SpicerGroup.com</p>	
<p>ROOF DEMOLITION PLAN SCALE: 3/32" = 1'-0"</p>		<p>D 1.1</p>	

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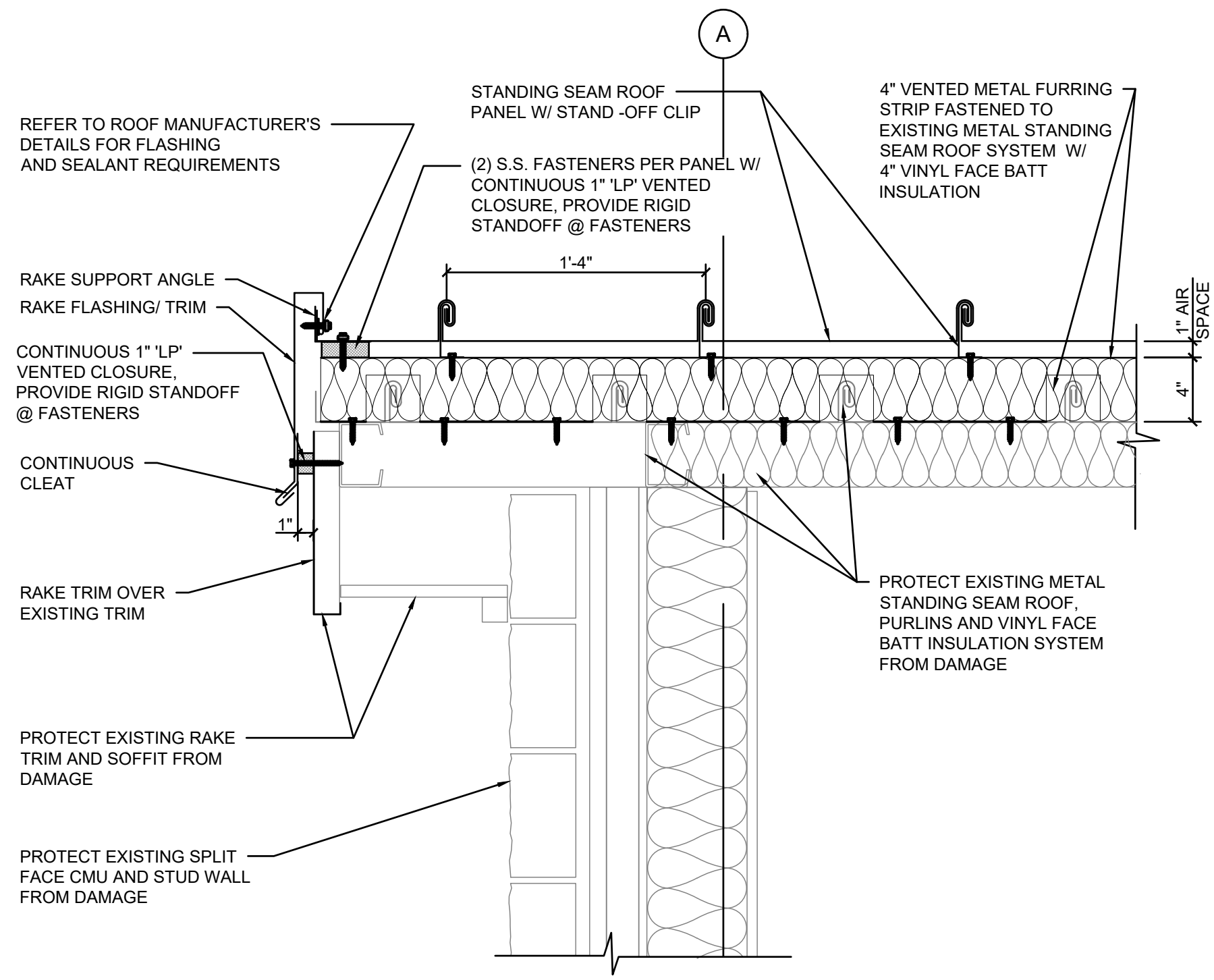
KEYED NOTES

- 1 ROOF RIDGE ELEVATION 128'-3".
- 2 LOWER ROOF @ TRANSITION ELEVATION 124'-1".
- 3 METAL STANDING SEAM ROOF ON 5" VENT FURRING STRIPS WITH 4" VINYL FACE BATT INSULATION ON EXISTING METAL STANDING SEAM ROOF.
- 3.1 METAL STANDING SEAM ROOF ON 5" VENT FURRING STRIPS ON EXISTING METAL STANDING SEAM ROOF.
- 4 SNOW GUARDS AND BRACKETS.
- 5 7"x 6" DEEP METAL GUTTERS AND 5x5 DOWNSPOUTS.
- 6 ENTRY CANOPIES. REFER TO ELEVATIONS SHOWN ON PLAN FOR ADDITIONAL NOTES.
- 7 VENTED METAL EAVE/ RAKE TRIM AND FLASHING PER ROOF DETAILS.
- 8 NEW VENTED METAL RIDGE CAP PER ROOF DETAILS.
- 9 REFER TO DETAIL 4/A1.4 FOR CORNER WIND ZONE HAT GRID. ROOFING CONTRACTOR SHALL PROVIDE SHOP DRAWINGS CONFORMING WIND ZONES PER CURRENT BUILDING CODE
- 10 REFER TO MECHANICAL FOR EXHAUST VENT EXTENSION.
- 11 MECHANICAL CURB AND VENT CAP PER MECHANICAL.
- 12 MECHANICAL CURB FOR HVAC UNITS.
- 13 PROTECT DESISTING EXHAUST VENTS FROM DAMAGE.

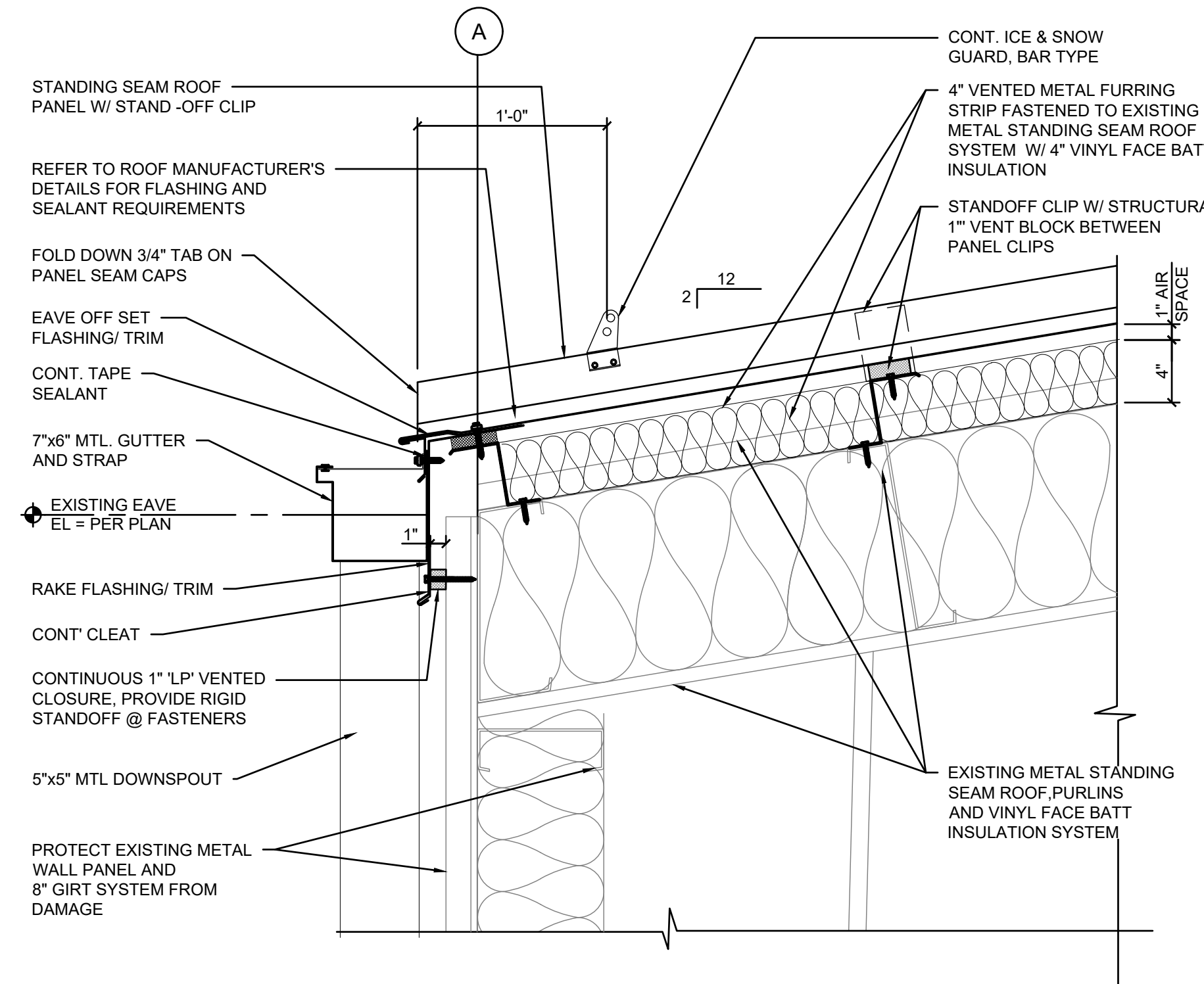
BY	MARK	REVISIONS	DATE
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ROOFING CORRECTIVE MEASURES THUNDER BAY TRANSPORTATION AUTHORITY ALPENA, MICHIGAN			
PROPOSED ROOF PLAN			
		SAGINAW OFFICE 230 S. Washington Ave. Saginaw, MI 48607 Tel: 989-754-4717 Fax: 989-754-4440 www.SpicerGroup.com	
DE. BY: DWM	CH. BY: DWM	PROJECT NO. 134153SG2023	
DR. BY: ELT	APP. BY: DWM	SHEET 6 OF 14	
STDS.		FILE NO. DA-1495 -6	
DATE SCALE: APRIL 2024 AS SHOWN		A 1.1	

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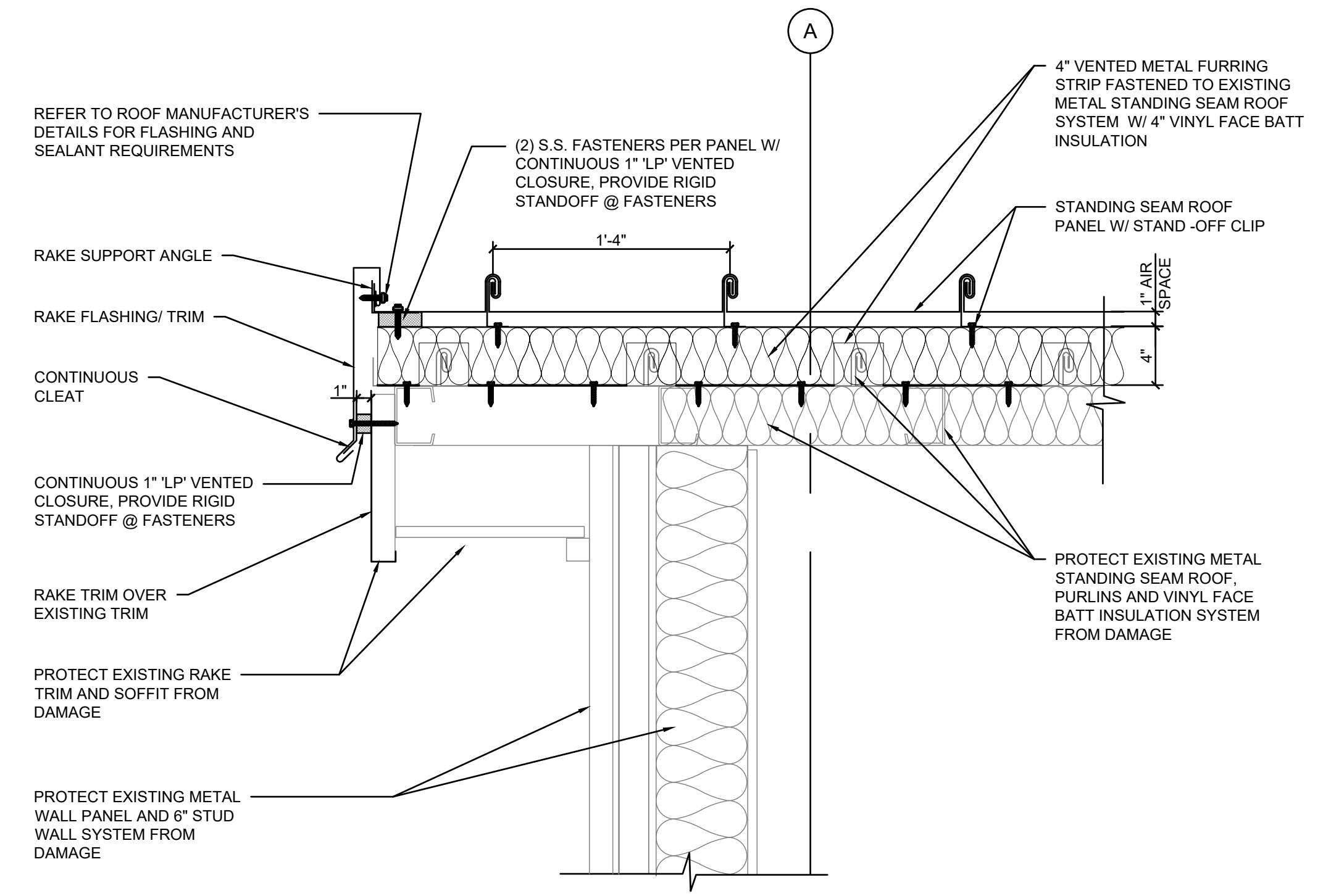
North
ROOF PLAN
 SCALE: 3/32" = 1'-0"



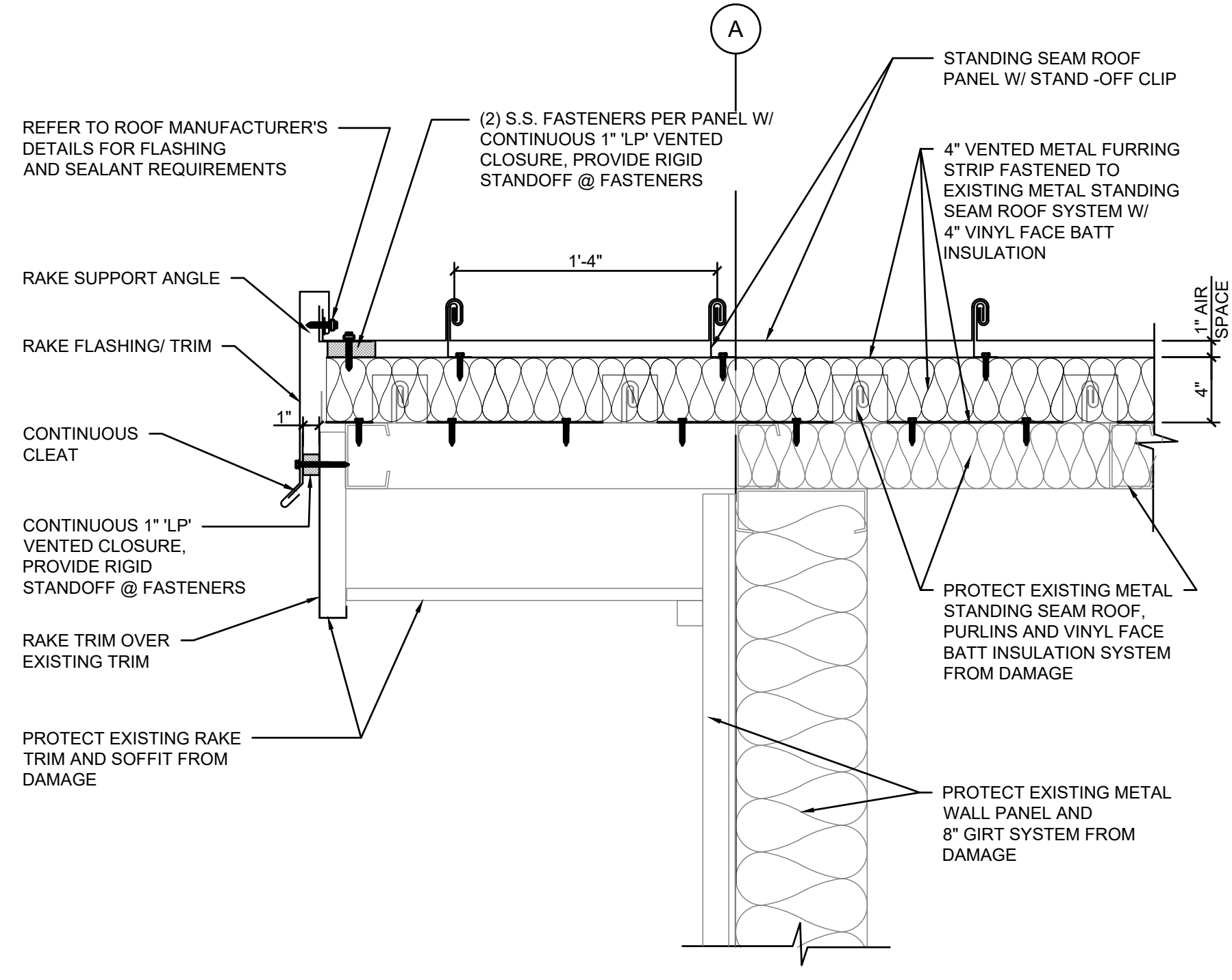
1 RAKE DETAIL
A1.2 SCALE: 1 1/2 = 1'-0"



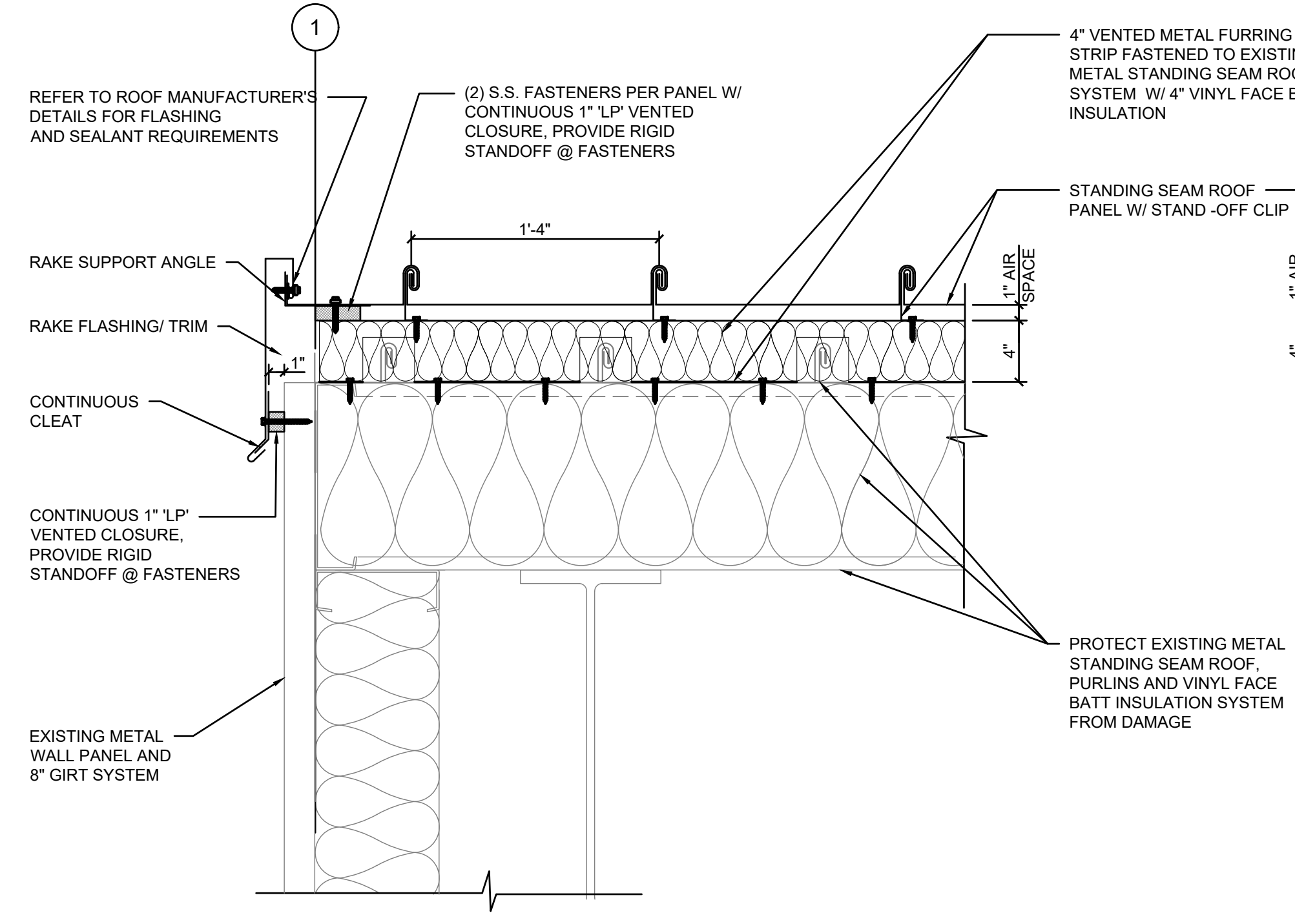
2 EAVE DETAIL
A1.2 SCALE: 1 1/2 = 1'-0"



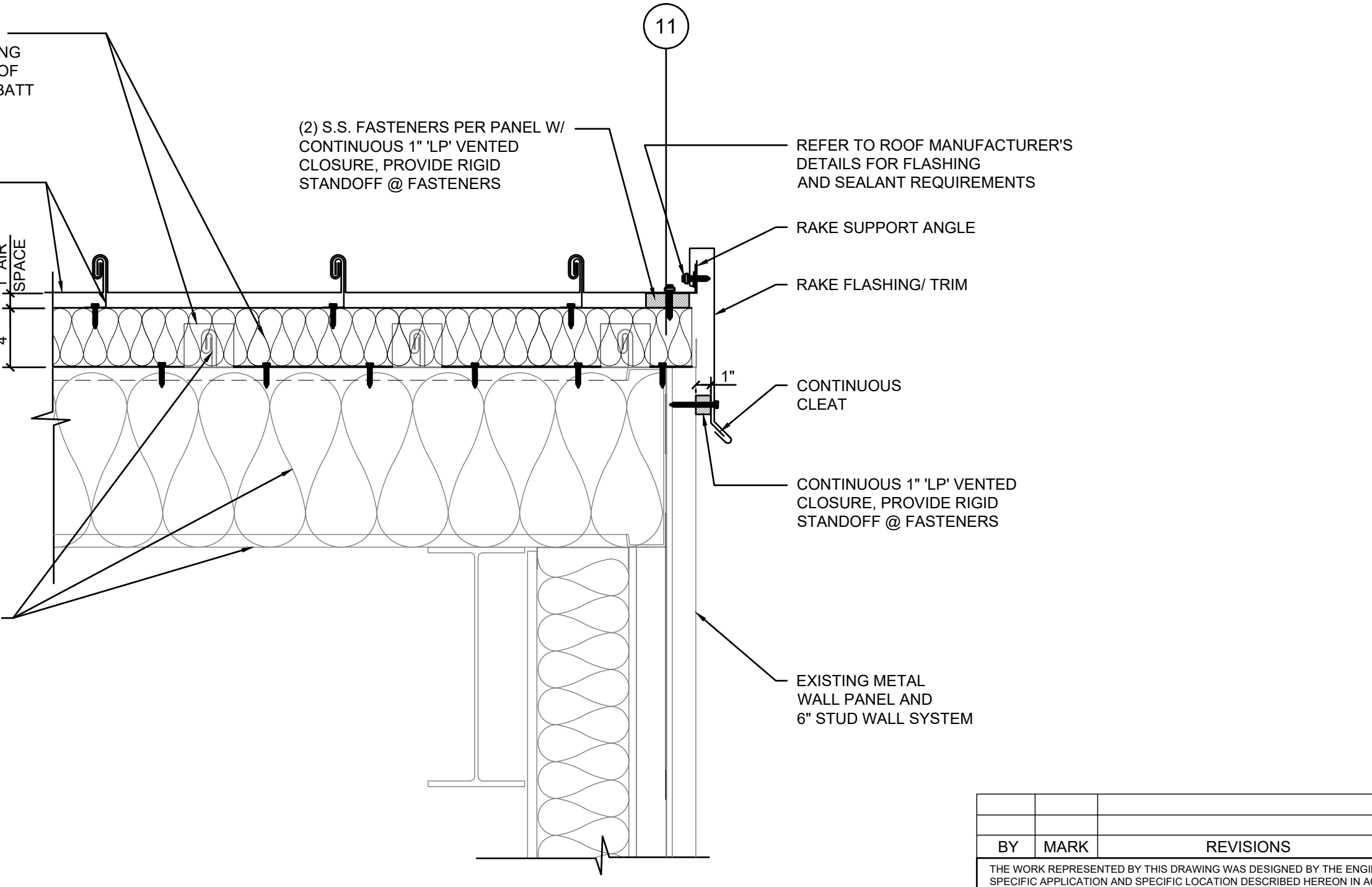
3 DETAIL
A1.2 SCALE: 1 1/2 = 1'-0"



4 DETAIL
A1.2 SCALE: 1 1/2 = 1'-0"




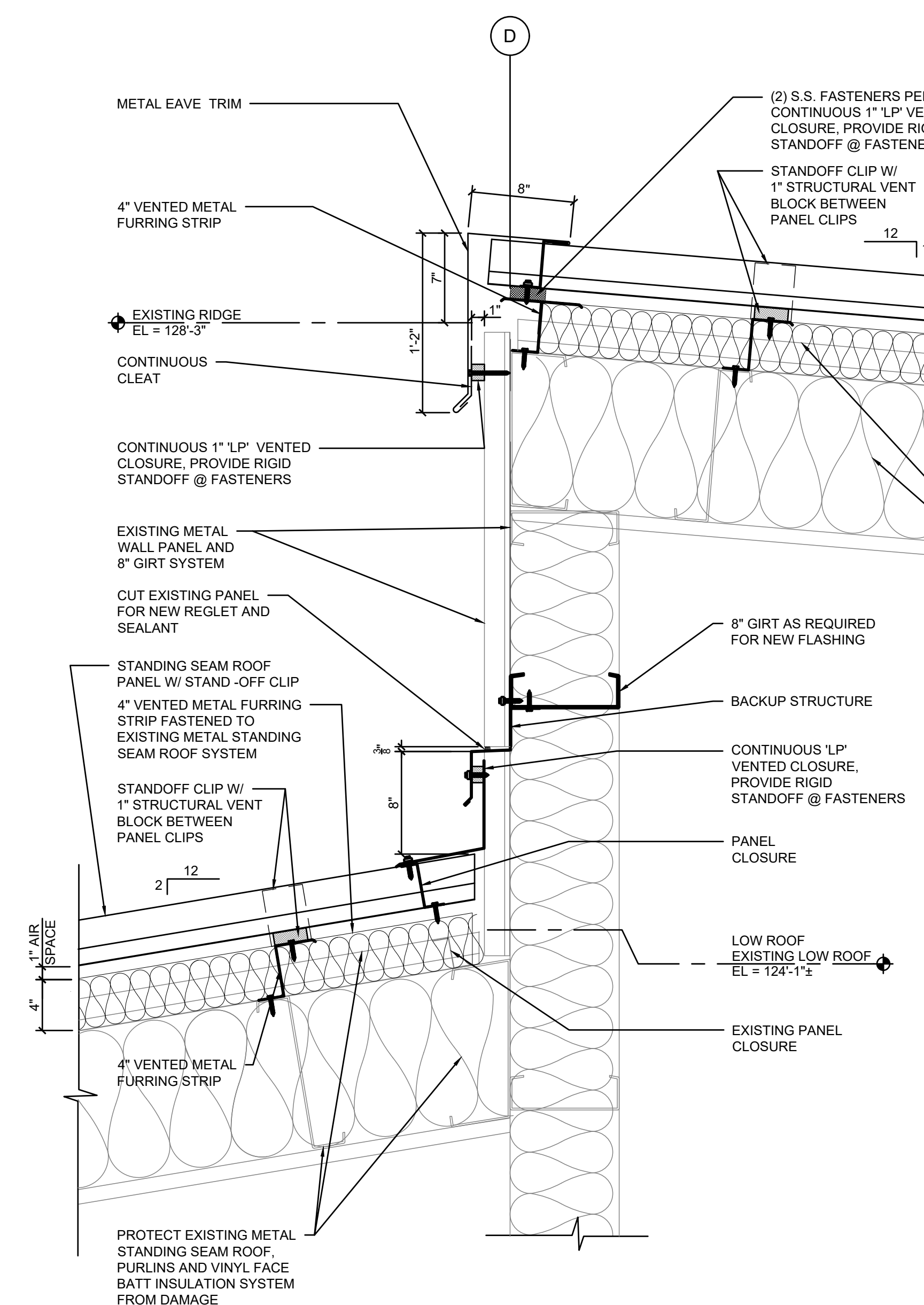
5 DETAIL
A1.2 SCALE: 1 1/2 = 1'-0"



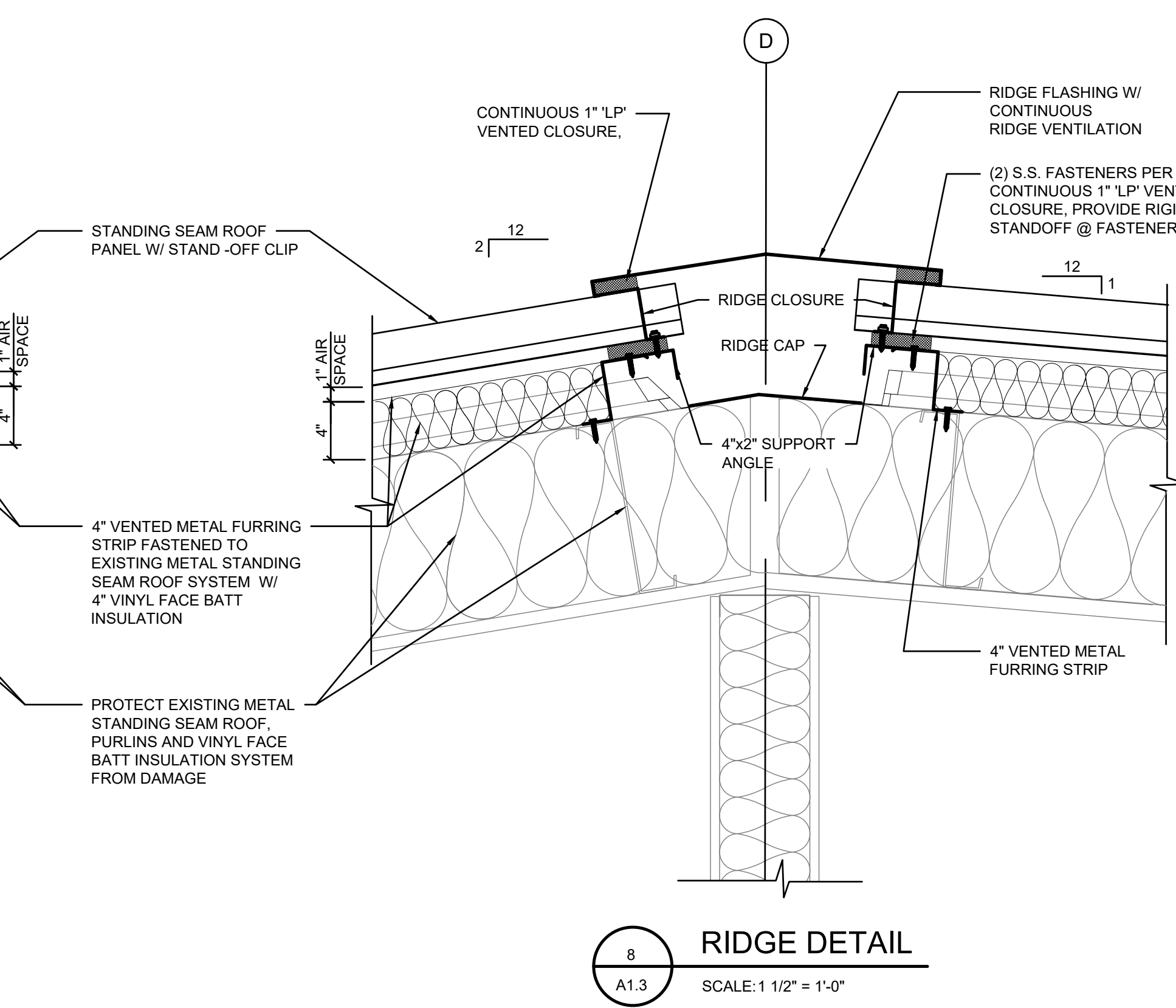
6 DETAIL
A1.2 SCALE: 1 1/2 = 1'-0"

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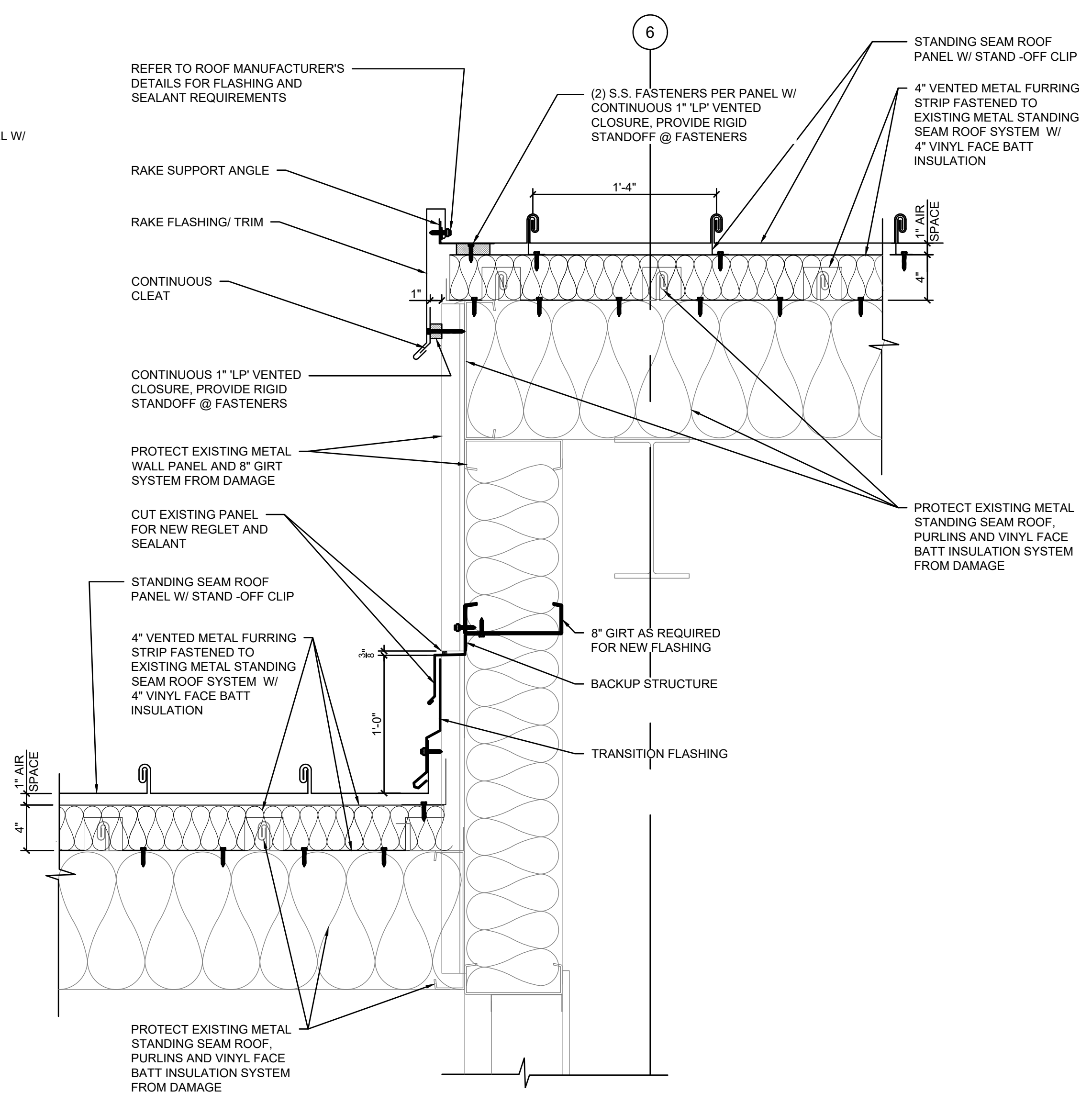
BY	MARK	REVISIONS	DATE
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ROOFING CORRECTIVE MEASURES THUNDER BAY TRANSPORTATION AUTHORITY ALPENA, MICHIGAN			
ROOF DETAIL			
		SAGINAW OFFICE 230 S. Washington Ave. Saginaw, MI 48607 Tel: 989-754-4717 Fax: 989-754-4440 www.SpicerGroup.com	
DE. BY: DWM	CH. BY: DWM	PROJECT NO. 134153SG2023	
DR. BY: ELT	APP. BY: DWM		
STDS.	SHEET 7 OF 14	A	
DATE SCALE: APRIL 2024 AS SHOWN	FILE NO. DA-1495 -7	1.2	



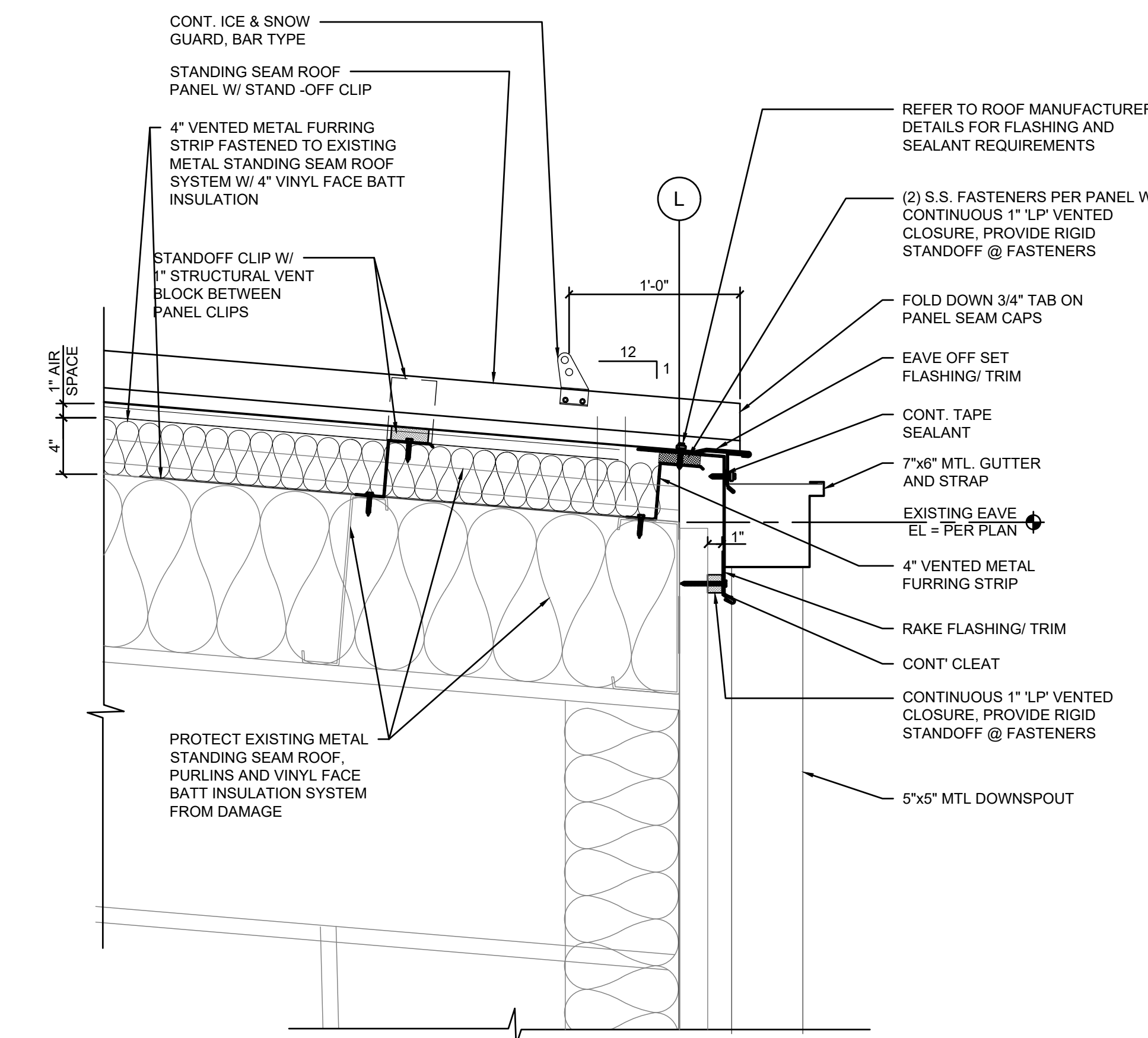
7 ROOF TRANSITION
A1.3 SCALE: 1 1/2" = 1'-0"



8 RIDGE DETAIL
A1.3 SCALE: 1 1/2" = 1'-0"



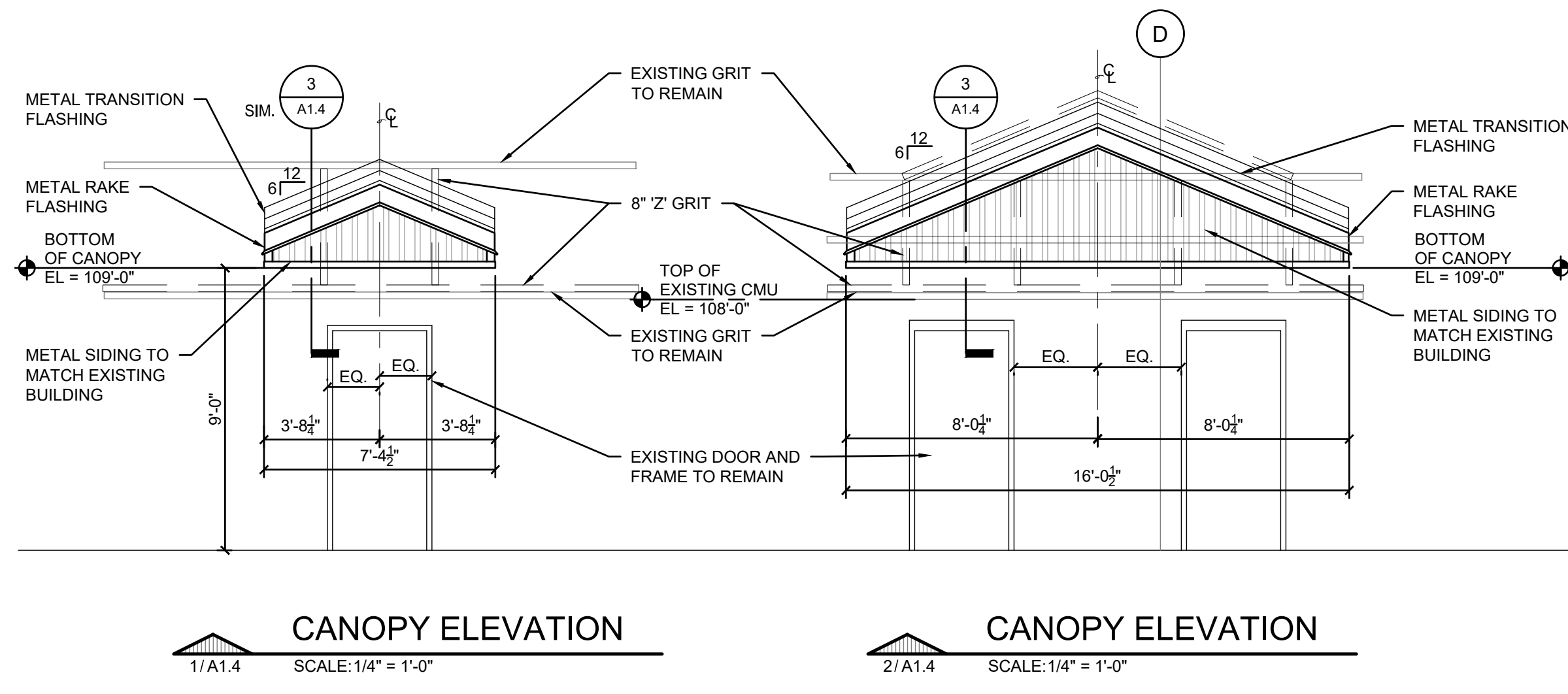
9 ROOF TRANSITION
A1.3 SCALE: 1 1/2" = 1'-0"



10 EAVE DETAIL
A1.3 SCALE: 1 1/2" = 1'-0"

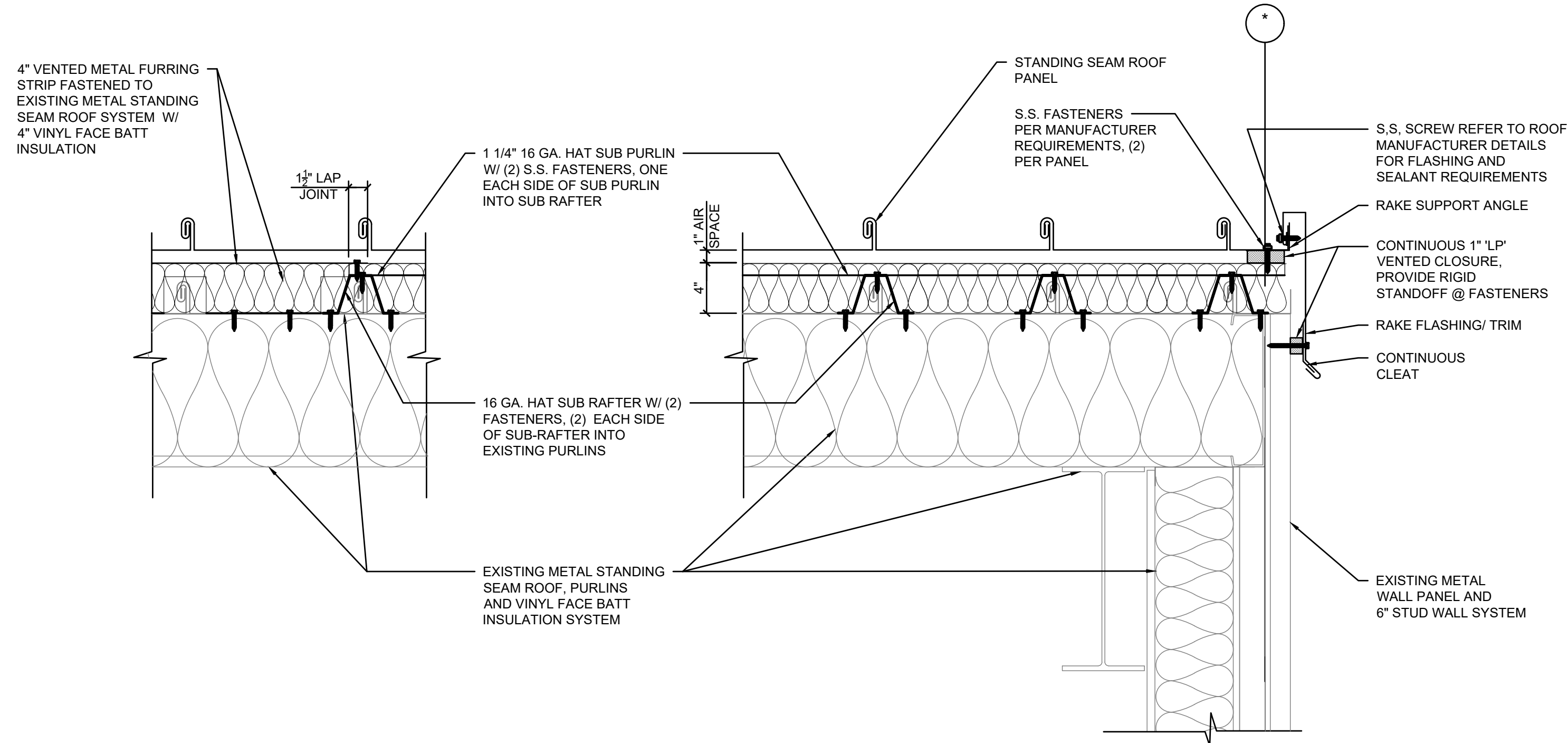
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 ACAD FILE:

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ROOFING CORRECTIVE MEASURES THUNDER BAY TRANSPORTATION AUTHORITY ALPENA, MICHIGAN			
ROOF DETAILS			
Spicer Group SAGINAW OFFICE 230 S. Washington Ave. Saginaw, MI 48607 Tel: 989-754-4717 Fax: 989-754-4440 www.SpicerGroup.com		PROJECT NO. 134153SG2023	
DE. BY: DWM	CH. BY: DWM	PROJECT NO.	
DR. BY: ELT	APP. BY: DWM	134153SG2023	
STDS.	SHEET 8 OF 14	A	
DATE SCALE	APRIL 2024 AS SHOWN	FILE NO.	DA-1495 -8
			1.3

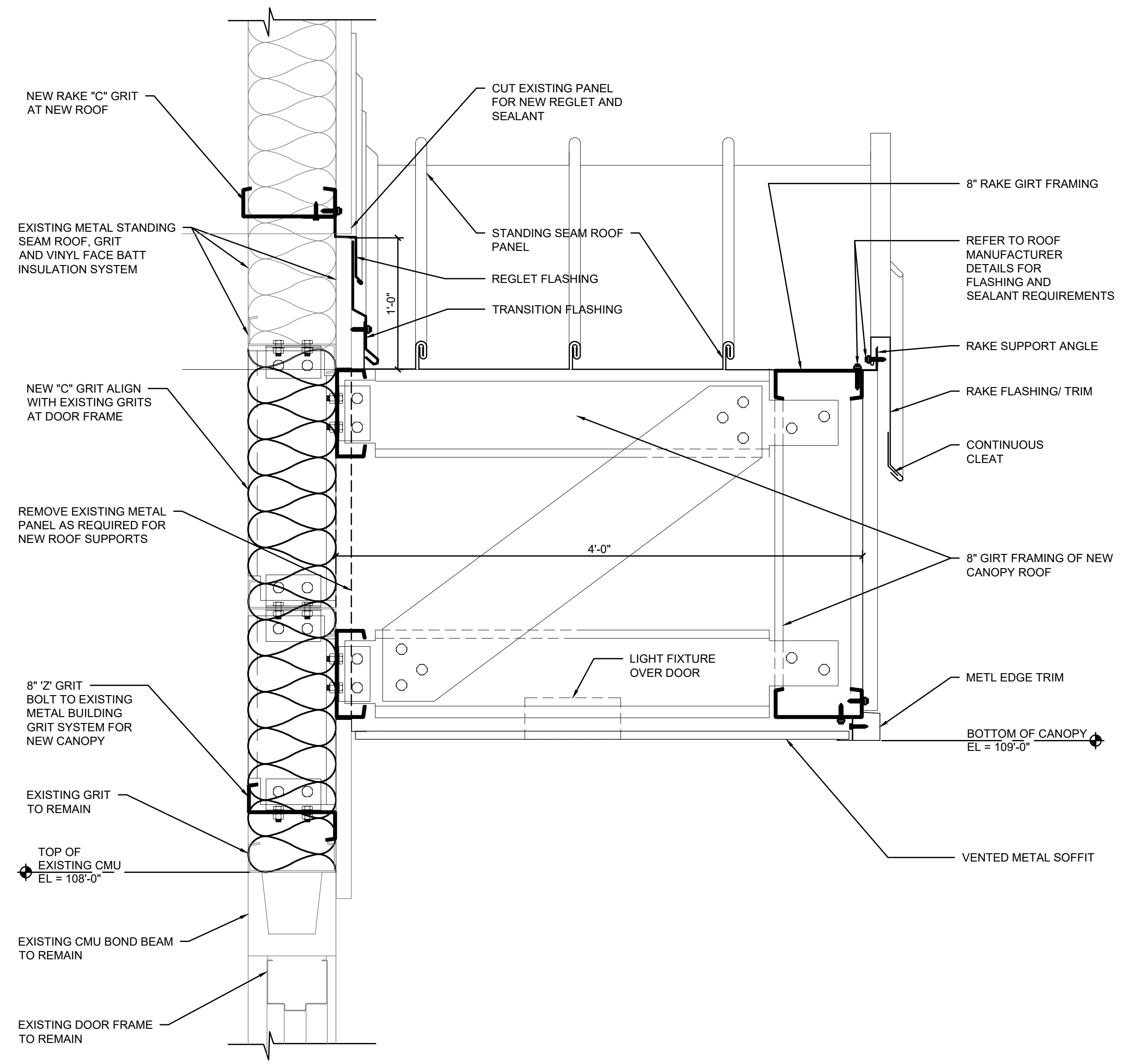


CANOPY ELEVATION

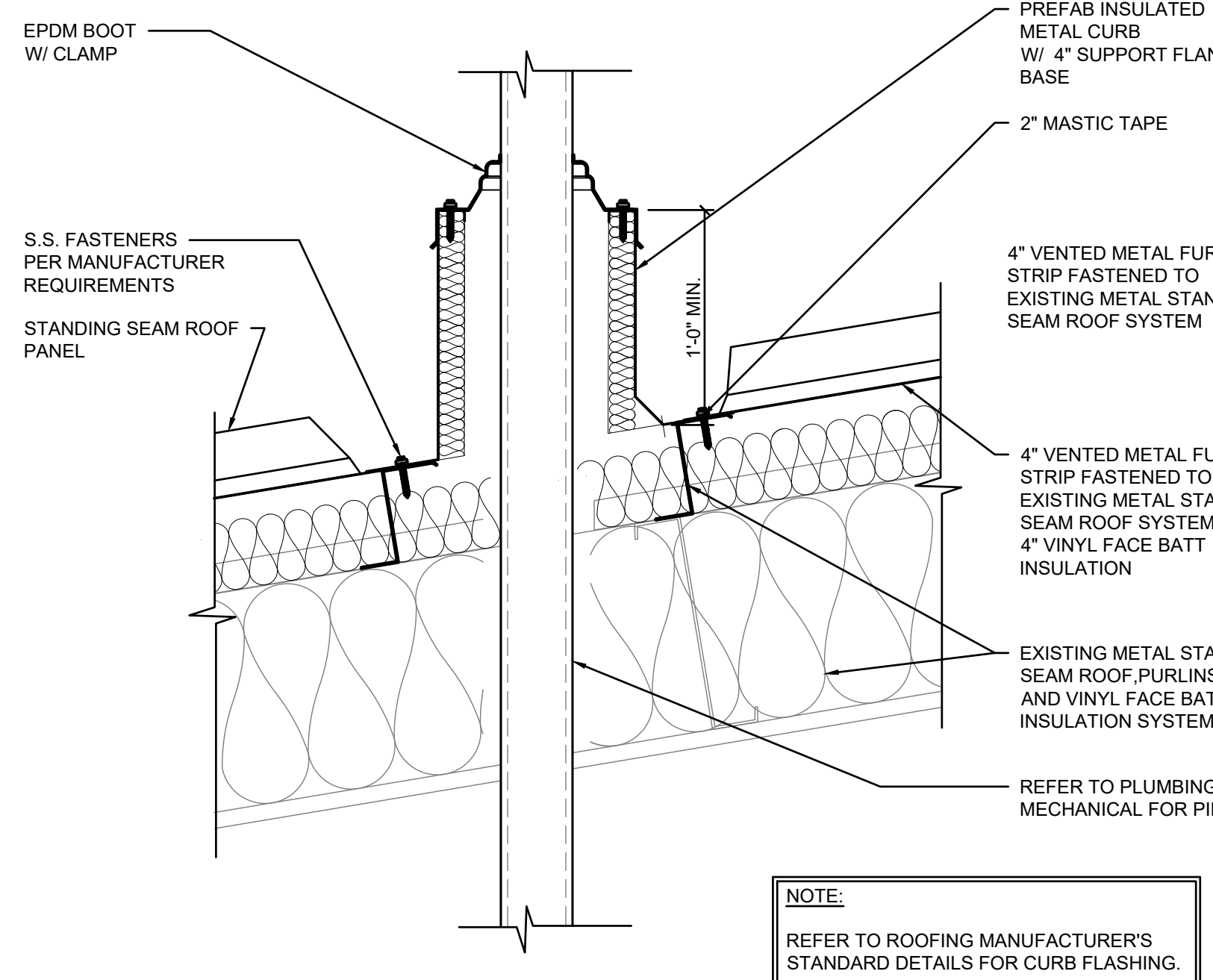
CANOPY ELEVATION



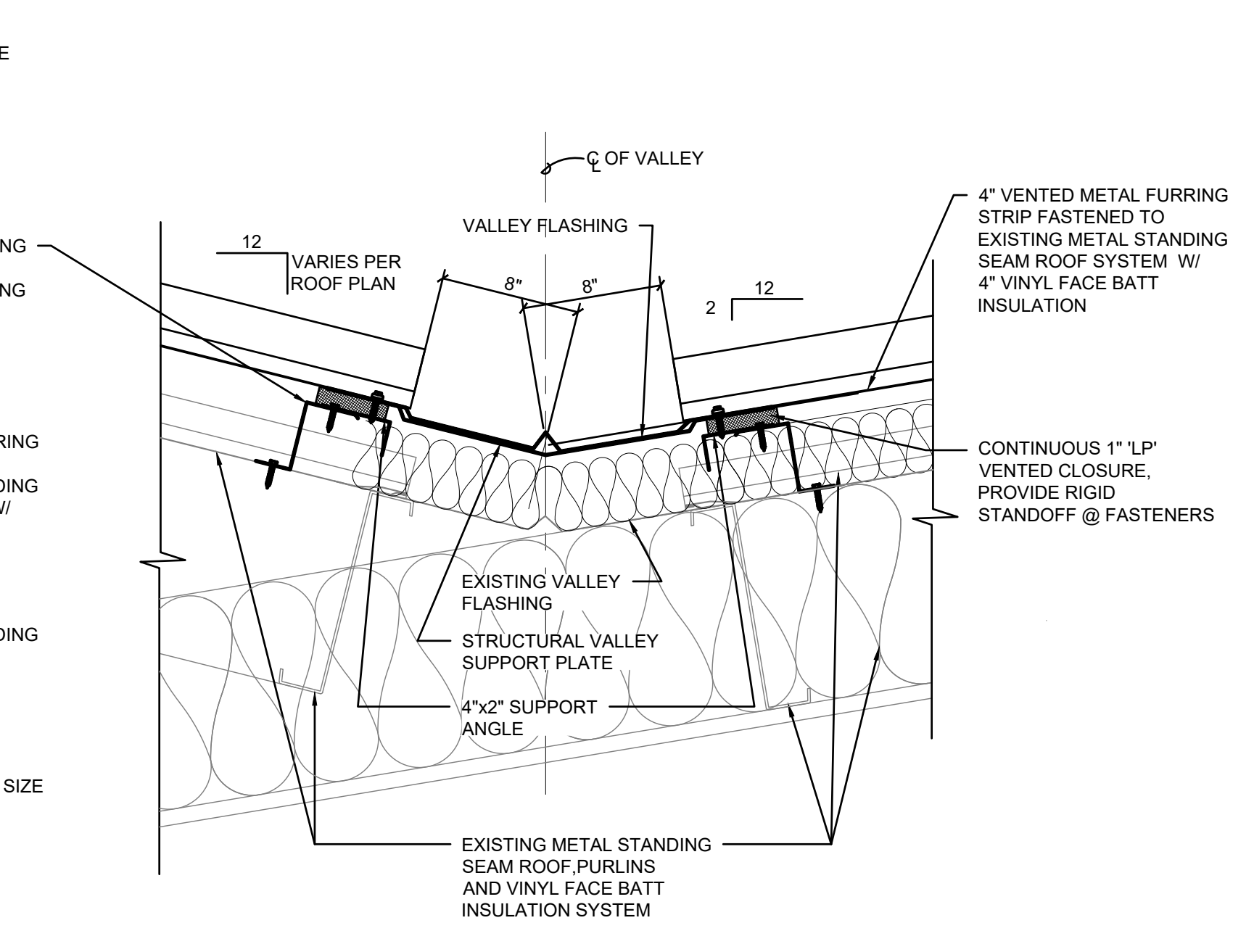
DETAIL @ CORNER/ EDGE ZONE



TYPICAL CANOPY DETAIL



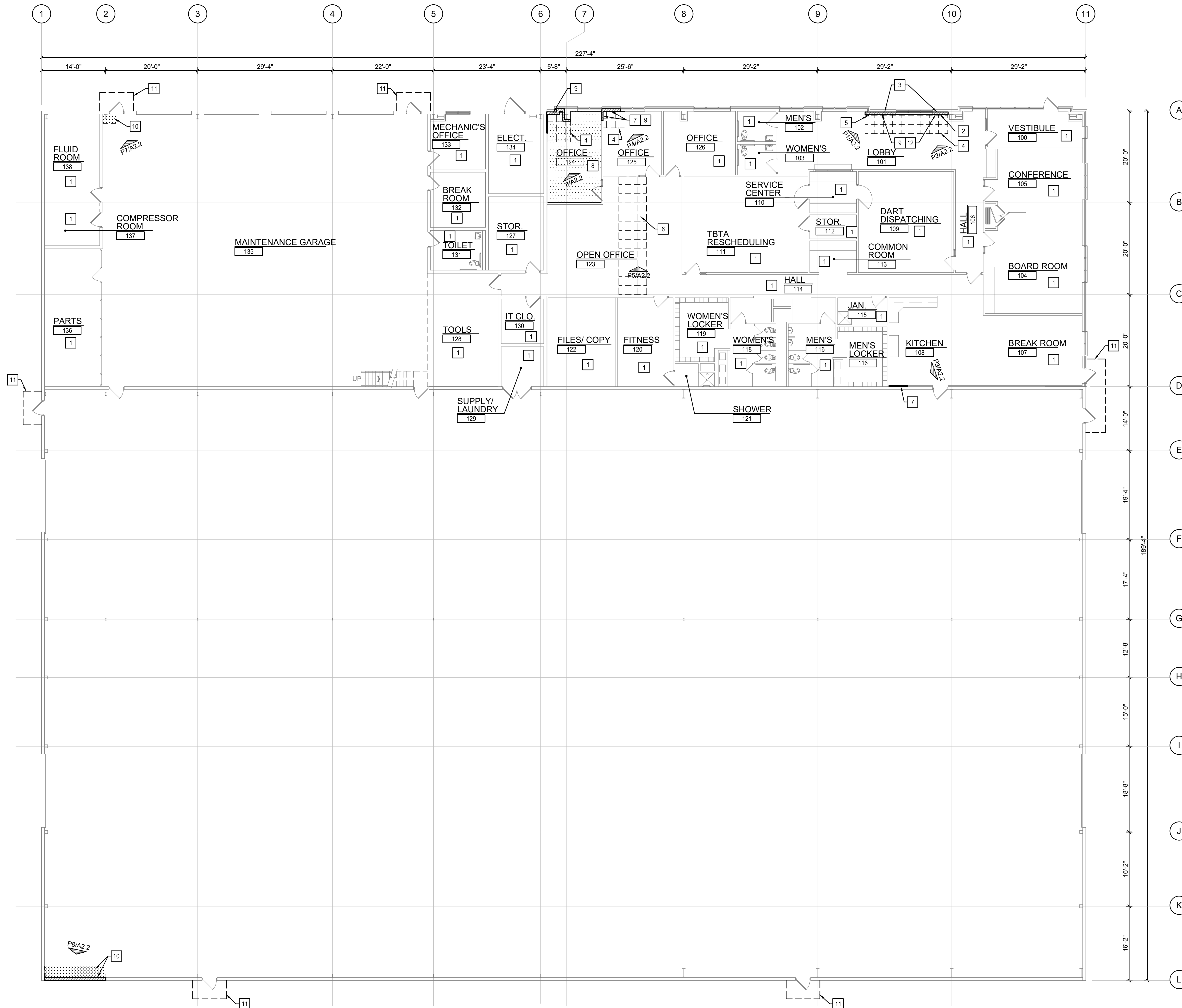
TYP CURB DETAIL @ VTR/ MECH EXHAUST



VALLEY DETAIL

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 ACAD FILE:
 PLOT SCALE:

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ROOFING CORRECTIVE MEASURES THUNDER BAY TRANSPORTATION AUTHORITY ALPENA, MICHIGAN			
ROOF DETAILS			
		SAGINAW OFFICE 230 S. Washington Ave. Saginaw, MI 48607 Tel: 989-754-4717 Fax: 989-754-4440 www.SpicerGroup.com	
DE. BY: DWM	CH. BY: DWM	PROJECT NO. 134153SG2023	
DR. BY: ELT	APP. BY: DWM		
STDS.	SHEET 9 OF 14	A	
DATE SCALE: APRIL 2024 AS SHOWN	FILE NO. DA-1495 -9	1.4	



KEYED NOTES

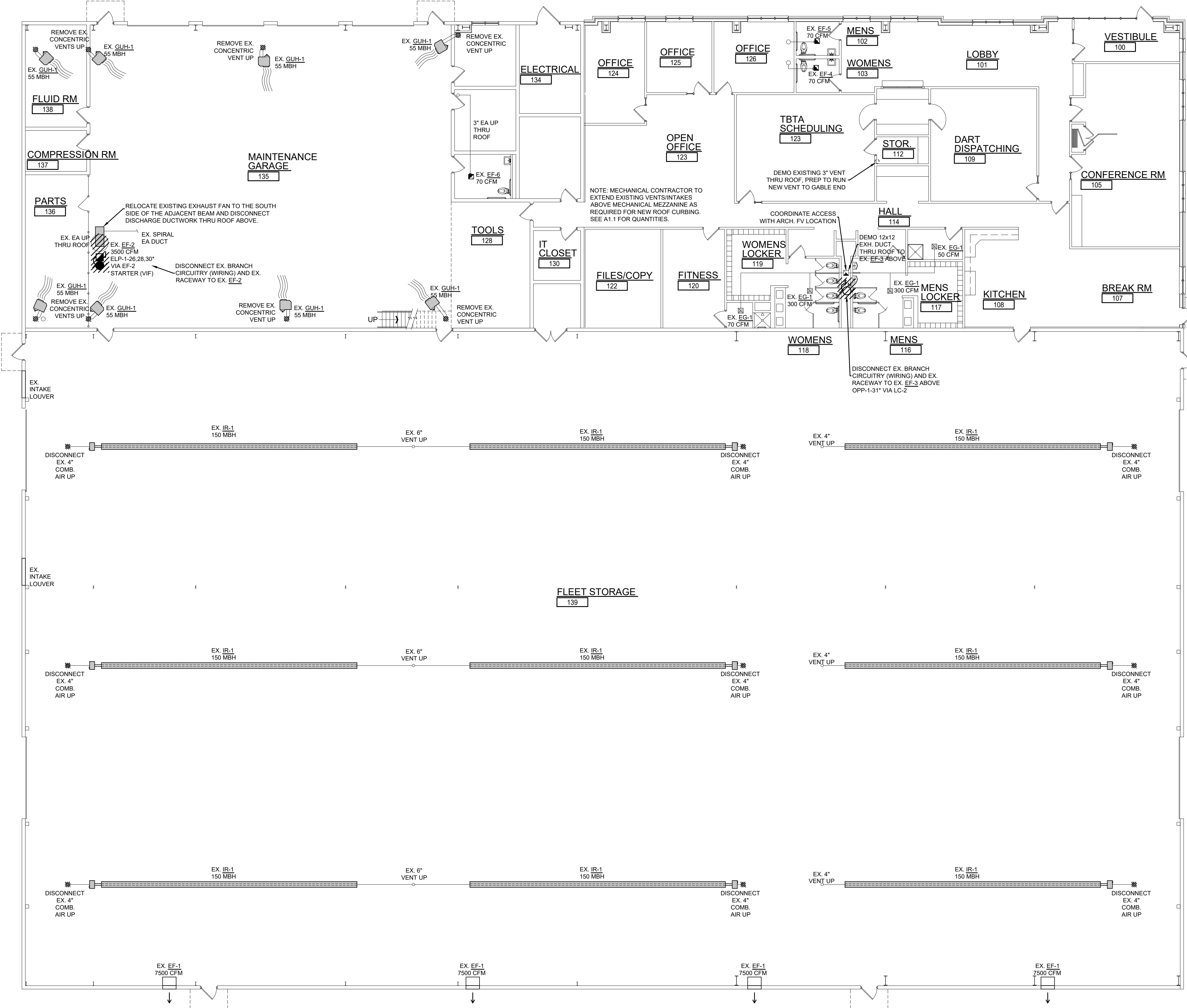
- 1 NO WORK IN THIS AREA UNLESS NOTED OTHERWISE. PROTECT ALL FINISHES FROM DAMAGE.
- 2 REMOVE EXISTING PLASTIC SHEET BARRIER AND EXISTING BATT INSULATION.
- 3 CHECK EXISTING ELECTRICAL FOR DAMAGE TO WIRING AND TEST CIRCUITS. REMOVE/REPLACE ELECTRICAL OUTLET AND COVER PLATES.
- 4 REMOVE/REPLACE EXISTING DAMAGED CEILING TILES ALONG FACE OF WALL. REPLACE DAMAGED CEILING GRID.
- 5 TEST EXISTING FIRE ALARM AS REQUIRED TO INSURE PROPER WORKING ORDER. REPLACE AS REQUIRED.
- 6 REMOVE/REPLACE EXISTING CEILING TILES AND GRID SYSTEM PLUS ADJACENT CEILING TILE. GRID ON ONE BAY EACH SIDE OF DAMAGED AREAS.
- 7 REMOVE/REPLACE ALL DAMAGE AND/OR WET GYPSUM BOARD. PATCH AND REPAIR EXISTING ADJACENT WALLS. ALL NEW FINISHES TO MATCH EXISTING.
- 8 REMOVE/REPLACE EXISTING CARPET TILE AND WALL BASE IN THIS ROOM. PROVIDE CLEAN SMOOTH SURFACE FOR NEW CARPET TILE AND WALL BASE.
- 9 PROVIDE NEW BATT INSULATION AND VAPOR BARRIER BETWEEN EXISTING STUD WALL. PROVIDE NEW GYPSUM BOARD TO MATCH EXISTING. PATCH AND REPAIR ADJACENT FINISHES AS REQUIRED. ALL NEW FINISHES TO MATCH EXISTING.
- 10 REMOVE EXISTING DAMAGED INSULATION AT WALL AND CEILING. DRY OUT ALL WALL AND CEILING AREAS PRIOR TO INSTALLING NEW VINYL COVERED BATT INSULATION. TAPE ALL SEAMS. PAINT TO MATCH EXISTING.
- 11 DASH LINE INDICATES NEW METAL CANOPIES OVER EXISTING ENTRY DOORS. REFER TO ROOF PLAN FOR ADDITIONAL NOTES AND DETAILS.
- 12 PROTECT EXISTING FLOOR TILES. NEW TILE BASE SHALL MATCH EXISTING TILE BASE.

NOTE:
 CONTRACTOR SHALL ASSUME ADDITIONAL 20% (S.F.) FOR WATER DAMAGED INSULATION AT METAL BUILDING WALLS AND CEILINGS BEYOND WHAT IS INDICATED ON PLANS. REMOVE RUST STAINS. PRIME WITH RUST PROHIBITIVE PRIMER. PAINT ALL STAINED WALLS AND EXPOSED STEEL TO MATCH EXISTING.

BY	MARK	REVISIONS	DATE
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ROOFING CORRECTIVE MEASURES THUNDER BAY TRANSPORTATION AUTHORITY ALPENA, MICHIGAN			
INTERIOR REPAIRS FLOOR PLAN			
Spicer Group SAGINAW OFFICE 230 S. Washington Ave. Saginaw, MI 48607 Tel: 989-754-4717 Fax: 989-754-4440 www.SpicerGroup.com		PROJECT NO. 134153SG2023	
DE. BY: DWM DR. BY: ELT	CH. BY: DWM APP. BY: DWM	SHEET 9 OF 14	
STDS.		FILE NO. DA-1495 -9	
DATE SCALE: MAY 2024 AS SHOWN		A 2.1	

INTERIOR REPAIR FLOOR PLAN
 SCALE: 3/32" = 1'-0"

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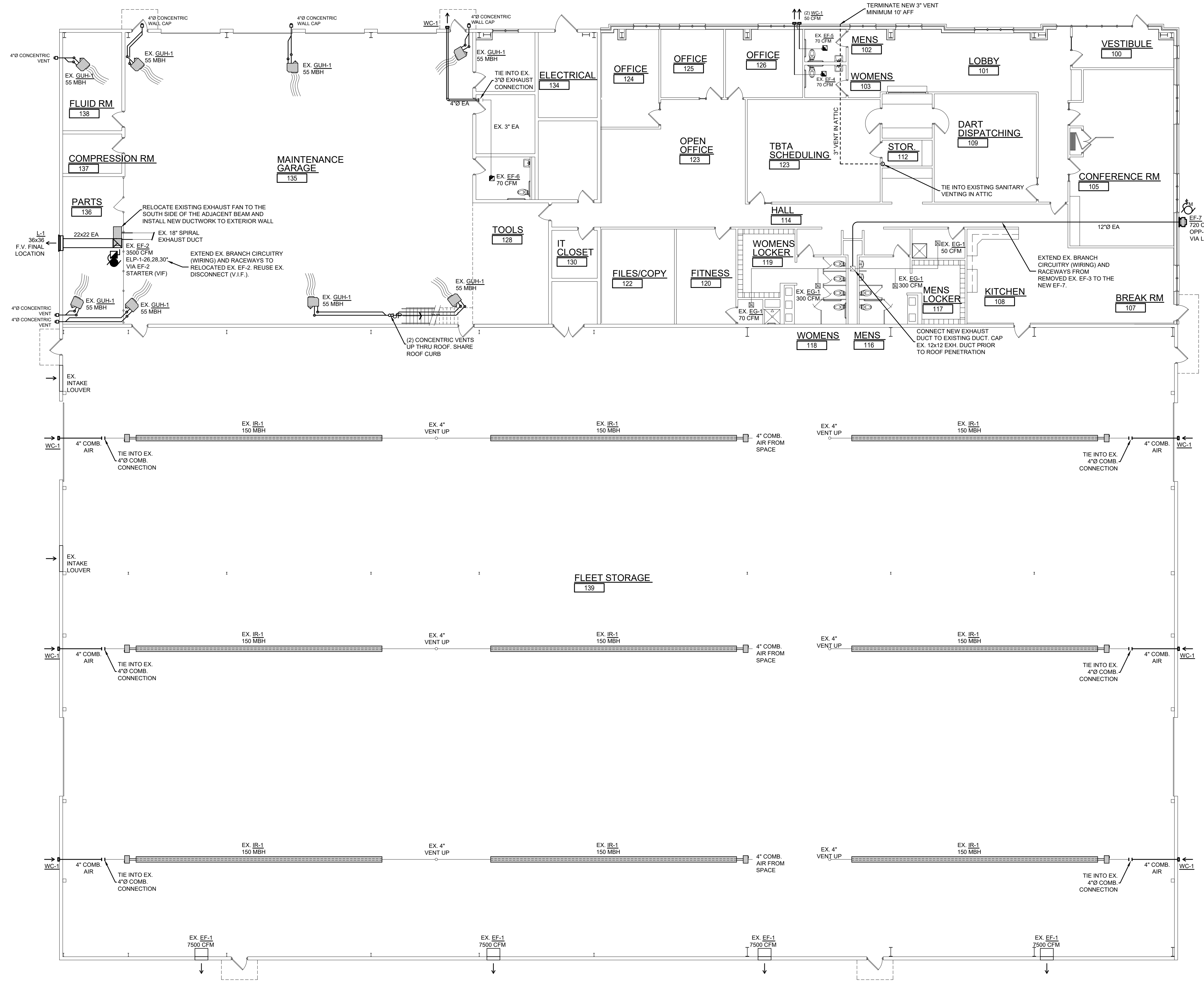
- GENERAL ELECTRICAL MINOR DEMOLITION NOTES:**
1. PRIOR TO SUBMITTING BID, ELECTRICAL CONTRACTOR SHALL VISIT THE SITE TO VERIFY/INSPECT THE EXTENT OF EXISTING CONDITIONS.
 2. REMOVE ALL ASSOCIATED ELECTRICAL COMPONENTS, HANGERS, WIRING, CABLING, CONDUIT, BOXES, DEVICES AND ALL OTHER ITEMS RELATED TO EQUIPMENT AND MATERIALS WHICH ARE INDICATED TO BE REMOVED.
 3. REMOVE AND DISCARD ALL EXISTING WIRING AND CONDUIT BACK TO THE SOURCE IN EXISTING CIRCUITS WHICH ARE BEING DEMOLISHED. UNLESS THEY CAN BE REUSED TO RECONNECT TO NEW LOADS AS SHOWN ON THE NEW MECHANICAL/ELECTRICAL PLANS.
 4. UNLESS INDICATED, NO EQUIPMENT, MATERIALS OR ASSOCIATED COMPONENTS SHALL BE ABANDONED IN PLACE.
 5. ALL CONDUITS WHICH ARE CONCEALED IN CONCRETE WALLS OR SLABS SHALL BE ABANDONED. ALL WIRING/ CABLING SHALL BE REMOVED FROM ABANDONED CONDUITS.
 6. CONTRACTOR SHALL CLEAN THE PROJECT SITE AT THE END OF EACH WORKING DAY.
 7. PROTECT FROM DAMAGE ALL EXISTING WORK TO REMAIN. ANY DAMAGED MATERIAL AND EQUIPMENT TO REMAIN SHALL BE REPLACED WITH MATERIALS AND EQUIPMENT CONFORMING TO SPECIFICATIONS.
 8. WHERE EXISTING FLOORS, WALLS AND ROOFS MUST BE CUT OR ARE DAMAGED DURING REMOVAL OR RELOCATION OF ELECTRICAL WORK, PATCH THE CUT OR DAMAGED AREAS TO MATCH ADJACENT CONSTRUCTION.

- GENERAL ELECTRICAL NOTES:**
1. INSTALLATION OF ALL WORK SHALL BE IN ACCORDANCE OF ALL APPLICABLE LOCAL CODES, ORDINANCES, AND THE LATEST EDITION OF THE NFPA 70 NATIONAL ELECTRICAL CODE (NEC) IN EFFECT.
 2. PRIOR TO WORK BEGINNING, CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS AND/OR CLEARANCES FROM THE AUTHORITIES HAVING JURISDICTION. PROVIDE ALL LABOR AND MATERIALS FOR A COMPLETE AND OPERABLE SYSTEM.
 3. FINAL LOCATIONS OF ELECTRICAL EQUIPMENT SHALL BE COORDINATED IN THE FIELD ACCORDING TO EQUIPMENT BEING SERVED.
 4. ALL CONDUCTORS SHALL BE IDENTIFIED.
 5. ALL EQUIPMENT SHALL BE UL LISTED.
 6. ELECTRICAL SYSTEMS SHALL BE GROUNDED AND BONDED PER NEC 250.
 7. PRIOR TO SUBMITTING BIDS, CONTRACTOR SHALL VISIT THE SITE AND INSPECT EXISTING EQUIPMENT AND AREA CONDITIONS THAT MAY AFFECT WORK TO BE PERFORMED. CONTRACTOR SHALL INFORM ARCHITECT/ENGINEER OF ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND INTENT OF DRAWINGS AND SPECIFICATIONS.
 8. PROVIDE ALL WIRE NECESSARY FOR THE PROPER OPERATION OF THE SYSTEM.
 9. ALL EXISTING AND NEW PANELS IMPACTED BY THE PROJECT SHALL BE PROVIDED WITH UPDATED TYPEWRITTEN PANEL SCHEDULES INDICATING ROOM NUMBER AND EQUIPMENT OR DEVICES SERVED BY THE CIRCUIT.
 10. INSTALLATION OF EQUIPMENT, COMPONENTS AND WIRING FOR ELECTRICAL SYSTEMS SHALL BE IN ACCORDANCE OF MANUFACTURERS RECOMMENDATIONS.
 11. CONTRACTOR TO COORDINATE WORK WITH ALL OTHER TRADES.
 12. ELECTRICAL CONTRACTOR TO COORDINATE WITH MECHANICAL, PLUMBING AND OTHER TRADES TO PROVIDE ALL EQUIPMENT ASSOCIATED WITH THEIR RESPECTIVE TRADES WITH NECESSARY WIRING AND CONDUIT INFRASTRUCTURE FOR ALL SENSORS, AND CONTROL SYSTEMS AS REQUIRED.
 13. BRANCH CIRCUIT DESIGNATIONS WITH AN ASTERISK (*) INDICATE EXISTING BRANCH CIRCUITS TAKEN FROM AN EXISTING PANEL SCHEDULE OR A PREVIOUS EXISTING DRAWING SET. THE ELECTRICAL CONTRACTOR SHALL FIELD VERIFY EXISTING BRANCH CIRCUITS THAT ARE TO BE REUSED AND DOCUMENT ON PROJECT AS-BUILTS AT PROJECT COMPLETION.

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 PLOT SCALE: 1/8" = 1'-0"
 PLOT FILE: 134153SG2023.dwg

MEP DEMOLITION FLOOR PLAN
 SCALE: 3/32" = 1'-0"

BY	MARK	REVISIONS	DATE
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ROOFING CORRECTIVE MEASURES THUNDER BAY TRANSPORTATION AUTHORITY ALPENA, MICHIGAN			
MECHANICAL ELECTRICAL PLUMBING DEMOLITION FLOOR PLAN			
		SAGINAW OFFICE 230 S. Washington Ave. Saginaw, MI 49807 Tel: 989-754-4717 Fax: 989-754-4440 www.SpicerGroup.com	
DE. BY: DWM	CH. BY: DWM	PROJECT NO. 134153SG2023	
DR. BY: MJR	APP. BY: DWM		
STDS.	SHEET 12 OF 14	MEP 1.0	
DATE SCALE: MAY 2024 AS SHOWN	FILE NO. DA-1495 -12		



North
MEP FLOOR PLAN
SCALE: 3/32" = 1'-0"

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BY	MARK	REVISIONS	DATE
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ROOFING CORRECTIVE MEASURES THUNDER BAY TRANSPORTATION AUTHORITY ALPENA, MICHIGAN			
MECHANICAL ELECTRICAL PLUMBING FLOOR PLAN			
		SAGINAW OFFICE 230 S. Washington Ave. Saginaw, MI 49807 Tel: 989-754-4717 Fax: 989-754-4440 www.SpicerGroup.com	
DE. BY:	DWM	CH. BY:	DWM
DR. BY:	MJR	APP. BY:	DWM
		PROJECT NO. 134153SG2023	
STDS.	SHEET 13 OF 14		MEP 2.0
DATE	MAY 2024		
SCALE	AS SHOWN		FILE NO. DA-1495 -13

GAS WATER HEATER SCHEDULE																
TAG	DESCRIPTION	MANUFACTURER & MODEL #	GAL.	GPH @90°F RISE	INPUT	EFF.	FUEL	DIMENSIONS				ELECTRICAL DATA			ACCESSORIES & NOTES	
								H	DA	CW	HW	EXHAUST	COMB. AIR	VOLTAGE		F.L.A.
EX. GWH-1	TANK-TYPE STORAGE CONDENSING WATER HEATER WITH SPARK IGNITION, DIRECT-VENT ASHRAE 90.1-2013	A.O SMITH MODEL BTH-120A	60	138	95%	95%	NG	84.25"	38"	3/4" NPT	4"Ø	4"Ø	120V	5	15	INCLUDE FOLLOWING ACCESSORIES: 1. 30" DRAIN PAN 2. T&P VALVE 3. INTEGRAL HEAT TRAP

INFRARED TUBE HEATER SCHEDULE														
TAG	LOCATION (AREA SERVED)	DESCRIPTION	MANUFACTURER & MODEL #	DIMENSIONS			BURNER DATA			ELECTRICAL DATA			ACCESSORIES & NOTES	
				LENGTH (INCHES)	WIDTH (INCHES)	STAGES	MBH INPUT	MBH OUTPUT	EFF.	FUEL	VOLTAGE	FLA		MFS
EX. IRTH-1	WASH BAY	SINGLE-STAGE GAS INFARED TUBE HEATER	DETROIT RADIAN PRODUCTS REVERBERAY HLS(DX3)-50-150	50'-9"	18"	1	150	100	80%	N.G.	115	4.8 (F.V.)	15 (F.V.)	4" COMBUSTION & VENT PIPING

UNIT HEATER SCHEDULE - GAS-FIRED																			
TAG	DESCRIPTION	MANUFACTURER & MODEL #	COLOR	TYPE	GAS BURNER DATA				VENT DATA			DIMENSIONS (INCHES)			WEIGHT LBS.	ELECTRICAL DATA			ACCESSORIES & NOTES
					INPUT (MBH)	OUTPUT (MBH)	EFF.	STAGES	CFM	EXHAUST	COMB. AIR	WIDTH	HEIGHT	DEPTH		VOLTAGE	F.L.A.	M.F.S.	
EX. UH-1	SEPARATED COMBUSTION, LOW-STATIC COMMERCIAL UNIT HEATER	MODINE PTC-55	STANDARD FACTORY WHITE	ALUM. STEEL	55	51.2	93%	1	1087	4"Ø	3"Ø	30"	16"	28.2"	100 LBS.	115/60/1Ø	4.35	15	INCLUDE: 1.) VERTICAL & HORIZONTAL LOUVERS 2.) HANGER KIT 3.) CONCENTRIC VENT KIT

EXHAUST FAN SCHEDULE																
TAG	LOCATION	SERVES	DESCRIPTION	MANUFACTURER & MODEL #	AIRFLOW DATA				NOISE DATA		WEIGHT LBS.	ELECTRICAL DATA			CONTROL SEQUENCE	ACCESSORIES & NOTES
					CFM	E.S.P.	FAN HP	FAN RPM	SONES	dBA		VOLTAGE	F.L.A.	M.F.S.		
EX. EF-1	VEHICLE STORAGE	VEHICLE STORAGE	SIDEWALL EXHAUST FAN	GREENHECK SBE-3H3D-15	7500	0.5"	1 1/2	N/A	3.0	N/A	35 LBS.	460V	1.1	15		
EX. EF-2	MAINTENANCE SHOP	MAINTENANCE SHOP	BLOWER EXHAUST CAPTURE FAN	MONDOWENT BI-10-1	3500	4"	5	N/A	2.5	N/A	15 LBS.	460V	0.4	15		
EX. EF-3	LOCKERS EXHAUST	LOCKERS EXHAUST	ROOF EXHAUST	GREENHECK G-099-VG	720	0.75"	1/4	N/A	2.5	N/A	15 LBS.	120V	0.4	15		
EX. EF-4	MENS	MENS	ROOF EXHAUST	GREENHECK SP-80-VG	70	0.5"	-	N/A	2.5	N/A	15 LBS.	120V	0.4	15		
EX. EF-5	WOMENS	WOMENS	ROOF EXHAUST	GREENHECK SP-80-VG	70	0.5"	-	N/A	2.5	N/A	15 LBS.	120V	0.4	15		
EX. EF-6	TOILET	TOILET	SIDEWALL EXHAUST FAN	GREENHECK SP-80-VG	70	0.5"	-	N/A	2.5	N/A	15 LBS.	120V	0.4	15		
EF-7	LOCKERS EXHAUST	LOCKERS EXHAUST	SIDEWALL EXHAUST FAN	GREENHECK CUE-099-VG	720	0.5"	1/6	1556	8.3	N/A	33 LBS.	120V	3.5	15	ON WITH EITHER LOCKER LIGHT SWITCH	INCLUDE FOLLOWING ACCESSORIES: 1.) BACKDRAFT DAMPER

LOUVER SCHEDULE														
TAG	LOCATION	DESCRIPTION	MANUFACTURER & MODEL #	FLANGED	MATERIAL	FINISH / COLOR	DIMENSIONS (IN.)			AIRFLOW DATA			CONTROLS	ACCESSORIES & NOTES
							THICK	WIDTH	HEIGHT	CFM	FPM	S.P. (IN. W.G.)		
EX. L-1	VEHICLE STORAGE	LOUVER/ DAMPER WITH 4" FRAME	GREENHECK ECD-401	YES	ALUMINUM	N/A	4"	61"	47"	7500	N/A	0.20"	F.V.	
L-2	MAINTENANCE SHOP	EXTRUDED STATIONARY LOUVER WITH 4" DRAINABLE BLADES	GREENHECK ESD-435	NO	ALUMINUM	PROVIDE COLOR SWATCH TO ARCH. / ENGINEER	4"	36"	36"	3500	753	0.08"	SEE PLANS	BLADES PARALLEL TO WIDTH

VENT CAP SCHEDULE																
TAG	LOCATION	DESCRIPTION	MANUFACTURER & MODEL #	FLANGED	MATERIAL	FINISH	COLOR	DIMENSIONS (IN.)			AIRFLOW DATA			CONTROLS	ACCESSORIES & NOTES	
								THICK	WIDTH	HEIGHT	F.A. (SQ. FT.)	CFM	FPM			S.P. (IN. W.G.)
WC-1	SEE PLAN	VENT CAP 4" SURFACE MOUNT	SEIHO MODEL SPX-4	NO	ALUMINUM	CLEAR ANODIZED	NONE	1-3/8"	4"	4"	0.04	75	436	0.042"	MANUAL BACKDRAFT DAMPER (SEE EF-1 SCHEDULE)	BLADES PARALLEL TO WIDTH

HVAC LEGEND AND SYMBOLS		
SYMBOL	TAG	DESCRIPTION
	GAS	GAS ISOLATION BALL VALVE (NTS)
	GAS SOLENOID VALVE	ELECTRONIC GAS SOLENOID VALVE (INTERCONNECTED TO KITCHEN HOOD CONTROLLER & ANSUL FIRE PROTECTION SYSTEM)
	CONTROLLER	CONTROLLER (SEE TEMPERATURE CONTROL SPECS)
	SENSOR	SENSOR (SEE TEMPERATURE CONTROL SPECS)
	REVERSE ACTING T-STAT	REVERSE-ACTING THERMOSTAT (SEE TEMPERATURE CONTROL SPECS)
	T-STAT	THERMOSTAT (SEE TEMPERATURE CONTROL SPECS)
	CONTROL ACTUATOR	ELECTRONIC DAMPER OR VALVE ACTUATOR (SMOKE DAMPER ACTUATOR OR TEMP. CONTROL ACTUATOR)
	SD	SUPPLY AIR DIFFUSER (SEE SCHEDULE AND PLANS FOR SIZE AND DATA)
	SR	SUPPLY AIR REGISTER - IN WALL OR DUCT (SEE SCHEDULE AND PLANS FOR SIZE AND DATA)
	SR	SUPPLY AIR REGISTER - SPIRAL DUCT W/ AIR-SCOOP DAMPER (SEE SCHEDULE AND PLANS FOR SIZE AND DATA)
	RG	RETURN AIR GRILLE - CEILING OR DUCT MOUNT (SEE SCHEDULE AND PLANS FOR SIZE AND DATA)
	RG	RETURN AIR GRILLE - WALL OR DUCT MOUNT (SEE SCHEDULE AND PLANS FOR SIZE AND DATA)
	EG	EXHAUST AIR GRILLE - CEILING OR DUCT MOUNT (SEE SCHEDULE AND PLANS FOR SIZE AND DATA)
	EG	EXHAUST AIR GRILLE - WALL MOUNT (SEE SCHEDULE AND PLANS FOR SIZE AND DATA)
	FD	FIRE DAMPER - 1 HOUR, 2-HOUR, COMBINATION FIRE-SMOKE, SMOKE DAMPER (RECTANGULAR OR ROUND AS SCHEDULED)
	SMD	DUCT SMOKE DETECTOR FOR SMOKE DAMPERS (PROVIDED BY FAPC OR EC, INSTALLED BY SHEETMETAL CONTRACTOR)

TAGS AND ABBREVIATIONS	
ADA	AMERICAN DISABILITIES ACT
AHU	AIR-HANDLING UNIT, HEATING AND/OR COOLING HVAC SYSTEM
ASHRAE	ASSOCIATION OF HEATING, REFRIGERATION, AND AIR-CONDITIONING ENGINEERS
BDD	BACK-DRAFT DAMPER
BO(P,D)	BOTTOM OF (BOTTOM OF PIPE, DUCT, ETC. AS NOTED)
C	CONTROLLER, TEMPERATURE CONTROLS (SEE TECHNICAL SPECS.)
CA	COLD, UNHEATED, SUPPLY AIR (NAV SYSTEM UNHEATED SUPPLY AIR)
CD	CONTROL DAMPER
CW	DOMESTIC COLD WATER, POTABLE COLD WATER
CHWS	CHILLED WATER SUPPLY, NON-POTABLE CHILLER SYSTEM SUPPLY WATER
CHWR	CHILLED WATER RETURN, NON-POTABLE CHILLER SYSTEM SUPPLY WATER
DAT	DISCHARGE AIR TEMPERATURE (SUPPLY AIR DISCHARGE AIR)
DEMO	DEMOLITION
DHWR	DOMESTIC HOT WATER RETURN, POTABLE HOT WATER RECIRCULATION
DN	DOWN
EA	EXHAUST AIR, EXHAUST AIR DUCT
EC	ELECTRICAL CONTRACTOR
EG	EXHAUST AIR GRILLE
FFM	FEET PER MINUTE (VELOCITY)
HPWS	HEAT PUMP WATER SUPPLY, NON-POTABLE HEAT PUMP SYSTEM SUPPLY WATER
HPWR	HEAT PUMP WATER RETURN, NON-POTABLE HEAT PUMP SYSTEM RETURN WATER
HSKP	HOUSEKEEPING (AS IN HOUSEKEEPING PAD)
HVAC	HEATING, VENTILATION, AND AIR-CONDITIONING
HX	HEAT EXCHANGER
HW	DOMESTIC HOT WATER, POTABLE HOT WATER
HWS	HOT WATER SUPPLY, NON-POTABLE HEATING HOT WATER SUPPLY PIPING
HWR	HOT WATER RETURN, NON-POTABLE HEATING HOT WATER RETURN PIPING
IBC	INTERNATIONAL BUILDING CODE (CURRENTLY ENFORCED)
IMC	INTERNATIONAL MECHANICAL CODE (CURRENTLY ENFORCED)
IPC	INTERNATIONAL PLUMBING CODE (CURRENTLY ENFORCED)
L	LOUVER, INTAKE OR EXHAUST LOUVER
MC	MECHANICAL CONTRACTOR
MMC	MICHIGAN MECHANICAL CODE (CURRENTLY ENFORCED)
MPC	MICHIGAN PLUMBING CODE (CURRENTLY ENFORCED)
NO	NORMALLY OPEN (APPLIES TO DAMPERS OR VALVES)
NC	NORMALLY CLOSED (APPLIES TO DAMPER OR VALVES)
OA	OUTDOOR AIR, (FRESH AIR, FRESH OUTDOOR AIR)
OAG	OUTDOOR AIR GRILLE
OAT	OUTDOOR AIR TEMPERATURE
OBDD	OPPOSED BLADE DAMPER (BALANCE DAMPER)
OC	ON-CENTER
OVFLO	OVERFLOW STORM
RA	RETURN AIR, RETURN AIR DUCT
RG	RETURN AIR GRILLE
RTU	ROOF TOP UNIT, ROOF-MOUNTED AIR HANDLING UNIT
S	SENSOR, TEMPERATURE CONTROL SENSOR (SEE TECHNICAL SPECS.)
SA	SUPPLY AIR, SUPPLY AIR DUCT
SD	SUPPLY AIR DIFFUSERS
SF	SQUARE FEET
SR	SUPPLY AIR REGISTER
TOP(D)	TOP OF (TOP OF PIPE, DUCT, ETC. AS NOTED)
UTR	UP THRU ROOF
VIF	VERIFY IF FIELD
WC	WALL CAP, EXTERIOR WALL MOUNT (EA OR OA INTAKE AS NOTED)

ELECTRICAL SYMBOL LEGEND	
SYMBOL	DESCRIPTION
	SINGLE-PHASE MOTOR TOGGLE SWITCH w/ THERMAL OVERLOAD AND INDICATOR LIGHT. FIELD VERIFY w/ ASSOCIATED EQUIPMENT SHOP DRAWINGS AND MANUFACTURER'S REQUIREMENTS. (BASED ON SQUARE D #2510-F65P).
	3-PHASE ELECTRICAL COMBINATION STARTER-DISCONNECT
	1-PHASE MOTOR, REFER TO SHOP DRAWINGS
	3-PHASE MOTOR, REFER TO SHOP DRAWINGS
	DEMOLITION HATCH

BY	MARK	REVISIONS	DATE

THE WORK REPRESENTED BY THIS DRAWING WAS DESIGNED BY THE ENGINEER FOR THIS SPECIFIC APPLICATION AND SPECIFIC LOCATION DESCRIBED HEREIN IN ACCORDANCE WITH THE CONDITIONS PREVALENT AT THE TIME THE DESIGN WAS DONE. THE ENGINEER DOES NOT GUARANTEE AND WILL NOT BE LIABLE FOR ANY OTHER LOCATION, CONDITION, DESIGN OR PURPOSE.

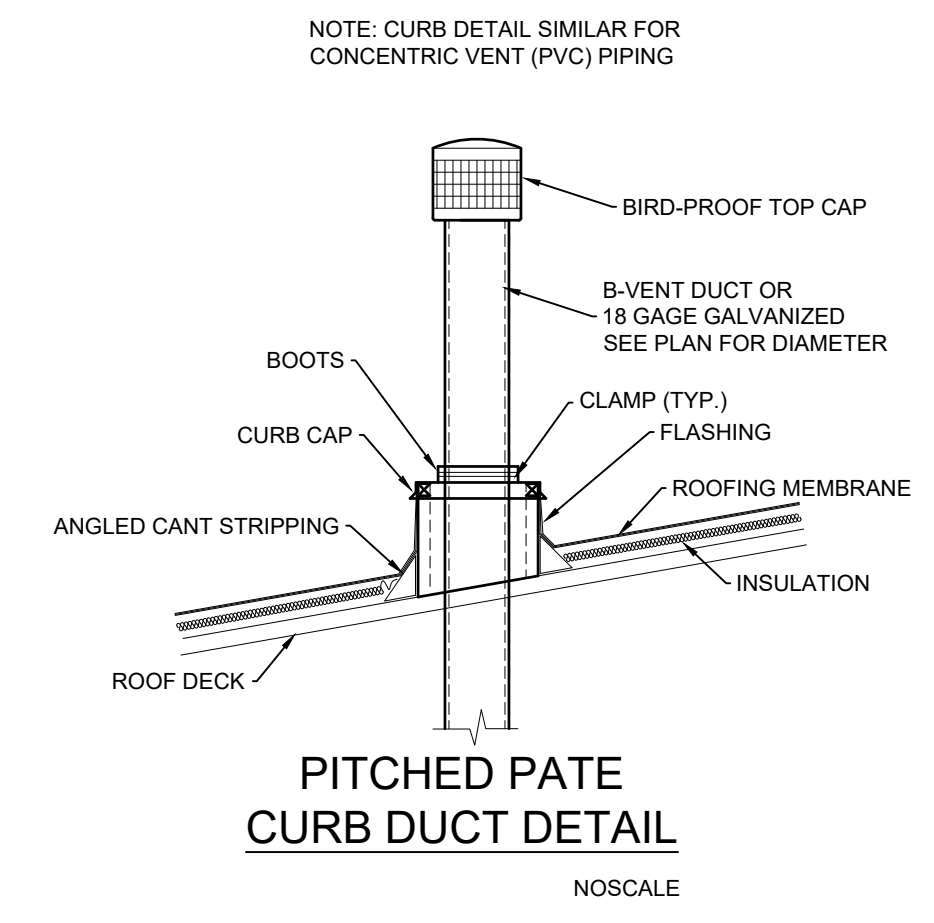
ROOFING CORRECTIVE MEASURES
THUNDER BAY TRANSPORTATION AUTHORITY
ALPENA, MICHIGAN

MECHANICAL & ELECTRICAL
SCHEDULES & DETAILS

Spicer group
SAGINAW OFFICE
230 S. Washington Ave.
Saginaw, MI 49807
Tel: 989-754-4717
Fax: 989-754-4440
www.SpicerGroup.com

DE. BY: DWM	CH. BY: DWM	PROJECT NO.
DR. BY: MJR	APP. BY: DWM	134153SG2023

STDS.	SHEET 14 OF 14	MEP 3.0
DATE SCALE	MAY 2024 AS SHOWN	
FILE NO.	DA-1495 -14	



NOTE: CURB DETAIL SIMILAR FOR CONCENTRIC VENT (PVC) PIPING

ACAD FILE: PLOT FILE: RET. F.B. PLOT SCALE: 1/8"=1'-0"

**BIDDING DOCUMENTS
FOR THE**

**THUNDER BAY TRANSPORTATION AUTHORITY
ROOF REPLACEMENT & INTERIOR RENOVATION
ALPENA, MI**

**THUNDER BAY TRANSPORTATION AUTHORITY
3859 US HIGHWAY 23 N
ALPENA, MI 49707**

Prepared By:
SPICER GROUP, INC.
SAGINAW, MICHIGAN
NOVEMBER 22, 2024

Plans Included

DA-1495-1-14

Project I.D. Number: 134153

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**FOR THUNDER BAY TRANSPORTATION AUTHORITY
ROOF REDESIGN/REPAIR**

ALPENA, MI

INVITATION TO BID

Documents Available: 1/6/25
Pre-bid Meeting: 1/20/25
Bids Due: 2/17/25

Sealed Bids from General Contractors only (single prime contractor for all work), for the construction of the above referenced project will be received **on Monday, February 17, 2025 2:00 p.m.** at the office of Thunder Bay Transportation Authority. Bids may be mailed or delivered in person. The bids will be opened publicly and tabulated at time due. A tabulation of bids will be provided to all registered bidders that submitted a bid.

Project Scope: The installation of a new metal standing seam roof over the existing standing seam roof using standoff framing and additional fiberglass batt insulation, new steel gutters and downspouts. Additionally, Addition of new canopies over doors, work to repair damaged ceiling tiles, walls, insulation and flooring from water leak damage. Bid, payment and performance bonding will be required.

Each bid proposal shall be accompanied by the required bid form and all documents per the instructions to bidders available in the bidding documents.

The Owner reserves the right to waive an informality in any bid, to reject any or all bids, or accept any bid which is considered most favorable to the Owner, project duration will be considered.

A pre-bid conference will be held on January 20, 2025 **at 10:00 AM** at the site location.

Electronic copies of plans, proposal forms and specifications may be viewed beginning January 6, 2025 on the **thunderbaytransportation.com** and Spicer Bid site **www.spicergroup.com**. Documents may be downloaded for a fee. Paper copies may be obtained for a fee of \$50.00 at Spicer Group, 230 S. Washington Ave, Saginaw, MI 48607 upon request only. Fee does not include cost for mailing / shipping.

Use the Bid Form in the specifications for submittal of sealed bid.

Instructions to Bidders

for the following Project:
(Name, location, and detailed description)

TBTA Roof Resdesign/Repair
3859 U.S. Highway 23 N
Alpena, MI 49707

THE OWNER:
(Name, legal status, address, and other information)

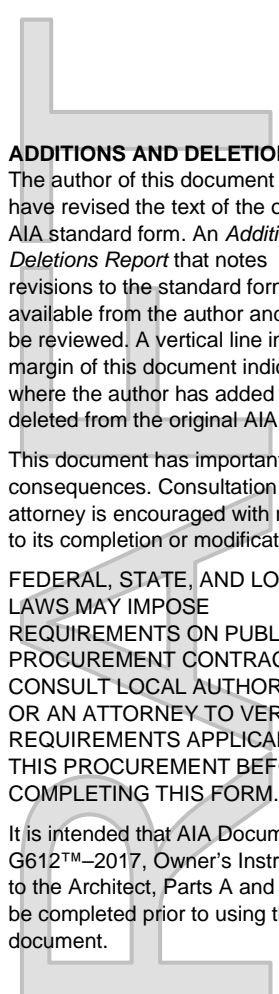
Thunder Bay Transportation Association
3859 US Highway 23, N Alpena MI

THE ARCHITECT:
(Name, legal status, address, and other information)

Spicer Group
230 Washington Ave
Saginaw, MI 48607
989-754-4717

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- 1 DEFINITIONS
- 2 BIDDER'S REPRESENTATIONS
- 3 BIDDING DOCUMENTS
- 4 BIDDING PROCEDURES
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ADDITIONS AND DELETIONS:
The author of this document may have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

FEDERAL, STATE, AND LOCAL LAWS MAY IMPOSE REQUIREMENTS ON PUBLIC PROCUREMENT CONTRACTS. CONSULT LOCAL AUTHORITIES OR AN ATTORNEY TO VERIFY REQUIREMENTS APPLICABLE TO THIS PROCUREMENT BEFORE COMPLETING THIS FORM.

It is intended that AIA Document G612™–2017, Owner's Instructions to the Architect, Parts A and B will be completed prior to using this document.



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ARTICLE 1 DEFINITIONS

§ 1.1 Bidding Documents include the Bidding Requirements and the Proposed Contract Documents. The Bidding Requirements consist of the advertisement or invitation to bid, Instructions to Bidders, supplementary instructions to bidders, the bid form, and any other bidding forms. The Proposed Contract Documents consist of the unexecuted form of Agreement between the Owner and Contractor and that Agreement's Exhibits, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, all Addenda, and all other documents enumerated in Article 8 of these Instructions.

§ 1.2 Definitions set forth in the General Conditions of the Contract for Construction, or in other Proposed Contract Documents apply to the Bidding Documents.

§ 1.3 Addenda are written or graphic instruments issued by the Architect, which, by additions, deletions, clarifications, or corrections, modify or interpret the Bidding Documents.

§ 1.4 A Bid is a complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

§ 1.5 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents, to which Work may be added or deleted by sums stated in Alternate Bids.

§ 1.6 An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from, or that does not change, the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

§ 1.7 A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, as described in the Bidding Documents.

§ 1.8 A Bidder is a person or entity who submits a Bid and who meets the requirements set forth in the Bidding Documents.

§ 1.9 A Sub-bidder is a person or entity who submits a bid to a Bidder for materials, equipment, or labor for a portion of the Work.

ARTICLE 2 BIDDER'S REPRESENTATIONS

§ 2.1 By submitting a Bid, the Bidder represents that:

- .1 the Bidder has read and understands the Bidding Documents;
- .2 the Bidder understands how the Bidding Documents relate to other portions of the Project, if any, being bid concurrently or presently under construction;
- .3 the Bid complies with the Bidding Documents;
- .4 the Bidder has visited the site, become familiar with local conditions under which the Work is to be performed, and has correlated the Bidder's observations with the requirements of the Proposed Contract Documents;
- .5 the Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception; and
- .6 the Bidder has read and understands the provisions for liquidated damages, if any, set forth in the form of Agreement between the Owner and Contractor.

ARTICLE 3 BIDDING DOCUMENTS

§ 3.1 Distribution

§ 3.1.1 Bidders shall obtain complete Bidding Documents, as indicated below, from the issuing office designated in the advertisement or invitation to bid, for the deposit sum, if any, stated therein.

(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall obtain Bidding Documents.)

§ 3.1.2 Any required deposit shall be refunded to Bidders who submit a bona fide Bid and return the paper Bidding Documents in good condition within ten days after receipt of Bids. The cost to replace missing or damaged paper

documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the paper Bidding Documents, and the Bidder's deposit will be refunded.

§ 3.1.3 Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the advertisement or invitation to bid, or in supplementary instructions to bidders.

§ 3.1.4 Bidders shall use complete Bidding Documents in preparing Bids. Neither the Owner nor Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete Bidding Documents.

§ 3.1.5 The Bidding Documents will be available for the sole purpose of obtaining Bids on the Work. No license or grant of use is conferred by distribution of the Bidding Documents.

§ 3.2 Modification or Interpretation of Bidding Documents

§ 3.2.1 The Bidder shall carefully study the Bidding Documents, shall examine the site and local conditions, and shall notify the Architect of errors, inconsistencies, or ambiguities discovered and request clarification or interpretation pursuant to Section 3.2.2.

§ 3.2.2 Requests for clarification or interpretation of the Bidding Documents shall be submitted by the Bidder in writing and shall be received by the Architect at least seven days prior to the date for receipt of Bids.

(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall submit requests for clarification and interpretation.)

Via Email Only – david.marr@spicergroup.com

§ 3.2.3 Modifications and interpretations of the Bidding Documents shall be made by Addendum. Modifications and interpretations of the Bidding Documents made in any other manner shall not be binding, and Bidders shall not rely upon them.

§ 3.3 Substitutions

§ 3.3.1 The materials, products, and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance, and quality to be met by any proposed substitution.

§ 3.3.2 Substitution Process

§ 3.3.2.1 Written requests for substitutions shall be received by the Architect at least ten days prior to the date for receipt of Bids. Requests shall be submitted in the same manner as that established for submitting clarifications and interpretations in Section 3.2.2.

§ 3.3.2.2 Bidders shall submit substitution requests on a Substitution Request Form if one is provided in the Bidding Documents.

§ 3.3.2.3 If a Substitution Request Form is not provided, requests shall include (1) the name of the material or equipment specified in the Bidding Documents; (2) the reason for the requested substitution; (3) a complete description of the proposed substitution including the name of the material or equipment proposed as the substitute, performance and test data, and relevant drawings; and (4) any other information necessary for an evaluation. The request shall include a statement setting forth changes in other materials, equipment, or other portions of the Work, including changes in the work of other contracts or the impact on any Project Certifications (such as LEED), that will result from incorporation of the proposed substitution.

§ 3.3.3 The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

§ 3.3.4 If the Architect approves a proposed substitution prior to receipt of Bids, such approval shall be set forth in an Addendum. Approvals made in any other manner shall not be binding, and Bidders shall not rely upon them.

§ 3.3.5 No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents.

§ 3.4 Addenda

§ 3.4.1 Addenda will be transmitted to Bidders known by the issuing office to have received complete Bidding Documents.

(Indicate how, such as by email, website, host site/platform, paper copy, or other method Addenda will be transmitted.)

Host Site

§ 3.4.2 Addenda will be available where Bidding Documents are on file.

§ 3.4.3 Addenda will be issued no later than four days prior to the date for receipt of Bids, except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.

§ 3.4.4 Prior to submitting a Bid, each Bidder shall ascertain that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

ARTICLE 4 BIDDING PROCEDURES

§ 4.1 Preparation of Bids

§ 4.1.1 Bids shall be submitted on the forms included with or identified in the Bidding Documents.

§ 4.1.2 All blanks on the bid form shall be legibly executed. Paper bid forms shall be executed in a non-erasable medium.

§ 4.1.3 Sums shall be expressed in both words and numbers, unless noted otherwise on the bid form. In case of discrepancy, the amount entered in words shall govern.

§ 4.1.4 Edits to entries made on paper bid forms must be initialed by the signer of the Bid.

§ 4.1.5 All requested Alternates shall be bid. If no change in the Base Bid is required, enter “No Change” or as required by the bid form.

§ 4.1.6 Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder’s refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall neither make additional stipulations on the bid form nor qualify the Bid in any other manner.

§ 4.1.7 Each copy of the Bid shall state the legal name and legal status of the Bidder. As part of the documentation submitted with the Bid, the Bidder shall provide evidence of its legal authority to perform the Work in the jurisdiction where the Project is located. Each copy of the Bid shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further name the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached, certifying the agent’s authority to bind the Bidder.

§ 4.1.8 A Bidder shall incur all costs associated with the preparation of its Bid.

§ 4.2 Bid Security

§ 4.2.1 Each Bid shall be accompanied by the following bid security:

(Insert the form and amount of bid security.)

5%

§ 4.2.2 The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and shall, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty. In the event the Owner fails to comply with Section 6.2, the amount of the bid security shall not be forfeited to the Owner.

§ 4.2.3 If a surety bond is required as bid security, it shall be written on AIA Document A310™, Bid Bond, unless

otherwise provided in the Bidding Documents. The attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of an acceptable power of attorney. The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 4.2.4 The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until (a) the Contract has been executed and bonds, if required, have been furnished; (b) the specified time has elapsed so that Bids may be withdrawn; or (c) all Bids have been rejected. However, if no Contract has been awarded or a Bidder has not been notified of the acceptance of its Bid, a Bidder may, beginning ? days after the opening of Bids, withdraw its Bid and request the return of its bid security.

§ 4.3 Submission of Bids

§ 4.3.1 A Bidder shall submit its Bid as indicated below:

(Indicate how, such as by website, host site/platform, paper copy, or other method Bidders shall submit their Bid.)

Sealed Bids to be submitted
Thunder Bay Transportation Authority
3859 U.S. Highway 23 N
Alpena, MI 49707

§ 4.3.2 Paper copies of the Bid, the bid security, and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the party receiving the Bids and shall be identified with the Project name, the Bidder's name and address, and, if applicable, the designated portion of the Work for which the Bid is submitted. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

§ 4.3.3 Bids shall be submitted by the date and time and at the place indicated in the invitation to bid. Bids submitted after the date and time for receipt of Bids, or at an incorrect place, will not be accepted.

§ 4.3.4 The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

§ 4.3.5 A Bid submitted by any method other than as provided in this Section 4.3 will not be accepted.

§ 4.4 Modification or Withdrawal of Bid

§ 4.4.1 Prior to the date and time designated for receipt of Bids, a Bidder may submit a new Bid to replace a Bid previously submitted, or withdraw its Bid entirely, by notice to the party designated to receive the Bids. Such notice shall be received and duly recorded by the receiving party on or before the date and time set for receipt of Bids. The receiving party shall verify that replaced or withdrawn Bids are removed from the other submitted Bids and not considered. Notice of submission of a replacement Bid or withdrawal of a Bid shall be worded so as not to reveal the amount of the original Bid.

§ 4.4.2 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids in the same format as that established in Section 4.3, provided they fully conform with these Instructions to Bidders. Bid security shall be in an amount sufficient for the Bid as resubmitted.

§ 4.4.3 After the date and time designated for receipt of Bids, a Bidder who discovers that it made a clerical error in its Bid shall notify the Architect of such error within two days, or pursuant to a timeframe specified by the law of the jurisdiction where the Project is located, requesting withdrawal of its Bid. Upon providing evidence of such error to the reasonable satisfaction of the Architect, the Bid shall be withdrawn and not resubmitted. If a Bid is withdrawn pursuant to this Section 4.4.3, the bid security will be attended to as follows:

(State the terms and conditions, such as Bid rank, for returning or retaining the bid security.)

ARTICLE 5 CONSIDERATION OF BIDS

§ 5.1 Opening of Bids

If stipulated in an advertisement or invitation to bid, or when otherwise required by law, Bids properly identified and

received within the specified time limits will be publicly opened and read aloud. A summary of the Bids may be made available to Bidders.

§ 5.2 Rejection of Bids

Unless otherwise prohibited by law, the Owner shall have the right to reject any or all Bids.

§ 5.3 Acceptance of Bid (Award)

§ 5.3.1 It is the intent of the Owner to award a Contract to the lowest responsive and responsible Bidder, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents. Unless otherwise prohibited by law, the Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's best interests.

§ 5.3.2 Unless otherwise prohibited by law, the Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the lowest responsive and responsible Bidder on the basis of the sum of the Base Bid and Alternates accepted.

ARTICLE 6 POST-BID INFORMATION

§ 6.1 Contractor's Qualification Statement

Bidders to whom award of a Contract is under consideration shall submit to the Architect, upon request and within the timeframe specified by the Architect, a properly executed AIA Document A305™, Contractor's Qualification Statement, unless such a Statement has been previously required and submitted for this Bid.

§ 6.2 Owner's Financial Capability

A Bidder to whom award of a Contract is under consideration may request in writing, fourteen days prior to the expiration of the time for withdrawal of Bids, that the Owner furnish to the Bidder reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract. The Owner shall then furnish such reasonable evidence to the Bidder no later than seven days prior to the expiration of the time for withdrawal of Bids. Unless such reasonable evidence is furnished within the allotted time, the Bidder will not be required to execute the Agreement between the Owner and Contractor.

§ 6.3 Submittals

§ 6.3.1 After notification of selection for the award of the Contract, the Bidder shall, as soon as practicable or as stipulated in the Bidding Documents, submit in writing to the Owner through the Architect:

- .1 a designation of the Work to be performed with the Bidder's own forces;
- .2 names of the principal products and systems proposed for the Work and the manufacturers and suppliers of each; and
- .3 names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.

§ 6.3.2 The Bidder will be required to establish to the satisfaction of the Architect and Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.

§ 6.3.3 Prior to the execution of the Contract, the Architect will notify the Bidder if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, withdraw the Bid or submit an acceptable substitute person or entity. The Bidder may also submit any required adjustment in the Base Bid or Alternate Bid to account for the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

§ 6.3.4 Persons and entities proposed by the Bidder and to whom the Owner and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and Architect.

ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND

§ 7.1 Bond Requirements

§ 7.1.1 If stipulated in the Bidding Documents, the Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder.

§ 7.1.2 If the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid. If the furnishing of such bonds is required after receipt of bids and before execution of the Contract, the cost of such bonds shall be added to the Bid in determining the Contract Sum.

§ 7.1.3 The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 7.1.4 Unless otherwise indicated below, the Penal Sum of the Payment and Performance Bonds shall be the amount of the Contract Sum.
(If Payment or Performance Bonds are to be in an amount other than 100% of the Contract Sum, indicate the dollar amount or percentage of the Contract Sum.)

§ 7.2 Time of Delivery and Form of Bonds

§ 7.2.1 The Bidder shall deliver the required bonds to the Owner not later than three days following the date of execution of the Contract. If the Work is to commence sooner in response to a letter of intent, the Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Section 7.2.1.

§ 7.2.2 Unless otherwise provided, the bonds shall be written on AIA Document A312, Performance Bond and Payment Bond.

§ 7.2.3 The bonds shall be dated on or after the date of the Contract.

§ 7.2.4 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix to the bond a certified and current copy of the power of attorney.

ARTICLE 8 ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS

§ 8.1 Copies of the proposed Contract Documents have been made available to the Bidder and consist of the following documents:

- 1. AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor, unless otherwise stated below.
(Insert the complete AIA Document number, including year, and Document title.)

- 2. AIA Document A101™–2017, Exhibit A, Insurance and Bonds, unless otherwise stated below.
(Insert the complete AIA Document number, including year, and Document title.)

- 3. AIA Document A201™–2017, General Conditions of the Contract for Construction, unless otherwise stated below.
(Insert the complete AIA Document number, including year, and Document title.)

- ~~4. AIA Document E203™ 2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:
(Insert the date of the E203-2013.)~~

- 5. Drawings

Number	Title	Date
DA-1495 – 1- 14		

.6 Specifications

Section	Title	Date	Pages
As stated in the Table of Contents			

.7 Addenda:

Number	Date	Pages
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.8 Other Exhibits:

(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017.)

The Sustainability Plan:

Title	Date	Pages
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Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
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.9 Other documents listed below:

(List here any additional documents that are intended to form part of the Proposed Contract Documents.)

PROPOSAL FORM

A. **PROJECT IDENTIFICATION:** Thunder Bay Transportation Authority Roof Redesign/Repair

B. **CONTRACT IDENTIFICATION AND NUMBER:** Spicer Project No. 134153SG2024

C. **THIS BID IS SUBMITTED TO:** Thunder Bay Transportation Authority
3859 US Highway 23, N
Alpena, MI 49707

1. The undersigned BIDDER proposes and agrees, if this Bid is accepted, to enter into an agreement with OWNER in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Contract Price and within the Contract Time indicated in the Contract Documents for the Bid Price and within the Bid Times indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.
2. BIDDER accepts all of the terms and conditions of the Advertisement or Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance during the Bid hold period. BIDDER will sign and deliver the required number of counterparts of the Agreement with the Bonds and other documents required by the Bidding Requirements within fifteen days after the date of OWNER's Notice of Award.
3. In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement, that:
 - a. BIDDER has examined copies of all the Bidding Documents and of the following Addenda. There is no Addendum Acknowledgment sheet; therefore, please acknowledge receipt of Addenda below:

(BIDDER NOTE: Bidder shall fill in date and number of all addenda. As an alternative, Bidder may submit signed copies of Addendum. If no addenda have been issued, insert "N/A".)

Date of Issue	Addendum No.
_____	_____
_____	_____
_____	_____

- b. BIDDER has visited the site and conducted an examination of the area and become familiar with and is satisfied as to the general, local and site conditions that may affect cost, progress, performance and furnishing of the Work.
 - c. BIDDER is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress, performance and furnishing of the Work.

- d. BIDDER has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site. BIDDER acknowledges that such reports and drawings are not Contract Documents and may not be complete for BIDDER's purposes. BIDDER acknowledges that OWNER and Professional do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Bidding Documents with respect to Underground Facilities at or contiguous to the site. BIDDER has obtained and carefully studied (or assumes responsibility for having done so) all such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise which may affect cost progress, performance or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by BIDDER and safety precautions and programs incident thereto. BIDDER does not consider that any additional examinations, investigations, explorations, tests, studies or data are necessary for the determination of this Bid for performance and furnishing of the Work in accordance with the times, price and other terms and conditions of the Contract Documents.
- e. BIDDER is aware of the general nature of Work to be performed by OWNER and others at the site that relates to Work for which the Bid is submitted as indicated in the Contract Documents.
- f. BIDDER has correlated the information known to BIDDER, information and observations obtained from visits to the site, reports and drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests, studies and data with the Contract Documents.
- g. BIDDER has given PROFESSIONAL written notice of all conflicts, errors, ambiguities or discrepancies that BIDDER has discovered in the Contract Documents and the written resolution thereof by PROFESSIONAL is acceptable to BIDDER, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work for which this Bid is submitted.
- h. This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; BIDDER has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; BIDDER has not solicited or induced any person, firm or corporation to refrain from bidding; and BIDDER has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.

This Portion intentionally left blank

4. BIDDER will complete the Work in accordance with the Contract Documents for the following price(s):

LUMP SUM BID

Item No.	Description	Unit Price	Amount
1	General Conditions, P&O	LS	\$ _____
2.	Architectural, (roofing, interior repairs, new canopies)	LS	\$ _____
Total Amount			\$ _____

Total Amount of bid: _____
Written

Voluntary Alternates May be listed on a separate sheet signed by the bidder, and attached to this bid form.

5. All specific cash allowances are included in the price(s) set forth above and have been computed in accordance with paragraph 11.8 of the General Conditions.
5. BIDDER agrees that the Work:
- a. will be substantially complete within _____ calendar days after the date when the Contract Times commence to run as provided in paragraph 2.3 of the General Conditions and completed and ready for final payment in accordance with paragraph 14.13 of the General Conditions within _____ calendar days after the date when the Contract Times commence to run.
6. In addition, BIDDER accepts:
- b. That all inspection and observation of the work deemed necessary by the PROFESSIONAL and as required by the OWNER shall be performed by a third-party testing/inspection firm(s) specializing in construction testing and inspection, and will be paid for by the BIDDER.
7. The following documents are attached to and made a condition of this Bid:
- a. A tabulation of Subcontractors, suppliers and other persons or organizations whose separate/individual work value exceeds 15% of the overall construction cost.
8. Communications concerning this Bid shall be addressed to: Angie Fox, Executive Director, Thunder Bay Transportation (989) 356-5553.
9. Terms used in this Bid which are defined in the General Conditions or Instructions will have the meanings indicated in the General Conditions or Instructions.

10. Dated and signed

this _____ day of _____ 20_____.

Name of Bidder: _____

By: _____
(Authorized Officer's Name)

Its: _____
(Officer's Title)

Business Address: _____

(Zip Code)

Telephone Number: (____) _____ Fax Number: (____)

Federal I.D. Number: _____

THIS SECTION LEFT BLANK

CONTRACT EXECUTION: The Above signed agrees to execute a contract for work covered by this proposal provided that notification of its acceptance is within sixty (60) calendar day after opening of the proposal (bid).

The Above signed hereby declares that he/she has the legal status checked below:

<input type="checkbox"/> Individual: Name:	_____
<input type="checkbox"/> Partnership: Names:	_____ _____ _____ _____
<input type="checkbox"/> Corporation: Incorporated Under the Laws of the State of:	Corporate Seal _____
<input type="checkbox"/> Joint Venture: Names:	Signatures _____ _____ _____ _____

(Each joint venturer must sign. The manner of signing for each individual, partnership and corporation that is a party to the joint venture should be in the manner indicated above).

FAMILIAL DISCLOSURE STATEMENT

AFFIDAVIT OF _____
(insert name of affiant)

STATE OF MICHIGAN)
)ss
COUNTY OF _____)

_____ makes this Affidavit under oath and states as follows:
(insert name of affiant)

1. I am a/the:

- President
- Vice-President
- Chief Executive Officer
- Member
- Partner
- Owner
- Other (please specify) _____

of [insert name of firm], a bidder for construction/contractor services for Thunder Bay Transportation Authority.

2. I have personal knowledge and/or I have personally verified that the following are all of the familial relationships existing between the owner(s) and the employee(s) of the aforementioned contractor and the school district's superintendent and/or board members:

3. I have authority to bind the aforementioned firm with the representations contained herein, and I am fully aware that the school district will rely on my representations in evaluating bids for engineering services.

4. I declare the above information to be true to the best of my knowledge, information and belief. I could completely and accurately testify regarding the information contained in this affidavit if requested to do so.

(signature of affiant)

Dated: _____

Subscribed and sworn before me in _____ County,
Michigan, on the ___ day of _____, 2022

(signature)

(printed)
Notary public, State of Michigan, County of _____
My Commission expires on _____
Acting in the County of _____

General Conditions of the Contract for Construction

for the following PROJECT:

(Name and location or address)

TBTA Roof Resdesign/Repair
3859 U.S. Highway 23 N
Alpena, MI 49707

THE OWNER:

Thunder Bay Transportation Association
3859 U.S. Highway 23 N
Alpena, MI 49707

THE ARCHITECT:

David W. Marr
Spicer Group
230 Washington Ave
Saginaw, MI 48607

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- 13 MISCELLANEOUS PROVISIONS

ADDITIONS AND DELETIONS:

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This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.



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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 BASIC DEFINITIONS

§ 1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding requirements.

§ 1.1.2 THE CONTRACT

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 THE WORK

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 THE PROJECT

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by separate contractors.

§ 1.1.5 THE DRAWINGS

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

§ 1.1.6 THE SPECIFICATIONS

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 INSTRUMENTS OF SERVICE

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 INITIAL DECISION MAKER

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2 and certify termination of the Agreement under Section 14.2.2.

§ 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 CAPITALIZATION

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 INTERPRETATION

In the interest of brevity the Contract Documents frequently omit modifying words such as “all” and “any” and articles such as “the” and “an,” but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

§ 1.5.1 The Architect and the Architect’s consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect’s or Architect’s consultants’ reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are authorized to use and reproduce the Instruments of Service provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect’s consultants.

§ 1.6 TRANSMISSION OF DATA IN DIGITAL FORM

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

ARTICLE 2 OWNER

§ 2.1 GENERAL

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner’s approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term “Owner” means the Owner or the Owner’s authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of or enforce mechanic’s lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner’s interest therein.

§ 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

§ 2.2.1 Prior to commencement of the Work, the Contractor may request in writing that the Owner provide reasonable evidence that the Owner has made financial arrangements to fulfill the Owner’s obligations under the Contract. Thereafter, the Contractor may only request such evidence if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum; or (3) the Contractor identifies in writing a reasonable concern regarding the Owner’s ability to make payment when due. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or the

portion of the Work affected by a material change. After the Owner furnishes the evidence, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.2 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.2.3 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.2.4 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.2.5 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.3 OWNER'S RIGHT TO STOP THE WORK

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

ARTICLE 3 CONTRACTOR

§ 3.1 GENERAL

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.2.3, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall make Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Architect and shall not proceed with that portion of the Work without further written instructions from the Architect. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 LABOR AND MATERIALS

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent

and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work authorized by the Architect in accordance with Sections 3.12.8 or 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 WARRANTY

The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.6 TAXES

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 PERMITS, FEES, NOTICES AND COMPLIANCE WITH LAWS

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 **Concealed or Unknown Conditions.** If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 21 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor in writing, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may proceed as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the

operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 ALLOWANCES

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- .1 Allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3 Whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 SUPERINTENDENT

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the name and qualifications of a proposed superintendent. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to the proposed superintendent or (2) that the Architect requires additional time to review. Failure of the Architect to reply within the 14 day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

§ 3.10.2 The Contractor shall prepare a submittal schedule, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Architect's approval. The Architect's approval shall not unreasonably be delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 DOCUMENTS AND SAMPLES AT THE SITE

The Contractor shall maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Architect and shall be delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. Their purpose is to demonstrate the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such written notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities

for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

§ 3.13 USE OF SITE

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 CUTTING AND PATCHING

§ 3.14.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting and patching shall be restored to the condition existing prior to the cutting, fitting and patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

§ 3.15 CLEANING UP

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 ACCESS TO WORK

The Contractor shall provide the Owner and Architect access to the Work in preparation and progress wherever located.

§ 3.17 ROYALTIES, PATENTS AND COPYRIGHTS

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Architect. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect.

§ 3.18 INDEMNIFICATION

§ 3.18.1 To the fullest extent permitted by law the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 GENERAL

§ 4.1.1 The Owner shall retain an architect lawfully licensed to practice architecture or an entity lawfully practicing architecture in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 4.1.2 Duties, responsibilities and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Contractor and Architect. Consent shall not be unreasonably withheld.

§ 4.1.3 If the employment of the Architect is terminated, the Owner shall employ a successor architect as to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 4.2 ADMINISTRATION OF THE CONTRACT

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in Section 3.3.1.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 COMMUNICATIONS FACILITATING CONTRACT ADMINISTRATION

Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Architect about matters arising out of or relating to the Contract. Communications by and with the Architect's consultants shall be

through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.5.2 and 13.5.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5 and 3.12. The Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect, of any construction means, methods, techniques, sequences or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more project representatives to assist in carrying out the Architect's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with

reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 DEFINITIONS

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term “Subcontractor” is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term “Subcontractor” does not include a separate contractor or subcontractors of a separate contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term “Sub-subcontractor” is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

§ 5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to any such proposed person or entity or (2) that the Architect requires additional time for review. Failure of the Owner or Architect to reply within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor’s Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person or entity previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 SUBCONTRACTUAL RELATIONS

By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor’s Work, which the Contractor, by these Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon such assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Article 15.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each separate contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to the construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate contractors and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces, the Owner shall be deemed to be subject to the same obligations and to have the same rights that apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6 and Articles 10, 11 and 12.

§ 6.2 MUTUAL RESPONSIBILITY

§ 6.2.1 The Contractor shall afford the Owner and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that the Owner's or separate contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a separate contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a separate contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or separate contractors as provided in Section 10.2.5.

§ 6.2.5 The Owner and each separate contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 OWNER'S RIGHT TO CLEAN UP

If a dispute arises among the Contractor, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 GENERAL

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor and Architect; a Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work.

§ 7.2 CHANGE ORDERS

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor and Architect stating their agreement upon all of the following:

- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 CONSTRUCTION CHANGE DIRECTIVES

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or

- percentage fee; or
- .4 As provided in Section 7.3.7.

§ 7.3.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 7.3.5 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.6 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.7 shall be limited to the following:

- .1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;
- .2 Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and
- .5 Additional costs of supervision and field office personnel directly attributable to the change.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 MINOR CHANGES IN THE WORK

The Architect has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes will be effected by written order signed by the Architect and shall be binding on the Owner and Contractor.

ARTICLE 8 TIME

§ 8.1 DEFINITIONS

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term “day” as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 PROGRESS AND COMPLETION

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 DELAYS AND EXTENSIONS OF TIME

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner; or by changes ordered in the Work; or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor’s control; or by delay authorized by the Owner pending mediation and arbitration; or by other causes that the Architect determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 CONTRACT SUM

The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.2 SCHEDULE OF VALUES

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit to the Architect, before the first Application for Payment, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor’s Applications for Payment.

§ 9.3 APPLICATIONS FOR PAYMENT

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. Such application shall be notarized, if required, and supported by such data substantiating the Contractor’s right to payment as the Owner or Architect may require, such as copies of

requisitions from Subcontractors and material suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or material supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

§ 9.4 CERTIFICATES FOR PAYMENT

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data comprising the Application for Payment, that, to the best of the Architect's knowledge, information and belief, the Work has progressed to the point indicated and that the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Architect. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment, or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 DECISIONS TO WITHHOLD CERTIFICATION

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a separate contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.3 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or material or equipment suppliers to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Architect will reflect such payment on the next Certificate for Payment.

§ 9.6 PROGRESS PAYMENTS

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor no later than seven days after receipt of payment from the Owner the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and material and equipment suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay or to see to the payment of money to a Subcontractor, except as may otherwise be required by law.

§ 9.6.5 Contractor payments to material and equipment suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors and suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, shall create any fiduciary liability or tort liability on the part of the Contractor for breach of trust or shall entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.7 FAILURE OF PAYMENT

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 SUBSTANTIAL COMPLETION

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 PARTIAL OCCUPANCY OR USE

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Section 11.3.1.5 and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute

acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 FINAL COMPLETION AND FINAL PAYMENT

§ 9.10.1 Upon receipt of the Contractor's written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents; or
- .3 terms of special warranties required by the Contract Documents.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 SAFETY PRECAUTIONS AND PROGRAMS

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 SAFETY OF PERSONS AND PROPERTY

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

§ 10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3, except damage or loss attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 INJURY OR DAMAGE TO PERSON OR PROPERTY

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 HAZARDOUS MATERIALS

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Architect in writing.

§ 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to

perform the task of removal or safe containment of such material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense thereby incurred.

§ 10.4 EMERGENCIES

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 CONTRACTOR'S LIABILITY INSURANCE

§ 11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- .1 Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed;
- .2 Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- .3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- .4 Claims for damages insured by usual personal injury liability coverage;
- .5 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- .6 Claims for damages because of bodily injury, death of a person or property damage arising out of

- ownership, maintenance or use of a motor vehicle;
- .7 Claims for bodily injury or property damage arising out of completed operations; and
- .8 Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

§ 11.1.2 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

§ 11.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness.

§ 11.1.4 The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Owner, the Architect and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

§ 11.2 OWNER'S LIABILITY INSURANCE

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

§ 11.3 PROPERTY INSURANCE

§ 11.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

§ 11.3.1.1 Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expenses required as a result of such insured loss.

§ 11.3.1.2 If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance that will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order the cost thereof shall be charged to the Owner. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor in writing, then the Owner shall bear all

reasonable costs properly attributable thereto.

§ 11.3.1.3 If the property insurance requires deductibles, the Owner shall pay costs not covered because of such deductibles.

§ 11.3.1.4 This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.

§ 11.3.1.5 Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

§ 11.3.2 BOILER AND MACHINERY INSURANCE

The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds.

§ 11.3.3 LOSS OF USE INSURANCE

The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards however caused.

§ 11.3.4 If the Contractor requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

§ 11.3.5 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Section 11.3.7 for damages caused by fire or other causes of loss covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

§ 11.3.6 Before an exposure to loss may occur, the Owner shall file with the Contractor a copy of each policy that includes insurance coverages required by this Section 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

§ 11.3.7 WAIVERS OF SUBROGATION

The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Section 11.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

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§ 11.3.8 A loss insured under the Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

§ 11.3.9 If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach, or as determined in accordance with the method of binding dispute resolution selected in the Agreement between the Owner and Contractor. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 7.

§ 11.3.10 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute shall be resolved in the manner selected by the Owner and Contractor as the method of binding dispute resolution in the Agreement. If the Owner and Contractor have selected arbitration as the method of binding dispute resolution, the Owner as fiduciary shall make settlement with insurers or, in the case of a dispute over distribution of insurance proceeds, in accordance with the directions of the arbitrators.

§ 11.4 PERFORMANCE BOND AND PAYMENT BOND

§ 11.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

§ 11.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 UNCOVERING OF WORK

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

§ 12.2 CORRECTION OF WORK

§ 12.2.1 BEFORE OR AFTER SUBSTANTIAL COMPLETION

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 AFTER SUBSTANTIAL COMPLETION

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established

under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.4.

§ 12.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 ACCEPTANCE OF NONCONFORMING WORK

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 GOVERNING LAW

The Contract shall be governed by the law of the place where the Project is located except that, if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 SUCCESSORS AND ASSIGNS

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to covenants, agreements and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

§ 13.3 WRITTEN NOTICE

Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity, or to an officer of the corporation for which it was intended; or if delivered at, or sent by registered or

certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

§ 13.4 RIGHTS AND REMEDIES

§ 13.4.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

§ 13.4.2 No action or failure to act by the Owner, Architect or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach there under, except as may be specifically agreed in writing.

§ 13.5 TESTS AND INSPECTIONS

§ 13.5.1 Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 13.5.2 If the Architect, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Section 13.5.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.5.3, shall be at the Owner's expense.

§ 13.5.3 If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure including those of repeated procedures and compensation for the Architect's services and expenses shall be at the Contractor's expense.

§ 13.5.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.5.5 If the Architect is to observe tests, inspections or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.5.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.6 INTEREST

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

§ 13.7 TIME LIMITS ON CLAIMS

The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all claims and causes of action not commenced in accordance with this Section 13.7.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 TERMINATION BY THE CONTRACTOR

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency that requires all Work to be stopped;
- .3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor promptly, upon the Contractor's request, reasonable evidence as required by Section 2.2.1.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, repeated suspensions, delays or interruptions of the entire Work by the Owner as described in Section 14.3 constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' written notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 TERMINATION BY THE OWNER FOR CAUSE

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the above reasons exist, the Owner, upon certification by the Initial Decision Maker that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay or interruption as described in Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

- .1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 CLAIMS

§ 15.1.1 DEFINITION

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim.

§ 15.1.2 NOTICE OF CLAIMS

Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3 CONTINUING CONTRACT PERFORMANCE

Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. The Architect will prepare Change Orders and issue

Certificates for Payment in accordance with the decisions of the Initial Decision Maker.

§ 15.1.4 CLAIMS FOR ADDITIONAL COST

If the Contractor wishes to make a Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.5 CLAIMS FOR ADDITIONAL TIME

§ 15.1.5.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.5.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

§ 15.1.6 CLAIMS FOR CONSEQUENTIAL DAMAGES

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.6 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 INITIAL DECISION

§ 15.2.1 Claims, excluding those arising under Sections 10.3, 10.4, 11.3.9, and 11.3.10, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Initial Decision Maker with no decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of such request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of

the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of an initial decision, demand in writing that the other party file for mediation within 60 days of the initial decision. If such a demand is made and the party receiving the demand fails to file for mediation within the time required, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 MEDIATION

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.6 shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 ARBITRATION

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a

written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

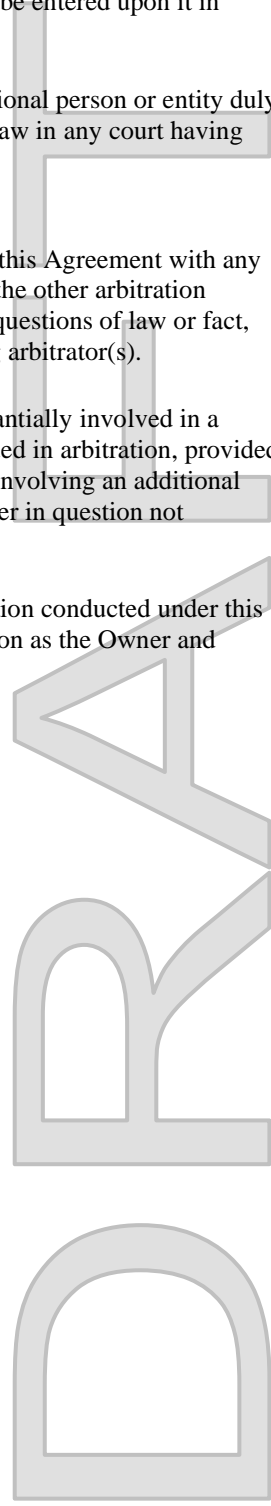
§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 CONSOLIDATION OR JOINDER

§ 15.4.4.1 Either party, at its sole discretion, may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Either party, at its sole discretion, may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as the Owner and Contractor under this Agreement.



AIA[®] Document A101[®] – 2017 Exhibit A

Insurance and Bonds

This Insurance and Bonds Exhibit is part of the Agreement, between the Owner and the Contractor, dated the Twentieth day of June in the year Two Thousand Twenty-Four (In words, indicate day, month and year.)

for the following PROJECT:
(Name and location or address)

TBTA Roof Resdesign/Repair
3859 U.S. Highway 23 N
Alpena, MI 49707

THE OWNER:
(Name, legal status and address)

Thunder Bay Transportation Authority
3859 U.S. Highway 23 N
Alpena, MI 49707

THE CONTRACTOR:
(Name, legal status and address)

TABLE OF ARTICLES

- A.1 GENERAL
- A.2 OWNER'S INSURANCE
- A.3 CONTRACTOR'S INSURANCE AND BONDS
- A.4 SPECIAL TERMS AND CONDITIONS

ARTICLE A.1 GENERAL

The Owner and Contractor shall purchase and maintain insurance, and provide bonds, as set forth in this Exhibit. As used in this Exhibit, the term General Conditions refers to AIA Document A201TM-2017, General Conditions of the Contract for Construction.

ARTICLE A.2 OWNER'S INSURANCE

§ A.2.1 General

Prior to commencement of the Work, the Owner shall secure the insurance, and provide evidence of the coverage, required under this Article A.2 and, upon the Contractor's request, provide a copy of the property insurance policy or policies required by Section A.2.3. The copy of the policy or policies provided shall contain all applicable conditions, definitions, exclusions, and endorsements.

§ A.2.2 Liability Insurance

The Owner shall be responsible for purchasing and maintaining the Owner's usual general liability insurance.

ADDITIONS AND DELETIONS:
The author of this document may have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Document A201©-2017, General Conditions of the Contract for Construction. Article 11 of A201©-2017 contains additional insurance provisions.

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§ A.2.3 Required Property Insurance

§ A.2.3.1 Unless this obligation is placed on the Contractor pursuant to Section A.3.3.2.1, the Owner shall purchase and maintain, from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located, property insurance written on a builder's risk "all-risks" completed value or equivalent policy form and sufficient to cover the total value of the entire Project on a replacement cost basis. The Owner's property insurance coverage shall be no less than the amount of the initial Contract Sum, plus the value of subsequent Modifications and labor performed and materials or equipment supplied by others. The property insurance shall be maintained until Substantial Completion and thereafter as provided in Section A.2.3.1.3, unless otherwise provided in the Contract Documents or otherwise agreed in writing by the parties to this Agreement. This insurance shall include the interests of the Owner, Contractor, Subcontractors, and Sub-subcontractors in the Project as insureds. This insurance shall include the interests of mortgagees as loss payees.

§ A.2.3.1.1 Causes of Loss. The insurance required by this Section A.2.3.1 shall provide coverage for direct physical loss or damage, and shall not exclude the risks of fire, explosion, theft, vandalism, malicious mischief, collapse, earthquake, flood, or windstorm. The insurance shall also provide coverage for ensuing loss or resulting damage from error, omission, or deficiency in construction methods, design, specifications, workmanship, or materials. Sub-limits, if any, are as follows:

(Indicate below the cause of loss and any applicable sub-limit.)

Causes of Loss	Sub-Limit
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§ A.2.3.1.2 Specific Required Coverages. The insurance required by this Section A.2.3.1 shall provide coverage for loss or damage to falsework and other temporary structures, and to building systems from testing and startup. The insurance shall also cover debris removal, including demolition occasioned by enforcement of any applicable legal requirements, and reasonable compensation for the Architect's and Contractor's services and expenses required as a result of such insured loss, including claim preparation expenses. Sub-limits, if any, are as follows:

(Indicate below type of coverage and any applicable sub-limit for specific required coverages.)

Coverage	Sub-Limit
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§ A.2.3.1.3 Unless the parties agree otherwise, upon Substantial Completion, the Owner shall continue the insurance required by Section A.2.3.1 or, if necessary, replace the insurance policy required under Section A.2.3.1 with property insurance written for the total value of the Project that shall remain in effect until expiration of the period for correction of the Work set forth in Section 12.2.2 of the General Conditions.

§ A.2.3.1.4 Deductibles and Self-Insured Retentions. If the insurance required by this Section A.2.3 is subject to deductibles or self-insured retentions, the Owner shall be responsible for all loss not covered because of such deductibles or retentions.

§ A.2.3.2 Occupancy or Use Prior to Substantial Completion. The Owner's occupancy or use of any completed or partially completed portion of the Work prior to Substantial Completion shall not commence until the insurance company or companies providing the insurance under Section A.2.3.1 have consented in writing to the continuance of coverage. The Owner and the Contractor shall take no action with respect to partial occupancy or use that would cause cancellation, lapse, or reduction of insurance, unless they agree otherwise in writing.

§ A.2.3.3 Insurance for Existing Structures

If the Work involves remodeling an existing structure or constructing an addition to an existing structure, the Owner shall purchase and maintain, until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, "all-risks" property insurance, on a replacement cost basis, protecting the existing structure against direct physical loss or damage from the causes of loss identified in Section A.2.3.1, notwithstanding the undertaking of the Work. The Owner shall be responsible for all co-insurance penalties.

§ A.2.4 Optional Extended Property Insurance.

The Owner shall purchase and maintain the insurance selected and described below.

(Select the types of insurance the Owner is required to purchase and maintain by placing an X in the box(es) next to the

description(s) of selected insurance. For each type of insurance selected, indicate applicable limits of coverage or other conditions in the fill point below the selected item.)

- § A.2.4.1 Loss of Use, Business Interruption, and Delay in Completion Insurance, to reimburse the Owner for loss of use of the Owner’s property, or the inability to conduct normal operations due to a covered cause of loss.
- § A.2.4.2 Ordinance or Law Insurance, for the reasonable and necessary costs to satisfy the minimum requirements of the enforcement of any law or ordinance regulating the demolition, construction, repair, replacement or use of the Project.
- § A.2.4.3 Expediting Cost Insurance, for the reasonable and necessary costs for the temporary repair of damage to insured property, and to expedite the permanent repair or replacement of the damaged property.
- § A.2.4.4 Extra Expense Insurance, to provide reimbursement of the reasonable and necessary excess costs incurred during the period of restoration or repair of the damaged property that are over and above the total costs that would normally have been incurred during the same period of time had no loss or damage occurred.
- § A.2.4.5 Civil Authority Insurance, for losses or costs arising from an order of a civil authority prohibiting access to the Project, provided such order is the direct result of physical damage covered under the required property insurance.
- § A.2.4.6 Ingress/Egress Insurance, for loss due to the necessary interruption of the insured’s business due to physical prevention of ingress to, or egress from, the Project as a direct result of physical damage.
- § A.2.4.7 Soft Costs Insurance, to reimburse the Owner for costs due to the delay of completion of the Work, arising out of physical loss or damage covered by the required property insurance: including construction loan fees; leasing and marketing expenses; additional fees, including those of architects, engineers, consultants, attorneys and accountants, needed for the completion of the construction, repairs, or reconstruction; and carrying costs such as property taxes, building permits, additional interest on loans, realty taxes, and insurance premiums over and above normal expenses.

§ A.2.5 Other Optional Insurance.

The Owner shall purchase and maintain the insurance selected below.

(Select the types of insurance the Owner is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance.)

- § A.2.5.1 Cyber Security Insurance for loss to the Owner due to data security and privacy breach, including costs of investigating a potential or actual breach of confidential or private information.
(Indicate applicable limits of coverage or other conditions in the fill point below.)

[] § A.2.5.2 Other Insurance
(List below any other insurance coverage to be provided by the Owner and any applicable limits.)

Coverage	Limits
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ARTICLE A.3 CONTRACTOR'S INSURANCE AND BONDS

§ A.3.1 General

§ A.3.1.1 Certificates of Insurance. The Contractor shall provide certificates of insurance acceptable to the Owner evidencing compliance with the requirements in this Article A.3 at the following times: (1) prior to commencement of the Work; (2) upon renewal or replacement of each required policy of insurance; and (3) upon the Owner's written request. An additional certificate evidencing continuation of commercial liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment and thereafter upon renewal or replacement of such coverage until the expiration of the periods required by Section A.3.2.1 and Section A.3.3.1. The certificates will show the Owner as an additional insured on the Contractor's Commercial General Liability and excess or umbrella liability policy or policies.

§ A.3.1.2 Deductibles and Self-Insured Retentions. The Contractor shall disclose to the Owner any deductible or self-insured retentions applicable to any insurance required to be provided by the Contractor.

§ A.3.1.3 Additional Insured Obligations. To the fullest extent permitted by law, the Contractor shall cause the commercial general liability coverage to include (1) the Owner, the Architect, and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions for which loss occurs during completed operations. The additional insured coverage shall be primary and non-contributory to any of the Owner's general liability insurance policies and shall apply to both ongoing and completed operations. To the extent commercially available, the additional insured coverage shall be no less than that provided by Insurance Services Office, Inc. (ISO) forms CG 20 10 07 04, CG 20 37 07 04, and, with respect to the Architect and the Architect's consultants, CG 20 32 07 04.

§ A.3.2 Contractor's Required Insurance Coverage

§ A.3.2.1 The Contractor shall purchase and maintain the following types and limits of insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:
(If the Contractor is required to maintain insurance for a duration other than the expiration of the period for correction of Work, state the duration.)

§ A.3.2.2 Commercial General Liability

§ A.3.2.2.1 Commercial General Liability insurance for the Project written on an occurrence form with policy limits of not less than [] (\$ []) each occurrence, [] (\$ []) general aggregate, and [] (\$ []) aggregate for products-completed operations hazard, providing coverage for claims including

- .1 damages because of bodily injury, sickness or disease, including occupational sickness or disease, and death of any person;
- .2 personal injury and advertising injury;
- .3 damages because of physical damage to or destruction of tangible property, including the loss of use of such property;
- .4 bodily injury or property damage arising out of completed operations; and
- .5 the Contractor's indemnity obligations under Section 3.18 of the General Conditions.

§ A.3.2.2.2 The Contractor's Commercial General Liability policy under this Section A.3.2.2 shall not contain an exclusion or restriction of coverage for the following:

- .1 Claims by one insured against another insured, if the exclusion or restriction is based solely on the fact

- that the claimant is an insured, and there would otherwise be coverage for the claim.
- .2 Claims for property damage to the Contractor's Work arising out of the products-completed operations hazard where the damaged Work or the Work out of which the damage arises was performed by a Subcontractor.
 - .3 Claims for bodily injury other than to employees of the insured.
 - .4 Claims for indemnity under Section 3.18 of the General Conditions arising out of injury to employees of the insured.
 - .5 Claims or loss excluded under a prior work endorsement or other similar exclusionary language.
 - .6 Claims or loss due to physical damage under a prior injury endorsement or similar exclusionary language.
 - .7 Claims related to residential, multi-family, or other habitational projects, if the Work is to be performed on such a project.
 - .8 Claims related to roofing, if the Work involves roofing.
 - .9 Claims related to exterior insulation finish systems (EIFS), synthetic stucco or similar exterior coatings or surfaces, if the Work involves such coatings or surfaces.
 - .10 Claims related to earth subsidence or movement, where the Work involves such hazards.
 - .11 Claims related to explosion, collapse and underground hazards, where the Work involves such hazards.

§ A.3.2.3 Automobile Liability covering vehicles owned, and non-owned vehicles used, by the Contractor, with policy limits of not less than [REDACTED] (\$ [REDACTED]) per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance and use of those motor vehicles along with any other statutorily required automobile coverage.

§ A.3.2.4 The Contractor may achieve the required limits and coverage for Commercial General Liability and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided such primary and excess or umbrella insurance policies result in the same or greater coverage as the coverages required under Section A.3.2.2 and A.3.2.3, and in no event shall any excess or umbrella liability insurance provide narrower coverage than the primary policy. The excess policy shall not require the exhaustion of the underlying limits only through the actual payment by the underlying insurers.

§ A.3.2.5 Workers' Compensation at statutory limits.

§ A.3.2.6 Employers' Liability with policy limits not less than [REDACTED] (\$ [REDACTED]) each accident, [REDACTED] (\$ [REDACTED]) each employee, and [REDACTED] (\$ [REDACTED]) policy limit.

§ A.3.2.7 Jones Act, and the Longshore & Harbor Workers' Compensation Act, as required, if the Work involves hazards arising from work on or near navigable waterways, including vessels and docks

§ A.3.2.8 If the Contractor is required to furnish professional services as part of the Work, the Contractor shall procure Professional Liability insurance covering performance of the professional services, with policy limits of not less than [REDACTED] (\$ [REDACTED]) per claim and [REDACTED] (\$ [REDACTED]) in the aggregate.

§ A.3.2.9 If the Work involves the transport, dissemination, use, or release of pollutants, the Contractor shall procure Pollution Liability insurance, with policy limits of not less than [REDACTED] (\$ [REDACTED]) per claim and [REDACTED] (\$ [REDACTED]) in the aggregate.

§ A.3.2.10 Coverage under Sections A.3.2.8 and A.3.2.9 may be procured through a Combined Professional Liability and Pollution Liability insurance policy, with combined policy limits of not less than [REDACTED] (\$ [REDACTED]) per claim and [REDACTED] (\$ [REDACTED]) in the aggregate.

§ A.3.2.11 Insurance for maritime liability risks associated with the operation of a vessel, if the Work requires such activities, with policy limits of not less than [REDACTED] (\$ [REDACTED]) per claim and [REDACTED] (\$ [REDACTED]) in the aggregate.

§ A.3.2.12 Insurance for the use or operation of manned or unmanned aircraft, if the Work requires such activities, with policy limits of not less than [REDACTED] (\$ [REDACTED]) per claim and [REDACTED] (\$ [REDACTED]) in the aggregate.

§ A.3.3 Contractor's Other Insurance Coverage

§ A.3.3.1 Insurance selected and described in this Section A.3.3 shall be purchased from an insurance company or

insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:

(If the Contractor is required to maintain any of the types of insurance selected below for a duration other than the expiration of the period for correction of Work, state the duration.)

§ A.3.3.2 The Contractor shall purchase and maintain the following types and limits of insurance in accordance with Section A.3.3.1.

(Select the types of insurance the Contractor is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. Where policy limits are provided, include the policy limit in the appropriate fill point.)

- § A.3.3.2.1 Property insurance of the same type and scope satisfying the requirements identified in Section A.2.3, which, if selected in this section A.3.3.2.1, relieves the Owner of the responsibility to purchase and maintain such insurance except insurance required by Section A.2.3.1.3 and Section A.2.3.3. The Contractor shall comply with all obligations of the Owner under Section A.2.3 except to the extent provided below. The Contractor shall disclose to the Owner the amount of any deductible, and the Owner shall be responsible for losses within the deductible. Upon request, the Contractor shall provide the Owner with a copy of the property insurance policy or policies required. The Owner shall adjust and settle the loss with the insurer and be the trustee of the proceeds of the property insurance in accordance with Article 11 of the General Conditions unless otherwise set forth below:
(Where the Contractor’s obligation to provide property insurance differs from the Owner’s obligations as described under Section A.2.3, indicate such differences in the space below. Additionally, if a party other than the Owner will be responsible for adjusting and settling a loss with the insurer and acting as the trustee of the proceeds of property insurance in accordance with Article 11 of the General Conditions, indicate the responsible party below.)

- § A.3.3.2.2 Railroad Protective Liability Insurance, with policy limits of not less than [] (\$ []) per claim and [] (\$ []) in the aggregate, for Work within fifty (50) feet of railroad property.

- § A.3.3.2.3 Asbestos Abatement Liability Insurance, with policy limits of not less than [] (\$ []) per claim and [] (\$ []) in the aggregate, for liability arising from the encapsulation, removal, handling, storage, transportation, and disposal of asbestos-containing materials.

- § A.3.3.2.4 Insurance for physical damage to property while it is in storage and in transit to the construction site on an “all-risks” completed value form.

- § A.3.3.2.5 Property insurance on an “all-risks” completed value form, covering property owned by the Contractor and used on the Project, including scaffolding and other equipment.

- § A.3.3.2.6 Other Insurance
(List below any other insurance coverage to be provided by the Contractor and any applicable limits.)

Coverage	Limits
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§ A.3.4 Performance Bond and Payment Bond

The Contractor shall provide surety bonds, from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located, as follows:

(Specify type and penal sum of bonds.)

Type	Penal Sum (\$0.00)
Payment Bond	

Performance Bond

Payment and Performance Bonds shall be AIA Document A312™, Payment Bond and Performance Bond, or contain provisions identical to AIA Document A312™, current as of the date of this Agreement.

ARTICLE A.4 SPECIAL TERMS AND CONDITIONS

Special terms and conditions that modify this Insurance and Bonds Exhibit, if any, are as follows:



NOTICE TO PROCEED

Dated: _____, 20____

TO: _____
(CONTRACTOR)

ADDRESS: _____

PROJECT: _____

OWNER's CONTRACT No.: _____

CONTRACT FOR: _____

(Insert name of contract as it appears in the bidding documents)

You are notified that the contract Times under the above contract will commence to run on _____, 20____.
By the date, you are to start performing your obligations under the contract Documents. In accordance with Article 3 of the Agreement the dates of Substantial completion and completion and readiness for final payment are _____, 20__ and _____ 20____.

Before you may start any Work at the site, the General conditions provides that you and Owner must each deliver to the other (with copies to PROFESSIONAL and other identified additional insureds) certificates of insurance which each is required to purchase and maintain in accordance with the contract Documents.

Also before you may start any Work at the site, you must:

(add other requirements)

Thunder Bay Transportation Authority
(OWNER)

By:
(AUTHORIZED SIGNATURE)

(TITLE)

ACCEPTANCE OF AWARD

By:
(CONTRACTOR)

(AUTHORIZED SIGNATURE)

(TITLE)

(DATE)

NOTICE OF AWARD

TO:

ADDRESS:

PROJECT: Thunder Bay Transportation Authority

CONTRACT FOR: Central restrooms and concessions building and all related trades including site, Add Alternate #1, North toilet room addition, and Add Alternate #2 Graphic printing on screens.

You are notified that your Bid dated _____ for the above Contract has been considered. You are the apparent Successful Bidder and have been awarded a contract for: General Construction as indicated on Plans, Specifications, and addenda contained in bid on _____.

The Contract Price of your contract is _____

3 sets of the proposed Contract Documents (except Drawings) will follow within 3 days of this Notice of Award.

You must comply with the following conditions precedent within **ten** days of the date of this Notice of Award, that is by:

1. You must deliver to Spicer Group, Inc. 3 fully executed counterparts of the Agreement including the Construction Payment Bond, and the Certificates of Insurance.
2. You must deliver with the executed Agreement the Contract Security (Bonds) as specified in the Instructions to Bidders and General Conditions.

Failure to comply with these conditions within the time specified will entitle OWNER to consider your bid in default, to annul this Notice of Award and to declare your Bid Security forfeited.

Within ten days after you comply with the above conditions, OWNER will return to you one fully signed counterpart of the Agreement with the Contract Documents attached.

SPICER GROUP, INC. on behalf of

Thunder Bay Transportation Authority
(OWNER)

By: _____
(Project Manager. - SGI)

(TITLE)

ACCEPTANCE OF AWARD

By: _____
(CONTRACTOR)

(TITLE)

(DATE)

SECTION 01 10 00

SUMMARY

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Contract description.
 - 2. Contractor's use of Site
 - 3. Work sequence.
 - 4. Owner occupancy.
 - 5. Permits.
 - 6. Specification conventions.

1.2 CONTRACT DESCRIPTION

- A. The Contractor shall furnish all the labor, material and construction equipment and perform all the work for this project as shown on the Drawings and described in the specifications prepared by Spicer Group, Inc. Contractor shall be responsible for the entire work until completed and accepted by the Owner.

1.3 CONTRACTOR'S USE OF SITE

- A. Limit use of Site to allow:
 - 1. Owner occupancy.
 - 2. Use of site by Public.

1.4 WORK SEQUENCE

- A. Construct Work in a positive direction during the construction period, coordinate construction schedule and operations with Engineer.

1.5 OWNER OCCUPANCY

- A. Schedule and substantially complete designated portions of the Work for occupancy before Substantial Completion of the entire Work.
- B. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.

1.6 PERMITS

- A. Furnish necessary permits for construction of Work.

1.7 SPECIFICATION CONVENTIONS

- A. These Specifications are written in imperative mood and streamlined form. This imperative language is directed to Contractor unless specifically noted otherwise. The words "shall be" are included by inference where a colon (:) is used within sentences or phrases. END OF SECTION

SECTION 01 20 00

PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Cash allowances.
- B. Application for Payment.
- C. Change procedures.
- D. Defect assessment.
- E. Unit prices.

1.2 ALLOWANCES

- A. Costs Included in Cash Allowances: Cost of product to Contractor or Subcontractor, less applicable trade discounts; delivery to Site and applicable taxes unless stated otherwise in Allowance Schedule.
- B. Costs Not Included in Cash Allowances but Included in Contract Sum/Price: Product handling at Site including unloading, uncrating, and storage; protection of products from elements and from damage; and labor for installation and finishing unless stated otherwise in Allowance Schedule.
- C. Engineer Responsibilities:
 - 1. Consult with Contractor for consideration and selection of products suppliers and installers.
 - 2. Select products in consultation with Owner and transmit decision to Contractor.
 - 3. Prepare Change Order.
- D. Contractor Responsibilities:
 - 1. Assist Engineer in selection of products, suppliers.
 - 2. Obtain proposals from suppliers and installers and offer recommendations.
 - 3. Upon notification of selection by Engineer and Owner execute purchase agreement with designated supplier.
 - 4. Arrange for and process Shop Drawings, Product Data, and Samples. Arrange for delivery.
 - 5. Promptly inspect products upon delivery for completeness, damage, and defects. Submit claims for transportation damage.
- E. Differences in costs will be adjusted by Change Order.

1.3 APPLICATION FOR PAYMENT

- A. Contractor will prepare progress payments in accordance with the Payment Schedule shown in the Agreement. Progress payments shall be submitted in AIA Document G702 and G703.
- B. Format will follow the itemized bid in the Proposal.

- C. Contractor shall submit waivers for each progress payment in accordance with the General Conditions.
- D. Payment will be subject to retainage as set forth in Public Act No. 524.

1.4 CHANGE PROCEDURES

- A. Submittals: Submit name of individual who is authorized to receive change documents and is responsible for informing others in Contractor's employ or Subcontractors of changes to the Work.
- B. Carefully study and compare Contract Documents before proceeding with fabrication and installation of Work. Promptly advise Engineer of any error, inconsistency, omission, or apparent discrepancy.
- C. Requests for Interpretation (RFI) and Clarifications: Allot time in construction scheduling for liaison with Engineer; establish procedures for handling queries and clarifications.
- D. Engineer will advise of minor changes in the Work not involving adjustment to Contract Sum/Price or Contract Time by issuing a field order.
- E. Engineer may issue a Bulletin or Notice of Change including a detailed description of proposed change with supplementary or revised Drawings and Specifications. Contractor will prepare and submit estimate within (2) two days.
- F. Contractor may propose changes by submitting a request for change to Engineer, describing proposed change and its full effect on the Work. Include a statement describing reason for the change and the effect on Contract Sum/Price and Contract Time with full documentation and a statement describing effect on the Work.
- G. Stipulated Sum/Price Change Order: Based on Bulletin or Notice of Change and Contractor's price quotation and Contractor's request for Change Order as approved by Engineer.
- H. Unit Price Change Order: For Contract unit prices and quantities, the Change Order will be executed on a fixed unit price basis. For unit costs or quantities of units of that which are not predetermined, execute Work under Work Directive Change. Changes in Contract Sum/Price or Contract Time will be computed as specified for Time and Material Change Order.
- I. Work Directive Change: Engineer may issue directive, signed by Owner, instructing Contractor to proceed with change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work and designate method of determining any change in Contract Sum/Price or Contract Time. Promptly execute change.
- J. Time and Material Change Order: Submit itemized account and supporting data after completion of change, within time limits indicated in Conditions of the Contract. Engineer will determine change allowable in Contract Sum/Price and Contract Time as provided in Contract Documents.
- K. Maintain detailed records of Work done on time and material basis. Provide full information required for evaluation of proposed changes and to substantiate costs for changes in the Work.

- L. Document each quotation for change in Project Cost or Time with sufficient data to allow evaluation of quotation.
- M. Change Order Forms: Architects/Engineer's Form.
- N. Execution of Change Orders: Engineer will issue Change Orders for signatures of parties as provided in Conditions of the Contract.

1.5 DEFECT ASSESSMENT

- A. Replace the Work, or portions of the Work, not conforming to specified requirements.
- B. If, in the opinion of Engineer, it is not practical to remove and replace the Work, Engineer will direct appropriate remedy or adjust payment.
- C. Authority of Engineer and Owner to assess defects and identify payment adjustments is final.
- D. Nonpayment for Rejected Products: Payment will not be made for rejected products.

1.6 UNIT PRICES

- A. Authority: Measurement methods are delineated in individual Specification Sections.
- B. Measurement methods delineated in individual Specification Sections complement criteria of this Section. In event of conflict, requirements of individual Specification Section govern.
- C. Engineer will take measurements and compute quantities accordingly. Provide assistance in taking of measurements.
- D. Unit Quantities: Quantities and measurements indicated on Bid Form are for Contract purposes only. Actual quantities provided shall determine payment.
- E. Payment Includes: Full compensation for required labor, products, tools, equipment, plant and facilities, transportation, services and incidentals; erection, application, or installation of item of the Work; overhead and profit.
- F. Final payment for Work governed by unit prices will be made on basis of actual measurements and quantities accepted by Engineer multiplied by unit sum/price for Work incorporated in or made necessary by the Work.
- G. Measurement of Quantities:
 - 1. Weigh Scales: Inspected, tested, and certified by applicable State weights and measures department within past year.
 - 2. Platform Scales: Of sufficient size and capacity to accommodate conveying vehicle.
 - 3. Measurement by Weight: Concrete reinforcing steel, rolled or formed steel, or other metal shapes will be measured by handbook weights. Welded assemblies will be measured by handbook or scale weight.
 - 4. Measurement by Volume: Measured by cubic dimension using mean length, width, and height or thickness.
 - 5. Measurement by Area: Measured by square dimension using mean length and width or radius.

6. Linear Measurement: Measured by linear dimension, at item centerline or mean chord.
7. Stipulated Sum/Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as completed item or unit of the Work.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01 25 00

SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Quality assurance.
- B. Product options.
- C. Product substitution procedures.

1.2 QUALITY ASSURANCE

- A. Contract is based on products and standards established in Contract Documents without consideration of proposed substitutions.
- B. Products specified define standard of quality, type, function, dimension, appearance, and performance required.
- C. Substitution Proposals: Permitted for specified products except where specified otherwise. Do not substitute products unless substitution has been accepted and approved in writing by Owner.

1.3 PRODUCT OPTIONS

- A. See Section 01 60 00 - Product Requirements.

1.4 PRODUCT SUBSTITUTION PROCEDURES

- A. Engineer will consider requests for substitutions only within **15** days after date of Owner-Contractor Agreement.
- B. Substitutions may be considered when a product becomes unavailable through no fault of Contractor.
- C. Document each request with complete data, substantiating compliance of proposed substitution with Contract Documents, including:
 - 1. Manufacturer's name and address, product, trade name, model, or catalog number, performance and test data, and reference standards.
 - 2. Itemized point-by-point comparison of proposed substitution with specified product, listing variations in quality, performance, and other pertinent characteristics.
 - 3. Reference to Article and Paragraph numbers in Specification Section.
 - 4. Cost data comparing proposed substitution with specified product and amount of net change to Contract Sum.
 - 5. Changes required in other Work.
 - 6. Availability of maintenance service and source of replacement parts as applicable.
 - 7. Certified test data to show compliance with performance characteristics specified.
 - 8. Samples when applicable or requested.
 - 9. Other information as necessary to assist Engineer's evaluation.

- D. A request constitutes a representation that Contractor:
1. Has investigated proposed product and determined that it meets or exceeds quality level of specified product.
 2. Will provide same warranty for substitution as for specified product.
 3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
 4. Waives claims for additional costs or time extension that may subsequently become apparent.
 5. Will coordinate installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.
 6. Will reimburse Owner for review or redesign services associated with reapproval by authorities having jurisdiction.
- E. Substitutions will not be considered when they are indicated or implied on Shop Drawing or Product Data submittals without separate written request or when acceptance will require revision to Contract Documents.
- F. Substitution Submittal Procedure:
1. Submit requests for substitutions.
 2. Submit three copies of Request for Substitution for consideration. Limit each request to one proposed substitution.
 3. Submit Shop Drawings, Product Data, and certified test results attesting to proposed product equivalence. Burden of proof is on proposer.
 4. Engineer will notify Contractor in writing of decision to accept or reject request.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01 30 00

ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Coordination and Project conditions.
- B. Field Engineering
- C. Cutting and Patching
- D. Preconstruction meeting.
- E. Site mobilization meeting.
- F. Progress meetings.
- G. Preinstallation meetings.
- H. Closeout meeting.
- I. Alteration procedures.

1.2 COORDINATION AND PROJECT CONDITIONS

- A. Coordinate scheduling, submittals, and Work of various Sections of Owner Contract Agreement to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Verify that utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate Work of various Sections having interdependent responsibilities for installing, connecting to, and placing operating equipment in service.
- C. Coordination Meetings: In addition to other meetings specified in this Section, hold coordination meetings with personnel and Subcontractors to ensure coordination of Work.
- D. Coordinate completion and clean-up of Work of separate Sections in preparation for Substantial Completion and for portions of Work designated for Owner's partial occupancy.
- E. After Owner's occupancy of premises, coordinate access to Site for correction of defective Work and Work not complying with Contract Documents, to minimize disruption of Owner's activities.

1.3 ALLOWANCES

- A. Control datum for survey is that established by Owner provided survey shown on Drawings.
- B. Engineer will provide construction staking. Call the Engineer to request staking at least 3 working days in advance of the time needed for the work.

- C. Construction stakes removed or damaged by Contractor shall be replaced at Contractor's expense.
- D. When finished surfaces are cut so that a smoother transition and new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Engineer.
- E. Where a change of plane of 1/4 inch or more occurs, submit recommendation for providing a smooth transition for Engineer review and request instructions from Engineer.
- F. Patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.
- G. Finish surfaces as specified in individual product sections.
- H. Where there are changes in open drain cross sections, excavate a 20-foot smooth transition between sections.

1.4 CUTTING AND PATCHING

- A. Coordinate with Engineer 48 hours prior to cutting and patching.
- B. Employ skilled and experienced installer to perform cutting and patching.
- C. Submit written request in advance of cutting or altering elements which affects:
 - 1. Structural integrity of element.
 - 2. Integrity of weather-exposed or moisture-resistant elements.
 - 3. Efficiency, maintenance, or safety of element.
 - 4. Visual quantities of sight-exposed elements.
 - 5. Work of Owner or separate contractor.
- D. Execute cutting, fitting, and patching including excavation and fill, to complete Work, and to:
 - 1. Fit the several parts together, to integrate with other Work.
 - 2. Uncover Work to install or correct ill-timed Work.
 - 3. Remove and replace defective and non-conforming Work.
 - 4. Remove samples of installed Work for testing.
- E. Execute work by methods which will avoid damage to other Work, and provide proper surfaces to receive patching and finishing.
- F. Cut rigid materials using masonry saw or core drill.
- G. Restore Work with new products in accordance with requirements of Contract Documents.
- H. Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- I. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.
- J. Identify any hazardous substance or condition exposed during the Work to the Engineer for decision or remedy.

1.5 PRECONSTRUCTION MEETING

- A. Engineer will schedule and preside over meeting after Notice of Award.
- B. Attendance Required: Engineer, Owner, appropriate governmental agency representatives, applicable public and private utility companies and Contractor, subcontractors to be utilized on the project.

1.6 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the Work, if required.
- B. Engineer will make arrangements for meetings, prepare agenda with copies for participants, and preside over meetings.
- C. Attendance Required: Job superintendent, major Subcontractors, Contractors and suppliers, and Engineer, Owner, as appropriate to agenda topics for each meeting.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.1 ALTERATION PROCEDURES

- A. Entire facility will be occupied for normal operations during progress of construction. Cooperate with Owner in scheduling operations to minimize conflict and to permit continuous usage.
 - 1. Perform Work not to interfere with operations of occupied areas.
 - 2. Keep utility and service outages to a minimum and perform only after written approval of Owner.
 - 3. Clean Owner-occupied areas daily. Clean spillage, overspray, and heavy collection of dust in Owner-occupied areas immediately.
- B. Materials: As specified in product Sections.
- C. Employ skilled and experienced installer to perform alteration and renovation Work.
- D. Cut, move, or remove items as necessary for access to alterations and renovation Work. Replace and restore at completion. Comply with Section 01 70 00 - Execution and Closeout Requirements
- E. Remove unsuitable material not marked for salvage, including rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work.
- F. Remove debris and abandoned items from area and from concealed spaces.
- G. Prepare surface and remove surface finishes to permit installation of new Work and finishes.
- H. Close openings in exterior surfaces to protect existing Work from weather and extremes of temperature and humidity.

- I. Remove, cut, and patch Work to minimize damage and to permit restoring products and finishes to original or specified condition.
- J. Refinish existing visible surfaces to remain in renovated rooms and spaces, to specified or new condition for each material, with neat transition to adjacent finishes.
- K. Where new Work abuts or aligns with existing Work, provide smooth and even transition. Patch Work to match existing adjacent Work in texture and appearance.
- L. When finished surfaces are cut so that smooth transition with new Work is not possible, terminate existing surface along straight line at natural line of division and submit recommendation to Engineer for review.
- M. Where change of plane of 1/4 inch or more occurs, submit recommendation for providing smooth transition to Engineer for review.
- N. Patch or replace portions of existing surfaces that are damaged, lifted, discolored, or showing other imperfections.
- O. Finish surfaces as specified in individual product Sections.

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Definitions.
- B. Submittal procedures.
- C. Construction progress schedules.
- D. Proposed product list.
- E. Product data.
- F. Shop Drawings.
- G. Samples.
- H. Other submittals.
- I. Test reports.
- J. Certificates.
- K. Manufacturer's instructions.
- L. Manufacturer's field reports.
- M. Erection Drawings.
- N. Contractor review.
- O. Engineer review.

1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Engineer's responsive action.
- B. Informational Submittals: Written and graphic information and physical Samples that do not require Engineer's responsive action. Submittals may be rejected for not complying with requirements.

1.3 SUBMITTAL PROCEDURES

- A. Transmit each submittal with Engineer-accepted form.

- B. Sequentially number transmittal forms. Mark revised submittals with original number and sequential alphabetic suffix.
- C. Identify: Project, Contractor, Subcontractor and supplier, pertinent Drawing and detail number, and Specification Section number appropriate to submittal.
- D. Apply Contractor's stamp, signed or initialed, certifying that review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of information is according to requirements of the Work and Contract Documents.
- E. Schedule submittals to expedite Project, and deliver to Engineer. Coordinate submission of related items.
- F. For each submittal for review, allow 15 days excluding delivery time to and from Contractor.
- G. Revise and resubmit submittals as required, identify all changes made since previous submittal.
- H. Identify variations in Contract Documents and product or system limitations that may be detrimental to successful performance of completed Work.
- I. Allow space on submittals for Contractor and Engineer review stamps.
- J. When revised for resubmission, identify changes made since previous submission.
- K. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report inability to comply with requirements.

1.4 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit initial progress schedule in duplicate within 15 days after date established in Notice to Proceed for Engineer and Owner review.
- B. Revise and resubmit as required.
- C. Submit revised schedules with each Application for Payment, identifying changes since previous version.
- D. Submit horizontal bar chart with separate line for each major section of Work or operation, identifying first workday of each week.
- E. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration.
- F. Indicate estimated percentage of completion for each item of Work at each submission.
- G. Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates, including those furnished by Owner and under Allowances.

1.5 PROPOSED PRODUCT LIST

- A. Within 5 days after date of Owner-Contractor Agreement, submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
- B. For products specified only by reference standards, indicate manufacturer, trade name, model or catalog designation, and reference standards.

1.6 PRODUCT DATA

- A. Product Data: Action Submittal: Submit to Engineer for review for assessing conformance with information given and design concept expressed in Contract Documents.
- B. Submit number of copies Contractor requires, plus three copies Engineer will retain.
- C. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- D. After review, produce copies and distribute according to "Submittal Procedures" Article and for record documents described in Section 01 70 00 - Execution and Closeout Requirements.

1.7 SHOP DRAWINGS

- A. Shop Drawings: Action Submittal: Submit to Engineer for assessing conformance with information given and design concept expressed in Contract Documents.
- B. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. When required by individual Specification Sections, provide Shop Drawings signed and sealed by a professional Engineer responsible for designing components shown on Shop Drawings.
 - 1. Include signed and sealed calculations to support design.
 - 2. Submit Shop Drawings and calculations in form suitable for submission to and approval by authorities having jurisdiction.
 - 3. Make revisions and provide additional information when required by authorities having jurisdiction.
- D. Submit number of opaque reproductions Contractor requires, plus two copies Engineer will retain.
- E. After review, produce copies and distribute according to "Submittal Procedures" Article and for record documents described in Section 01 70 00 - Execution and Closeout Requirements.

1.8 SAMPLES

- A. Samples: Action Submittal: Submit to Engineer for assessing conformance with information given and design concept expressed in Contract Documents.
- B. Samples for Selection as Specified in Product Sections:
 - 1. Submit to Engineer for aesthetic, color, and finish selection.
 - 2. Submit Samples of finishes, textures, and patterns for Engineer selection.

- C. Submit Samples to illustrate functional and aesthetic characteristics of products, with integral parts and attachment devices. Coordinate Sample submittals for interfacing work.
- D. Include identification on each Sample, with full Project information.
- E. Submit number of Samples specified in individual Specification Sections; Engineer will retain one Sample.
- F. Reviewed Samples that may be used in the Work are indicated in individual Specification Sections.
- G. Samples will not be used for testing purposes unless specifically stated in Specification Section.
- H. After review, produce copies and distribute according to "Submittal Procedures" Article and for record documents described in Section 01 70 00 - Execution and Closeout Requirements.

1.9 OTHER SUBMITTALS

- A. Closeout Submittals: Comply with Section 01 70 00 - Execution and Closeout Requirements.
- B. Informational Submittal: Submit data for Engineer's knowledge for Owner.
- C. Submit information for assessing conformance with information given and design concept expressed in Contract Documents.

1.10 TEST REPORTS

- A. Informational Submittal: Submit reports for Engineer's knowledge for Owner.
- B. Submit test reports for information for assessing conformance with information given and design concept expressed in Contract Documents.

1.11 CERTIFICATES

- A. Informational Submittal: Submit certification when specified in individual specification sections from manufacturer, installation/application Subcontractor, or Contractor to Engineer, in quantities specified for Product Data.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or product but must be acceptable to Engineer.

1.12 MANUFACTURER'S INSTRUCTIONS

- A. Informational Submittal: Submit manufacturer's installation instructions for Engineer's knowledge as Contract administrator or for Owner.
- B. Submit printed instructions for delivery, storage, assembly, installation, startup, adjusting, and finishing, to Engineer in quantities specified for Product Data.

- C. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.13 MANUFACTURER'S FIELD REPORTS

- A. Informational Submittal: Submit reports for Engineer's knowledge for Owner.
- B. Submit report in duplicate within 5 days of observation to Engineer for information.
- C. Submit reports for information for assessing conformance with information given and design concept expressed in Contract Documents.
- D. Identify conflicts between manufacturer's instructions and Contract Documents.

1.14 ERECTION DRAWINGS

- A. Informational Submittal: Submit Drawings for Engineer's knowledge for Owner.
- B. Submit Drawings for information assessing conformance with information given and design concept expressed in Contract Documents.
- C. Data indicating inappropriate or unacceptable Work may be subject to action by Engineer or Owner.

1.15 CONTRACTOR REVIEW

- A. Review for compliance with Contract Documents and approve submittals before transmitting to Engineer.
- B. Contractor: Responsible for:
 1. Determination and verification of materials including manufacturer's catalog numbers.
 2. Determination and verification of field measurements and field construction criteria.
 3. Checking and coordinating information in submittal with requirements of Work and of Contract Documents.
 4. Determination of accuracy and completeness of dimensions and quantities.
 5. Confirmation and coordination of dimensions and field conditions at Site.
 6. Construction means, techniques, sequences, and procedures.
 7. Safety precautions.
 8. Coordination and performance of Work of all trades.
- C. Stamp, sign or initial, and date each submittal to certify compliance with requirements of Contract Documents.
- D. Do not fabricate products or begin Work for which submittals are required until approved submittals have been received from Engineer.

1.16 ENGINEER REVIEW

- A. Do not make "mass submittals" to Engineer. "Mass submittals" are defined as six or more submittals or items in one day or 15 or more submittals or items in one week. If "mass submittals" are received, Engineer's review time stated above will be extended as necessary to

perform proper review. Engineer will review "mass submittals" based on priority determined by Engineer after consultation with Owner and Contractor.

- B. Informational submittals and other similar data are for Engineer's information, do not require Engineer's responsive action, and will not be reviewed or returned with comment.
- C. Submittals made by Contractor that are not required by Contract Documents may be returned without action.
- D. Submittal approval does not authorize changes to Contract requirements unless accompanied by Change Order.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01 40 00

QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Quality control.
- B. Tolerances.
- C. References.
- D. Field Samples.
- E. Labeling.
- F. Testing and inspection services.
- G. Bench marks and control elevations.
- H. Manufacturers' field services.

1.2 QUALITY CONTROL

- A. Monitor quality control over suppliers, manufacturers, products, services, Site conditions, and workmanship, to produce Work of specified quality.
- B. Comply fully with manufacturers' instructions, including each step in sequence.
- C. Should manufacturer's instructions conflict with Contract Documents, requires clarification from Engineer before proceeding.
- D. Comply with specified standards as the minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work using persons qualified to produce required and specified quality.
- F. Products, materials, and equipment may be subject to inspection by Engineer and Owner at place of manufacture or fabrication. Such inspections shall not relieve Contractor of complying with requirements of Contract Documents.
- G. Supervise performance of Work in such manner and by such means to ensure that Work, whether completed or in progress, will not be subjected to harmful, dangerous, damaging, or otherwise deleterious exposure during construction period.
- H. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

1.3 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' recommended tolerances and tolerance requirements in reference standards. When such tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

1.4 REFERENCES

- A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of standard except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current as of date of Contract Documents except where specific date is established by code.
- C. Obtain copies of standards and maintain on Site when required by product Specification Sections.
- D. When requirements of indicated reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.
- E. Neither contractual relationships, duties, or responsibilities of parties in Contract nor those of Engineer shall be altered from Contract Documents by mention or inference in reference documents.

1.5 FIELD SAMPLES

- A. Acceptable samples represent a quality level for the Work.

1.6 LABELING

- A. Attach label from agency approved by authorities having jurisdiction for products, assemblies, and systems required to be labeled by applicable code.
- B. Label Information: Include manufacturer's or fabricator's identification, approved agency identification, and the following information, as applicable, on each label:
 - 1. Model number.
 - 2. Serial number.
 - 3. Performance characteristics.
- C. Manufacturer's Nameplates, Trademarks, Logos, and Other Identifying Marks on Products: Not allowed on surfaces exposed to view in public areas, interior or exterior.

1.7 TESTING AND INSPECTION SERVICES

- A. Contractor will employ and pay for services of Engineer to perform materials inspection and testing including compaction.

- B. Then Engineer will perform inspections, tests, and other services specified in individual specification sections and as required.
- C. Reports will be submitted by Engineer, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
- D. Cooperate with the Engineer; furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
 - 1. Make arrangements with the Engineer and pay for additional samples and tests required for Contractor's use.
- E. Retesting required because of non-conformance to specified requirements shall be performed by the same Engineer. Payment for retesting will be charged to the Contractor.

1.8 BENCHMARKS AND CONTROL ELEVATIONS

- A. Elevations for proposed work shall be from bench marks established for this project.
- B. Verify elevations of existing features against project benchmarks.
- C. Notify Engineer of conflicts in elevations, which affect the proposed work.

1.9 MANUFACTURER'S FIELD SERVICES

- A. When specified in individual Specification Sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe Site conditions, conditions of surfaces and installation, quality of workmanship, startup of equipment, testing, adjusting, and balancing of equipment commissioning and as applicable, and to initiate instructions when necessary.
- B. Submit qualifications of observer to Engineer 30 days in advance of required observations. Observer is subject to approval of Engineer.
- C. Report observations and Site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturer's written instructions.
- D. Refer to Section 01 33 00 - Submittal Procedures, "Manufacturer's Field Reports" Article.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Temporary Electricity:
- B. Construction Facilities:
 - 1. Parking.
 - 2. Progress cleaning and waste removal.
 - 3. Fire-prevention facilities.
- C. Temporary Controls:
 - 1. Barriers.
 - 2. Water control.
 - 3. Dust control.
 - 4. Erosion and sediment control.
 - 5. Noise control.
 - 6. Pest and rodent control.
 - 7. Pollution control.
- D. Removal of utilities, facilities, and controls.
- E. Protection of Installed Work.
- F. Protection of Existing.
- G. Progress Cleaning.

1.2 TEMPORARY ELECTRICITY

- A. Provide and pay for power service required from utility source as needed for construction operation.
- B. Complement existing power service capacity and characteristics as required for construction operations.
- C. Provide power outlets with branch wiring and distribution boxes located as required for construction operations. Provide suitable, flexible power cords as required for portable construction tools and equipment.
- D. Provide main service disconnect and overcurrent protection at convenient location switch at source distribution equipment meter.
- E. Permanent convenience receptacles may be used during construction.

1.3 PARKING

- A. Maintenance:
 - 1. Maintain traffic and parking areas in sound condition free of excavated material, construction equipment, products, mud, snow, ice, and the like.
 - 2. Maintain existing and permanent paved areas used for construction; promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain paving and drainage in original condition.
- B. Removal, Repair:
 - 1. Remove temporary materials and construction at Substantial Completion.
 - 2. Remove underground Work and compacted materials to depth of 2 feet fill and grade Site as indicated.
 - 3. Repair existing and permanent facilities damaged by use, to original condition.
- C. Mud from Site vehicles: Provide means of removing mud from vehicle wheels before entering streets.

1.4 PROGRESS CLEANING AND WASTE REMOVAL

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain Site in clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, before enclosing spaces.
- C. Broom and vacuum clean interior areas before starting surface finishing, and continue cleaning to eliminate dust.
- D. Collect and remove waste materials, debris, and rubbish from Site and dispose of off-Site.
- E. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.5 FIRE-PREVENTION FACILITIES

- A. Prohibit smoking within buildings under construction and demolition. Designate area on Site where smoking is permitted. Provide approved ashtrays in designated smoking areas.
- B. Establish fire watch for cutting, welding, and other hazardous operations capable of starting fires. Maintain fire watch before, during, and after hazardous operations until threat of fire does not exist.
- C. Standpipes: Maintain existing standpipes in usable condition to height within one floor of floor being demolished.
- D. Portable Fire Extinguishers: NFPA 10; 10-pound capacity, 4A-60B: C UL rating.
 - 1. Provide one fire extinguisher at each stairway on each floor of buildings under construction and demolition.
 - 2. Provide minimum of one fire extinguisher in every construction trailer and storage shed.

3. Provide minimum of one fire extinguisher on roof during roofing operations using heat-producing equipment.

1.6 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations and demolition.
- B. Provide barricades and covered walkways required by authorities having jurisdiction for public rights-of-way and for public access to existing building.
 1. Barricade Construction: As indicated on Drawings.
 2. Covered Walkway Construction: As indicated on Drawings.
- C. Tree and Plant Protection: Preserve and protect existing trees and plants designated to remain.
 1. Protect areas within drip lines from traffic, parking, storage, dumping, chemically injurious materials and liquids, ponding, and continuous running water.
 2. Provide 6 foot-high barriers around drip line, with access for maintenance.
 3. Replace trees and plants damaged by construction operations.
- D. Protect non-owned vehicular traffic, stored materials, Site, and structures from damage.
- E. Provide access to all adjacent buildings for use during construction.

1.7 WATER CONTROL

- A. Grade Site to drain. Maintain excavations free of water. Provide, operate, and maintain necessary pumping equipment.
- B. Protect Site from puddles or running water. Provide water barriers as required to protect Site from soil erosion.
- C. Trenches shall be dewatered to provide a stable base for structures and piping.

1.8 DUST CONTROL

- A. Execute Work by methods that minimize raising dust from construction operations.
- B. Provide positive means to prevent airborne dust from dispersing into atmosphere and into Owner-occupied areas.

1.9 EROSION AND SEDIMENT CONTROL

- A. Conform to Part 91 of Public Act 451 of 1994, relative to Soil Erosion and Sedimentation Control for the life of the project.
- B. Minimize amount of bare soil exposed at one time.
- C. Provide temporary measures such as berms, dikes, and drains to prevent sediment from entering adjacent waterways.
- D. Do not deposit trash, debris, or sediment in tile or open drains.

- E. Immediately repair trenches located within the traveled surface of roadways.
- F. Landscape construction areas as soon as practical after work is complete according to Sections 32 91 19 – Landscape Grading, 32 92 19 – Seeding.

1.10 NOISE CONTROL

- A. Provide methods, means, and facilities to minimize noise produced by construction operations.

1.11 PEST AND RODENT CONTROL

- A. Provide methods, means, and facilities to prevent pests and insects from damaging the Work and entering facility.
- B. Provide methods, means, and facilities to prevent rodents from accessing or invading premises.

1.12 POLLUTION CONTROL

- A. Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances and pollutants produced by construction operations.
- B. Comply with pollution and environmental control requirements of authorities having jurisdiction.

1.13 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, and materials before Substantial Completion inspection.
- B. Remove underground installations to minimum depth of 4 feet. Grade Site as indicated on Drawings.
- C. Clean and repair damage caused by installation or use of temporary Work.
- D. Restore existing and permanent facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.
- E. A sufficient sum of money to remove and replace or repair any utilities damaged or relocated during the construction of the project shall be included in total contract amount.

1.14 PROTECTION OF INSTALLED WORK

- A. Protect installed work and provide special protection where specified in individual specification Sections.
- B. Provide temporary and removable protection for installed Products. Control activity in immediate work area to minimize damage.
- C. Prohibit traffic from landscaped areas.

1.15 PROTECTION OF EXISTING

- A. CALL “MISS DIG” 811 or (1-800-482-7171) A MINIMUM OF THREE WORKING DAYS PRIOR TO CONSTRUCTION.
- B. Obtain a copy of Positive Response. Contact Miss Dig for additional assistance if there are any utilities not marked or cleared through the Positive Response System.
- C. Contact Miss Dig for additional assistance if there is a discrepancy in the field from the Positive Response System.
- D. Contact Miss Dig for additional assistance if utility is not found within the applicable “approximate locations” marked in the field.
- E. Protect landscaped areas. Damaged areas shall be replaced in kind.
- F. Protect utilities encountered during the work. Replace or repair damaged utilities.
- G. Protect drives, roadways, and sidewalks. Repair as required in following sections.
- H. Protect mailboxes. Relocate temporarily until mailboxes can be returned to original location. All mail boxes and posts must be returned to their original condition or better at no additional cost to the project.
- I. Protect trees, shrubs, and bushes:
 - 1. Where trees, shrubs, and bushes are too large to be replaced in kind, the proposed utility shall be installed in a boring or tunneling operation unless written consent is given by the property owner for removal. Owner and Engineer shall each be given one copy of consent letters.
 - 2. Where requested by the Property Owner, timber from removed trees shall be cut into 6 foot lengths and stockpiled along the work or as specified in the consent letter.
 - 3. Proper disposal of removed trees or sections of removed trees not wanted by the property owner shall become the responsibility of the Contractor.
 - 4. Trees, shrubs, and bushes that are removed and replaced shall be transplanted by an established nursery.
- J. Utilities must remain in service. If it becomes necessary to interrupt a utility service, the utility authority must be notified immediately and steps taken to restore temporary or permanent service as soon as possible.
- K. Maintain outlets for drains. Provide temporary pumping if necessary.
- L. Expose utility mains and services by hand in the trench.
- M. Where utility and drainage piping crosses the trench, support the piping according to the utility authority’s standards and backfill to the top with compacted sand.

1.16 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

- B. Clean road surface daily to the Owner's and/or Engineer's satisfaction.
- C. Complete leveling, remove excess material and debris and restore drainage not more than 1000 feet behind construction.
- D. A sufficient sum of money to remove and replace or repair any utilities damaged or relocated during the construction of the project shall be included in total contract amount.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Products.
- B. Product delivery requirements.
- C. Product storage and handling requirements.
- D. Product options.

1.2 PRODUCTS

- A. At minimum, comply with specified requirements and reference standards.
- B. Specified products define standard of quality, type, function, dimension, appearance, and performance required.
- C. Furnish products of qualified manufacturers that are suitable for intended use. Furnish products of each type by single manufacturer unless specified otherwise. Confirm that manufacturer's production capacity can provide sufficient product, on time, to meet Project requirements.
- D. Domestic Products: Except where specified otherwise, domestic products are required and interpreted to mean products mined, manufactured, fabricated, or produced in United States or its territories.
- E. Do not use materials and equipment removed from existing premises except as specifically permitted by Contract Documents.
- F. Furnish interchangeable components from same manufacturer for components being replaced.

1.3 PRODUCT DELIVERY REQUIREMENTS

- A. Transport and handle products according to manufacturer's instructions.
- B. Promptly inspect shipments to ensure products comply with requirements, quantities are correct, and products are undamaged.
- C. Provide equipment and personnel to handle products; use methods to prevent soiling, disfigurement, or damage.

1.4 PRODUCT STORAGE AND HANDLING REQUIREMENTS

- A. Store and protect products according to manufacturer's instructions.
- B. Store products with seals and labels intact and legible.

- C. Store sensitive products in weathertight, climate-controlled enclosures in an environment suitable to product.
- D. For exterior storage of fabricated products, place products on sloped supports aboveground.
- E. Provide off-Site storage and protection when Site does not permit on-Site storage or protection.
- F. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- G. Store loose granular materials on solid flat surfaces in well-drained area. Prevent mixing with foreign matter.
- H. Provide equipment and personnel to store products; use methods to prevent soiling, disfigurement, or damage.
- I. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

1.5 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Products complying with specified reference standards or description.
- B. Products Specified by Naming One or More Manufacturers: Products of one of manufacturers named and complying with Specifications; no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with Provision for Substitutions: Submit Request for Substitution for any manufacturer not named, according to Section 01 25 00 - Substitution Procedures.

PART 2 PRODUCTS – Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01 70 00

EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Field engineering.
- B. Closeout procedures.
- C. Project record documents.
- D. Maintenance service
- E. Warranties
- F. Progress Payments.
- G. Examination.
- H. Preparation.
- I. Execution.
- J. Cutting and patching.
- K. Protecting installed construction.
- L. Final cleaning.

1.2 FIELD ENGINEERING

- A. Engineer will locate and Contractor shall protect survey control and reference points. Promptly notify Engineer of discrepancies discovered.
- B. Control datum for survey is established by Owner-provided survey indicated on Drawings.
- C. Prior to beginning Work, verify and establish floor elevations of existing facilities to ensure that new Work will meet existing elevations in smooth and level alignment except where specifically detailed or indicated otherwise.
- D. Verify setbacks and easements; confirm Drawing dimensions and elevations.
- E. Field engineering services provided by Engineer includes: Establish elevations, lines, and levels using recognized engineering survey practices.
- F. Maintain complete and accurate log of control and survey Work as Work progresses.

- G. Protect survey control points prior to starting Site Work; preserve permanent reference points during construction.
- H. Promptly report to Engineer loss or destruction of reference point or relocation required because of changes in grades or other reasons.
- I. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Engineer.

1.3 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed. Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer's inspection.
- B. Provide submittals to Engineer that are required by governing or other authorities.\
- C. Provide Consent of Surety and all Final Waivers.

1.4 FINAL CLEANING

- A. Execute final cleaning prior to final inspection.
- B. Remove sediment from storm sewers, and catch basins.
- C. Clean site; sweep paved areas, rake clean landscaped surfaces.
- D. Remove waste and surplus materials, rubbish, and construction facilities from the site.
- E. Landscape areas as required in documents.
- F. Restore roads, driveways, parking areas, lawns, drainage, and other items disturbed during construction to original condition or as required by the documents.

1.5 PROJECT RECORD DOCUMENTS

- A. Maintain on Site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed Shop Drawings, product data, and Samples.
 - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Store record documents separate from documents used for construction.
- C. Record information concurrent with construction progress.
- D. Specifications: Legibly mark and record, at each product Section, description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates used.

3. Changes made by Addenda and modifications.
- E. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction as follows:
1. Include Contract modifications such as Addenda, supplementary instructions, change directives, field orders, minor changes in the Work, and change orders.
 2. Include locations of concealed elements of the Work.
 3. Identify depth of buried utility lines and provide dimensions showing distances from permanent facility components that are parallel to utilities.
 4. Dimension ends, corners, and junctions of buried utilities to permanent facility components using triangulation.
 5. Identify and locate existing buried or concealed items encountered during Project.
 6. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 7. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 8. Field changes of dimension and detail.
 9. Details not on original Drawings.
- F. Submit marked-up paper copy documents to Engineer before Substantial Completion.

1.6 MAINTENANCE SERVICE

- A. Furnish service and maintenance of components indicated in Specification Sections for 1 year from date of Substantial Completion.
- B. Examine system components at frequency consistent with reliable operation. Clean, adjust, and lubricate as required.
- C. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by manufacturer of original component.
- D. Do not assign or transfer maintenance service to agent or Subcontractor without prior written consent of Owner.

1.7 WARRANTIES

- A. Execute and assemble documents from Sub-contractors, suppliers, and manufacturers.
- B. Provide Table of Contents and assemble in three D size ring three ring binder with durable plastic cloth cover.
- C. Submit prior to final Application for Payment.
- D. Warranty all work for a period of one year from the date of the final progress payment.

1.8 PROGRESS PAYMENTS

- A. The Owner may request from the Contractor waivers for proof of payment to all sub-contractors and suppliers utilized on this project prior to issuing payments.

- B. The Owner may request from the Contractor a Sworn Statement listing all sub-contractors and suppliers, their involvement with the project, their subcontracted amount, amount paid to date, and balance due prior to issuing payment.
- C. Failure to provide this information may result in not receiving payments or payments not being issued in a timely manner.

1.9 CORRECTION PERIOD

- A. For the period of one year from the date of final payment, promptly correct work or replace materials that are found to be defective.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that existing Site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new Work being applied or attached.
- C. Examine and verify specific conditions described in individual Specification Sections.
- D. Verify that utility services are available with correct characteristics and in correct locations.

3.2 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance according to manufacturer's instructions.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer-required or -recommended substrate primer, sealer, or conditioner prior to applying new material or substance in contact or bond.

3.3 EXECUTION

- A. Comply with manufacturer's installation instructions, performing each step in sequence. Maintain one set of manufacturer's installation instructions at Project Site during installation and until completion of construction.
- B. When manufacturer's installation instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. Verify that field measurements are as indicated on approved Shop Drawings or as instructed by manufacturer.

- D. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.
 - 1. Secure Work true to line and level and within specified tolerances, or if not specified, industry-recognized tolerances.
 - 2. Physically separate products in place, provide electrical insulation, or provide protective coatings to prevent galvanic action or corrosion between dissimilar metals.
 - 3. Exposed Joints: Provide uniform joint width and arrange to obtain best visual effect. Refer questionable visual-effect choices to Engineer for final decision.
- E. Allow for expansion of materials and building movement.
- F. Climatic Conditions and Project Status: Install each unit of Work under conditions to ensure best possible results in coordination with entire Project.
 - 1. Isolate each unit of Work from incompatible Work as necessary to prevent deterioration.
 - 2. Coordinate enclosure of Work with required inspections and tests to minimize necessity of uncovering Work for those purposes.
- G. Mounting Heights: Where not indicated, mount individual units of Work at industry recognized standard mounting heights for particular application indicated.
 - 1. Refer questionable mounting heights choices to Engineer for final decision.
 - 2. Elements Identified as Accessible to Handicapped: Comply with applicable codes and regulations.
- H. Adjust operating products and equipment to ensure smooth and unhindered operation.
- I. Clean and perform maintenance on installed Work as frequently as necessary through remainder of construction period. Lubricate operable components as recommended by manufacturer.

3.4 PROTECTING INSTALLED CONSTRUCTION

- A. Protect installed Work and provide special protection where specified in individual Specification Sections.
- B. Provide temporary and removable protection for installed products. Control activity in immediate Work area to prevent damage.
- C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- D. Use durable sheet materials to protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects.
- E. Prohibit traffic or storage upon waterproofed or roofed surfaces. When traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- F. Prohibit traffic from landscaped areas.

END OF SECTION

SECTION 02 06 00

PARTIAL BUILDING DEMOLITION

1 PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Saw-cut and remove concrete floor for sanitary trenches at designated areas shown on the Demolition Plan drawing.
 - 2. Demolition and removal of interior walls, floor/ceiling finishes, doors and windows.
 - 3. Demolition and removal of plumbing fixtures and bath accessories.
 - 4. Disconnecting, capping or sealing, and abandoning utilities in place.
 - 5. Disconnecting, capping or sealing, and removing utilities.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Cutting and Patching" for cutting and patching procedures for demolition operations.
 - 2. Division 1 Section "Schedules and Reports" for demolition schedule requirements.
 - 3. Division 1 Section "Construction Facilities and Temporary Controls" for temporary utilities, temporary construction and support facilities, temporary security and protection facilities, and environmental protection measures for demolition operations.
 - 4. Division 1 Section "Contract Closeout" for record document requirements.

1.3 DEFINITIONS

- A. Remove: Remove and legally dispose of items except those indicated to be reinstalled, salvaged, or to remain the Owner's property.
- B. Existing to Remain: Protect construction indicated to remain against damage and soiling during demolition. When permitted by the Owner, items may be removed to a suitable, protected storage location during demolition and then cleaned and reinstalled in their original locations.

1.4 MATERIALS OWNERSHIP

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

1.5 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections, for information only, unless otherwise indicated.
- B. Schedule of demolition activities indicating the following:
 - 1. Detailed sequence of demolition and removal work, with starting and ending dates for each activity.
 - 2. Dates for shutoff, capping, and continuation of utility services.
- C. Photographs or videotape, sufficiently detailed, of existing conditions of adjoining construction and site improvements that might be misconstrued as damage caused by demolition operations.
- D. Record drawings at Project closeout according to Division 1 Section "Contract Closeout."
 - 1. Identify and accurately locate capped utilities and other subsurface structural, electrical, or mechanical conditions.
- E. Landfill records for record purposes indicating receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.6 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: Engage an experienced firm that has successfully completed demolition Work similar to that indicated for this Project.
- B. Regulatory Requirements: Comply with governing EPA notification regulations before starting demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

1.7 PROJECT CONDITIONS

- A. Areas to be demolished will be vacated and their use discontinued before start of Work.
- B. Owner assumes no responsibility for actual condition of buildings to be demolished.
 - 1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

2 PART 2 PRODUCTS (Not Applicable)

3 PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of demolition required.

3.2 UTILITY SERVICES

- A. Maintain existing utilities indicated to remain in service and protect them against damage during demolition operations.
 - 1. Do not interrupt existing utilities serving occupied or operating facilities, except when authorized in writing by Owner and authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to governing authorities.
 - a. Provide not less than 72 hours' notice to Owner if shutdown of service is required during changeover.
- B. Utility Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services serving structures to be demolished.
 - 1. Arrange to shut off indicated utilities with utility companies.
- C. Utility Requirements: Refer to Division 22 and 26 Sections for shutting off, disconnecting, removing, and sealing or capping utility services. Do not start demolition work until utility disconnecting and sealing have been completed and verified in writing.

3.3 PREPARATION

- A. Drain, purge, or otherwise remove, collect, and dispose of chemicals, gases, explosives, acids, flammables, or other dangerous materials before proceeding with demolition operations.
- B. Conduct demolition operations and remove debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
- C. Conduct demolition operations to prevent injury to people and damage to adjacent buildings and facilities to remain. Ensure safe passage of people around demolition area.
 - 1. Protect existing site improvements, appurtenances, and landscaping to remain.

3.4 EXPLOSIVES

- A. Explosives: Use of explosives will not be permitted.

3.5 POLLUTION CONTROLS

- A. Use temporary enclosures, and other suitable methods to limit the spread of dust and dirt. Comply with governing environmental protection regulations.
- B. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

1. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level.
- C. Clean adjacent buildings and improvements of dust, dirt, and debris caused by demolition operations. Return adjacent areas to condition existing before start of demolition.

3.6 DEMOLITION

- A. Demolition: Demolish interior walls completely, saw-cut concrete floors and remove from the site. Use methods required to complete Work within limitations of governing regulations and as follows:
1. Locate demolition equipment throughout the building and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 2. Dispose of demolished items and materials promptly. On-site storage or sale of removed items is prohibited.
 3. Demolish concrete and masonry in small sections.
- B. Damages: Promptly repair damages to adjacent facilities caused by demolition operations.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Dispose of demolished materials at designated spoil areas on Owner's property.

END OF SECTION

SECTION 02 41 19.13

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. Protecting items designated to remain.
 - 5. Removing demolished materials.

1.2 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Demolition Schedule: Indicate overall schedule and interruptions required for utility and building services.
- C. Shop Drawings:
 - 1. Indicate demolition and removal sequence.
 - 2. Indicate location and construction of temporary work.

1.3 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.
- B. Project Record Documents: Accurately record actual locations of capped utilities, concealed utilities discovered during demolition.
- C. Operation and Maintenance Data: Submit description of system, inspection data, and parts lists.

1.4 QUALITY ASSURANCE

- A. Conform to applicable building code for demolition work, dust control, products requiring electrical disconnection and re-connection.
- B. Conform to General Specifications for Lead-Based Paint Abatement.
- C. Conform to applicable building code for procedures when hazardous or contaminated materials are discovered.
- D. Obtain required permits from authorities having jurisdiction.
- E. Perform Work in accordance with Municipality standard.
- F. Maintain one copy of each document on site.

1.5 SEQUENCING

- A. Section 01 10 00 - Summary: Requirements for sequencing.
- B. Owner will conduct salvage operations before demolition begins to remove materials Owner chooses to retain.
- C. Contractor shall abate all lead-based paint in areas of demolition. See General Specification for Lead-Based Paint Abatement.

1.6 SCHEDULING

- A. Section 01 30 00 - Administrative Requirements: Requirements for scheduling.
- B. Schedule Work to coincide with new construction.
- C. Cooperate with Owner in scheduling noisy operations and waste removal that may impact Owners operation in adjoining spaces.
- D. Perform noisy, malodorous, dusty, work:
 - 1. Between hours of 7:00 A.M. and 5:00 P.M.
 - 2. On following days: M - F.
- E. Coordinate utility and building service interruptions with Owner.
 - 1. Do not disable or disrupt building fire or life safety systems without three days prior written notice to Owner.
 - 2. Schedule tie-ins to existing systems to minimize disruption.
 - 3. Coordinate Work to ensure fire sprinklers, fire alarms, smoke detectors, emergency lighting, exit signs and other life safety systems remain in full operation in occupied areas.

1.7 PROJECT CONDITIONS

- A. Conduct demolition to minimize interference with adjacent occupied building areas.
- B. Cease operations immediately if structure appears to be in danger and notify Architect/Owner. Do not resume operations until directed.

1.8 GENERAL DEMOLITION

- A. Field verify all existing conditions and dimensions. If field conditions are not as shown on the plan, contact the project architect or engineer immediately prior to proceeding with any work.
- B. Provide appropriate barricades, signage, and other safety precautions to protect visitors, tradesmen, and existing remaining conditions.
- C. Completely remove all work and related work in areas designated on the plan.
- D. Disconnect, remove, and cap all existing utilities as indicated and required to permit new work.

- E. All work to be completed by appropriate, experienced trades (i.e. electrical demolition by electricians, etc.).
- F. Restore existing areas which are damaged during construction. Match existing materials and finishes.
- G. Do not use explosives or unsafe demolition methods.
- H. Remove all debris from the site. Do not burn refuse on site. Material to be transposed to an approved site. Coordinate salvageable items with the Owner. Store salvageable items within designated areas.
- I. The contractor shall provide proper shoring and bracing where needed.
- J. All asbestos has to be removed in disturbed areas by a qualified contractor per State of Michigan regulations. All undisturbed areas shall remain and or be sealed off from access.
- K. Any portions with lead paint will not be abraded, cut, or ignited to reduce potential harmful impact to workers.

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.
- 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.
- I. Do not disable or disrupt building fire or life safety systems without **3** days prior written notice to Owner.

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. Only after lead-based paint abatement, shall Contractor begin demolition (if applicable).
- B. Conduct demolition to minimize interference with adjacent and occupied building areas.
- C. Maintain protected egress from and access to adjacent existing buildings at all times.
- D. Do not close or obstruct roadways or sidewalks without permits.
- E. Cease operations immediately when structure appears to be in danger and notify Architect/Owner.
- F. Disconnect and remove designated utilities within demolition areas.
- G. Cap and identify abandoned utilities at termination points when utility is not completely removed. Annotate Record Drawings indicating location and type of service for capped utilities remaining after demolition.
- H. Demolish in orderly and careful manner. Protect existing improvements, supporting structural members.
- I. 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.

- J. Remove demolished materials from site except where specifically noted otherwise. Do not burn or bury materials on site.
- K. Remove materials as Work progresses. Upon completion of Work, leave areas in clean condition.
- L. Remove temporary Work.

END OF SECTION

SECTION 05 12 00

STRUCTURAL STEEL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes structural steel.
- B. This Section includes structural steel and architecturally exposed structural steel.
- C. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Quality Control" for independent testing agency procedures and administrative requirements.
 - 2. Division 5 Section "Metal Fabrications" for loose steel bearing plates and miscellaneous steel framing.
 - 3. Division 9 Section "Special Coatings" for surface preparation and priming requirements.
 - 4. Division 9 Section "Painting" for surface preparation and priming requirements.

1.3 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Engineer structural steel connections required by the Contract Documents to be selected or completed by the fabricator to withstand design loadings indicated.
- B. Engineering Responsibility: Engage a fabricator who utilizes a qualified professional engineer to prepare calculations, and other structural data for structural steel connections.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced Installer who has completed structural steel work similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.
- B. Fabricator Qualifications: Engage a firm experienced in fabricating structural steel similar to that indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to fabricate structural steel without delaying the Work.
 - 1. Fabricator must participate in the AISC Quality Certification Program and be designated an AISC-Certified Plant as follows:
 - a. Category: Category I, conventional steel structures.
 - b. Category: Category II, complex steel building structures.

- c. Fabricator shall be registered with and approved by authorities having jurisdiction.
- C. Comply with applicable provisions of the following specifications and documents:
 - 1. AISC's "Specification for Structural Steel Buildings--Allowable Stress Design and Plastic Design."
 - 2. AISC's "Load and Resistance Factor Design (LFRD) Specification for Structural Steel Buildings."
 - 3. AISC's "Specification for Allowable Stress Design of Single-Angle Members."
 - 4. AISC's "Specification for Load and Resistance Factor Design of Single-Angle Members."
 - 5. AISC's "Seismic Provisions for Structural Steel Buildings."
 - 6. ASTM A 6 (ASTM A 6M) "Specification for General Requirements for Rolled Steel Plates, Shapes, Sheet Piling, and Bars for Structural Use."
 - 7. Research Council on Structural Connections' (RCSC) "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
 - 8. Research Council on Structural Connections' (RCSC) "Load and Resistance Factor Design Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- D. Professional Engineer Qualifications: A professional engineer who is legally authorized to practice in the jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for projects with structural steel framing that are similar to that indicated for this Project in material, design, and extent.
- E. Welding Standards: Comply with applicable provisions of AWS D1.1 "Structural Welding Code-Steel."
 - 1. Present evidence that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver structural steel to Project site in such quantities and at such times to ensure continuity of installation.
- B. Store materials to permit easy access for inspection and identification. Keep steel members off the ground by using pallets, platforms, or other supports. Protect steel members and packaged materials from erosion and deterioration.
 - 1. Store fasteners in a protected place. Clean and re-lubricate bolts and nuts that become dry or rusty before use.
 - 2. Do not store materials on structure in a manner that might cause distortion or damage to members or supporting structures. Repair or replace damaged materials or structures as directed.

1.6 SEQUENCING

- A. Supply anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, templates, instructions, and directions, as required, for installation.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Structural Steel Shapes, Plates, and Bars: As follows:
 - 1. Carbon Steel: ASTM A 36 (ASTM A 36M).
 - 2. High-Strength, Low-Alloy Columbium-Vanadium Steel: ASTM A 572 (ASTM A 572M), Grade 50.
 - 3. High-Strength, Low-Alloy Structural Steel: ASTM A 588 (ASTM A 588M), Grade 50, corrosion resistant.
- B. Cold-Formed Structural Steel Tubing: ASTM A 500, Grade B.
- C. Hot-Formed Structural Steel Tubing: ASTM A 501.
- D. Steel Pipe: ASTM A 53, Type E or S, Grade B.
 - 1. Weight Class: Standard.
 - 2. Weight Class: Extra strong.
 - 3. Weight Class: Double-extra strong.
 - 4. Finish: Black.
 - 5. Finish: Galvanized.
 - 6. Finish: Black, except where indicated to be galvanized.
- E. Carbon-Steel Castings: ASTM A 27, Grade 65-35 (ASTM A 27M, Grade 450-240), medium-strength carbon steel.
- F. High-Strength Steel Castings: ASTM A 148, Grade 80-50 (ASTM A 148M, (Grade 550-345).
- G. Shear Connectors: ASTM A 108, Grade 1015 through 1020, headed-stud type, cold-finished carbon steel, AWS D1.1, Type B.
- H. Anchor Rods, Bolts, Nuts, and Washers: As follows:
 - 1. Unheaded Rods: ASTM A 36 (ASTM A 36M).
 - 2. Unheaded Rods: ASTM A 572, Grade 50 (ASTM A 572M, Grade 345).
 - 3. Unheaded Bolts: ASTM A 687, high strength.
 - 4. Headed Bolts: ASTM A 307, Grade A (ASTM F 568, Property Class 4.6); carbon-steel, hex-head bolts; and carbon-steel nuts.
 - 5. Headed Bolts: ASTM A 325 (ASTM A 325M), Type 1, heavy hex steel structural bolts and heavy hex carbon-steel nuts.
 - 6. Headed Bolts: ASTM A 490 (ASTM A 490M), Type 1, heavy hex steel structural bolts and heavy hex carbon-steel nuts.
 - 7. Washers: ASTM A 36 (ASTM A 36M).
- I. Nonhigh-Strength Bolts, Nuts, and Washers: ASTM A 307, Grade A (ASTM F 568, Property Class 4.6); carbon-steel, hex-head bolts; carbon-steel nuts; and flat, unhardened steel washers.
 - 1. Finish: Plain, uncoated.
 - 2. Finish: Hot-dip zinc-coating, ASTM A 153, Class C.
 - 3. Finish: Mechanically deposited zinc-coating, ASTM B 695, Class 50.

- J. High-Strength Bolts, Nuts, and Washers: ASTM A 325 (ASTM A 325M), Type 1, heavy hex steel structural bolts, heavy hex carbon-steel nuts, and hardened carbon-steel washers.
 - 1. Finish: Plain, uncoated.
 - 2. Finish: Hot-dip zinc-coating, ASTM A 153, Class C.
 - 3. Finish: Mechanically deposited zinc-coating, ASTM B 695, Class 50.
 - 4. Direct-Tension Indicators: ASTM F 959, Type 325.
 - a. Finish: Plain, uncoated.
 - b. Finish: Mechanically deposited zinc-coating, ASTM B 695, Class 50.
 - c. Finish: Mechanically deposited zinc-coating, ASTM B 695, Class 50, epoxy coated.

- K. High-Strength Bolts, Nuts, and Washers: ASTM A 490 (ASTM A 490M), Type 1, heavy hex steel structural bolts, heavy hex carbon-steel nuts, and hardened carbon-steel washers, uncoated.
 - 1. Direct-Tension Indicators: ASTM F 959, Type 490, uncoated.

- L. Welding Electrodes: Comply with AWS requirements.

2.2 PRIMER

- A. Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer with good resistance to normal atmospheric corrosion, complying with performance requirements of FS TT-P-664.
- B. Primer: SSPC-Paint 25; red iron oxide, zinc oxide, raw linseed oil and alkyd primer.
- C. Primer: SSPC-Paint 23, latex primer.
- D. Primer: SSPC-Paint 15, Type I, red oxide.
- E. Primer: Fabricator's standard lead- and chromate-free, nonasphaltic, rust-inhibiting primer.
- F. Primer: Nonasphaltic primer complying with SSPC's "Painting System Guide No. 7.00."
- G. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds and repair painting galvanized steel, with dry film containing not less than 93 percent zinc dust by weight, and complying with DOD-P-21035A or SSPC-Paint 20.

2.3 GROUT

- A. Cement Grout: Portland cement, ASTM C 150, Type I; and clean, natural sand, ASTM C 404, Size No. 2. Mix at ratio of 1 part cement to 2-1/2 parts sand, by volume, with minimum water required for placement and hydration.
- B. Metallic, Shrinkage-Resistant Grout: Premixed, factory-packaged, ferrous aggregate grout, complying with ASTM C 1107, of consistency suitable for application, and a 30-minute working time.
- C. Nonmetallic, Shrinkage-Resistant Grout: Premixed, nonmetallic, noncorrosive, nonstaining grout containing selected silica sands, portland cement, shrinkage compensating agents, plasticizing

and water-reducing agents, complying with ASTM C 1107, of consistency suitable for application, and a 30-minute working time.

2.4 FABRICATION

- A. Fabricate and assemble structural steel in shop to greatest extent possible. Fabricate structural steel according to AISC specifications referenced in this Section and in Shop Drawings.
 - 1. Camber structural steel members where indicated.
 - 2. Identify high-strength structural steel according to ASTM A 6 (ASTM A 6M) and maintain markings until steel has been erected.
 - 3. Mark and match-mark materials for field assembly.
 - 4. Fabricate for delivery a sequence that will expedite erection and minimize field handling of structural steel.
 - 5. Complete structural steel assemblies, including welding of units, before starting shop-priming operations.
 - 6. Comply with fabrication tolerance limits of AISC's "Code of Standard Practice for Steel Buildings and Bridges" for structural steel.

- B. Fabricate architecturally exposed structural steel with exposed surfaces smooth, square, and free of surface blemishes, including pitting, rust and scale seam marks, roller marks, rolled trade names, and roughness.
 - 1. Remove blemishes by filling, grinding, or by welding and grinding, prior to cleaning, treating, and shop priming.
 - 2. Comply with fabrication requirements, including tolerance limits, of AISC's "Code of Standard Practice for Steel Buildings and Bridges" for architecturally exposed structural steel.

- C. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.
 - 1. Plane thermally cut edges to be welded.

- D. Finishing: Accurately mill ends of columns and other members transmitting loads in bearing.

- E. Shear Connectors: Prepare steel surfaces as recommended by manufacturer of shear connectors. Use automatic end welding of headed-stud shear connectors according to AWS D1.1 and manufacturer's printed instructions.

- F. Steel Wall Framing: Select true and straight members for fabricating steel wall framing to be attached to structural steel framing. Straighten as required to provide uniform, square, and true members in completed wall framing.

- G. Welded Door Frames: Build up welded door frames attached to structural steel framing. Weld exposed joints continuously and grind smooth. Plug-weld fixed steel bar stops to frames. Secure removable stops to frames with countersunk, cross-recessed head machine screws, uniformly spaced not more than 10 inches (250 mm) o.c., unless otherwise indicated.

- H. Holes: Provide holes required for securing other work to structural steel framing and for passage of other work through steel framing members, as shown on Shop Drawings.

1. Cut, drill, or punch holes perpendicular to metal surfaces. Do not flame-cut holes or enlarge holes by burning. Drill holes in bearing plates.
2. Weld threaded nuts to framing and other specialty items as indicated to receive other work.

2.5 SHOP CONNECTIONS

- A. Shop install and tighten nonhigh-strength bolts, except where high-strength bolts are indicated.
- B. Shop install and tighten high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- C. Shop install and tighten high-strength bolts according to RCSC's "Load and Resistance Factor Design Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
 1. Bolts: ASTM A 325 (ASTM A 325M) high-strength bolts, unless otherwise indicated.
 2. Bolts: ASTM A 490 (ASTM A 490M) high-strength bolts, unless otherwise indicated.
 3. Connection Type: Snug tightened, unless indicated as slip-critical, direct-tension, or tensioned shear/bearing connections.
 4. Connection Type: Slip-critical, direct-tension, or tensioned shear/bearing connections as indicated.
- D. Weld Connections: Comply with AWS D1.1 for procedures, appearance and quality of welds, and methods used in correcting welding work.
 1. Assemble and weld built-up sections by methods that will maintain true alignment of axes without warp.
 2. Verify that weld sizes, fabrication sequence, and equipment used for architecturally exposed structural steel will limit distortions to allowable tolerances. Prevent surface bleeding of back-side welding on exposed steel surfaces. Grind smooth exposed fillet welds 1/2 inch (13 mm) and larger. Grind flush butt welds. Dress exposed welds.

2.6 SHOP PRIMING

- A. Shop prime steel surfaces, except the following:
 1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches (50 mm).
 2. Surfaces to be field welded.
 3. Surfaces to be high-strength bolted with slip-critical connections.
 4. Surfaces to receive sprayed-on fireproofing.
 5. Galvanized surfaces.
- B. Surface Preparation: Clean surfaces to be painted. Remove loose rust, loose mill scale, and spatter, slag, or flux deposits. Prepare surfaces according to SSPC specifications as follows:
 1. SSPC-SP 2 "Hand Tool Cleaning."
 2. SSPC-SP 3 "Power Tool Cleaning."
 3. SSPC-SP 5 "White Metal Blast Cleaning."
 4. SSPC-SP 6 "Commercial Blast Cleaning."
 5. SSPC-SP 7 "Brush-Off Blast Cleaning."
 6. SSPC-SP 8 "Pickling."
 7. SSPC-SP 10 "Near-White Blast Cleaning."
 8. SSPC-SP 11 "Power Tool Cleaning to Bare Metal."

- C. Priming: Immediately after surface preparation, apply primer according to manufacturer's instructions and at rate recommended by SSPC to provide a dry film thickness of not less than 1.5 mils (0.038 mm). Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.
 - 1. Stripe paint corners, crevices, bolts, welds, and sharp edges.
 - 2. Apply 2 coats of shop paint to inaccessible surfaces after assembly or erection. Change color of second coat to distinguish it from first.
- D. Painting: Apply a 1-coat, nonasphaltic primer complying with SSPC's "Painting System Guide No. 7.00" to provide a dry film thickness of not less than 1.5 mils (0.038 mm).

2.7 GALVANIZING

- A. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to structural steel indicated for galvanizing according to ASTM A 123.

2.8 SOURCE QUALITY CONTROL

- A. Correct deficiencies in or remove and replace structural steel that inspections and test reports indicate do not comply with specified requirements.
- B. Additional testing, at Contractor's expense, will be performed to determine compliance of corrected Work with specified requirements.
- C. Shop-bolted connections will be tested and inspected according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- D. Shop-bolted connections will be tested and inspected according to RCSC's "Load and Resistance Factor Design Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
 - 1. Direct-tension indicator gaps will be verified to comply with ASTM F 959, Table 2.
- E. In addition to visual inspection, shop-welded connections will be inspected and tested according to AWS D1.1 and the inspection procedures listed below, at testing agency's option.
 - 1. Liquid Penetrant Inspection: ASTM E 165.
 - 2. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
 - 3. Radiographic Inspection: ASTM E 94 and ASTM E 142; minimum quality level "2-2T."
 - 4. Ultrasonic Inspection: ASTM E 164.
- F. In addition to visual inspection, shop-welded shear connectors will be inspected and tested according to requirements of AWS D1.1 for stud welding and as follows:
 - 1. Bend tests will be performed when visual inspections reveal either less than a continuous 360-degree flash or welding repairs to any shear connector.
 - 2. Tests will be conducted on additional shear connectors when weld fracture occurs on shear connectors already tested, according to requirements of AWS D1.1.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Before erection proceeds, and with the steel erector present, verify elevations of concrete and masonry bearing surfaces and locations of anchorages for compliance with requirements.
- B. Do not proceed with erection until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place, unless otherwise indicated.
 - 1. Do not remove temporary shoring supporting composite deck construction until cast-in-place concrete has attained its design compressive strength.

3.3 ERECTION

- A. Set structural steel accurately in locations and to elevations indicated and according to AISC specifications referenced in this Section.
- B. Base and Bearing Plates: Clean concrete and masonry bearing surfaces of bond-reducing materials and roughen surfaces prior to setting base and bearing plates. Clean bottom surface of base and bearing plates.
 - 1. Set base and bearing plates for structural members on wedges, shims, or setting nuts as required.
 - 2. Tighten anchor bolts after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of base or bearing plate prior to packing with grout.
 - 3. Pack grout solidly between bearing surfaces and plates so no voids remain. Finish exposed surfaces, protect installed materials, and allow to cure.
 - a. Comply with manufacturer's instructions for proprietary grout materials.
- C. Maintain erection tolerances of structural steel within AISC's "Code of Standard Practice for Steel Buildings and Bridges."
 - 1. Maintain erection tolerances of architecturally exposed structural steel within AISC's "Code of Standard Practice for Steel Buildings and Bridges."
- D. Align and adjust various members forming part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
 - 1. Level and plumb individual members of structure.
 - 2. Establish required leveling and plumbing measurements on mean operating temperature of structure. Make allowances for difference between temperature at time of erection and mean temperature at which structure will be when completed and in service.

- E. Splice members only where indicated.
- F. Remove erection bolts on welded, architecturally exposed structural steel; fill holes with plug welds; and grind smooth at exposed surfaces.
- G. Do not use thermal cutting during erection.
- H. Finish sections thermally cut during erection equal to a sheared appearance.
- I. Do not enlarge unfair holes in members by burning or by using drift pins. Ream holes that must be enlarged to admit bolts.

3.4 FIELD CONNECTIONS

- A. Install and tighten nonhigh-strength bolts, except where high-strength bolts are indicated.
- B. Install and tighten high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- C. Install and tighten high-strength bolts according to RCSC's "Load and Resistance Factor Design Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
 - 1. Bolts: ASTM A 325 (ASTM A 325M) high-strength bolts, unless otherwise indicated.
 - 2. Bolts: ASTM A 490 (ASTM A 490M) high-strength bolts, unless otherwise indicated.
 - 3. Connection Type: Snug tightened, unless indicated as slip-critical, direct-tension, or tensioned shear/bearing connections.
 - 4. Connection Type: Slip-critical, direct-tension, or tensioned shear/bearing connections as indicated.
- D. Weld Connections: Comply with AWS D1.1 for procedures, appearance and quality of welds, and methods used in correcting welding work.
 - 1. Comply with AISC specifications referenced in this Section for bearing, adequacy of temporary connections, alignment, and removal of paint on surfaces adjacent to field welds.
 - 2. Assemble and weld built-up sections by methods that will maintain true alignment of axes without warp.
 - 3. Verify that weld sizes, fabrication sequence, and equipment used for architecturally exposed structural steel will limit distortions to allowable tolerances. Prevent surface bleeding of back-side welding on exposed steel surfaces. Grind smooth exposed fillet welds 1/2 inch (13 mm) and larger. Grind flush butt welds. Dress exposed welds.

3.5 FIELD QUALITY CONTROL

- A. Owner will engage an independent testing and inspecting agency to perform field inspections and tests and to prepare test reports.
 - 1. Testing agency will conduct and interpret tests and state in each report whether tested Work complies with or deviates from requirements.
- B. Correct deficiencies in or remove and replace structural steel that inspections and test reports indicate do not comply with specified requirements.

- C. Additional testing, at Contractor's expense, will be performed to determine compliance of corrected Work with specified requirements.
- D. Field-bolted connections will be tested and inspected according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- E. Field-bolted connections will be tested and inspected according to RCSC's "Load and Resistance Factor Design Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
 - 1. Direct-tension indicator gaps will be verified to comply with ASTM F 959, Table 2.
- F. In addition to visual inspection, field-welded connections will be inspected and tested according to AWS D1.1 and the inspection procedures listed below, at testing agency's option.
 - 1. Liquid Penetrant Inspection: ASTM E 165.
 - 2. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
 - 3. Radiographic Inspection: ASTM E 94 and ASTM E 142; minimum quality level "2-2T."
 - 4. Ultrasonic Inspection: ASTM E 164.
 - 5. In addition to visual inspection, field-welded shear connectors will be inspected and tested according to requirements of AWS D1.1 for stud welding and as follows:
 - 6. Bend tests will be performed when visual inspections reveal either less than a continuous 360-degree flash or welding repairs to any shear connector.
 - 7. Tests will be conducted on additional shear connectors when weld fracture occurs on shear connectors already tested, according to requirements of AWS D1.1.

3.6 CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint. Apply paint to exposed areas using same material as used for shop painting.
 - 1. Apply by brush or spray to provide a minimum dry film thickness of 1.5 mils (0.038 mm).
- B. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on structural steel are included in Division 9 Section "Painting."
- C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and apply galvanizing repair paint according to ASTM A 780.

END OF SECTION

SECTION 05 40 00

COLD-FORMED METAL FRAMING

PART 1 -PART 1 GENERAL

1.1 DESCRIPTION

- A. The General Conditions, Supplementary Conditions and all other applicable parts of the Contract Documents are hereby made a part of this Section.
- B. This work consists of furnishing and installing all metal stud wall framing and metal joist floor, complete with incidentals and accessories, in accordance with the Drawings and Specifications.
- C. Related work specified elsewhere:
 - 1. Masonry, Section 040000.
 - 2. Structural Steel, Section 051200.
 - 3. Carpentry, Section 060000.
 - 4. Caulking and Sealing, Section 079000.

1.2 QUALITY ASSURANCE

- A. Any procedure, material, or operation specified by reference to the American Society for Testing and Materials (A.S.T.M.) or other recognized Standard, shall comply with the requirements of the current issue of the referenced Specification or Standard.
- B. The more stringent shall govern in conflict between this Specification and listed Standards. In conflicts between listed Standards, the more stringent requirements shall govern.
- C. Design steel studs in accordance with AISI Publication Specification for the Design of Cold-formed Steel Structural Members, except as otherwise shown or specified

1.3 SUBMITTALS

- A. Manufacturers Literature and Data: Showing stud sections and specifying structural characteristics.
- B. Shop drawings and calculations shall bear the seal of a professional engineer registered in Michigan

PART 2 -PART 2 PRODUCTS

2.1 MATERIALS

- A. All studs and joists 12, 14, and 16 gage shall be galvanized and formed from steel that corresponds to ASTM A446. Structural calculations should be prepared utilizing Grade D with a minimum yield strength of 50000 p.s.i.

- B. 18 and 20 gauge studs shall be galvanized, and all painted track, bridging, end closures and accessories shall be formed from steel that corresponds to the requirements of ASTM A446, Grade A, with a minimum yield of 33000 p.s.i.
- C. All studs and accessories shall be formed from steel having an A-60 galvanized coating, meeting ASTM A525 and C955.
- D. Self-drilling, self-tapping screws, bolts, nuts and washers: ASTM A123 hot dipped galvanized to 1.25 oz./sq. ft.
- E. Welding in accordance with AWS D1.3.

PART 3 -PART 3 EXECUTION

3.1 FABRICATION

- A. If framing is to be prefabricated, the Contractor shall submit fabrication and erection drawings to the Architect or engineer to obtain approval prior to prefabrication of framing.
- B. Framing components may be preassembled into panels prior to erecting. Prefabricated panels shall be square with components attached in a manner as to prevent racking.
- C. All framing components shall be cut squarely for attachment to perpendicular members, or as required for an angular fit against abutting members. Members shall be held positively in place until properly fastened.
- D. Axially loaded studs shall be installed in a manner which will assure that ends of the studs are positioned against the inside track web, prior to stud and track attachment.
- E. Insulation: Fully insulate all voids at built-up post and header members.

3.2 LAYOUT

- A. Meet with plumbing, HVAC, electrical, etc., Trades prior to erection to identify any interferences and to coordinate framing layout with their work.
- B. Provide solid wood blocking in walls behind all cabinetry/ casework, toilet and bath accessories locations or as recommended by product manufacturer.

3.3 ERECTION

- A. Securely anchor tracks to supports as shown.
- B. At butt joints, securely anchor two pieces of track to same supporting member or butt-weld or splice together.
- C. Plumb, align, and securely attach studs to flanges or webs of both upper and lower tracks.
- D. Install jack studs above and below openings and as required to furnish support. Securely attach jack studs to supporting members.

- E. Attach bridging for studs in a manner to prevent stud rotation. Space bridging rows at 4'-0" o.c. maximum.
- F. Studs shall be in one piece for their entire length. Splices will not be permitted.
- G. If prefabricated frames are built, handle and lift in a manner as to not distort any member.
- H. Install double deflection track assemblies at full height walls and as shown on drawings.

3.4 FIELD REPAIR

- A. Touch-up damaged galvanizing with galvanizing repair paint.

END OF SECTION

SECTION 05 50 00

MISCELLANEOUS METALS

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. This section covers furnishing and installing all items of miscellaneous metal, as shown on drawings, as herein specified and/or as required for a complete job.

2. PART 2 PRODUCTS

2.1 MATERIALS

- A. Steel Lintels & Miscellaneous Structural Steel: All steel shall conform to "Structural Steel, ASTM A36 Specifications: latest edition.
- B. All members shall be shop painted one (1) shop coat of gray oil primer and spot primed over welds and scratches as required.
- C. Refer to drawings for steel lintel sizes.

3. PART 3 EXECUTION

3.1 INSTALLATION

- A. Steel Lintels & Miscellaneous Structural Steel: Fabrication for all Structural Steel shall be in accordance with the latest edition, including any addendum of the AISC Specification, entitled "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings".

3.2 ERECTION

- A. Erection shall be in accordance with manufacturer's recommendations and the latest AISC Specifications for Fabrication and Erection of Structural Steel for Buildings.

END OF SECTION

SECTION 07190

VAPOR AND AIR BARRIERS

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Sheet materials to provide a continuous vapor barrier beneath all interior concrete slabs on grade.

1.2 RELATED SECTIONS

- A. Section 03300 – Cast-In-Place Concrete: Vapor barrier under interior slabs on grade.
- B. Section 07900 - Caulking and Sealants: Sealants.

1.3 REFERENCES

- A. ASTM E154 – Under slab Moisture Vapor Barrier.

1.4 PERFORMANCE REQUIREMENTS

- A. Materials of this Section shall prevent moisture from migrating upward through concrete slabs.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Provide data indicating material characteristics, performance criteria, and limitations.
- C. Manufacturer's Installation Instructions: Indicate preparation and installation requirements, techniques.

1.6 ENVIRONMENTAL REQUIREMENTS

- A. Maintain temperature and humidity recommended by the materials manufacturers before, during, and after installation.

1.7 SEQUENCING

- A. Sequence Work to permit installation of materials in conjunction with other retardant materials and seals.

1.8 COORDINATION

- A. Coordinate work under provisions of Section 01039.

B. Coordinate the work of this Section with all Sections referencing this Section.

1.9 WARRANTY

A. Provide one-year warranty under provisions of Section 01700.

2. PART 2 PRODUCTS

2.1 SHEET MATERIALS

A. Sheet Barrier: Black polyethylene film 6 mil. thick.

2.2 ACCESSORIES

A. Thinner and Cleaner for Vapor Barrier Sheet: As recommended by sheet material manufacturer.

B. Tape: Polyethylene self-adhering type, mesh reinforced, 2 inch wide, compatible with sheet material.

3. PART 3 EXECUTION

3.1 EXAMINATION

A. Verify condition of substrate and adjacent materials under provisions of Section 01039.

B. Verify that surfaces and conditions are ready to accept the Work.

3.2 PREPARATION

A. Remove loose or foreign matter which might impair adhesion.

B. Clean and prime substrate surfaces to receive tape in accordance with manufacturers' instructions.

3.3 INSTALLATION

A. Install sheet materials in accordance with manufacturer's instructions.

B. Install tape in accordance with manufacturer's instructions.

3.4 PROTECTION OF FINISHED WORK

A. Protect finished Work under provisions of Section 01500.

B. Do not permit adjacent Work to damage Work of this Section.

END OF SECTION

SECTION 07 21 16

BLANKET INSULATION

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Batt insulation and vapor barrier.
- B. Batt insulation for filling perimeter window and door shim spaces, and crevices in exterior walls.

1.2 RELATED SECTIONS

- A. Section 07 21 13 - Board Insulation.

1.3 REFERENCES

- A. ASTM International:
 - 1. ASTM C665 - Mineral Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
 - 2. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
 - 3. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
- B. FS HH-I-521 - Insulation Blankets, Thermal, Mineral Fiber for Ambient Temperatures.

1.4 SUBMITTALS

- A. Product Data: Provide data on product characteristics, performance criteria, limitations, and thermal resistance ratings.
- B. Submit under provisions of Section 01 33 00.

2. PART 2 PRODUCTS

2.1 MANUFACTURERS - INSULATION MATERIALS

- A. Owens Corning Product - Thermal Batt Insulation.
- B. Or Engineer approved equal.

2.2 MATERIALS

- A. Batt Insulation: Preformed glass fiber batt; conforming to the following:
 - 1. Thermal Resistance: As indicated on drawings.
 - 2. Batt Size: 16 and 24 inch width.
 - 3. Facing faced on one side with kraft or foil faced vapor barrier.

- 4. S.A.B.: Sound Attenuation Batts, unfaced, lightweight, flexible fiberglass insulation batts, designed to deliver noise control in metal stud wall cavities of interior partitions.
- B. Staples: Steel wire; galvanized; type and size to suit application.
- C. Tape: Polyethylene or Polyester self-adhering type, mesh reinforced, 2 inch wide.

3. PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify site conditions.
- B. Verify that substrate, adjacent materials, and insulation are dry and ready to receive insulation.

3.2 INSTALLATION

- A. Install insulation and vapor barrier in accordance with insulation manufacturer's instructions.
- B. Install in exterior ceiling spaces without gaps or voids.
- C. Trim insulation neatly to fit spaces.
- D. Fit insulation tight in spaces and tight to exterior side of mechanical and electrical services within the plane of insulation. Leave no gaps or voids.
- E. Install with factory applied membrane facing warm side of building spaces. Lap ends and side flanges of membrane over framing members.
- F. Staple in place at maximum 6 inches on center.
- G. Tape seal butt ends, lapped flanges, and tears or cuts.
- H. Wood Framing: Place vapor and air barrier on warm side of insulation by stapling at 6 inches on center. Lap and seal sheet barrier joints over member face.
- I. Extend vapor and air barrier tight to full perimeter of adjacent window and door frames and other items interrupting the plane of membrane. Tape seal in place.
- J. When installing insulation, do not obstruct air flow from soffit vents to ridge vents. Install insulation baffles.

3.3 SCHEDULES

- A. Wall Insulation: R-21 batt, faced.

END OF SECTION

SECTION 07 28 00

FLUID APPLIED MEMBRANE AIR AND WATER BARRIERS - ABOVE GRADE

PART 1 GENERAL

1.1 RELATED DOCUMENT

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

1.2 SUMMARY

- A. Section includes vapor-permeable, fluid-applied air and water barriers.
- B. Related Requirements:
 - 1. Section 042000 "Unit Masonry" for masonry ties and flashing installation.
 - 2. Section 047000 "Manufactured Masonry" for adhered stone masonry.
 - 3. Section 072000 "Thermal Insulation" for installation of exterior insulation.
 - 4. Section 074600 "Fiber-Cement Siding" for installation of fiber-cement board siding.

1.3 DEFINITIONS

- A. Weather Barrier: A combination of materials and accessories that do the following:
 - 1. Prevent the accumulation of water as a water-resistive barrier.
 - 2. Minimize the air leakage into or out of the building envelope as a continuous air barrier.
 - 3. Provide sufficient water vapor transmission to enable drying as a vapor permeable membrane.
- B. Water-Resistive Barrier: A combination of materials and accessories that prevent the accumulation of water within the wall assembly in accordance with IBC Section 1403.2.
 - a. Primary Layer: Water-resistive barrier (fluid-applied) installed closest to building interior with all flashings and terminations integrated to this layer.
 - b. Secondary Layer: Outermost part of a double-layer system and where drainage is required behind claddings such as stucco, adhered masonry, and installation methods utilizing a lath.
- C. Continuous Air Barrier: The combination of interconnected materials, assemblies, and sealed joints and components of the building envelope that minimize air leakage into or out of building envelope in accordance with ASHRAE 90.1 Section 5.4.3.1.
- D. Vapor-Permeable Membrane: The property of having a water-vapor permeance rating of 10 perms or greater, when tested in accordance with the desiccant method using Procedure A of ASTM E 96 in accordance with definition in International Building

Code. Vapor-permeable material permits passage of moisture vapor through vapor diffusion.

- E. Vapor Diffusion: A slow movement of individual water vapor molecules from regions of higher to lower water vapor concentration (higher to lower vapor pressure).

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. For weather barrier, include data on air and water-vapor permeance based on testing in accordance with referenced standards.
- B. Sustainable Design Submittals:
 - 1. Test Reports: Envelope testing and verification of the following:
 - a. Water-Spray Test.
 - b. Air Infiltration Test.
 - c. Water Penetration Test.
 - 2. Product Data: Including the following information:
 - a. Provide Health Product Declarations (HPDs).
 - b. Provide Environmental Product Declarations (EPDs).
 - c. SDS (formerly MSDS), third-party certifications, or product technical data confirming systems that meet or exceed emissions guidelines for volatile organic compounds (VOCs) and hazardous air pollutants (HAPs), as follows:
 - 1) Commercial weather barrier complies with California Department of Public Health (CDPH) Standard.
 - 2) Adhesives and sealants wet-applied on-site that meet/exceed VOC content requirements for wet applied products comply with SCAQMD Rule 1168.
 - 3) Flashing systems comply with SCAQMD Rule 1168 on VOC limits.
- C. Shop Drawings:
 - 1. Show details of weather barrier at terminations, openings, and penetrations.
 - 2. Show details of weather barrier applications.

1.5 INFORMATIONAL SUBMITTALS

- A. Manufacturer's Instructions: For installation of each product specified.
- B. Qualification Data: For Installer.
- C. Sample Warranty: For manufacturer's warranty.
- D. Reports: Field test and inspection reports.
- E. Installer's weather barrier manufacturer training certificate.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified firm that is certified by weather barrier system manufacturer to install manufacturer's product.
- B. Manufacturer's Field Service: Register Project with weather barrier manufacturer prior to installation of weather barrier and comply with weather barrier manufacturer's Project Registration and Observation process.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Remove and replace liquid materials that cannot be applied within their stated shelf life.
- B. Protect stored materials from direct sunlight.
- C. Store in a dry environment between 50 and 80 deg F (10 and 27 deg C).

1.8 WARRANTY

- A. Manufacturer's Product Warranty: Manufacturer agrees to repair or replace weather barrier product that fails in materials within specified warranty period.
 - 1. Warranty Period: 10 years from date of product purchase.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain weather barrier assembly components, including weather barrier from same manufacturer as weather barrier or manufacturer approved by weather barrier manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. General Performance: Installed weather barrier and accessories shall withstand specified wind pressures, liquid water penetration, and water vapor pressures, without failure due to defective manufacture of products.
- B. High-Performance Installations:
 - 1. For installation with one of the following building envelope performance or structural characteristics:
 - a. Exceeding 65 mph (100 km/h) equivalent structural load.
 - b. Exceeding 15 mph (24 km/h) equivalent wind-driven rainwater infiltration.
 - c. Buildings with 60 feet (18 m) or more total height above grade plane, as defined by the IBC.
 - d. Construction with gypsum or cement-based exterior sheathing.

- e. Non-wood based primary structure such as steel, light-gauge steel, masonry, or concrete.

2.3 WEATHER BARRIER

- A. Basis-of-Design Product: DuPont de Nemours Inc. DuPont™ Tyvek® Fluid Applied WB+™ or comparable product approved by the professional.
- B. Fluid-Applied Membrane: ASTM E 2357 passed, Air Barrier Association of America (ABAA) evaluated air barrier assembly, and assembly water resistance in accordance with ASTM E 331; with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, when tested in accordance with ASTM E 84; UV stabilized for nine-month exposure; and acceptable to authorities having jurisdiction.
 - 1. Air Permeance, Product: Not more than 0.001 cfm/sq. ft. at 1.57 lbf/sq. ft. (0.005 L/s x sq. m at 75 Pa) when tested in accordance with ASTM E 2178.
 - 2. Air Permeance, Assembly: Not more than 0.04 cfm/sq. ft. at 1.57 lbf/sq. ft. (0.2 L/s x sq. m at 75 PA) when tested in accordance with ASTM E 2357 and evaluated by the ABAA.
 - 3. Water Penetration Resistance, Product: Hydrostatic-head resistance greater than 92.5 inches (235 cm) in accordance with AATTC 127.
 - 4. Water Penetration Resistance, Assembly: Assembly wall specimen described in ASTM E 2357 to water resistance in accordance with ASTM E 331 to 2.86 lbf/sq. ft. (137 Pa) 6.24 lbf/sq. ft. (300 Pa) 10.4 lbf/sq. ft. (500 Pa) 12.5 lbf/sq. ft. (575 Pa).
 - 5. Water-Vapor Permeance: Not less than 10 perms (570 ng/Pa x s x sq. m) in accordance with ASTM E 96/E 96M, Desiccant Method (Procedure A) or not less than 20 perms (1100 ng/Pa x s x sq. m) in accordance with ASTM E 96/E 96M, Water Method (Procedure B).
 - 6. Allowable UV Exposure Time: Not less than nine months, when tested in accordance with ASTM G 155 (accelerated weathering).
 - 7. Flame Propagation Test: Test materials and construction in accordance with NFPA 285.
 - 8. Weather barrier system shall have a VOC content of 30 g/L or less.

2.4 WEATHER BARRIER FLASHING

- A. Conformable Weather Barrier Flashing: Composite flashing material composed of micro-creped, polyethylene laminate with a 100 percent butyl-based adhesive layer; AAMA 711 Class A (no primer), Level 3 thermal exposure of 176 deg F (80 deg C) for seven days.
 - 1. Basis-of-Design Product: DuPont de Nemours Inc. DuPont™ FlexWrap™ NF or approved equal.
 - 2. Conformability: Able to create a seamless sill pan extending up the jambs without cuts, patches, or fasteners.
 - 3. Water Penetration: No leakage at 15 psf (720 Pa) in accordance with ASTM E 331.
 - 4. Low Temperature Adhesion: Exceeds minimum value of 1.5 lb./in. (0.26N/mm) at 25 deg F (-4 deg C) as Class A (without primer use).

5. Adhesion After Water Immersion: Exceeds minimum value of 1.5 lb./in. (0.26N/mm), after AAMA 800, Sections 2.4.1.3.1/2.4.1.4.3 Test B.
- B. Strip Flashing: Composite flashing material composed of spunbonded polyethylene laminate with a 100 percent butyl-based adhesive layer; AAMA 711, Class A (no primer), Level 3 thermal exposure of 176 deg F (80 deg C) for seven days.
1. Basis-of-Design Product: DuPont de Nemours Inc. DuPont™ Tyvek® StraightFlash™ DuPont™ Tyvek® StraightFlash™ VF or approved equal.
 2. Water Penetration: No leakage at 15 psf (720 Pa) in accordance with ASTM E 331.
 3. Low Temperature Adhesion: Exceeds minimum value of 1.5 lb./in. (0.26N/mm) at 25 deg F (-4 deg C) as Class A without primer use.
 4. Adhesion After Water Immersion: Exceeds minimum value of 1.5 lb./in. (0.26N/mm), after AAMA 800, Sections 2.4.1.3.1/2.4.1.4.3 Test B.
- C. Primer for Flashings: Synthetic rubber-based product. Spray applied. Strengthen the adhesive bond at low temperature applications between weather products, such as self-adhered Flashing Products, Commercial Building Wraps, and common building sheathing materials.
1. Basis of Design Product: DuPont de Nemours Inc. DuPont™ Adhesive/Primer or approved equal.
 2. Peel Adhesion Test: Passes ASTM D 3330, Test Method F, for the following:
 - a. Peel Angles: 0, 25, 72, and 180 degrees.
 - b. Substrates: Concrete masonry units (CMU), exterior gypsum sheathing, oriented strand board (OSB), aluminum, and vinyl.
 3. Chemical Compatibility per AAMA 713: Pass.
 4. Flame Spread Index per ASTM E 84: 5.
 5. Smoke Development Index per ASTM E 84: 0.

2.5 FLUID APPLIED FLASHING AND SEALANT

- A. Fluid Applied Flashing: Trowel or brush applied, non-water soluble, single component, silyl terminated polyether technology (STPE), vapor permeable, flashing material.
1. Basis-of-Design Product: DuPont de Nemours Inc. DuPont™ Tyvek® Fluid Applied Flashing and Joint Compound+ or approved equal.
 2. VOC Content: ASTM C 1250, less than 2 percent by weight and less than 30 g/L.
 3. Water Vapor Transmission: ASTM E 96, Method B, greater than 20 perms at 25 mils (0.64 mm) thick.
 4. Minimum Tensile Strength: ASTM D 412, 165 psi (1140 kPa).
 5. Minimum Elongation at Break: ASTM D 412, 360 percent.
- B. Fluid Applied Sealant: ASTM C 920
1. Extension-Recovery/Adhesion per ASTM C 736: 100 percent recovery.
 2. Accelerated Weathering/Low Temperature Flexibility per ASTM C 793: Pass.
 3. VOC Percentage by Weight per ASTM C 1250: Less than 2 percent.
 4. VOC per ASTM C 1250: Less than 30 g/L.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
 - 1. Verify that substrates are sound and free of oil, grease, dirt, excess mortar, or other contaminants.
 - 2. Verify that substrates have cured and aged for minimum time recommended in writing by weather barrier manufacturer.
 - 3. Verify that substrates are visibly dry and frost-free.
 - a. Fluid-applied weather barrier may be applied to damp surfaces.
 - b. Surfaces are considered damp if there is no visible water on the surface, and no transfer of water to the skin when touched.
 - c. Apply accessory products only to clean and dry surfaces.
 - 4. Verify that substrates are free of efflorescence and mold.
 - 5. Verify that masonry joints are flush and filled with mortar.
 - 6. Verify that top-of-wall system has been capped or covered to prevent water getting behind the facade and into wall cavity.
 - 7. Verify continuous path for moisture drainage.
 - a. Verify that continuous path for drainage is not blocked or disrupted, which results in excess moisture buildup in wall cavity.
 - 8. Verify that surfaces to receive weather barrier are above grade.
- B. Verify that substrate and surface conditions are in accordance with commercial weather barrier manufacturer recommendations prior to installation.
 - 1. Verify that rough sill framing for doors and windows slopes downward towards the exterior and is level across width of opening.
- C. Verify air and surface temperatures are above 25 deg F (4 deg C) with a maximum surface temperature of 140 deg F (60 deg C). Do not install once ambient temperature exceeds 95 deg F (35 deg C) unless surface is shaded.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean, prepare, treat, fill, and seal substrate and joints and cracks in substrate in accordance with manufacturer's written instructions and details. Provide clean, dust-free, and dry substrate for air-barrier application.
- B. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.
- C. Remove fins, ridges, mortar, and other projections and fill honeycomb, aggregate pockets, holes, and other voids in concrete with substrate-patching material.
- D. Remove excess mortar from masonry ties, shelf angles, and other obstructions.

- E. At changes in substrate plane, apply sealant or termination mastic beads at sharp corners and edges to form a smooth transition from one plane to another.
- F. Cover gaps in substrate plane and form a smooth transition from one substrate plane to another with stainless-steel sheet mechanically fastened to structural framing to provide continuous support for air barrier.
- G. When spraying is method of application, taper ends of the joint treatment to assist maintaining a wall system free of pinholes and voids.
- H. Treat all non-moving transition joints to beams, columns, and dissimilar materials by applying a 2-inch- (50-mm-) wide by 60-mil- (1.5-mm-) thick coat of fluid-applied flashing across the joint.
- I. Apply 25-mil- (0.6-mm-) thick coat of fluid-applied flashing, extending a minimum 2 inches (51 mm) on each surface, and treat the following conditions:
 - 1. Joints up to 1/4 inch (6 mm).
 - 2. Joints 1/4- to 1/2-inch (6- to 13-mm); reinforce with fiberglass-mesh tape.
 - 3. Joints and transitions up to 1 inch (25 mm); treat using strip flashing.
- J. Bridge isolation joints expansion joints and discontinuous wall-to-wall, deck-to-wall, and deck-to-deck joints with air-barrier accessory material that accommodates joint movement in accordance with manufacturer's written instructions and details.
- K. When spraying is method of application, taper ends of fluid applied corner treatment to wall substrate.
- L. Treat inside and outside corners by applying a 25-mil- (0.6-mm-) thick coat of fluid applied weather barrier a minimum 2 inches (50 mm) on each adjoining surface. Apply fillet bead of fluid-applied sealant to inside corners to ensure continuity. Alternatively, treat corners using strip flashing. Press strip flashing into inside corners; ensure that it is fully adhered to substrate.
- M. Seal penetrations using fluid-applied flashing or sealant. Extend fillet bead 1/2 inch (13 mm) onto both surfaces.
- N. Treat embedded masonry anchors by applying a coat of fluid-applied weather barrier or fluid-applied flashing around base of the anchor.

3.3 ACCESSORIES INSTALLATION

- A. Install accessory materials in accordance with air-barrier manufacturer's written instructions and details to form a seal with adjacent construction and ensure continuity of air and water barrier.
 - 1. Unless manufacturer recommends in writing against priming, apply primer to substrates at required rate and allow to dry.
 - 2. Use recommended primer when applying self-adhered flashing products on concrete, masonry, and fiber faced exterior gypsum board substrates. Priming is generally not required for adhering self-adhered flashing products to wood. However, adverse weather conditions or colder temperatures may require a

- primer to promote adhesion. Priming is not required when applying fluid-applied products, except on cut edges of exterior gypsum sheathing.
3. Apply pressure along entire surface of strip flashing for good bond using a J-roller or firm hand pressure. Remove all wrinkles and bubbles by smoothing surface and repositioning as necessary.
- B. When applying self-adhered flashing products over a cured fluid-applied membrane, first apply a wet bed of fluid-applied product.
 - C. Seal fasteners of mechanically attached supports or furring strips in high-performance building envelope designs.
 1. Apply double-sided butyl tape to back of support bracket at fastener location.
 2. Embed support bracket into an additional wet bed of fluid applied product.
 3. Adhere butyl-based flashing patch to wall at fastener location.
 4. Use alternate method as approved by the manufacturer.
 - D. At end of each working day, seal top edge of strips and transition strips to substrate with manufacturer approved product.
 - E. Apply joint sealants forming part of air-barrier assembly within manufacturer's recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
 - F. Apply fluid-applied flashing products from head of opening down. Use a corner trowel to smooth corners.
 - G. Repairs:
 1. Coat small, damaged areas with layer of fluid-applied product.
 2. Reinforce large, damaged areas with fiberglass mesh or replace damaged substrate before reapplying fluid-applied product.

3.4 PRIMARY AIR-BARRIER MATERIAL INSTALLATION

- A. Apply air-barrier material to form a seal with strips and transition strips, and to achieve a continuous air barrier in accordance with air-barrier manufacturer's written instructions and details. Apply air-barrier material within manufacturer's recommended application temperature ranges.
 1. Unless manufacturer recommends in writing against priming, apply primer to substrates at required rate and allow it to dry.
 2. Limit priming to areas that will be covered by air-barrier material on same day. Reprime areas exposed for more than 24 hours.
 3. Where multiple prime coats are needed to achieve required bond, allow adequate drying time between coats.
 4. Fluid applied products may be overcoated once a touch-free skin has formed. Exterior insulation and cladding may be installed once the membrane has cured sufficiently to resist damage during installation.
- B. Apply air barrier material in accordance with air-barrier manufacturer's written instructions and recommendations.

1. Roller Application:
 - a. Nap rolling: Use a roller cover with a 1/2- to 3/4-inch (13- to 19-mm) nap.
 2. Spray Application:
 - a. Mask off adjoining surfaces not covered by air barrier to prevent spillage and overspray affecting other construction.
 - b. Use spray guard.
 - c. Back Rolling: Use a roller cover with a 1-1/2- to 3/4-inch (13- to 19-mm) nap. Apply fluid-applied product in a single coat at 25 mils (0.64 mm) thick. Control thickness by applying appropriate volume over a marked area and spot checking with a wet-mil gauge.
- C. Integrate fluid-applied product with through-wall flashing and window and door flashing by overlapping flashing with fluid-applied product a minimum 2 inches (50 mm).
- D. Inspect surfaces to ensure that fluid-applied products are continuous and free of any voids or pinholes.
- E. Do not cover air barrier until it has been tested and inspected by the testing agency.
- F. Correct deficiencies in or remove air barrier that does not comply with requirements; repair substrates and reapply air-barrier components.

3.5 FIELD QUALITY CONTROL

- A. ABAA Quality Assurance Program: Perform examinations, preparation, installation, testing, and inspections under ABAA's Quality Assurance Program.
- B. Inspections: Air-barrier materials, accessories, and installation are subject to inspection for compliance with requirements.
1. Continuity of air-barrier system has been achieved throughout the building envelope without gaps, holes, or pinholes.
 2. Air-barrier dry film thickness.
 3. Continuous structural support of air-barrier system provided.
 4. Masonry and concrete surfaces are smooth, clean, and free of cavities, protrusions, and mortar droppings.
 5. Site conditions for application temperature, and dryness of substrates are maintained.
 6. Maximum exposure time of materials to UV deterioration not exceeded.
 7. Surfaces primed, where applicable.
 8. Laps in strips and transition strips comply with minimum requirements, are shingled in correct direction (or mastic applied on exposed edges), and are without fishmouths.
 9. Termination mastic applied on cut edges.
 10. Strips and transition strips firmly adhered to substrate.
 11. Compatible materials used.
 12. Transitions at changes in direction and structural support at gaps provided.

13. Connections between assemblies (air-barrier and sealants) comply with requirements for cleanliness, surface preparation and priming, structural support, integrity, and continuity of seal.
 14. Each penetration sealed.
- C. Field Quality Control Testing: Perform the following test on:
1. Air Infiltration Whole Building: ASTM E 779 at not more than 0.40 cfm/sf (2.00 L/s per sq. m) 0.25 cfm/sf (1.25 L/s per sq. m) 0.15 cfm/sf (0.75 L/s per sq. m) at 1.57 lb/sq. ft. (75 Pa).
 2. Water Penetration: ASTM E 1105 at a minimum uniform and cyclic static-air-pressure differential of 0.67 times the static-air-pressure differential specified for laboratory testing in "Performance Requirements" Article in Part 2, but not less than 2.86 lbf/sq. ft. (137 Pa) 6.24 lbf/sq. ft. (300 Pa) 10.4 lbf/sq. ft. (500 Pa) 12.5 lbf/sq. ft. (600 Pa). No water penetration shall occur as defined in ASTM E 1105.
 3. Adhesion Testing: Air-barrier assemblies will be tested for required adhesion to substrate in accordance with ASTM D 4541 for each 600 sq. ft. (56 sq. m) of installed air barrier or part thereof.
- D. Air barriers will be considered defective if they do not pass tests and inspections.
1. Apply additional air-barrier material, in accordance with manufacturer's written instructions, where inspection results indicate insufficient thickness.
 2. Remove and replace deficient air-barrier components for retesting as specified above.
- E. Repair damage to air barriers caused by testing; follow manufacturer's written instructions.
- F. Prepare test and inspection reports.

3.6 CLEANING AND PROTECTION

- A. Protect air-barrier system from damage during application and remainder of construction period, in accordance with manufacturer's written instructions.
1. Protect air barrier from exposure to UV light and harmful weather exposure as recommended in writing by manufacturer. If exposed to these conditions for longer than recommended, remove and replace air barrier or install additional, full-thickness, air-barrier application after repairing and preparing the overexposed materials in accordance with air-barrier manufacturer's written instructions.
 2. Protect air barrier from contact with incompatible materials and sealants not approved by air-barrier manufacturer.
- B. Clean spills, stains, and soiling from construction that would be exposed in the completed work using cleaning agents and procedures recommended in writing by manufacturer of affected construction.
- C. Remove masking materials after installation.

END OF SECTION

SECTION 07 40 00

METAL ROOFING AND ACCESSORIES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Prefinished metal roofing.
- B. Fasteners, anchorages, connectors, bolts and other components and material required for complete and watertight installation.

1.2 RELATED SECTIONS

- A. Section 01 33 00 - Submittals.
- B. Section 05 42 50 - Pre-Engineered, Pre-Fabricated, Cold-Formed, Steel Trusses.
- C. Section 06 10 00 - Rough Carpentry.
- D. Section 07 42 13 - Metal Wall Panels.
- E. Section 07 61 00 - Preformed Metal Soffit, Fascia, and Accessories.

1.3 REFERENCES

- A. Federal Specification (Fed Spec):
 - 1. TT-P-31 - Paint, Oil: Iron-Oxide, Ready Mixed, Red and Brown.
- B. Steel Deck Institute (SDI): "Steel Roof Deck Design Manual".
- C. Building code and other applicable regulations of governing authorities having jurisdiction at project site.

1.4 SYSTEM DESCRIPTION

- A. Wall and Roof System: Preformed metal panels of vertical profile and accessory components.

1.5 SUBMITTALS

- A. Product Data: Three copies of manufacturer's specifications and descriptive literature.
- B. Material and Color Samples
 - 1. For each specific material sample requested by Architect, submit in size, form, and number directed.
 - 2. Submit duplicate color sample sets showing full color range available, for selection purposes.

- C. Installation and Maintenance Instructions: Submit complete installation and maintenance instructions of all components.
- D. Submit color selection to Owner for review prior to applying final coat of paint finish.

1.6 QUALITY ASSURANCE

- A. The manufacturer shall not have less than 15 years experience in manufacture of systems building and shall be a member of MBMA.
- B. Builders and erectors shall not have less than 5 years experience in erecting metal roofing similar to those required for the project.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Deliver and store prefabricated components, sheets, panels, and other manufactured items so that they will not be damaged or deformed.
- B. Stack materials on platforms or pallets, covered with tarps or other approved weathertight ventilated covering.
- C. Store metal sheets and panels so water accumulation will drain freely. Do not store sheets and panels in contact with other materials which might cause staining.
- D. Store material to be readily accessible, with factory markings visible.
- E. Store materials in accordance with Section 01 60 00 - Material and Equipment.

1.8 WARRANTIES

- A. Provide manufacturer's written weathertightness warranty for a maximum of twenty (20) years against leaks in roof panels arising out of or caused by ordinary wear and tear under normal weather and atmospheric conditions. Warranty shall be signed by both the metal roofing system manufacturer and the metal roofing system Contractor.
- B. Provide manufacturer's standard written warranty for twenty (20) years against perforation of metal roof panels due to corrosion under normal weather and atmospheric conditions. Warranty shall be signed by metal roofing system manufacturer.
- C. Provide manufacturer's standard paint film written warranty for twenty (20) years against cracking, peeling, chalking, and fading of the coating on painted roof panel's accessories. Warranty shall be signed by building system or roof system manufacturer. Manufacturer warrants that coating shall not blister, peel, crack, chip, or experience material rust through for 20 years. For a period of 20 years chalking shall not exceed #8 ASTM and fading shall be 5 E (Hunter Units) Color Difference Units or less.

PART 2 - PRODUCTS

2.1 MATERIALS – ROOF SYSTEM

- A. Roof Panels:
 - 1. Roof panels shall be factory roll-formed panels 24 gage steel, with standing seam spacing 15” o.c., 1.5" high. The flat of the panel shall contain stiffening ribs.
 - 2. Panel finish: Manufacturer’s standard baked-on siliconized polyester finish over galvanized finish, color as selected by the Owner.
- B. Fasteners:
 - 1. Standing-Seam Roof Panels:
 - a. Panel Clips: Manufacturer’s standard concealed flat clip and fastener system. Clip is hooked low on the panel “leg” keeping the attachment close to the base of the panel, counteracting the effects of the wind uplift. Provide complete with three self-drilling anchors at each clip.
 - 2. Exposed Fasteners for Eave, End Splice, Fascia Copings and Flashings: Manufacturer’s standard self-drilling screw with hex head and neoprene sealing washer. Cap head and washer backer with 0.008-in. thick type 302 stainless steel caps. Painted or unpainted.

2.2 ACCESSORIES

- A. Accessories to be 0.040 thick aluminum factory colored:
 - a. Flashing.
 - b. Trim.
 - c. Fascia Copings.
 - d. Eave Copings.
 - e. Closure strips.
 - f. Corner Posts.
- B. Snow Retention System (Snow Bars):
 - 1. SnoBar by Action Manufacturing distributed by Snoblox-Snojax, Lemoyne, PA (800) 766-5291 www.snobarcolorbar.com or approved equal.
 - 2. Bars: 16 gauge galvanized steel bar.
 - 3. Clamps: 12 gauge one-piece stainless steel clamps with 2 “cup tipped” stainless steel set screws used at every roof seam.
 - 4. Finish: Powder coat – color to match or be similar to metal roofing.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that substrate is ready for roofing finish prior to installing metal roof panels and accessories.

3.2 ERECTION

- A. Standing Seam Roof Panels:
 - 1. General:

- a. Exercise care when cutting prefinished material to ensure cuttings does not remain on finish surface; protect factory finishes from damage.
 - b. Install roof panels with long edges running parallel to ends of building.
 - c. Arrange and nest sidelap joints so prevailing winds will blow over, not into, lapped joints. Lap ribbed sheets shall be lapped one full rib corrugation.
 - d. Apply panels and associated items for neat and weathertight enclosure.
 - e. Fasten to supports aligned, level and plumb.
 - f. Install approved-type closure to exclude weather.
 - (i) Provide mastic under fascia coping. Flash and seal roof panels at eave and elsewhere as required or shown on drawings.
2. Standing Seam Roof Panels:
- a. Install panels with positive interlock between installation clips and standing seams in a manner that will allow panels to support erection loads prior to closing of seams with seamer.
 - b. Install concealed anchor clips along each standing seam at location and spacing recommended by metal building manufacturer.
 - c. Where panel end splices occur, nest panels with 3-in. end laps and install interlocking clamping plates with factory-punched holes and sealant. Make splice independent of structure to allow for free expansion and contraction movement of panels without stress on splice.
 - d. Close standing seams with approved type motorized seamer tool, to assure complete sealant engagement and to assure structural integrity of panel-to-panel and panel-to-clip connections.
 - e. Use roof-panel-penetrating type fasteners only at eaves and end splices (when required). At these conditions, use fasteners in conjunction with clamping plates, with factory-punched holes to assure correct fastener placement, and approved butyl sealant to assure positive watertight seals.
 - f. Install fascia coping units of approved expansion joint design to accommodate expansion and contraction movement of roof panels.
 - g. Coordinate installation of accessories and items to be mounted on metal roofing.

3.3 INSTALLATION - ACCESSORIES

- A. Install flashing, trim, fascia copings, closure strips, corner posts, eave copings and other accessories and sheet metal items in accordance with manufacturer's recommendations for positive anchorage to building and weather tight mounting.

3.4 CLEANING

- A. Touch up abrasions, marks, skips or other defects in shop-primed or factory-finished painted surfaces with same type material as used for shop primer or factory painting.
- B. Remove from the site all scraps and debris left or caused by the work of this section.

END OF SECTION

SECTION 07 61 00

PREFORMED METAL SOFFIT, FASCIA AND ACCESSORIES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. This section covers the furnishing of all labor, materials, tools and equipment required to clean, repair and/or replace all soffit, fascia, and required trim pieces as herein specified and/or as required for a complete job.
- B. Submittals: Contractor is to submit samples of stock and field fabricated trim sections to be used on this project for Owner's review. Color samples are to be submitted on actual material for all siding and accessories to be used. Manufacturer's brochures or photocopies will not be considered for review.

1.2 REFERENCES

- A. AAMA 1402-86 Standard Specifications for Aluminum Soffit and Fascia.
- B. ASTM E 84-06 Flame Spread and Smoke Development.

1.3 SUBMITTALS

- A. Submit under provisions of Section 01 33 00.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Materials shall be made of 3105-type aluminum sheet with a minimum tensile strength of 29,000 psi. Materials shall be prefinished in manufacturer's standard colors as selected by the Owner from samples submitted by the Contractor.
- B. Fascia: Prefinished aluminum fascia, height as drawings show, min. 0.024" with at least 2 stiffener ribs.
- C. Soffit: Prefinished aluminum soffit, triple 4", .375" high, 12-inch exposure, min. 0.024" non-ventilated and ventilating panels.

- D. Soffit and Siding Accessories: Prefinished aluminum channels, edges and trim sections compatible with the soffit and fascia systems and as required for a complete installation. Thickness shall be a min. of 0.019". Color to match adjacent material.
- E. Field Fabricated Trim: Trim shall be fabricated from 0.019" prefinished aluminum Trim Sheet.

PART 3 EXECUTION

3.1 CLEANING

- A. Clean all exterior finishes and trim which are scheduled to remain. Use stiff brushes and clear water. Detergents may be used provided no damage results to existing finishes or adjacent materials or plantings. Exercise extreme caution to prevent scratches, dents or other damage to surfaces (including sealants) being cleaned.

3.2 INSTALLATION

- A. All materials in this section to be installed in accordance with manufacturer's instructions.
- B. Care must be exercised in placing aluminum in contact with metals or materials not compatible with aluminum. Dissimilar materials shall be painted or otherwise protected when they are in contact with aluminum or when drainage from them passes over aluminum.
- C. Fasteners shall be of a type which is compatible with material being applied and shall be concealed where possible. Any fasteners which cannot be concealed shall be colored to match material.
- D. Any soffit, fascia and/or trim sections observed to be buckling, bowing or "oil canning" will be considered as unacceptable construction and the Contractor will be required to remove and replace these sections at no additional cost. Provide stiffener ribs and/or expansion slots and/or predrill holes at fasteners in field fabricated trims to prevent bowing, buckling or "oil canning".
- E. Provide horizontal blocking at fixture and equipment fastening points. Fasten from back side of wall through blocking, sheathing and plywood blocking.

END OF SECTION

SECTION 07 62 00

SHEET METAL FLASHING, TRIM AND PREFABRICATED ROOF SPECIALTIES

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Flashings and counter-flashings.
- B. Sheet metal roofing and fabricated sheet metal items.
- C. Metal coping and cap flashing systems.
- D. Other fabricated sheet metal items required to keep building weathertight and not specified elsewhere.

1.2 RELATED WORK

- A. Section 07 40 00 - Metal Roofing and Accessories
- B. Section 07 42 13 - Metal Wall Panels
- C. Section 07 61 00 - Preformed Metal Soffit, Fascia, and Accessories
- D. Section 07 63 00 - Gutters and Downspouts
- E. Section 07 90 00 - Joint Protection

1.3 REFERENCES

- A. ASTM B370 - Copper Sheet and Strip for Building Construction.
- B. CDA (Copper Development Association) - Contemporary Copper, A Handbook of Sheet Copper Fundamentals, Design, Details and Specifications.
- C. FS SS-C-153 - Cement, Bituminous, Plastic.
- D. SMACNA - Architectural Sheet Metal Manual.

1.4 SYSTEM DESCRIPTION

- A. Work of this Section is to physically protect wall system from damage that would permit water leakage to building interior.

1.5 QUALITY ASSURANCE

- A. Applicator: Company specializing in sheet metal flashing work with 5 years minimum experience.

1.6 SUBMITTALS

- A. Submit shop drawings and product data.
- B. Describe material profile, jointing pattern, jointing details, fastening methods, and installation details.
- C. Provide product data on shape of components, materials and finishes, anchor types and locations.

1.7 STORAGE AND HANDLING

- A. Store products per manufacturer's recommendations.
- B. Stack preformed and prefinished material to prevent twisting, bending, or abrasion, and to provide ventilation.
- C. Prevent contact with materials during storage which may cause discoloration, staining, or damage.

PART 2 PRODUCTS

2.1 SHEET MATERIALS

- A. Copper fabric flashing soft temper; 5 oz/sq ft bonded to and between two layers of asphalt impregnated cotton fabric by means of an asphalt mastic.
- B. Galvanized Steel: Structural steel sheet, coating zinc G90. Comply with ASTM A653/A653M. Thickness: 0.019 inch.
- C. Prefinished Galvanized Steel Sheet: Structural steel sheet, type thick core, with zinc coating; G90. Comply with ASTM A755/A755M. Thickness: 0.019 inch. Coating: Shop precoated with polyester or two-coat fluoropolymer, color by Owner.
- D. Aluminum Sheet: Alloy and temper as required for application and finish. Comply with ASTM B209/B209M. Thickness: 0.032 inch. Finish: Anodized, color by Owner.
- E. Stainless Steel: Type 304 or 316 dead soft fully annealed. Comply with ASTM A240/A240M. Thickness: 0.018 inch. Surface: smooth finish: 2B.
- F. Zinc-Tin (Terne) – Coated Steel Sheet: Single-reduced black plate with 0.079-mil thick 50/50 zinc-tin alloy coating on both sides of core metal. Comply with ASTM A625/A625M. Coating: Factory prime painted. Thickness: 0.015 inch.

2.2 ACCESSORIES

- A. Fasteners: Galvanized steel, aluminum, stainless steel, or same material and finish as flashing metal.
- B. Sealant: As specified in Section 07 90 00 - Joint Sealers.

- C. Flashing Cement: FS SS-C-153, Type I-asphaltic base cement.
- D. Plastic Cement: Comply with ASTM D4586/D4586M, Type I.
- E. Reglets: Type to suit application (surface or recessed), galvanized steel, furnish face and ends covered with plastic tape.
- F. Solder: Type suitable for application and material being soldered. Comply with ASTM B32. Used with noncorrosive flux.

2.3 FABRICATION

- A. Form sections true to shape, accurate in size, square, and free from distortion or defects.
- B. Form pieces in longest practical lengths.

PART 3 EXECUTION

3.1 INSPECTION

- A. Beginning of installation means acceptance of existing conditions.

3.2 INSTALLATION

- A. Conform to drawing details for cavity wall included in SMACNA manual.
- B. On horizontal surfaces flashing to be laid either in a fresh bed of mortar above and below or a trowel coat of mastic. Vertical surfaces shall be spotted with asphalt mastic to hold flashing in place.
- C. Heads and Sills: Flashing shall start 1/2 inch from outside face of wall, then thru the wall turning up at the inside not less than 2 inches and extend 6 inches on each side of the opening. It shall be turned at the ends forming a 2 inch deep pan running entirely thru the wall.
- D. Thru Wall: Flashing shall start 1/2 inch from the outside face of wall, then go thru wall turning up at the inside not less than 2 inches.
- E. Coping: Flashing shall be laid in a fresh bed of mortar above and below and shall come within 1/2 inch of the faces of the wall.
- F. Metal Coping/Cap Flashing: Not used.
- G. Joints: The material shall be lapped at least 4 inches and cemented with an asphalt mastic.

END OF SECTION

SECTION 07630

GUTTERS AND DOWNSPOUTS

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Gutters and downspouts.
- B. Splash blocks.
- C. Downspout boots and shoes.

1.2 RELATED SECTIONS

- A. Section 07 40 00 - Metal Roofing and Accessories.
- B. Section 07 42 13 - Metal Wall Panels.
- C. Section 07 61 00 - Preformed Metal Soffit, Fascia, and Accessories.
- D. Section 07 90 00 - Joint Protection.

1.3 REFERENCES

- A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- B. ASTM B32 - Standard Specification for Solder Metal.
- C. FS TT-C-494 - Coating Compound, Bituminous, Solvent Type, Acid Resistant.
- D. SMACNA - Architectural Sheet Metal Manual.
- E. NRCA - The NRCA Roofing Manual.

1.4 SUBMITTALS

- A. Submit shop drawings and product data.
- B. Provide product data on prefabricated components.
- C. Submit samples.

1.5 QUALITY ASSURANCE

- A. Conform to SMACNA Manual for nominal sizing of components for rainfall intensity determined by a storm occurrence of 1 in 10 years.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store and protect products to site per manufacturer's recommendations.
- B. Stack preformed and pre-finished material to prevent twisting, bending, or abrasion, and to aid ventilation. Slope to drain.
- C. Prevent contact with materials during storage which may cause discoloration, staining, or damage.

2. PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Atlanta Metal Products.
- B. Berger Building Products, Inc.
- C. Castle Metal Products.
- D. Classic Gutter Systems.
- E. Rainmaster Corporation
- F. Or Architect approved equal.

2.2 MATERIALS

- A. Prefinished Galvanized-Steel Sheet: ASTM A653/A653M, .025 inch thick; shop pre-coated with PVDF coating of selected color to match soffit and fascia finish.

2.3 COMPONENTS

- A. Forming of Sections: Square and accurate in size. Maximum possible lengths. Shapes as indicated on Drawings. Allow for expansion at joints.
- B. Fabricate with required connection pieces.
- C. Hem exposed edges of metal.
- D. End Caps, Downspout Outlets, Straps, Support Brackets, Joint Fasteners and Down Spout Strainers: Profiled to suit gutters and downspouts.
- E. Splash Blocks: Precast concrete type (3"H. x 11"W. x 30"L.); minimum 3,000 psi at 28 days, with minimum 5 percent air entrainment.

2.4 ACCESSORIES

- A. Anchorage Devices: Type recommended by fabricator.
- B. Gutter Supports: Brackets.

- C. Downspout Supports: Brackets.
- D. Protective Backing Paint: Zinc chromate alkyd.

2.5 FABRICATION

- A. Form gutters and downspouts of profiles and size indicated.
- B. Field measure site conditions prior to fabricating work.
- C. Fabricate with required connection pieces.
- D. Form sections square, true, and accurate in size, in maximum possible lengths and free of distortion or defects detrimental to appearance or performance.
- E. Fabricate gutter and downspout accessories; seal watertight.

2.6 SHOP FINISHING

- A. Backpaint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil.

3. PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that surfaces are ready to receive work and conditions are as instructed by the manufacturer.
- B. Beginning of installation means acceptance of existing conditions.

3.2 INSTALLATION

- A. Install gutters, downspouts, and accessories in accordance with manufacturer's instructions.
- B. Join lengths with seams sealed watertight. Flash and seal gutters to downspouts and accessories.
- C. Apply backing paint to metal back surfaces.
- D. Apply bituminous protective backing on surfaces in contact with dissimilar materials.
- E. Slope gutters 1/8 inch per ten feet minimum.
- F. Seal metal joints watertight.
- G. Set splash blocks under downspouts.

END OF SECTION

SECTION 07 65 26

SELF-ADHERING SHEET MEMBRANE FLASHING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Application of self-adhering sheet membrane flashing.

1.02 RELATED SECTIONS

- A. Section 04 05 23.16 – Masonry Embedded Flashing.
- B. Section 07 21 00 – Thermal Insulation.
- D. Section 07 62 00 – Sheet Metal Flashing, Trim and Prefabricated Roof Specialties.
- F. Section 08 10 00 – Doors and Frames.
- G. Section 08 50 00 – Windows.

1.03 REFERENCES

- A. ASTM D 412 – Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension.
- B. ASTM D 570 – Standard Test Method for Water Absorption of Plastics.
- C. ASTM D 882 – Standard Test Method for Tensile Properties of Thin Plastic Sheeting.
- D. ASTM D 903 – Standard Test Method for Peel or Stripping Strength of Adhesive Bonds.
- E. ASTM D 1000 – Standard Test Methods for Pressure-Sensitive, Adhesive-Coated Tapes used for Electrical and Electronic Applications.
- F. ASTM D 1876 – Standard Test Method for Peel Resistance of Adhesives
- G. ASTM E 96 (Method B) – Standard Test Method for Water Vapor Transmission of Materials.
- H. ASTM E 154 – Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover.
- I. ASTM E 2357– Standard Test Method for Determining Air Leakage of Air Barrier Assemblies.

1.04 SUBMITTALS

- A. Comply with Section 01 33 00 - Submittal Procedures.
- B. Submit manufacturer's product data and application instructions.

1.05 QUALITY ASSURANCE

- A. Applicator Qualifications: Use an experienced applicator and adequate number of skilled personnel who are thoroughly trained and experienced in the application of self-adhesive membranes.
- B. Materials: Provide self-adhesive flashing membrane materials which are the products of a single manufacturer.
- C. Pre-Application Conference: A pre-application conference shall be held to establish procedures and to review conditions, installation procedures and coordination with other related work. Meeting agenda shall include review of special details and flashing.
- D. Manufacturer's Representative: Arrange to have trained representative of the manufacturer on-site periodically to review installation procedures.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Store materials in a clean, dry area in accordance with manufacturer's instructions.
- C. Store at temperatures at or above 40°F (5°C) free from contact with cold or frozen surfaces.
- D. Store membrane cartons on pallets.
- E. Do not store at temperatures above 90°F (32°C) for extended periods.
- F. Keep away from sparks and flames.
- G. Completely cover when stored outside. Protect from rain.
- H. Protect materials during handling and application to prevent damage or contamination.
- I. Avoid use of products which contain tars, solvents, pitches, polysulfide polymers, or PVC materials that may come into contact with the flashing membrane system.

1.07 PROJECT CONDITIONS

- A. Proceed with installation only when substrate construction and preparation work is complete. If necessary, ensure that subsoil is approved by architect or geotechnical firm.
- B. Warn personnel against breathing of vapors and contact with skin and eyes; wear appropriate protective clothing and respiratory equipment.
- C. Keep flammable products away from spark or flame. Post "No Smoking" signs. Do not allow use of spark-producing equipment during application and until all vapors have dissipated.
- D. Maintain work area in a neat and workmanlike condition. Remove empty cartons and rubbish from the site daily.
- E. Perform work only when existing and forecasted weather conditions are within the limits established by the membrane manufacturer. Do not apply flashing if the temperature is below 40°F (5°C); or to a damp, frost-covered, or otherwise contaminated surface.

1.08 WARRANTY

- A. Manufacturer warrants only that this product is free of defects, since many factors which affect the results obtained from this product are beyond our control; such as weather, workmanship, equipment utilized and prior condition of the substrate. We will replace, at no charge, proven defective product within twelve (12) months of purchase, provided it has been applied in accordance with our written directions for uses we recommended as suitable for this product. Proof of purchase must be provided. A five (5) year material or system warranty may be available upon request. Contact Polyguard Products, Inc. for further details.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. Polyguard Products Inc. P.O. Box 755 Ennis, TX 75120-0755; Phone: (214) 515-5000
Fax: (972) 875-9425 E-mail: info@polyguard.com
- B. Substitutions: As specified in Section 016000 - Product Requirements

2.02 MATERIALS

- A. Polyguard® 400 Flashing is a 40-mil, laminated, modified-asphalt, self-adhesive flashing membrane bonded to a cross-laminated polyethylene sheet.

PHYSICAL PROPERTIES

PROPERTY	TEST METHOD	TYPICAL VALUE
MEMBRANE THICKNESS	ASTM D 1000	40 Mils
SERVICE TEMPERATURE	-	-40°F to 160°F (-40°C to 71°C)
TENSILE STRENGTH - MEMBRANE	ASTM D 412 Modified Die C	675 PSI
TENSILE STRENGTH - FILM	ASTM D 882 Modified	6530 PSI
ELONGATION – ULTIMATE FAILURE OF RUBBERIZED ASPHALT	ASTM D 412 Modified Die C	200%
PERMEANCE TO WATER VAPOR TRANSMISSION	ASTM E 96 Method B	0.04 Perms
PUNCTURE RESISTANCE - MEMBRANE	ASTM E 154	63.4 lbf
PUNCTURE RESISTANCE -FILM	ASTM E 154	42.8 lbf
PEEL ADHESION	ASTM D 903	12.1 lbs/in. width
LAP PEEL ADHESION	ASTM D 1876	8.96 lbs/in. width
AIR PERMEANCE OF AN ASSEMBLY	ASTM E 2357	0.0008cfm/ft2@ 1.57 psf
WATER ABSORPTION	ASTM D 570	0.1%

1. Widths with Slit Release Film (SRF) [6], [9], [12], [18]-inches.

2.03 ACCESSORIES

- A. Surface Primer Roller-grade Adhesive:
1. Polyguard® 650 LT Liquid Adhesive: A rubber-based, tacky adhesive which is specifically formulated to provide excellent adhesion.
 2. Polyguard® California Sealant: A rubber-based sealant which is specifically formulated to provide excellent adhesion. The VOC (Volatile Organic Compound) content meets the South Coast Air Quality Management District regulations established under the February 1, 1991 version of Rule 1168 ©) (2) Adhesion and Sealant Applications. California Sealant is classified as an Architectural Sealant Primer Porous, with VOC of 527 g/L. Current SCAQMD regulations for this type sealant primer are 775 g/L.

3. Polyguard® Shur-Tac Liquid Adhesive: A polymer emulsion based adhesive which is specifically formulated to provide excellent adhesion.
- B. Edge Termination:
1. Polyguard® Detail Sealant PW™: A single-component, STPE, 100% solid moisture-cured, elastomeric sealant. It is an environmentally friendly, non-isocyanate product that replaces silicone and urethane sealants. It is a low VOC / HAPS-free, cold-applied, self-adhesive, elastomeric sealant.
 2. Polyguard® LM-95: A two-component, asphalt-modified, urethane material.
- C. End Dams and Corners:
1. The Polyguard® Preformed Inside Corner Flashing and End Dams are a 40-mil combination of rubberized asphalt bonded to a cross laminated polyethylene film. The adhesive surface is covered with a release liner.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine surfaces to receive membrane. Notify architect if surfaces are not acceptable. Do not begin surface preparation or application until unacceptable conditions have been corrected.

3.02 SURFACE PREPARATION

- A. Protect adjacent surfaces not designated to receive self-adhering flashing membrane.
- B. Clean surfaces to receive membrane in accordance with manufacturer's instructions.
- C. Do not apply membrane to surfaces unacceptable to manufacturer.
- D. All surfaces must be clean, smooth, dry; and clean of oil, dust, and excess mortar.
- E. Flashing requires support across gaps and openings greater than 1/8-inch. Modify any 90 degree intersections, i.e. between walls and ledges, to have a sloped transition from the vertical-to-horizontal plane.
- F. On all overlaps, install at a minimum of a 2 1/2-inch side lap and 6-inch end lap.

2.03 APPLICATION

- A. Apply a coating of Polyguard® 650 LT Liquid Adhesive, California Sealant, or Shur-Tac Liquid Adhesive at a rate of 250-300 square feet per gallon, or selected Spray Adhesive; and allow the adhesive to dry to the touch before covering with associated accessories. Do not thin Liquid Adhesive. If a substrate has been coated with Polyguard® Airllok Flex®, Airllok Flex® VP, Airllok Flex® VP LT, Airllok Flex® WG, or Airllok Flex® WG LT; and the coating is cured, priming with a liquid adhesive is not necessary.
- B. Install Polyguard® 400 Flashing in ambient and substrate surface temperature of 40°F (5°C) and rising. Conduct a field adhesion test at temperatures below 40°F (5°C) prior to application.
- C. Apply pressure over the face of the installed membrane with a hard surfaced rubber roller or similar blunt instrument.
- D. Terminate the top edge of flashing with Polyguard® Detail Sealant PW™. Termination Bar is recommended.

3.04 PROTECTION

- A. 400 Flashing can be left exposed to UV for up to thirty (30) days.
- B. Cover the membrane when applicable in a manner that prevents damage to the material.

END OF SECTION

SECTION 07 90 00

JOINT PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 1. Silicone joint sealants.
 2. Nonstaining silicone joint sealants.
 3. Urethane joint sealants.
 4. Mildew-resistant joint sealants.
 5. Polysulfide joint sealants. Butyl joint sealants.
 6. Acoustical joint sealants.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

- A. Product Data: For each joint-sealant product.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- C. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch-wide joints formed between two 6-inch-long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- D. Joint-Sealant Schedule: Include the following information:
 1. Joint-sealant application, joint location, and designation.
 2. Joint-sealant manufacturer and product name.
 3. Joint-sealant formulation.
 4. Joint-sealant color.

1.5 INFORMATIONAL SUBMITTALS

- A. Product Test Reports: For each kind of joint sealant, for tests performed by manufacturer and witnessed by a qualified testing agency.
- B. Sample Warranties: For special warranties.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An authorized representative who is trained and approved by the manufacturer.
- B. Product Testing: Test joint sealants using a qualified testing agency.
 - 1. Testing Agency Qualifications: Qualified according to ASTM C 1021 to conduct the testing indicated.

1.7 FIELD CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
 - 1. When ambient and substrate temperature conditions are outside limits permitted by joint- sealant manufacturer or are below 40 deg F.
 - 2. When joint substrates are wet.
 - 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
 - 4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.8 WARRANTY

- A. Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - 1. Warranty Period: Two years from date of Substantial Completion.
- B. Special Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - 1. Warranty Period: Five years from date of Substantial Completion.
- C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:
 - 1. Movement of the structure caused by stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
 - 2. Disintegration of joint substrates from causes exceeding design specifications.
 - 3. Mechanical damage caused by individuals, tools, or other outside agents.
 - 4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

- B. VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the following:
 - 1. Architectural sealants shall have a VOC content of 250 g/L or less.
 - 2. Sealants and sealant primers for nonporous substrates shall have a VOC content of 250 g/L or less.
- C. Low-Emitting Interior Sealants: Sealants and sealant primers shall comply with the testing and product requirements of the California Department of Health's (formerly, the California Department of Health Services') "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
- D. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.2 SILICONE JOINT SEALANTS

- A. Silicone, S, NS, 100/50, NT: Single-component, nonsag, plus 100 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 100/50, Use NT.

2.3 NONSTAINING SILICONE JOINT SEALANTS

- A. Nonstaining Joint Sealants: No staining of substrates when tested according to ASTM C 1248.
- B. Silicone, Nonstaining, S, NS, 100/50, NT: Nonstaining, single-component, nonsag, plus 100 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 100/50, Use NT.

2.4 URETHANE JOINT SEALANTS

- A. Urethane, M, NS, 50, T, NT: Multicomponent, nonsag, plus 50 percent and minus 50 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C 920, Type M, Grade NS, Class 50, Uses T and NT.

2.5 MILDEW-RESISTANT JOINT SEALANTS

- A. Mildew-Resistant Joint Sealants: Formulated for prolonged exposure to humidity with fungicide to prevent mold and mildew growth.
- B. STPE, Mildew Resistant, S, NS, 50, NT: Mildew-resistant, single-component, nonsag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, silyl-terminated polyether joint sealant; ASTM C 920, Type S, Grade NS, Class 50, Use NT.

2.6 BUTYL JOINT SEALANTS

- A. Butyl-Rubber-Based Joint Sealants: ASTM C 1311.

2.7 LATEX JOINT SEALANTS

- A. Acrylic Latex: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.

2.8 ACOUSTICAL JOINT SEALANTS

- A. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
 - 1. Products: Subject to compliance with requirements, provide the following:
 - a. Pecora Corporation; AC-20 FTR or AIS-919.
 - b. USG Corporation; SHEETROCK Acoustical Sealant.

2.9 JOINT-SEALANT BACKING

- A. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin) and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.10 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and

other conditions affecting performance of the Work.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. **Surface Cleaning of Joints:** Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
 - 2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
 - a. Concrete.
 - b. Masonry.
 - 3. Remove laitance and form-release agents from concrete.
 - 4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
 - a. Metal.
 - b. Glass.
 - c. Glazed surfaces of ceramic tile.
- B. **Joint Priming:** Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. **Masking Tape:** Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

- A. **General:** Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. **Sealant Installation Standard:** Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. **Install sealant backings** of kind indicated to support sealants during application and at

position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
 2. Do not stretch, twist, puncture, or tear sealant backings.
 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
1. Place sealants so they directly contact and fully wet joint substrates.
 2. Completely fill recesses in each joint configuration.
 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
1. Remove excess sealant from surfaces adjacent to joints.
 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 3. Provide concave joint profile per Figure 8A in ASTM C 1193 unless otherwise indicated.
- G. Acoustical Sealant Installation: At sound-rated assemblies and elsewhere as indicated, seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written recommendations.

3.4 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.6 JOINT-SEALANT SCHEDULE

- A. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces.
 - 1. Joint Locations:
 - a. Construction joints in cast-in-place concrete.
 - b. Control and expansion joints in unit masonry.
 - c. Joints in dimension stone cladding.
 - d. Joints between metal panels.
 - e. Joints between different materials listed above.
 - f. Perimeter joints between materials listed above and frames of doors windows and louvers.
 - g. Other joints as indicated on Drawings.
 - 2. Joint Sealant: Urethane, M, NS, 50, T, NT
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

- B. Joint-Sealant Application: Interior joints in horizontal traffic surfaces.
 - 1. Joint Locations:
 - a. Control and expansion joints in tile flooring.
 - 2. Joint Sealant: Urethane, S, P, 50, T, NT.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

- C. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces.
 - 1. Joint Locations:
 - a. Control and expansion joints on exposed interior surfaces of exterior walls.
 - b. Tile control and expansion joints.
 - c. Vertical joints on exposed surfaces of unit masonry.
 - d. Joints on underside of plant-precast structural concrete planks.
 - 2. Joint Sealant: Urethane, S, NS, 50, NT.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

- D. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces.
 - 1. Joint Locations:
 - a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
 - 2. Joint Sealant: Silicone, mildew resistant, acid curing, S, NS, 50, NT.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

- E. Joint-Sealant Application: Concealed mastics.
 - 1. Joint Locations:
 - a. Aluminum thresholds.
 - b. Sill plates.
 - c. Other joints as indicated on Drawings.
 - 2. Joint Sealant: Butyl-rubber based
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

- F. **Joint-Sealant Application:** Interior acoustical joints in vertical surfaces and horizontal nontraffic surfaces.
1. **Joint Location:**
 - a. Acoustical joints where indicated.
 2. **Joint Sealant:** Acoustical
 3. **Joint-Sealant Color:** As selected by Architect or Owner from manufacturer's full range of colors.

END OF SECTION

SECTION 09 25 00

GYPSUM DRYWALL

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. This section covers furnishing all labor, materials, tools and equipment required to install all gypsum wallboard, metal corner beads, trims and expansion joints, drywall patches and repairs as well as herein specified and/or as required for a complete job.
- B. Cold Weather Requirements: For the day before through the day after the period of laminating and of finishing of wallboard joints, if outside temperatures will be less than 55°, maintain the temperature within the building within the range of 55° to 70° F. Adequate ventilation shall also be provided to eliminate excessive moisture within the building during this same period.
- C. Delivery of Materials: All materials, as specified, shall be delivered to the job in their original unopened containers or bundles, stored in a place providing protection from damage and exposure to the elements.
- D. Subsurface: Examine and inspect materials to which gypsum board is to be applied. Remedy all defects prior to installation of drywall.

2. PART 2 PRODUCTS

2.1 MATERIALS

- A. Trade names of the United States Gypsum Company have been used to establish the desired quality of materials specified herein. Products meeting these specifications will be allowed as manufactured by Georgia-Pacific, Gold Bond Building Products Division, National Gypsum Co., or Owner approved equal.
- B. Gypsum wallboard shall conform to ASTM C36 "Specification for Gypsum Wallboard" with ASTM C-630 Specification added for Water Resistant Wallboard "W/R".
- C. Gypsum Wallboard at Walls: Shall be 5/8" Sheetrock SW, located as specified herein.
- D. Gypsum Wallboard at Wet Areas (Restrooms): Shall be 5/8" Sheetrock W/R, located as specified herein.
- E. Corner Beads and Metal Trim: Shall be Dur-A-Bead 101 or 200A. Corner reinforcement for adhesive attachment shall be Perf-A-Bead Reinforcement.
- F. Joint Treatment Material: USG "Durabond 90" Joint Compound and USG Ready Mixed Joint Compound All Purpose.

- G. Special Note: The Sheetrock SW System (Board and Joint Treatment) was tested and designed to function as a unit. Substitution for one and not all of the procedures and/or products in this specification is not recommended.

3. PART 3 EXECUTION

3.1 APPLICATION

- A. The installation and application of all USG materials shall be in accordance with the latest printed directions or specifications of United States Gypsum and as follows:
- B. Gypsum Wallboard: All ends and edges of Sheetrock Gypsum Wallboard shall occur over fastening members, except when joints are at right angles to framing members as in horizontal application. Ceiling wallboard shall be attached to framing supports utilizing both glue and screw fastening.
- C. Sheetrock Gypsum Wallboard shall be applied to minimize end joints. Boards shall be brought into contact, but shall not be forced into place. Where ends or edges abut, they shall be neatly fitted. End joints shall be staggered. Joints on opposite sides of a partition shall be so arranged as to occur on different studs.
- D. Wallboard shall be attached to framing supports with screws; no nailing will be permitted. Fasteners shall provide a slight depression below the surface of the wallboard without breaking the face paper and fasteners shall not be driven closer than 3/8" from edges and ends of the board. While the fasteners are being driven, the wallboard shall be held in firm contact with the underlying support. Attachment should proceed from the center of the wallboard towards ends and edges.
- E. When necessary to cut ends and edges, scribe, or make cutouts within the field of the wallboard, it shall be done in a workmanlike manner.
- F. Metal corner beads shall be securely attached as per manufacturer's recommendations, to all external corners and in single lengths. Clinch and nail corner beads securely.
- G. Metal trim shall be installed where drywall abuts exposed dissimilar wall material in the manner recommended by the manufacturer.

3.2 JOINT TREATMENT

- A. Unless otherwise indicated, all walls, partitions and ceilings are included. Joints of exterior gypsum wallboard, where not exposed to view, shall not be treated, but shall be installed butted tightly.
- B. Mixing - Durabond "90" joint compound shall be mixed according to the directions on the bag. Caution shall be used to prevent excessive mixing and use of extremely cold water and compound.

- C. All V-grooves formed by abutting wrapped eased edges of Sheetrock SW shall be pre-filled with Durabond "90" joint compound. Application shall be with a flexible 5" or 6" joint finishing knife or an Ames Pre-Fill tool. The V shall be filled flush with the plane of the taper depression and any excess compound beyond the groove shall be wiped clean, leaving a clear depression to receive tape. The pre-fill shall have hardened prior to the next application.
- D. Taping or embedding - USG Ready Mixed Joint Compound - All Purpose, shall be applied with a suitable tool in a thin uniform layer to all joints and angles to be reinforced. Perf-A-Tape reinforcement shall be applied immediately and centered over the joint and seated into the compound. Sufficient compound must remain under the tape to provide proper bond. A skim coat shall immediately follow tape embedment but not to function as a fill or a second coat.
- E. Tape shall be properly folded and embedded in all angles to provide a true angle.
- F. The tape or embedding coat must be thoroughly dry prior to application of the fill coat.
- G. Filling - USG Ready Mixed Compound - All-Purpose, shall be applied over the embedding coat, filling the board taper flush with the surface. On joints with no taper, the fill coat shall cover the tape and feather out at least 4" on either side of the tape. No fill coat is necessary at interior angles.
- H. The fill coat shall be thoroughly dry prior to application of the finish coat.
- I. Finishing - USG Ready Mixed Joint Compound - All Purpose, shall be spread evenly over and extended slightly beyond the fill coat on all joints and feathered to a smooth uniform finish. On tapered joints, the finish coat shall not protrude beyond the plane of the surface.
- J. All taped angles shall receive a finish coat to cover the tape and taping compound, providing a true angle. Where necessary, sanding shall occur between coats and following the final application of compound to provide a smooth surface ready for decoration.
- K. Filling and finishing of fastener depressions - A taping or all-purpose compound must be applied as the first coat to all fastener depressions. This shall be followed by a minimum of 2 additional coats of all-purpose compound, leaving all depressions level with the plane of the surface.

3.3 COMPLETION

- A. Contractor shall correct all poorly installed drywall including, but not limited to, poor seams, "nail pops", poorly executed patches, etc. Final gypsum board condition shall be like new and ready to receive paint.

END OF SECTION

SECTION 09 31 10

HARD SURFACE TILE FINISH

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Hard Surface Tile Finishes:
 - 1. Quarry Tile Floor.
 - 2. Glass Mosaic Wall Tile.
 - 3. Porcelain Wall Tile.

1.2 RELATED SECTIONS

- A. Section 09 65 30 - Resilient Wall Base and Accessories.

1.3 REFERENCES

- A. ANSI/TCA A108.5 - Tile Installed with Dry-Set Portland Cement Mortar or Latex Portland Cement Mortar.
- B. ANSI/TCA A118.1 - Dry-Set Portland Cement Mortar.
- C. ANSI/TCA A118.4 - Latex-Portland Cement Mortar.
- D. ANSI/TCA A137.1 - Specifications for Ceramic Tile.
- E. TCA (Tile Council of America) - Handbook for Ceramic Tile Installation.

1.4 SUBMITTALS

- A. Submit shop drawings under provisions of Section 01 30 00.
- B. Submit product data under provisions of Section 01 30 00.
- C. Submit product data indicating material specifications, characteristics, and instructions for using adhesives and grouts.
- D. Submit samples under provisions of Section 01 30 00.
- E. Submit manufacturer's installation instructions under provisions of Section 01 30 00.
- F. Submit maintenance data under provisions of Section 01 70 00.
- G. Include recommended cleaning and stain removal methods, cleaning materials.

1.5 QUALITY ASSURANCE

- A. Conform to ANSI/TCA A137.1
- B. Conform to TCA Handbook for Ceramic Tile Installation.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in the manufacture of products specified in this Section with minimum three years documented experience.
- B. Installer: Company specializing in applying the work of this Section with minimum 3 years documented experience approved by product manufacturer.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site under provisions of Section 01 60 00.
- B. Store and protect products under provisions of Section 01 60 00.
- C. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

1.8 ENVIRONMENTAL REQUIREMENTS

- A. Do not install adhesives in a closed, unventilated environment.
- B. Maintain 50 degrees F (10 degrees C) during installation of mortar materials.

2. PART 2 PRODUCTS

2.1 MANUFACTURERS - TILE

- A. See the "Materials and Finishes Schedule" drawing for tile manufacturer, sizes, and colors.
- B. Substitutions: Under provisions of Section 01 25 00.

2.2 MANUFACTURERS - MORTAR AND GROUT

- A. The Quickcrete Company - Dry Grout #1552.
- B. Substitutions: Under provisions of Section 01 25 00.

2.3 GROUT MATERIALS

- A. Grout: Cementitious type, resistant to shrinking.

2.4 ACCESSORIES

- A. All necessary trim, caps, stops, returns, trimmers, etc. shall be included as required for a complete installation.

2.5 GROUT MIX

- A. Mix and proportion pre-mix grout materials in accordance with manufacturer's instructions.

3. PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that surfaces are ready to receive work.
- B. Beginning of installation means installer accepts condition of existing substrate.

3.2 PREPARATION

- A. Protect surrounding work from damage or disfiguration.
- B. Clean existing substrate in accordance with manufacturer's instructions.
- C. Seal substrate surface cracks with filler.

3.3 INSTALLATION - THIN SET METHOD

- A. Install tile and grout in accordance with manufacturer's instructions.
- B. Cut and fit tile tight to penetrations through tile. Form corners and bases neatly. Align floor, base, and wall joints.
- C. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make joints watertight, without voids, cracks, excess mortar, or excess grout.
- D. Sound tile after setting. Replace hollow sounding units.
- E. Keep control joints free of grout. Apply sealant to joints.
- F. Allow tile to set for a minimum of 48 hours prior to grouting.
- G. Grout tile joints.
- H. Apply sealant to junction of tile and dissimilar materials and at junction of dissimilar planes.

3.4 CLEANING

- A. Clean work under provisions of 01 70 00.
- B. Clean tile surfaces.

3.5 PROTECTION

- A. Protect finished installation under provisions of Section 01 50 00.
- B. Do not permit traffic over finished floor surface.

END OF SECTION

SECTION 09 51 00

ACOUSTICAL PANEL CEILINGS

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general conditions of Contract, including General and Supplementary Conditions and Divisions-1 Specification sections apply to work of this section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Acoustical ceiling panels.
 - 2. Exposed grid suspension system.
 - 3. Wire hangers, fasteners, main runners, cross tees, and wall angle moldings.

1.3 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM A 1008 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
 - 2. ASTM A 641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
 - 3. ASTM A 653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
 - 4. ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
 - 5. ASTM C 635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
 - 6. ASTM C 636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.
 - 7. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials.
 - 8. ASTM E 1414 Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum.
 - 9. ASTM E 1111 Standard Test Method for Measuring the Interzone Attenuation of Ceilings Systems.
 - 10. ASTM E 1264 Classification for Acoustical Ceiling Products.
 - 11. ASTM E 1477 Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers.
 - 12. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
 - 13. ASTM E 119 Standard Test Methods for Fire Tests of Building Construction and Material.

- B. ASHRAE Standard 62.1-2004, "Ventilation for Acceptable Indoor Air Quality".

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data for each type of acoustical ceiling unit and suspension system required.
- B. Samples: Minimum 6 inch x 6 inch samples of specified acoustical panel; 8 inch long samples of exposed wall molding and suspension system, including main runner and 4 foot cross tees.
- C. Shop Drawings: Layout and details of acoustical ceilings. Show locations of items which are to be coordinated with, or supported by the ceilings.
- D. Certifications: Manufacturer's certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards. For acoustical performance, each carton of material must carry an approved independent laboratory classification of NRC, CAC, and AC.
- E. If the material supplied by the acoustical subcontractor does not have an Underwriter's Laboratory classification of acoustical performance on every carton, subcontractor shall be required to send material from every production run appearing on the job to an independent or NVLAP approved laboratory for testing, at the architect's or owner's discretion. All products not conforming to manufacturer's current published values must be removed, disposed of and replaced with complying product at the expense of the Contractor performing the work.

1.5 QUALITY ASSURANCE

- A. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.
- B. Fire Performance Characteristics: Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.
 - 1. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 for Class A products.
 - a. Flame Spread: 25 or less
 - b. Smoke Developed: 50 or less
- C. Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.

- C. Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.

1.7 PROJECT CONDITIONS

- A. Space Enclosure:

All ceiling products and suspension systems must be installed and maintained in accordance with Armstrong written installation instructions for that product in effect at the time of installation and best industry practice. Prior to installation, the ceiling product must be kept clean and dry, in an environment that is between 32°F (0°C) and 120°F (49°C) and not subject to Abnormal Conditions.

Abnormal conditions include exposure to chemical fumes, vibrations, moisture from conditions such as building leaks or condensation, excessive humidity, or excessive dirt or dust buildup.

The ceilings must be maintained to avoid excessive dirt or dust buildup that would provide a medium for microbial growth on ceiling panels. Microbial protection does not extend beyond the treated surface as received from the factory, and does not protect other materials that contact the treated surface such as supported insulation materials.

1.8 WARRANTY

- A. Acoustical Panel: Submit a written warranty executed by the manufacturer, agreeing to repair or replace acoustical panels that fail within the warranty period. Failures include, but are not limited to:
 - 1. Acoustical Panels: Sagging and warping as a result of defects in materials or factory workmanship.
 - 2. Grid System: Rusting and manufacturer's defects
 - 3. Acoustical Panels with BioBlock Plus or designated as inherently resistive to the growth of micro-organisms installed with Armstrong suspension systems: Visible sag and will resist the growth of mold/mildew and gram positive and gram negative odor and stain causing bacteria.
- B. Warranty Period:
 - 1. Acoustical panels: Thirty (30) years from date of substantial completion.
 - 2. Grid: Thirty (30) years from date of substantial completion.
- C. The Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

1.9 MAINTENANCE

- A. Extra Materials: Deliver extra materials to Owner. Furnish extra materials described below that match products installed. Packaged with protective covering for storage and identified with appropriate labels.

1. Acoustical Ceiling Units: Furnish quality of full-size units equal to 5.0 percent of amount installed.
2. Exposed Suspension System Components: Furnish quantity of each exposed suspension component equal to 2.0 percent of amount installed.

2. PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Ceiling Panels:
1. Armstrong World Industries, Inc.
 2. Or Architect approved equal.

2.2 ACOUSTICAL CEILING UNITS

- A. Acoustical Panels Type ACT1:
1. Surface Texture: Fine
 2. Composition: Mineral Fiber
 3. Color: White
 4. Size: 24in X 24in X 3/4in
 5. Product: Ultima-1912 Beveled Tegular for interface with Suprafine 9/16" Exposed Tee.
- B. Acoustical Panels Type ACT2:
1. Surface Texture: Smooth
 2. Composition: Mineral Fiber
 3. Color: White
 4. Size: 24in X 24in X 5/8in
 5. Product: Clean Room VL-869 Square Lay-In for interface with Prelude XL 15/16" Exposed Tee.

2.3 SUSPENSION SYSTEMS

- A. Components: All main beams and cross tees shall be commercial quality hot-dipped galvanized (galvanized steel, aluminum, or stainless steel) as per ASTM A 653. Main beams and cross tees are double-web steel construction with 15/16 IN type exposed flange design. Exposed surfaces chemically cleansed, capping pre-finished galvanized steel (aluminum or stainless steel) in baked polyester paint. Main beams and cross tees shall have rotary stitching (exception: extruded aluminum or stainless steel).
1. Structural Classification: ASTM C 635 HD.
 2. Color: White and match the actual color of the selected ceiling tile, unless noted otherwise.
 3. Acceptable Products: Suprafine 9/16" and Prelude XL 15/16" Exposed Tee as manufactured by Armstrong World Industries, Inc.
- B. Attachment Devices: Size for five times design load indicated in ASTM C 635, Table 1, Direct Hung unless otherwise indicated.

- C. Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft temper, pre-stretched, with a yield stress load of at least three design load, but not less than 12 gauge.
- D. Edge Moldings and Trim: Metal or extruded aluminum of types and profiles indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations, including light fixtures, that fit type of edge detail and suspension system indicated. Provide moldings with exposed flange of the same width as exposed runner.

3. PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not proceed with installation until all wet work such as concrete, terrazzo, plastering and painting has been completed and thoroughly dried out, unless expressly permitted by manufacturer's printed recommendations. (Exception: HumiGuard Max Ceilings)

3.2 PREPARATION

- A. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less than half width units at borders, and comply with reflected ceiling plans. Coordinate panel layout with mechanical and electrical fixtures.

3.3 INSTALLATION

- A. Install suspension system and panels in accordance with the manufacturer's instructions, and in compliance with ASTM C 636 and with the authorities having jurisdiction.
- B. Suspend main beam from overhead construction with hanger wires spaced 4'-0" on center along the length of the main runner. Install hanger wires plumb and straight.
- C. Install wall moldings at intersection of suspended ceiling and vertical surfaces. Miter corners where wall moldings intersect or install corner caps.
- D. For reveal edge panels: Cut and reveal or rabbet edges of ceiling panels at border areas and vertical surfaces.
- E. Install acoustical panels in coordination with suspended system, with edges resting on flanges of main runner and cross tees. Cut and fit panels neatly against abutting surfaces. Support edges by wall moldings.

3.4 ADJUSTING AND CLEANING

- A. Replace damaged and broken panels.

- B. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch up of minor finish damage.
 - 1. Ceiling Touch-Up Paint, (Item #5760, 8oz. bottles) (Item #5761, quart size cans), "global white" latex paint should be used to hide minor scratches and nicks in the surface and to cover field tegularized edges that are exposed to view.
- C. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION

SECTION 09 65 30

RESILIENT WALL BASE AND ACCESSORIES

1. PART 1 GENERAL

1.1 SUMMARY

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

1.2 RELATED DOCUMENTS

- A. Section 09 31 10 - Hard Surface Tile Floor Finish
- B. Section 09 65 00 - Resilient Flooring
- C. Section 09 68 13 - Carpeting

1.3 SUBMITTALS

- A. Submit product data, samples and manufacturer's installation instructions under provisions of Section 01 33 00 - Submittals.
- B. Submit product certificates signed by manufacturers of resilient wall base and accessories certifying that each product furnished complies with requirements.

1.4 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in manufacturing the products specified in this Section with minimum three years experience.
- B. Source Limitations: Obtain each type and color of product specified from one source with resources to provide products of consistent quality in appearance and physical properties without delaying the Work.
- C. Fire-Test-Response Characteristics: Provide products with the following fire-test-response characteristics as determined by testing identical products per test method indicated below by a testing and inspecting agency acceptable to authorities having jurisdiction.
 - 1. Critical Radiant Flux: 0.45 W/sq.cm or greater when tested per ASTM E 648.
 - 2. Smoke Density: Maximum specific optical density of 450 or less when tested per ASTM E 662.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to Project site in manufacturer's original, unopened cartons and containers, each bearing names of product and manufacturer, Project identification, and shipped and handling instructions.
- B. Store products in dry spaces protected from the weather, with ambient temperatures maintained between 50 and 90 deg F (10 and 32 deg C).
- C. Move products into spaces where they will be installed at least 48 hours before installation, unless longer conditioning period is recommended in writing by manufacturer.

1.6 PROJECT CONDITIONS

- A. Maintain a temperature of not less than 70 deg F (21 deg C) or more than 95 deg F (35 deg C) in spaces to receive resilient products for at least 48 hours before installation, during installation, and for at least 48 hours after installation, unless manufacturer's written recommendations specify longer time periods. After post installation period, maintain a temperature of not less than 55 deg F (13 deg C) or more than 95 deg F (35 deg C).
- B. Do not install products until they are at the same temperature as the space where they are to be installed.
- C. Close spaces to traffic during installation and for time period after installation recommended in writing by manufacturer.
- D. Coordinate this work with other construction to minimize possibility of damage and soiling during remainder of construction period. Install resilient products after other finishing operations, including painting, have been completed.

1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents.
 - 1. Furnish not less than 10 linear feet for each 500 linear feet or fraction thereof, of each different type, color, pattern, and size of resilient product installed.
 - 2. Deliver extra materials to Owner.
- B. Warranty: Include coverage of installed sealants and accessories which fail to achieve air tight and watertight seal, exhibit loss of adhesion or cohesion, or do not cure.

2. PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Mercer

- B. Roppe
- C. Mannington Commercial
- D. Substitutions: See provisions of Section 01 60 00 - Product Requirements.

2.2 RESILIENT WALL BASE

- A. Vinyl Wall Base: Products complying with FS SS-W-40, Type I and with requirements specified in the Resilient Wall Base and Accessory Schedule.
- B. Refer to Materials and Finishes drawing for size and colors.

2.3 ACCESSORIES

- A. Rubber Accessories: Products complying with requirements specified in the Resilient Wall Base and Accessory Schedule.
- B. Trowelable Leveling and Patching Compounds: Latex-modified, Portland-cement based formulation provided or approved by resilient product manufacturer for applications indicated.

3. PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that substrates and conditions are satisfactory for resilient product installation and comply with requirements specified. Do not proceed with installation until unsatisfactory conditions have been corrected.
- B. Beginning of installation means installer accepts condition of existing substrate.

3.2 PREPARATION

- A. Comply with manufacturer's written installation instructions for preparing substrates indicated to receive resilient products.
- B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, and depressions in substrates.
- C. Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
- D. Broom and vacuum clean substrates to be covered immediately before installing resilient products. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.3 INSTALLATION

- A. Install resilient products in accordance with manufacturer's written instructions.
- B. Apply resilient wall base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
 - 1. Install wall base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.
 - 2. Tightly adhere wall base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
 - 3. Do not stretch base during installation.
 - 4. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler material.
 - 5. Install premolded outside and inside corners before installing straight pieces.
- C. Place resilient products so they are butted to adjacent materials and bond to substrates with adhesive. Install reducer strips at edges of flooring that would otherwise be exposed.

3.4 CLEANING AND PROTECTING

- A. Perform the following operations immediately after installing resilient products:
 - 1. Remove adhesive and other surface blemishes using cleaner recommended by resilient product manufacturers.
 - 2. Sweep or vacuum horizontal surfaces thoroughly.
 - 3. Do not wash resilient products until after time period recommended by resilient product manufacturer.
 - 4. Damp-mop or sponge resilient products to remove marks and soil.
- B. Protect resilient products against mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by resilient product manufacturer.
- C. Clean resilient products not more than 4 days before dates scheduled for inspection intended to establish date of Substantial Completion in each area of Project. Clean products according to manufacturer's written recommendations.

3.5 RESILIENT WALL BASE AND ACCESSORY SCHEDULE

- A. Vinyl Wall Base: Provide wall base complying with the following:
 - 1. Color and Pattern: As shown on "Materials and Finishes" drawing.
 - 2. Style: Cove with top-set toe.
 - 3. Minimum Thickness: 1/8 inch (3.2 mm).
 - 4. Height: As noted on drawings.
 - 5. Lengths: Coils in lengths standard with manufacturer, but not less than 96 feet (29.26 m).
 - 6. Outside Corners: Premolded.

7. Inside Corners: Premolded.
8. Surface: Smooth.

END OF SECTION

SECTION 09 68 13

TILE CARPETING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Carpet tile, fully adhered at Office Spaces.
 - 2. Broadloom carpet, direct-glued to substrate at Stairs.
 - 3. Accessories.

1.2 REFERENCE STANDARDS

- A. ASTM International:
 - 1. ASTM D2859 - Standard Specification for Ignition Characteristics of Finished Textile Floor Covering Materials.
- B. Carpet and Rug Institute:
 - 1. CRI Carpet Installation Standard - Standard for Installation of Commercial Carpet.
 - 2. CRI Green Label Plus Testing Program.
 - 3. CRI Model Specifications for Commercial Carpets.
- C. Consumer Products Safety Commission:
 - 1. CPSC 16 CFR 1630 - Standard for the Surface Flammability of Carpets and Rugs.
- D. National Fire Protection Association:
 - 1. NFPA 253 - Standard Method of Test for Critical Radiant Flux for Floor Covering Systems Using a Radiant Heat Energy Source.

1.3 PRE-INSTALLATION MEETINGS

- A. Not required

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit data on specified products, describing physical and performance characteristics; sizes, patterns, colors available, and method of installation.
- C. Shop Drawings: Not Required
- D. Samples:
 - 1. Submit two 18"x36" carpet tiles illustrating color and pattern design for each carpet color selected.

- E. Manufacturer's Instructions: Submit special procedures, perimeter conditions requiring special attention.
- 1.5 CLOSEOUT SUBMITTALS
- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.
 - B. Operation and Maintenance Data: Submit maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.
- 1.6 MAINTENANCE MATERIAL SUBMITTALS
- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for maintenance materials.
 - B. Extra Stock Materials:
 - 1. Furnish 10 each of carpet tiles of each color and pattern selected.
- 1.7 QUALITY ASSURANCE
- A. Surface Burning Characteristics:
 - 1. Floor Finishes: Comply with one of the following:
 - a. ASTM E 648 Class 1 (Glue Down)
 - B. Texture Appearance Retention Rating: Rating classifications as determined by CRI Model Specifications for Commercial Carpets.
 - 1. Greater than or equal to 3.0 TARR for Heavy Traffic Level Classification.
 - C. Maintain one copy of each document on site.
- 1.8 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 3 years documented experience.
 - 1. FCIB or IFCI certified carpet installers.
- 1.9 AMBIENT CONDITIONS
- A. Section 01 50 00 - Temporary Facilities and Controls: Ambient conditions control facilities for product storage and installation.
 - B. Store materials in area of installation for 48 hours prior to installation.

PART 2 - PRODUCTS

2.1 CARPET TILE

- A. MANUFACTURERS:

1. Bigelow Commercial; Mohawk Group.
2. Interface, LLC
3. Mannington Commercial
4. Shaw Industries
5. Tandus; a Tarkett company
6. Substitutions: Section 01 60 00 - Product Requirements.

2.2 COMPONENTS

A. Carpet Tile Type CPT-1: Tufted, textured patterned loop, manufactured in one color dye lot, solution dyed; manufactured by approved manufacturer.

1. Tile Size: 18"x36", nominal.
2. Thickness: .071 inch.
3. Color: see "Materials and Finishes" schedule on the "Schedules" dwg..
4. Pattern: see "Materials and Finishes" schedule on the "Schedules" dwg.
5. Static Control Fiber:
6. Max. Electrostatic Charge: AATCC-134 Under 3.5 KV
7. Gage: 1/10 inch
8. Stitches: 9.8 per inch.
9. Pile Weight: 14 oz/sq yd.
10. Density Factor: 7,098 kilotex.

B. Broadloom Carpet Type CPT-2: Loop pile – level or textured loop, multi-level loop, or pattern, manufactured in one color dye lot, solution dyed; manufactured by approved manufacturer.

1. Roll Width: 12', nominal.
2. Yarn: Multi-ply.
3. Tufting Machine Gauge: Minimum 1/10 gauge.
4. Number of Stitches: Minimum 8 per inch.
5. Finish Pile Thickness: ½-inch maximum.
6. Average Finished Pile Yarn Weight: Minimum 26 ounces per square yard.
7. Color: see "Materials and Finishes" schedule on the "Schedules" dwg.
8. Pattern: see "Materials and Finishes" schedule on the "Schedules" dwg.
9. Max. Electrostatic Charge: AATCC-134 Under 3.5 KV
10. Pile Fiber Type: 100% continuous filament nylon, Type 6,6 or Type 6.
11. Backing Materials: Primary Backing – 100% synthetic materials.

2.3 ACCESSORIES

- A. Sub-Floor Filler: Cementitious Type recommended by flooring material manufacturer.
- B. Moldings and Edge Strips: Extruded aluminum, color as selected.
- C. Contact Adhesive: Recommended by carpet manufacturer, releasable type.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.

- B. Verify floor surfaces are smooth and flat within tolerances specified in Section and are ready to receive work.

3.2 PREPARATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation preparation.
- B. Remove sub-floor ridges and bumps. Fill minor or local low spots, cracks, joints, holes, and other defects with sub-floor filler.
- C. Apply, trowel, and float filler to achieve smooth, flat, hard surface. Prohibit traffic until filler is cured.
- D. Clean substrate.

3.3 INSTALLATION

- A. Install carpet tile in accordance with CRI Carpet Installation Standard.
- B. Install broadloom carpet: Comply with CRI, Section 8, "Direct Glue-Down Installation", or Section 9, "Double Glue-Down Installation", as appropriate.
 - 1. Stairway Carpeting: Comply with CRI 104, Section 12, "Carpet on Stairs", and install per manufacturer's installation instructions. Provide vinyl or metal nosing at each riser. Match adjoining carpet installation.
- C. Do not mix carpet from different cartons unless from same dye lot.
- D. Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.
- E. Install carpet tile in square pattern, with pile direction parallel to next unit, set parallel to building lines.
- F. Locate change of color or pattern between rooms under door centerline.
- G. Fully adhere carpet tile to substrate.

3.4 CLEANING

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for cleaning.
- B. Remove excess adhesive from floor, base, and wall surfaces without damage.
- C. Clean and vacuum carpet surfaces.

END OF SECTION

SECTION 09 90 00

PAINTING AND FINISHES

1. PART 1 GENERAL

1.1 WORK INCLUDED

- A. Surface preparation.
- B. Surface finish schedule.
- C. Color selection schedule.
- D. Applying finishes to existing structures and equipment as specified.

1.2 RELATED WORK

- A. Section 051200 - Structural Steel: Shop primed items.
- B. Section 061000 - Rough Carpentry.
- C. Section 062000 - Finish Carpentry.
- D. Section 081000 - Metal Doors and Frames.
- E. Section 092500 - Gypsum Drywall.

1.3 REFERENCES

- A. ANSI/ASTM D16 - Definitions of Terms Relating to Paint, Varnish, Laquer, and Related Products.
- B. ASTM D2016 - Test Method for Moisture Content of Wood.
- C. ASTM D4263 - Standard Test Method for indicating moisture in concrete by the plastic sheet method.

1.4 DEFINITIONS

- A. Conform to ANSI/ASTM D16 for interpretation of terms used in this Section.

1.5 QUALITY ASSURANCE

- A. Product Manufacturer: Company specializing in manufacturing quality paint and finish products with three years experience.
- B. Applicator: Company specializing in commercial painting and finishing approved by product manufacturer.

1.6 REGULATORY REQUIREMENTS

- A. Conform to applicable code for flame/fuel/smoke rating requirements for finishes.

1.7 SUBMITTALS

- A. Submit product data under provisions of Section 013300.
- B. Provide product data on all finishing products.
- C. Submit samples and color charts under provisions of Section 013300.
- D. Submit manufacturer's application instructions under provisions of Section 013300.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site under provisions of Section 016000.
- B. Store and protect products under provisions of Section 016000.
- C. Deliver products to site in sealed and labelled containers; inspect to verify acceptance.
- D. Container labelling to include manufacturer's name, type of paint, brand name, brand code, coverage, surface preparation, drying time, cleanup, color designation, and instructions for mixing and reducing.
- E. Store paint materials at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in well ventilated area, unless required otherwise by manufacturer's instructions.
- F. Take precautionary measures to prevent fire hazards and spontaneous combustion.

1.9 ENVIRONMENTAL REQUIREMENTS

- A. Provide continuous ventilation and heating facilities to maintain surface and ambient temperatures above 45 degrees F for 24 hours before, during, and 72 hours after application of finishes, unless required otherwise by manufacturer's instructions.
- B. Do not apply exterior coatings during rain or snow, or when relative humidity is above 50 percent, unless required otherwise by manufacturer's instructions.
- C. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.

1.10 EXTRA STOCK

- A. Provide a one gallon container of each color and type to Owner. Quart containers will be acceptable for touchup paint and for small items.

2. PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS - PAINT, PRIMERS, BLOCK FILLER, AND FIELD CATALYZED COATINGS

- A. Coronado Paint Company
- B. Glidden Division I.C.I.
- C. Sherwin Williams.
- D. Substitutions: Under provisions of Section 016000.

2.2 MATERIALS

- A. Coatings: Ready mixed, except field catalyzed coatings. Process pigments to a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating.
- B. Coatings: Good flow and brushing properties; capable of drying or curing free of streaks or sags.
- C. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve the finishes specified, of commercial quality.

2.3 FINISHES

- A. Refer to schedule at end of Section for surface finish and color schedule.

3. PART 3 EXECUTION

3.1 INSPECTION

- A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- C. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
 - 1. Plaster and Gypsum Wallboard: 12 percent.
 - 2. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.

3. Interior Located Wood: 15 percent, measured in accordance with ASTM D2016.
4. Exterior Located Wood: 15 percent, measured in accordance with ASTM D2016.
5. Concrete Floors: 14 percent, measured in accordance with ASTM D4263.

D. Beginning of installation means acceptance of existing surfaces.

3.2 PREPARATION

- A. Remove electrical plates, hardware, light fixture trim, and fittings prior to preparing surfaces or finishing.
- B. Correct minor defects and clean surfaces which affect work of this Section.
- C. Seal marks which may bleed through surface finishes.
- D. Impervious Surfaces: Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- E. Aluminum Surfaces Scheduled for Paint Finish: Remove surface contamination by steam or high pressure water. Remove oxidation with acid etch and solvent washing. Apply etching primer immediately following cleaning.
- F. Asphalt, Creosote, or Bituminous Surfaces Scheduled for Paint Finish: Remove foreign particles to permit adhesion of finishing materials. Apply compatible sealer or primer.
- G. Concrete Floors: Remove contamination, acid etch, and rinse floors with clear water. Verify required acid-alkali balance is achieved by using a pH pencil or pH range paper, pH should be 11 or less prior to application of coatings.
- H. Copper Surfaces Scheduled for a Paint Finish: Remove contamination by steam, high pressure water, or solvent washing. Apply vinyl etch primer immediately following cleaning.
- I. Gypsum Board Surfaces: Latex fill minor defects. Spot prime defects after repair.
- J. Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
- K. Concrete and Unit Masonry Surfaces Scheduled to Receive Paint Finish: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.
- L. Exterior Face Brick: Verify that brick installed as part of the work has been cleaned according to Section 4500. Power wash existing face brick scheduled to receive coatings with masonry detergent.

- M. Plaster Surfaces: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.
- N. Uncoated Steel and Iron Surfaces: Remove grease, scale, dirt, and rust. Where heavy coatings of scale are evident, remove by wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Spot prime paint after repairs.
- O. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.
- P. Interior Wood Items Scheduled to Receive Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats.
- Q. Exterior Wood Scheduled to Receive Paint Finish: Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior caulking compound after prime coat has been applied.
- R. Wood and Metal Doors Scheduled for Painting: Seal top and bottom edges with primer.

3.3 PROTECTION

- A. Protect elements surrounding the work of this Section from damage or disfiguration.
- B. Repair damage to other surfaces caused by work of this Section.
- C. Furnish drop cloths, shields, and protective methods to prevent spray or droppings from disfiguring other surfaces.
- D. Remove empty paint containers from site.

3.4 APPLICATION

- A. Apply products in accordance with manufacturer's instructions.
- B. Do not apply finishes to surfaces that are not dry.
- C. Apply each coat to uniform finish.
- D. Sand lightly between coats to achieve required finish.
- E. Allow applied coat to dry before next coat is applied.
- F. Prime back surfaces of interior and exterior woodwork with primer paint.

3.5 CLEANING

- A. As Work proceeds, promptly remove paint where spilled, splashed, or spattered.
- B. During progress of Work maintain premises free of unnecessary accumulation of tools, equipment, surplus materials, and debris.
- C. Collect cotton waste, cloths, and material which may constitute a fire hazard, place in closed metal containers and remove daily from site.

3.6 GENERAL FINISH SPECIFICATIONS

- A. Masonry (M.)
 - 1. M-2 Existing Interior
 - Surface:
 - Preparation: Thoroughly wash and rinse surfaces, removing dirt, dust, grease and oil. Use appropriate detergent cleanser. Remove loose or flaking paint and feather sand edges for a smooth uniform surface. Dull glossy surfaces.
 - Primer: Apply one coat latex primer sealer to exposed bare areas with a coverage of 400 square feet per gallon.
 - Finish Coats: Apply two coats of 32% volume solids, acrylic latex gloss enamel, at a minimum dry film thickness of 1.4 mils per coat and a coverage of 365 square feet per gallon.
- B. Ferrous Metals (F.M.)
 - 1. F.M.-1 Exterior/Interior - severe exposure.
 - Surface
 - Preparation: SSPC SP6 Commercial Blast Cleaning.
 - Shop or Field Coat: Apply one coat of 54% volume solids, two component poly-amide cured high build epoxy primer. At a dry film thickness of 3.0 mils and a coverage of 289 square feet per gallon.
 - First Coat: Apply one coat of a 56% volume solids, two component poly-amide cured high-build epoxy. At a minimum dry film thickness of 3.0 mils and a coverage of 300 square feet per gallon.
 - Second Coat: Apply one coat of a 54% volume solids aliphatic polyester polyurethane enamel. At a minimum dry film thickness of 1.5 mils and a coverage of 577 square feet per gallon.
- C. Concrete (C.)
 - 1. C-7 Existing Concrete Floors
 - Surface:
 - Preparation: Thoroughly wash and rinse surfaces, removing dirt, dust, grease and oil. Use appropriate detergent cleanser. Remove loose or flaking paint and feather sand edges for a smooth uniform surface. Dull glossy surfaces.

Primer: Apply one coat of epoxy modified acrylic floor finish, thinned 15%, to exposed bare areas, with a coverage of 350 square feet per gallon.
Finish Coat: Apply two coats of epoxy modified acrylic floor finish with a coverage of 350 square feet per gallon.

D. Wood (W.)

1. W-1 Exterior and Interior

Surface

Preparation: Surface must be dry, clean, and free of contaminants. Sand rough areas.

Primer: Apply a 53% volume solids alkyd wood primer at a dry film thickness of 2.0 mils and a coverage of 425 square feet per gallon.

Finish Coats: Apply two coats of a 54% volume solids alkyd enamel, at a dry film thickness of 2.0 mils per coat and a coverage of 400 square feet per gallon.

2. W-1 Exterior Varnish

Surface

Preparation: Surface must be dry, clean, and free of contaminants. Sand rough areas.

Finish Coats: Apply two coats of Minwax Helmsman Spar Urethane, satin finish or equal. Color by Owner.

E. Drywall (D.)

1. D-1. Drywall (Gypsum Board)

Surface

Preparation: Surface must be dry, clean and free of contaminants. Sand joint compound smooth and feather edges.

Finish Coats: Apply two coats of a 43% volume solids acrylic latex at a dry film thickness of 2 mils per coat and a coverage of 345 square feet per gallon.

F. Galvanized Metals (G.)

1. G-1 Interior

Surface

Preparation: SSPC-SP1 Solvent Cleaning.

Primer: Apply one coat of Epoxy Zinc Chromate primer poly-amide with 52% solids at a coverage of 375 square feet per gallon.

Finish Coats: Apply two coats of a 56% volume solids, poly-amide cured high-build epoxy at a dry film thickness of 3.0 mils per coat and a coverage of 300 square feet per gallon.

2. G-2. Exterior

Surface

Preparation: SSPC-SP1 Solvent Cleaning.

Primer: Apply one coat of Epoxy Zinc Chromate primer poly-amide with 52% solids at a coverage of 375 square feet per gallon.

- First Coat: Apply one coat of a 56% volume solids, poly-amide cure high-build epoxy at a dry film thickness of 3.0 mils and a coverage of 300 square feet per gallon.
- Finish Coat: Apply one coat of a 54% volume solids, aliphatic polyester polyurethane enamel at a minimum dry film thickness of 1.5 mils and at a coverage of 577 square feet per gallon.

3.8 PAINTS AND COATINGS SCHEDULE

- A. Application: Materials shall be applied to the following surfaces and areas in accordance with the guidelines developed within the "General Finish Specifications".
- B. Finish M-2: Existing interior exposed concrete block.
- C. Finish FM-1: Ferrous materials including, but not limited to, structural steel, miscellaneous metals, doors and frames, non-insulated piping, and equipment not included under Finish FM-2 disturbed or installed as part of the work as indicated in the schedule. Stainless steel, aluminum and plastic components specified with the above items shall be painted only as directed by the Engineer.
- D. Finish G-1: Interior galvanized items, i.e. structural members, frames, exposed ductwork, conduit, etc. disturbed or installed as part of the work and as indicated in the schedule.
- E. Finish G-2: Exterior galvanized items, i.e. structural members, frames, etc. disturbed or installed as part of the work and as indicated in the schedule.
- F. Finish C-7: Existing interior concrete floors and as indicated in the schedule.
- G. Finish W-1: Exposed wood disturbed or installed as part of the work scheduled to receive paint finish.
- H. Finish W-2: Exposed wood disturbed or installed as part of the work scheduled to receive varnish or a stain finish.
- I. Finish D-1: Exposed drywall (gypsum board) disturbed or installed as part of the work and as indicated in the schedule.
- J. Refer to the "Materials and Finishes" schedule in the "Finish Schedules" drawing for more information and for color selections.

END OF SECTION

SECTION 09 67 00

FLUID APPLIED FLOORING

1. PART 1 GENERAL

1.1 WORK INCLUDED

- A. Surface preparation.
- B. Surface finish schedule.
- C. Color selection schedule.
- D. Applying finishes to existing structures and equipment as specified.

1.2 RELATED WORK

- A. Section 042000 - Unit Masonry.
- B. Section 081000 - Metal Doors and Frames.
- C. Section 092500 - Gypsum Drywall.

1.3 REFERENCES

- A. ANSI/ASTM D16 - Definitions of Terms Relating to Paint, Varnish, Laquer, and Related Products.
- B. ASTM D2016 - Test Method for Moisture Content of Wood.
- C. ASTM D4263 - Standard Test Method for indicating moisture in concrete by the plastic sheet method.

1.4 DEFINITIONS

- A. Conform to ANSI/ASTM D16 for interpretation of terms used in this Section.

1.5 QUALITY ASSURANCE

- A. Product Manufacturer: Company specializing in manufacturing quality paint and finish products with three years experience.
- B. Applicator: Company specializing in commercial painting and finishing approved by product manufacturer.

1.6 REGULATORY REQUIREMENTS

- A. Conform to applicable code for flame/fuel/smoke rating requirements for finishes.

1.7 SUBMITTALS

- A. Submit product data under provisions of Section 013300.
- B. Provide product data on all finishing products.
- C. Submit samples and color charts under provisions of Section 013300.
- D. Submit manufacturer's application instructions under provisions of Section 013300.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site under provisions of Section 016000.
- B. Store and protect products under provisions of Section 016000.
- C. Deliver products to site in sealed and labelled containers; inspect to verify acceptance.
- D. Container labelling to include manufacturer's name, type of paint, brand name, brand code, coverage, surface preparation, drying time, cleanup, color designation, and instructions for mixing and reducing.
- E. Store paint materials at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in well ventilated area, unless required otherwise by manufacturer's instructions.
- F. Take precautionary measures to prevent fire hazards and spontaneous combustion.

1.9 ENVIRONMENTAL REQUIREMENTS

- A. Provide continuous ventilation and heating facilities to maintain surface and ambient temperatures above 45 degrees F for 24 hours before, during, and 72 hours after application of finishes, unless required otherwise by manufacturer's instructions.
- B. Do not apply exterior coatings during rain or snow, or when relative humidity is above 50 percent, unless required otherwise by manufacturer's instructions.
- C. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.

1.10 EXTRA STOCK

- A. Provide a one gallon container of each color and type to Owner. Quart containers will be acceptable for touchup paint and for small items.

2. PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS - PAINT, PRIMERS, BLOCK FILLER, AND FIELD CATALYZED COATINGS

- A. Coronado Paint Company
- B. Glidden Division I.C.I.
- C. Sherwin Williams.
- D. Substitutions: Under provisions of Section 016000.

2.2 MATERIALS

- A. Coatings: Ready mixed, except field catalyzed coatings. Process pigments to a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating.
- B. Coatings: Good flow and brushing properties; capable of drying or curing free of streaks or sags.
- C. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve the finishes specified, of commercial quality.

2.3 FINISHES

- A. Refer to schedule at end of Section for surface finish and color schedule.

3. PART 3 EXECUTION

3.1 INSPECTION

- A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- C. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
 - 1. Plaster and Gypsum Wallboard: 12 percent.
 - 2. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
 - 3. Interior Located Wood: 15 percent, measured in accordance with ASTM D2016.
 - 4. Exterior Located Wood: 15 percent, measured in accordance with ASTM D2016.
 - 5. Concrete Floors: 14 percent, measured in accordance with ASTM D4263.

- D. Beginning of installation means acceptance of existing surfaces.

3.2 PREPARATION

- A. Remove electrical plates, hardware, light fixture trim, and fittings prior to preparing surfaces or finishing.
- B. Correct minor defects and clean surfaces which affect work of this Section.
- C. Seal marks which may bleed through surface finishes.
- D. Impervious Surfaces: Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- E. Aluminum Surfaces Scheduled for Paint Finish: Remove surface contamination by steam or high pressure water. Remove oxidation with acid etch and solvent washing. Apply etching primer immediately following cleaning.
- F. Asphalt, Creosote, or Bituminous Surfaces Scheduled for Paint Finish: Remove foreign particles to permit adhesion of finishing materials. Apply compatible sealer or primer.
- G. Concrete Floors: Remove contamination, acid etch, and rinse floors with clear water. Verify required acid-alkali balance is achieved by using a pH pencil or pH range paper, pH should be 11 or less prior to application of coatings.
- H. Copper Surfaces Scheduled for a Paint Finish: Remove contamination by steam, high pressure water, or solvent washing. Apply vinyl etch primer immediately following cleaning.
- I. Gypsum Board Surfaces: Latex fill minor defects. Spot prime defects after repair.
- J. Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
- K. Concrete and Unit Masonry Surfaces Scheduled to Receive Paint Finish: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.
- L. Exterior Face Brick: Verify that brick installed as part of the work has been cleaned according to Section 4500. Power wash existing face brick scheduled to receive coatings with masonry detergent.
- M. Plaster Surfaces: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.
- N. Uncoated Steel and Iron Surfaces: Remove grease, scale, dirt, and rust. Where heavy coatings of scale are evident, remove by wire brushing or sandblasting;

clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Spot prime paint after repairs.

- O. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.
- P. Interior Wood Items Scheduled to Receive Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats.
- Q. Exterior Wood Scheduled to Receive Paint Finish: Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior caulking compound after prime coat has been applied.
- R. Wood and Metal Doors Scheduled for Painting: Seal top and bottom edges with primer.

3.3 PROTECTION

- A. Protect elements surrounding the work of this Section from damage or disfiguration.
- B. Repair damage to other surfaces caused by work of this Section.
- C. Furnish drop cloths, shields, and protective methods to prevent spray or droppings from disfiguring other surfaces.
- D. Remove empty paint containers from site.

3.4 APPLICATION

- A. Apply products in accordance with manufacturer's instructions.
- B. Do not apply finishes to surfaces that are not dry.
- C. Apply each coat to uniform finish.
- D. Sand lightly between coats to achieve required finish.
- E. Allow applied coat to dry before next coat is applied.
- F. Prime back surfaces of interior and exterior woodwork with primer paint.

3.5 CLEANING

- A. As Work proceeds, promptly remove paint where spilled, splashed, or spattered.
- B. During progress of Work maintain premises free of unnecessary accumulation of tools, equipment, surplus materials, and debris.

- C. Collect cotton waste, cloths, and material which may constitute a fire hazard, place in closed metal containers and remove daily from site.

3.6 GENERAL FINISH SPECIFICATIONS

- A. Masonry (M.)
 - 1. M-1. Interior
 - Surface:
 - Preparation: Thoroughly wash and rinse surfaces, removing dirt, dust, grease and oil. Use appropriate detergent cleanser. Remove loose or flaking paint and feather sand edges for a smooth uniform surface. Dull glossy surfaces.
 - Primer: Apply a smooth textured modified epoxy block filler which has a solids by volume value of 50%, and a spreading rate of 80 to 100 square feet per gallon on dense masonry.
 - Finish Coats: Apply two coats of a two component, high build poly-amide cured, epoxy, which has a solids value of 56% at a minimum dry film thickness of 5.0 mils per coat and a coverage of 180 square feet per gallon.

- B. Ferrous Metals (F.M.)
 - 1. F.M.-1. Exterior/Interior - severe exposure.
 - Surface
 - Preparation: SSPC SP6 Commercial Blast Cleaning.
 - Shop or Field Coat: Apply one coat of 54% volume solids, two component poly-amide cured high build epoxy primer. At a dry film thickness of 3.0 mils and a coverage of 289 square feet per gallon.
 - First Coat: Apply one coat of a 56% volume solids, two component poly-amide cured high-build epoxy. At a minimum dry film thickness of 3.0 mils and a coverage of 300 square feet per gallon.
 - Second Coat: Apply one coat of a 54% volume solids aliphatic polyester polyurethane enamel. At a minimum dry film thickness of 1.5 mils and a coverage of 577 square feet per gallon.

- C. Concrete (C.)
 - 1. C-1. Concrete Floors
 - Surface:
 - Preparation: Thoroughly wash and rinse surfaces, removing dirt, dust, grease and oil. Use appropriate detergent cleanser. Remove loose or flaking paint and feather sand edges for a smooth uniform surface. Dull glossy surfaces.
 - Primer: Apply one coat of epoxy modified acrylic floor finish, thinned 15%, to exposed bare areas, with a coverage of 350 square feet per gallon.
 - Finish Coat: Apply two coats of epoxy modified acrylic floor finish with a coverage of 350 square feet per gallon.

- D. Wood (W.)
1. W-1. Exterior and Interior Surface

Preparation: Surface must be dry, clean, and free of contaminants. Sand rough areas.

Primer: Apply a 53% volume solids alkyd wood primer at a dry film thickness of 2.0 mils and a coverage of 425 square feet per gallon.

Finish Coats: Apply two coats of a 54% volume solids alkyd enamel, at a dry film thickness of 2.0 mils per coat and a coverage of 400 square feet per gallon.
- E. Drywall (D.)
1. D-1. Drywall (Gypsum Board) Surface

Preparation: Surface must be dry, clean and free of contaminants. Sand joint compound smooth and feather edges.

Finish Coats: Apply two coats of a 43% volume solids acrylic latex at a dry film thickness of 2 mils per coat and a coverage of 345 square feet per gallon.
- F. Galvanized Metals (G.)
1. G-1. Interior Surface

Preparation: SSPC-SP1 Solvent Cleaning.

Primer: Apply one coat of Epoxy Zinc Chromate primer poly-amide with 52% solids at a coverage of 375 square feet per gallon.

Finish Coats: Apply two coats of a 56% volume solids, poly-amide cured high-build epoxy at a dry film thickness of 3.0 mils per coat and a coverage of 300 square feet per gallon.
 2. G-2. Exterior Surface

Preparation: SSPC-SP1 Solvent Cleaning.

Primer: Apply one coat of Epoxy Zinc Chromate primer poly-amide with 52% solids at a coverage of 375 square feet per gallon.

First Coat: Apply one coat of a 56% volume solids, poly-amide cure high-build epoxy at a dry film thickness of 3.0 mils and a coverage of 300 square feet per gallon.

Finish Coat: Apply one coat of a 54% volume solids, aliphatic polyester polyurethane enamel at a minimum dry film thickness of 1.5 mils and at a coverage of 577 square feet per gallon.

3.8 PAINTS AND COATINGS SCHEDULE

- A. Application: Materials shall be applied to the following surfaces and areas in accordance with the guidelines developed within the "General Finish Specifications".
- B. Finish M-1: Interior exposed concrete block.
- C. Finish FM-1: Ferrous materials including, but not limited to, structural steel, miscellaneous metals, doors and frames, non-insulated piping, and equipment not included under Finish FM-2 disturbed or installed as part of the work as indicated in the schedule. Stainless steel, aluminum and plastic components specified with the above items shall be painted only as directed by the Architect.
- D. Finish G-1: Interior galvanized items, i.e. structural members, frames, exposed ductwork, conduit, etc. disturbed or installed as part of the work and as indicated in the schedule.
- E. Finish G-2: Exterior galvanized items, i.e. structural members, frames, etc. disturbed or installed as part of the work and as indicated in the schedule.
- F. Finish C-1: Interior concrete floors and as indicated in the schedule.
- G. Finish W-1: Exposed wood disturbed or installed as part of the work.
- H. Finish D-1: Exposed drywall (gypsum board) disturbed or installed as part of the work and as indicated in the schedule.

END OF SECTION

SECTION 13 34 21

STRUCTURAL RETROFIT ROOF SUB-FRAMING SYSTEM

PART 1 – GENERAL

1.1 DESCRIPTION

- A. The structural retrofit roof sub-framing system will provide support for a new metal roofing system constructed over the existing building roof. It shall be engineered in accordance with the specified code and design loading and shall transfer positive acting loads at each attachment location into an existing structural member.
- B. Furnish labor, material, tools, equipment and services for the fabrication of retrofit roof sub-framing as indicated, in accordance with provisions of the Contract Documents.
- C. Completely coordinate work with other trades.
- D. Although such work is not specifically indicated, the contractor/installer shall coordinate with the metal roof system supplier to furnish and install supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
- E. Reference Division 1 for General Requirements

1.2 RELATED WORK

- A. Section 05 40 00 - Cold-Formed Metal Framing.
- B. Section 07 40 00 - Metal Roofing.
- C. Section 07 72 00 - Roof Accessories.
- D. Section 22 05 00 - Basic Mechanical Materials and Methods for Plumbing Piping.
- E. Section 23 31 00 Ventilation Ducts.
- F. Section 26 05 00 – Electrical Demolition and Modifications.

1.3 QUALITY ASSURANCE AND REFERENCES

ASTM International

1. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
2. ASTM A 1011/A 1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability , and Ultra-High Strength.
3. ASTM E 1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference.

B. American Iron and Steel Institute (AISI)

1. AISI D100-13: Cold-Formed Steel Design Manual, 2013 Edition.
2. AISI S100-16: North American Specification for the Design of Cold-Formed Steel Structural Members, 2016 Edition.

C. American Institute of Steel Construction (AISC)

1. ANSI/AISC 360-16: - Specification for Structural Steel for Buildings, 2016 Edition.

1.4 SUBMITTALS

- A. Comply with Section 01 33 00 - Submittals.
- B. Product Data: Submit manufacturer's product data, including installation instructions.
- C. Shop Drawings: Submit manufacturer's shop drawings for sub-purlins indicating gauge, yield strength, flange and web sizes, cut-out dimensions, and punch pattern for attachment holes in base flange.
- D. Design Data: Submit design data from independent engineering firm indicating table of wind uplift capacity of sub-purlins.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to site in manufacturer's original, unopened bundles, containers, and packaging, with labels clearly identifying product name and manufacturer.
- B. Storage:
 1. Store materials in accordance with manufacturer's instructions.
 2. Protect sub-purlins from corrosion, deformation, and other damage.
 3. Store sub-purlins off ground, with 1 end elevated to provide drainage.

1.6 EXISTING ROOF SYSTEM AND PRE-CONSTRUCTION INSPECTION

- A. The existing roof system consists of concealed fastened standing seam metal panels with 16 inches o.c. (V.F.) major rib spacing x 1 ½inch major rib height (F.V.), attached to existing zee-shaped purlins spaced approximately 5 feet o.c. (F.V.) supporting the metal panels. The contractor shall Field Verify (F.V.) existing standing seam panel dimensions prior to ordering sub-framing system.
- B. Conduct a detailed inspection of the existing roof(s) to identify any existing roof elements that are a cause for concern such as: panel deterioration, structural deterioration, equipment curbs, plumbing and electrical penetrations, special flashing requirements, and any other items that should be submitted to the Architect for review and evaluation.
- C. Perform a detailed survey of the existing roof(s) and confirm the existing panel dimensions, type and profile. In the case of existing standing seam roofing it should be determined if the existing roof employs standard or tall clips. If high panel clips are existing, the standoff dimension must be determined.
- D. Record field measurements on the existing roof geometry including width, length, eave height, roof pitch and purlin spacing. This information is to be forwarded to the retrofit sub-framing system manufacturer for coordination and integration into the design and installation documents.

1.7 DESIGN REQUIREMENTS

A. General

1. Design for approval and installation in accordance with the Contract Documents, a complete retrofit sub-framing and metal roof panel assembly as a structural package.
2. Engineer and factory fabricate sub-framing system in accordance with applicable references.
3. Coordinate design with the retrofit sub-framing manufacturer and the metal roof panel manufacturer to perform as one engineered structural package where the metal roof system controls the placement of sub-framing members.
4. Any additions/revisions to sub-framing members as a result of field conditions and/or demands, shall be the contractor's responsibility, and shall be submitted for review and approval by the manufacturer.

B. Engineering Design Criteria:

1. Building Code: Michigan Building Code 2015
2. Additional Requirements: None
3. Occupancy Group: Business-B, Storage-S.
4. Occupancy Category: II
5. Importance Factor: 1.0
6. Minimum Roof Snow Load: 20 PSF.

7. Ground Snow Load: 50 PSF.
8. Wind Speed: 120 MPH, 3 Second Gust. or 120 MPH, Ultimate Wind Speed
9. Exposure Category: C.
10. enclosure: Enclosed
11. Analysis of Existing Purlin Capacities and Potential Increase from Retrofitting: Not

Required

PART 2 – PRODUCTS

2.1 MANUFACTURER QUALIFICATIONS

- A. Manufacturer shall have a minimum of five years' experience in manufacturing and fabrication of retrofit sub-framing systems of this nature.
- B. Light-gauge steel sub-framing components specified in this section shall be produced in a factory environment by roll forming and press-brake equipment assuring the highest level of quality control.
- C. Acceptable Manufacturers
 1. Roof Hugger, LLC., PO Box 1560, Lutz, Florida 33548. Toll Free Phone (800) 771-1711. Toll Free Fax (877) 202-2254. Phone (813) 909-4424. Fax (813) 948-4742. Website: www.roofhugger.com. E-Mail: sales@roofhugger.com.
 2. Other manufacturers must submit a request for approval prior to the established bid date according to applicable Division 1 Section(s) and shall be equal to Roof Hugger, LLC.

2.2 RETROFIT STEEL SUB-PURLINS

- A. Standard Retrofit Factory-notched Sub-Purlins: "Roof Hugger".
- B. Description:
 1. 1-piece, custom-notched and punched, Z-shaped section.
 2. Pre-punched to nest over existing through-fastened, low clip and high clip standing seam roof panel ribs for low-profile attachment.
 3. Pre-punched for attachment fasteners.
 4. Integrally formed Anti-Rotational Arm as required for high clip standing seam panels.
 5. Fastens directly into existing purlins, joists or structural decking with fasteners.
- C. Material:
 1. Galvanized steel, ASTM A 653 or A 1011, G-90, yield strength 50 KSI.
 2. Thickness: 0.060 inch minimum, 16-Gauge.
 3. Web Height: Per plans.

4. Base Flange Width: Pre-punch base flange to manufacturer's standard unless otherwise specified.
5. Top Flange Width: Nominally 2 inches with 0.25 inch minimum stiffening lip unless otherwise specified.
6. Length: Nominally 10 feet long, plus an additional +/- 1 inch top flange extension for part lap or per manufacturer's recommendations.

D. Attachment Fasteners/Anchorage

1. "Standard" Roof Hugger Sub-Purlin:
 - a. Attachment to Existing Purlins/Joist: Two- 1/4"-14 x 1-1/2", DP3, self- drilling screws, per L.F. or as specified.
 - b. Existing Purlin Strengthening, Top Flange Lap Connection: four- #10-16 x 1 inch pancake head screws through overlapping sub-purlin top flanges, joining them into a continuous member, per lap connection or as specified.
 - c. Mid-Span Hugger Sub-Purlin to Sub-Rafter: two, 1/4"-14 1 inch, DP3 self –drilling on each side of cutout and one #10-16 x 1 inch pancake head screw installed through sub-purlin top flange, into sub-rafter.
 - d. Mid-Span Hugger Sub-Purlin to Existing Panel: #17-14 fasteners shall be installed through the mid-span of sub-purlin into the existing roof panels as specified or per standard details (over-drilling of pre-punched hole will be required).
 - e. Fastener Length: As required to penetrate existing purlins in accordance with fastener attachment standards.
2. "Special" Roof Hugger Sub-Purlin w/ Anti-Rotational Arm:
 - a. Attachment to Existing Purlins/Joist: Typical 2-1/4"-14 x 2 inches DP3 self-drilling fastener with 1 inch standoff or as specified.
 - b. Attachment of Anti-Rotational Arm to Existing Panel: #17-14 fastener or as specified.
3. Integral Sub-Rafters beneath the rib cut out in the sub-purlin: 1/4 inch-14 threads per inch, DP3 self-drilling fasteners install through the sub-purlin, through the integral sub-rafter, through the existing panel and into the existing purlin, rafters or joist; quantity as specified by design (typically 4 per intersection).
4. Sub-Rafter Hat Channels for designated high load areas:
 - a. Attachment to Existing Purlins, Trusses, Rafters or Joist: 1/4"-14 threads per inch DP3 self-drilling screws.
 - b. Length as required for minimum required penetration into truss, rafter or joist.
5. Sub-Purlin Hat Channels: Attachment to installed sub-rafters: 1/4 inch-14 threads per inch, DP3 self-drilling fasteners, quantity as specified.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Examine existing roof areas to receive sub-purlins. Notify Architect if areas are not acceptable structurally adequate. Do not begin installation until unacceptable conditions have been corrected.
- B. Verify existing purlins and eave struts are in good serviceable condition, without rust-thru of flanges.
- C. Field Verify Before Ordering of and Installation of Sub-Purlins:
 - 1. Existing panel profile and panel rib dimensions.
 - 2. Existing panel run-out by measuring roof over several 20-foot areas to confirm panels were installed on module and in-square. Note variations.

3.2 INSTALLATION OF SUB-FRAMING AND OTHER ROOFTOP APPURTENCES

- A. Install sub-purlins in accordance with manufacturer's instructions at locations indicated on the standard details or Engineered Drawings if provided.
- C. Limit installation of sub-purlins to the amount that can be roofed over each day.
- D. Install 2 fasteners per linear foot or as directed by Manufacturer.
- E. Install sub-purlins directly over existing purlins and fasten to existing purlin through existing panel pan section. Notes: In higher wind zones, special fitted sub-rafter may be required to allow for the installation of Huggers mid-span between existing purlins. Grids made of "Cee's", "Zee's", and/or "hats" may be needed in lieu of special fitted sub-rafter in the corner and/or edge areas to meet the load requirements. The selection of the fitted sub-rafter or grid system is a function of existing roof panel, the new roof panel and the corner, edge and field pressures. A preliminary estimate of the roof zone pressures can be made at www.roofwinddesigner.com
- E. If integral sub-rafter are used, loosely lay Sub-rafter over the existing panel high ribs and between the existing purlins. Sub-rafter spacing and number of fasteners shall be as specified on the engineered Drawings.
- F. Press the Roof Hugger sub-purlins over the sub-rafter on the existing purlin lines in areas where they are specified and install 1/4"-14 DP3 screws through the base flange of the sub-purlin, through the sub-rafter and then into the existing purlins being careful to maintain the alignment of the sub-rafter.
- G. Install sub-purlins onto the integral sub-rafter between the existing purlins as specified with 1/4"-14 threads per inch, DP3 fasteners, typically one fastener on each side of the sub-rafter unless otherwise specified.

- H. Where the sub-purlin is attached to the existing roof panel the pre-punched base flange hole should be drilled out to the correct diameter to allow for the installation of a #17-14 fastener through the Roof Hugger and into the existing roof panel.
- I. Where the sub-purlin passes over the fitted sub-rafter, fasten through the top flange of the sub-purlin with a #10-16 pancake head fastener into the top of the fitted sub-rafter.
- J. Removal of Existing Roof Fasteners: Do not remove existing roof fasteners unless installation of sub-purlins over fasteners causes sub-purlins to “roll” or “porpoise”. Some distortion of base flange of sub-purlins caused by existing roof fasteners is normal.
- K. Existing Rooftop Components and Equipment
 - 1. When mechanical equipment locations conflict with retrofit roof sub-framing components, the contractor will provide additional framing that accommodates the relocation, replacement or re-flashing of the equipment. Submit construction details for this condition to the Architect.
 - 2. When electrical service and equipment needs to be removed, extended and reinstalled at the new metal roof system height/plane, extend the wiring in accordance with the Section 26 05 00, local building and electrical codes.
 - 3. Comply with provisions Section 07 40 00, Section 22 05 00 and local building codes for extending, relocating and flashing vent pipes.
 - 4. Comply with provisions Section 07 40 00, Section 23 31 00 and local building codes for extending, relocating ducts and curbs.
- L. New Equipment within the New Roof Cavity
 - 1. Review all clearances, attachment requirements, penetrations, and other critical details as necessary for the proper installation of any equipment to be installed within the new roof cavity.
 - 2. Obstructions with new sub-purlins shall be avoided. If cutting of sub-purlins is necessary, a continuous top flange must be provided to provide continuous bearing for the new metal roof system.

END OF SECTION

SECTION 22 00 00

PLUMBING

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. Contractor shall provide all labor, materials, equipment, permits, inspection fees, utility company charges, supervision and other items noted in contract General Conditions necessary to yield completely operable and tested systems as shown on the Plans and specified herein. As shown and noted on plans, details, and specifications the plumbing work includes, but is not limited to, the following:
 - 1. Modifying or extending existing sanitary venting.
- B. Coordination with other trades. Contractor shall assist in the field layout and coordination of equipment, ductwork, and piping installation and their relation with other trades at no additional cost to the owner.
- C. Provide minimum two (2) year warranty against defects for materials and installation, unless otherwise indicated.
- D. Cost of State of Michigan Plumbing Permits.
- E. Job Site safety is the responsibility of the contractor. The architect/engineer bears no responsibility for job-site safety.

1.2 STANDARDS, CODES AND PERMITS:

- A. Refer to Division 1, General Requirements and Supplementary Conditions.
- B. The Plumbing Contractor and his Subcontractors shall obtain all required permits and assessments prior to any work beginning. Contractor shall verify requirement to include privilege fees and permits as part of his formal bid.
- C. All work shall comply with the latest edition of applicable standards and codes of following:
 - 1. ASA American Standards Association
 - 2. ASME American Society of Mechanical Engineers
 - 3. ASTM American Society of Testing Materials
 - 4. ANSI American National Standards Institute
 - 5. AGA American Gas Association
 - 6. ASHRAE American Society of Heating, Refrigerating, and Air Conditioning Engineers 90.1-2013
 - 7. AWWA American Water Works Association
 - 8. NFPA National Fire Protection Association

9. IBR Institute of Boiler and Radiator Manufacturers
10. AWS American Welding Society
11. UL Underwriter s Laboratories
12. NEMA National Electric Manufacturers Association
13. NEC National Electric Code
14. ARA American Refrigeration Association
15. OSHA Occupational Safety and Health Act
16. MIOSHA Michigan Occupational Safety and Health Act
17. ABMA American Boiler Manufacturers Association
18. International Mechanical Code 2015
19. International Plumbing Code 2015

- D. All work shall be provided and tested in accordance with all applicable local county, state laws, ordinances, codes, rules and regulations.
- E. No work shall be covered or enclosed until the work is tested in accordance with applicable codes and regulations, and successful tests witnessed and approved by authorized inspection authority. Written approvals shall be secured by Contractor and submitted to Engineer before final acceptance of work.

PART 2 - GENERAL

2.1 MATERIALS AND EQUIPMENT:

- A. Standards:
1. All material where applicable shall be labeled or listed by Underwriters Laboratories, Inc.
 2. Erect equipment in a neat and workmanlike manner. Align, level and adjust for satisfactory operation. Install so that connecting and disconnecting of piping and accessories can be made readily, and so that parts are easily accessible for inspection, operation, maintenance and repair. Minor deviation from arrangements may be made, as approved.
- B. Base Bid
1. The Mechanical Contractor shall refer to the Mechanical Schedules and Specifications for approved equipment manufacturers. Contractor shall submit for Approved Equals during the bidding process.

END OF SECTION

SECTION 22 10 00

PLUMBING PIPING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Pipe and pipe fittings for the following systems:
 - 1. Sanitary vent piping.

- B. American Society of Mechanical Engineers:
 - 1. ASME B31.9 - Building Services Piping.

- C. ASTM International:
 - 1. ASTM D1785 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
 - 2. ASTM D2464 - Standard Specification for Threaded Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.
 - 3. ASTM D2466 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.
 - 4. ASTM D2467 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.
 - 5. ASTM D2564 - Standard Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems.
 - 6. ASTM D2609 - Standard Specification for Plastic Insert Fittings for Polyethylene (PE) Plastic Pipe.
 - 7. ASTM D2665 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings.
 - 8. ASTM D2680 - Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) and Poly (Vinyl Chloride) (PVC) Composite Sewer Piping.
 - 9. ASTM D2729 - Standard Specification for Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
 - 10. ASTM D2855 - Standard Practice for Making Solvent-Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings.
 - 11. ASTM D3034 - Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
 - 12. ASTM D3139 - Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.
 - 13. ASTM F437 - Standard Specification for Threaded Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80.
 - 14. ASTM F438 - Standard Specification for Socket-Type Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 40.
 - 15. ASTM F439 - Standard Specification for Socket-Type Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80.
 - 16. ASTM F441/F441M - Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80.

17. ASTM F442/F442M - Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe (SDR-PR).
18. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
19. ASTM F493 - Standard Specification for Solvent Cements for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe and Fittings.

1.2 SUBMITTALS

- A. See General Requirements - Submittal Procedures: Submittal procedures.
- B. Shop Drawings: Indicate layout of piping systems, including equipment, critical dimensions, and sizes. Submit shop drawings sealed by registered professional engineer.
- C. Product Data: Submit data on pipe materials and fittings. Submit manufacturers catalog information.

1.3 QUALITY ASSURANCE

- A. Perform Work in accordance with ASME B31.9 code for installation of piping systems and ASME Section IX for welding materials and procedures.
- B. Perform Work in accordance with State of Michigan and local municipal standards.

1.4 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 3 years documented experience approved by manufacturer.

1.5 PRE-INSTALLATION MEETINGS

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

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Accept specialties on site in original factory packaging. Inspect for damage.
- B. See General Requirements - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- C. Furnish temporary end caps and closures on piping and fittings. Maintain in place until installation.

- D. Protect piping from entry of foreign materials by temporary covers, completing sections of the Work, and isolating parts of completed system.

1.7 ENVIRONMENTAL REQUIREMENTS

- A. Section General Requirements - Product Requirements: Environmental conditions affecting products on site.

1.8 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

1.9 COORDINATION

- A. See General Requirements - Administrative Requirements: Requirements for coordination.
- B. Coordinate installation of buried piping with trenching.

PART 2 - PRODUCTS

2.1 PIPE HANGERS AND SUPPORTS

- A. Plumbing Piping - Drain, Waste, and Vent:
 - 1. Conform to ASME B31.9.
 - 2. Hangers for Pipe Sizes 1/2 Inch to 1-1/2 Inches: 304 stainless steel, adjustable swivel, split ring.
 - 3. Hangers for Pipe Sizes 2 Inches and Over: 304 stainless steel, adjustable, clevis.
 - 4. Multiple or Trapeze Hangers: 304 stainless steel channels with welded spacers and hanger rods.
 - 5. Wall Support for Pipe Sizes to 3 Inches: stainless steel hook.
 - 6. Wall Support for Pipe Sizes 4 Inches and Over: 304 stainless steel bracket and 304 stainless steel clamp.
 - 7. Vertical Support: Steel riser clamp.
 - 8. Floor Support: 304 stainless steel adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or stainless steel support.
 - 9. Copper Pipe Support: stainless steel ring, adjustable.
- B. Exterior pipe hangers shall be galvanized.

2.2 SANITARY SEWER PIPING, ABOVE GRADE

- A. PVC Plastic Pipe: Solid wall, schedule 80; ASTM D 2665.
 - 1. Fittings: PVC ASTM D 2665 socket fittings, made to ASTM D 3311, drain, waste, and vent patterns.
 - 2. Joints: Solvent welded, with ASTM D 2564 solvent cement.
 - 3. At no time will "Foam Core" type PVC piping be allowed.

2.3 FORCE MAIN SANITARY PIPING – ABOVE GRADE & BELOW GRADE

- A. Restrained Joint, PVC Pressure Pipe.
 - 1. SDR-17, 250 psi
 - 2. ASTM D 1748 ASTM D-2241 PVC (based on CertainTeed Yelomine SDR-17 PVC.)
 - 3. Fittings: ASTM F-477 permanent elastomeric seals for joining PVC pipe.
 - 4. Joints: ATM D-3139 solvent weld joints for pressure pipe (based on CertainTeed Yelowmine Certa-Lok.)

2.4 STORM WATER PIPING, BURIED WITHIN 5 FEET OF BUILDING

- A. PVC Pipe: ASTM D2729, polyvinyl chloride schedule 40 (PVC) material, bell and spigot solvent sealed ends.
 - 1. Fittings: PVC, ASTM D2729.
 - 2. Joints: ASTM D2855, solvent weld with ASTM D2564 solvent cement.

2.5 STORM WATER PIPING, ABOVE GRADE

- A. PVC Plastic Pipe: Schedule 40, ASTM D2665
 - 1. Fittings: ABS, ASTM D 2661, ASTM F 628, CS B181.1.
 - 2. Joints: Solvent weld
- B. PVC Plastic Pipe: Solid wall, schedule 40; ASTM D 2665.
 - 1. Fittings: PVC ASTM D 2665 socket fittings, made to ASTM D 3311, drain, waste, and vent patterns.
 - 2. Joints: Solvent welded, with ASTM D 2564 solvent cement.
 - 3. At no time will "Foam Core" type PVC piping be allowed.

2.6 EQUIPMENT DRAINS AND OVERFLOWS

- A. PVC Pipe: ASTM D1785, Schedule 80, or ASTM D2241, SDR 21 or 26, polyvinyl chloride (PVC) material.
 - 1. Fittings: ASTM D2466, Schedule 40, PVC ASTM D2467, Schedule 80, PVC ASTM D2464 PVC, threaded.
 - 2. Joints: ASTM D2855, solvent weld with ASTM D2564 solvent cement.

2.7 WALL PENETRATION SEALS

- A. Manufacturers:
 - 1. GPT Industries www.gptindustries.com
 - 2. Metraflex www.metraflex.com/
 - 3. Or Approved Equal.
- B. Link-seal System: elastomeric-mechanical water sealing system (for PVC – concrete wall penetrations and for metal pipe penetrations between classified spaces – See Notes on Plans), EPDM rubber, 316 stainless steel fasteners, nitrile and silicone elastomers.)
 - 1. Sizes: elastomeric seal and sleeve systems shall be sized based on outside diameter of penetrating pipe and wall penetration seal manufacturer's sizing and installation instructions.

2.8 UNIONS AND FLANGES

- A. Unions for Pipe 2 inches and Smaller:
 - 1. Ferrous Piping: Class 150, malleable iron, threaded.
 - 2. Copper Piping: Class 150, bronze unions with soldered.
 - 3. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.
 - 4. PVC Piping: PVC.
 - 5. CPVC Piping: CPVC.

- B. Flanges for Pipe 2-1/2 inches and Larger:
 - 1. Ferrous Piping: Class 150, forged steel, slip-on flanges.
 - 2. Copper Piping: Class 150, slip-on bronze flanges.
 - 3. PVC Piping: PVC flanges.
 - 4. CPVC Piping: CPVC flanges.
 - 5. Gaskets: 1/16 inch thick preformed neoprene gaskets.

- C. PVC Pipe Materials: For connections to equipment and valves with threaded connections, furnish solvent-weld socket to screwed joint adapters and unions, or ASTM D2464, Schedule 80, threaded, PVC pipe.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. See General Requirements - Administrative Requirements: Verification of existing conditions before starting work.

3.2 PREPARATION

- A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
- B. Remove scale and dirt on inside and outside before assembly.
- C. Prepare piping connections to equipment with flanges or unions.
- D. Keep open ends of pipe free from scale and dirt. Protect open ends with temporary plugs or caps.
- E. Provide pipe sleeves at all concrete wall and floor penetrations per 2015 Michigan Plumbing Code, and per pipe manufacturer installation instructions.

3.3 INSTALLATION

- A. Install Work in accordance with State of Michigan and local municipal standards.
- B. PVC Piping:
 - 1. Plastic Pipe shall be installed in strict accordance with ASTM Standards relevant to the type of plastic piping system being installed: ASTM F 2536, ASTM D 2321.

2. Install pipe, fittings, and accessories according to ASTM F 2536 and ASTM D2321, and seal joints watertight.
3. Lay pipe to slope gradients as indicated on Shop Drawings.
4. Maximum Variation from Indicated Slope: **1/8 inch in 10 feet.**
5. Begin at downstream end and progress upstream.
6. Assemble and handle pipe according to manufacturer's instructions, except as may be modified on Drawings or by Engineer.
7. Keep pipe and fittings clean until Work has been completed and accepted by Engineer.
8. Cap open ends during periods of Work stoppage.
9. Lay bell and spigot pipe with bells upstream.
10. Backfill and compact as specified in Section 31 23 17 - Trenching.
11. Do not displace or damage pipe when compacting.
12. Connect pipe to existing sewer system.
13. Refer to manufacturer's installation instructions when directly embedding PVC piping into concrete slabs. Secure piping per ASTM F 2536 and ASTM D 2321 guidelines prior to pouring concrete. Where piping penetrates slab, provide sleeve or elastomeric closed cell insulation per manufacturer installation instructions.

C. PVC and Metal Piping wall penetrations:

1. Install wall penetration seals for all foundation wall pipe penetrations.
2. Install wall penetration seals for all pipe penetrations between Class 1, Division 1, Class 1 Division 2, and where piping passes through classified spaces into unclassified spaces.
3. Install link-seal wall penetration seals in strict accordance with wall penetration seal manufacturer.
4. Select size and install wall penetration seals per wall penetration seal system manufacturer's installation instructions.

3.4 FIELD QUALITY CONTROL

- A. See General Requirements - Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Test sanitary waste and vent piping system in accordance with local authority having jurisdiction.

3.5 CLEANING

- A. See General Requirements - Execution and Closeout Requirements: Requirements for cleaning.
- B. Clean and disinfect domestic water distribution system in accordance with Section 33 13 00.

END OF SECTION

SECTION 23 00 00

HVAC

PART 1 - GENERAL

1.1 SUMMARY

- A. This Division includes all materials, labor, equipment, tools, supervision, permits, and incidentals necessary to complete installation, test, start up, and operate in a practical and efficient manner all Mechanical Systems indicated on the Drawings and described in this Division. The work shall also include any items which, while not specifically included in the Contract Documents but are reasonable and are accepted trade practices or necessary for the proper completion of the systems.
- B. Mechanical systems in the Contract shall include the following: HVAC systems including all equipment, temperature controls, ductwork, piping, and insulation indicated on the drawings and the specifications.
- C. The General Provisions of this Contract, including General and Supplementary Conditions and other General Requirements Sections, apply to the Work specified in this Section.
- D. This Section is not intended to supersede, but to clarify the definitions in Division 1, General Requirements and Supplementary Conditions.
- E. Drawings and Specifications
 - 1. Drawings and Specifications are intended to supplement each other, and all work specified or indicated in either shall be provided.
 - 2. Drawings are diagrammatic and indicate general arrangement of work included in the Contract and shall serve only as design drawings and not as working drawings, for general layout of various equipment and systems. Should drawings disagree in themselves or with Specifications, the better quality or greater quantity of work shall be provided.
 - 3. Separate specifications over the other trades. The Mechanical Contractor shall familiarize himself with these other specifications.
 - 4. Should there be any question as to the scope of work for which the Mechanical Contractor is responsible, he shall request an interpretation before submitting his bid. After contracts are awarded, the Owner will not consider claims for extras because of the incomplete joining of the work of one contractor (or subcontractor) with another.

1.2 COORDINATION OF MECHANICAL WORK

- A. Responsibility
 - 1. The Mechanical Contractor shall be responsible for all Subcontractors and Suppliers, and include in his bid all materials, labor and equipment involved in accordance with all local regulations, jurisdictional awards, and decisions and secure compliance of all parts of the Specifications and Drawings regardless of Sectional inclusion in these Specifications.
 - 2. The Mechanical Contractor and Subcontractor shall be responsible for all parts applicable to his trade in accordance with the Specifications and Drawings, and shall be responsible for

coordinating locations and arrangements of his work with all other relevant Architectural, Structural and Electrical Contractor's Specifications, Drawings and Shop Drawings

B. Site and Project Document Examination:

1. Submission of a Bid Proposal is considered evidence that the Contractor has visited the site, examined the Drawing and Specifications of all trades and has fully informed himself as to project and site conditions and is proficient, experienced and knowledgeable of all state, local and federal standards, codes, ordinances, permits, and regulations which affect every Subcontractors completion, cost and time required and that all costs are included in his Bid Proposal.

C. General Supports:

1. Mechanical Contractor shall provide all necessary channel, angle, brackets or supplementary steel as required for adequate support for all piping, specialties, and equipment, which is hung or mounted above floor, and secure approval from Architect or Engineer, in writing, before welding or bolting to steel framing or anchoring to concrete structure.
2. Where piping or equipment is suspended from concrete construction, set approved concrete inserts in formwork to receive hanger rods, such as Unistrut and where installed in metal deck use Ramset or Welds as required.

D. Wall, Floor and Ceiling Openings:

1. Locate all openings and advise the General Contractor of details and templates of all openings necessary for inspection of mechanical work.
2. In general, openings and required lintels shall be provided by the General Contractor. Size and location is the responsibility of the Mechanical Contractor. Cracks and rough edges left following installation of equipment shall be caulked or covered by the Mechanical Contractor.

E. Field Changes:

1. This Contractor shall not make any field changes that effect timing, costs or performance without written approval from the Architect/Engineer in the form of a Change Order, Field Change Order or a Supplemental Instruction. The Contractor assumes liability for any additional costs for changes made without such instruction or approval. Should any unauthorized change be determined by the Architect as lessening the value of the project, a credit will be determined and issued as a change to the Contract.

1.3 STANDARDS, CODES AND PERMITS:

A. Refer to Division 1, General Requirements and Supplementary Conditions.

B. The Mechanical Contractor and his Subcontractors shall obtain all required permits and assessments prior to any work beginning. Contractor shall verify requirement to include privilege fees and permits as part of his formal bid.

C. All work shall comply with the latest edition of applicable standards and codes of following:

1. ASA American Standards Association
2. ASME American Society of Mechanical Engineers
3. ASTM American Society of Testing Materials
4. ANSI American National Standards Institute

5. AGA American Gas Association
6. ASHRAE American Society of Heating, Refrigerating, and Air Conditioning Engineers
7. AWWA American Water Works Association
8. NFPA National Fire Protection Association
9. IBR Institute of Boiler and Radiator Manufacturers
10. AWS American Welding Society
11. UL Underwriter s Laboratories
12. NEMA National Electric Manufacturers Association
13. NEC National Electric Code
14. ARA American Refrigeration Association
15. OSHA Occupational Safety and Health Act
16. MIOSHA Michigan Occupational Safety and Health Act
17. ABMA American Boiler Manufacturers Association
18. International Mechanical Code 2015
19. International Plumbing Code 2015

- D. All work shall be provided and tested in accordance with all applicable local county, state laws, ordinances, codes, rules and regulations.
- E. No work shall be covered or enclosed until the work is tested in accordance with applicable codes and regulations, and successful tests witnessed and approved by authorized inspection authority. Written approvals shall be secured by Contractor and submitted to Engineer before final acceptance of work.

1.4 SUBMITTALS:

- A. Shop Drawings:
1. Submit electronic PDF copy of equipment and associated materials and equipment to Architect or Engineer for review.
 2. Submit complete manufacturers shop drawings of all equipment, accessories and controls, including capacities, weights, dimensions, construction details, installation, controls, wiring diagrams, and motor data.
 3. Review of shop drawings is for general application only and is a service only and not considered as a guarantee of total compliance with or as relieving Contractor of basic responsibilities under all Contract Documents and does not approve changes in time or cost.
 4. Each Contractor is responsible to provide information to all other trades involved in or affected by installation of his equipment.
- B. Operating and Maintenance Instruction and Manuals:
1. Each Contractor shall provide for all major items of equipment (3) bound and indexed sets of operating and maintenance instructions to Engineer for approval. Manual shall include a complete set of shop drawings.

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT:

- A. Proposal Supplement:

1. Contractor to submit a supplemental document which lists the Mechanical Equipment and Materials Manufacturers, and Subcontractors list with the bid document.
2. After Proposal Supplement and Subcontractors are approved, no deviation shall be permitted without written approval of Engineer or Owner.

B. Standards:

1. All products shall be furnished by established manufacturers regularly engaged in making the type of materials to be provided and complete with all parts, accessories, connections, etc. as specified or as recommended and/or required by the manufacturer.
2. All material where applicable shall be labeled or listed by Underwriters Laboratories, Inc.
3. Erect equipment in a neat and workmanlike manner. Align, level and adjust for satisfactory operation. Install so that connecting and disconnecting of piping and accessories can be made readily, and so that parts are easily accessible for inspection, operation, maintenance and repair. Minor deviation from arrangements may be made, as approved.

C. Base Bid:

1. The Mechanical Contractor shall refer to the Mechanical Schedules and Specifications for approved equipment manufacturers. Contractor shall submit for Approved Equals during the bidding process.
2. Where base bid is not listed in specifications and if another manufacturer is listed as an approved equal, equipment from these manufacturers will be accepted contingent upon meeting the design, appearance, and functional standards established by the specified items.
3. The Contractor is liable for any added costs to himself or others and is responsible for verifying dimensions, clearance and roughing-in requirements and is responsible for advising other Contractors of variations and shall submit revised drawing layout for approval of Engineer.

D. Substitutions and Changes:

1. The Contractor shall bid the project in strict accordance with the Plans, Schedules, and Specifications. Alternative materials or methods proposed by the Mechanical Contractor shall be submitted in writing to the Engineer at least 3 Days Prior to the Bid due date and shall be preapproved for bidding. Failure to receive pre-approval will disqualify the Bid.
2. The Contractor is liable for any added costs to himself or others and is responsible for verifying dimensions, clearance and roughing-in requirements, when product not named as the basis of design is used and is responsible for advising other Contractors of variations and, if requested, submit revised drawing layout for approval of Architect.
3. Work required by Engineer to revise drawings or re-engineer mechanical systems required by equipment substituted by the Contractor or them base bid shall be paid by the Contractor to the Engineer on a hourly rate basis.

2.2 ELECTRICAL REQUIREMENTS FOR MECHANICAL WORK

A. General:

1. When the Mechanical equipment not named as the basis of design is approved for use, the Mechanical Contractor is responsible for any costs incurred by other trades, including revisions to the Electrical requirements such as conduit, wire, starters, heaters, fused switches, disconnects, or circuit breakers.

2. Electrical items furnished shall bear the Underwriter s Laboratories label and the installation shall comply with requirements of the National Electric Code, ANSI, IPCEA, IRI, and local codes, ordinances and regulations.

B. Motor Starters and Controls:

1. Unless specifically listed to be provided as an accessory to the equipment (such as roof top units, make-up air units, etc.), the Electrical Contractor shall provide all manual or magnetic motor starters as required for all motors as indicated on all Electrical Drawings.
2. Mechanical Contractor shall provide factory installed motor starters, disconnects, and convenience outlets where scheduled to be provided as an accessory to the unit. See equipment schedules.
3. The Mechanical Contractor shall provide variable frequency drives (VFDs) where scheduled to be provided as an accessory to the unit unless otherwise specified or if coordinated with the Electrical Contractor.
4. The Mechanical Contractor, Temperature Control Contractor, Equipment Supplier, and Electrical Contractor are responsible to coordinate and ensure all electrical accessories are included as part of the Base Bid.

C. Electrical Wiring and Controls:

1. Mechanical Contractor shall furnish and install all motors, drives, controllers integral to equipment and factory mounted controls for all mechanical equipment.
2. Mechanical Contractor or Temperature Control Contractor shall furnish and install all electrical devices requiring mechanical connections, and/or electrical connections, such as pressure switches, limit switches, float switches, solenoid valves, motor operated valves, motor operated dampers, fire stats, freeze stats, thermostats, override timers, E.P. s, P.E. s, temperature control cabinet, air compressor with starter, etc.
3. Temperature Control Contractor or Mechanical Contractor shall furnish and install all power and Class 2 and 3 wiring, conduit boxes for their associated equipment in 2.02, C, 2.
4. Electrical Contractor shall install all power wiring, conduit to motors and/or factory mounted control panels as indicated on Electrical Drawings or as indicated in Specifications.
5. All electrical wiring work by Mechanical Contractor and Temperature Control Contractor shall be in accordance with Division 26 requirements.

- D. See also, Division 26, Electrical Requirements for Mechanical Equipment.

END OF SECTION

SECTION 23 05 93

TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Testing, adjusting, and balancing of air systems.
2. Measurement of final operating condition of HVAC systems.

B. This section does not include:

1. Testing heat exchangers and pressure vessels for compliance with safety codes.
2. Specifications for materials for patching mechanical systems.
3. Specifications for materials and installation of adjusting and balancing devices. If devices must be added to achieve proper adjusting and balancing, refer to the system sections for materials and installation requirements.
4. Requirements and procedures for piping and ductwork systems leakage tests.

C. The following systems require test and balance:

1. Exhaust Fan.
2. Ductwork
3. Diffusers, Registers, Grilles, Louvers.

1.2 REFERENCES

A. Associated Air Balance Council:

1. AABC MN-1 - National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems.

B. American Society of Heating, Refrigerating and Air-Conditioning Engineers:

1. ASHRAE 111 - Practices for Measurement, Testing, Adjusting and Balancing of Building Heating, Ventilation, Air-Conditioning and Refrigeration Systems.

C. Natural Environmental Balancing Bureau:

1. NEBB - Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems.

D. Testing Adjusting and Balancing Bureau:

1. TABB - International Standards for Environmental Systems Balance.

1.3 SUBMITTALS

A. Reports:

1. General: Submit testing, adjusting, and balancing reports bearing the seal and signature of the test and balance engineer or the signature and list of qualifications of a test and balance technician. The reports shall be proof that the systems have been tested, adjusted, and balanced in accordance with the referenced standards; are an accurate representation of how the systems have been installed; are a true representation of how the systems are operating at the completion of the testing, adjusting, and balancing procedures; and are an accurate record of all final quantities measured, to establish normal operating values of the systems. Follow the procedures and format specified below.
 - B. See General Requirements - Submittal Procedures: Submittal procedures.
 - C. Prior to commencing Work, submit proof of latest calibration date of each instrument.
 - D. Field Reports: Indicate deficiencies preventing proper testing, adjusting, and balancing of systems and equipment to achieve specified performance.
 - E. Submit draft copies of report for review prior to final acceptance of Project.
 - F. Furnish reports in electronic PDF format and binder manuals, complete with table of contents page and indexing tabs, with cover identification at front and side. Include set of reduced drawings with air outlets and equipment identified to correspond with data sheets, and indicating thermostat locations.

1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with State standards and ASHRAE 90.1-2013.
- B. Prior to commencing Work, calibrate each instrument to be used. Upon completing Work, recalibrate each instrument to assure reliability.

1.5 QUALIFICATIONS

- A. Agency: Company specializing in testing, adjusting, and balancing of systems specified in this section with minimum ten years documented experience certified by AABC Certified or by NEBB Certified by TABB.

1.6 PRE-INSTALLATION MEETINGS

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

1.7 SEQUENCING

- A. See General Requirements - Summary: Work sequence.
- B. Sequence balancing between completion of systems tested and Date of Substantial Completion.

PART 2 - PRODUCTS

2.1 Not Used.

PART 3 - EXECUTION

3.1 PRELIMINARY PROCEDURES

- A. Before commencing work, verify that systems are complete and operable. Ensure the following:
1. Equipment is operable and in a safe and normal condition.
 2. Temperature control systems are installed complete and operable.
 3. Proper thermal overload protection is in place for electrical equipment.
 4. Final filters are clean and in place. If required, install temporary media in addition to final filters.
 5. Duct systems are clean of debris. .
 6. Fire dampers are in place and open.
 7. Coil fins have been cleaned and combed.
 8. Access doors are closed and duct end caps are in place.
 9. Air outlets are installed and connected.
 10. Duct system leakage has been minimized.
 11. Proper strainer baskets are clean and in place.
 12. Correct pump rotation.
 13. Correct fan rotation.
 14. Hydronic systems have been flushed, filled, and vented.
 15. Service and balance valves in water distribution system are in place and open.
 16. Operating voltage on fan and pump motors do not exceed motor's nameplate maximum voltage rating.
 17. Walk the system from the system air handling equipment to air outlets and inlets to determine variations of installation from design.
 18. Check all damper types for correct and locked position, and temperature control for completeness of installation before starting fans.
 19. Prepare report test sheets for both fans and outlets. Obtain manufacturer's outlet factors and recommended procedures for testing. Prepare a summation of required outlet volumes to permit a crosscheck with required fan volumes.
 20. Determine best locations in main and branch ductwork for most accurate duct traverses
 21. Place outlet dampers in the full open position
 22. Prepare schematic diagrams of system "as-built" ductwork and piping layouts to facilitate reporting
 23. Lubricate all motors and bearings
 24. Check fan belt tension
- B. Report to Architect/Engineer any major problems, defects or deficiencies noted during performance of services. Also include major problems or deficiencies in the written report.
- C. Promptly report abnormal conditions in mechanical systems or conditions, which prevent system balance.
- D. Beginning of work means acceptance of existing conditions.

3.2 PERFORMING TESTING, ADJUSTING AND BALANCING ON AIR SYSTEMS

- A. Perform testing, adjusting and balancing procedures on each system identified in drawing, in accordance with the detailed procedures outlined in the referenced standards except as may be modified below.
- B. Unless specifically instructed in writing, all work in this specification section is to be performed during the normal workday.
- C. In areas containing ceilings, remove ceiling tile to accomplish balancing work. Replace tile when work is complete and provide new tile for any tile that was damaged by this procedure. If the ceiling construction is such that access panels are required for the work of this section and the panels have not been provided, inform the owner representative.
- D. Cut insulation, ductwork and piping for installation of test probes to the minimum extent necessary for adequate performance of procedures. Patch to maintain system integrity and pressure rating of systems.
- E. In air systems employing filters, blank off sufficient filter area to simulate a pressure drop that is midway between that of a clean filter and that of a dirty filter.
- F. Test and Balance Contractor shall set diffuser flow rate (volume) by adjusting dampers installed on the ductwork. Do not use volume dampers that are integral with the diffusers to set volume if both duct and neck dampers are present.
- G. Make air quantity measurements in ducts by Pitot tube traverse of entire cross sectional area of duct.
- H. After adjustment, take measurements to verify balance has not been disrupted or that such disruption has been rectified.
- I. All Air Systems shall be balanced using a procedure, which results in minimum restrictions being imposed. At completion of balancing:
 - 1. At least one damper for an outlet/inlet shall be fully open on every branch duct.
 - 2. At least one branch duct balancing damper shall be fully open on every trunk duct.
 - 3. At least one trunk (zone) balancing damper shall be fully open from each Fan System.
 - 4. Supply/exhaust RPM shall be set so that the static pressure at the terminal that is most difficult to maintain is adequate, but not excessive.
- J. Measure and record system measurements at the fan to determine total flow. Adjust equipment as required to yield specified total flow at ventilation unit and at terminals. Proceed taking measurements in mains and branches as required for final terminal balancing. Perform terminal balancing to specified flows after balancing branch dampers, deflectors, extractors and valves.
- K. Provide fan and motor drive sheave adjustments necessary to obtain design performance. Once drive sheave diameters have been established, replace all adjustable sheaves with solid pulleys (at Test and Balance Contractor Cost). Include in scope of services drive changes specifically noted on drawings, if any. If work indicates that any drive or motor is inadequate for the application, advise the owner representative by giving the representative properly sized motor/drive

information (in accordance with manufacturers original service factor and installed motor horsepower requirements). Any changes shall keep the duct system within its design limitations with respect to the speed of the device and pressure classification of the distribution system. Material costs for sheave changes as well as time and material for motor changes will be considered a reimbursable expense and will require an itemized cost breakdown of all time and motor/drive changes submitted to owner representative; prior authorization is needed before this work is started.

- L. Measure and record static air pressure conditions across fans, coils and filters. Indicate in report if cooling coil measurements were made on a wet or dry coil and if filter measurements were made on a clean or dirty filter.
- M. Adjust outside air, return air and relief air dampers for design conditions at both the minimum and maximum settings and record both sets of data (and test methodology). If necessary, Test and Balance Contractor should return when an adequate temperature difference between the return air and outside air temperatures exists in order to determine minimum outside air damper position.
- N. For systems with Demand Control Ventilation (DCV) carbon dioxide systems, set minimum outdoor air damper position to 100% closed position ---do not set to the listed minimum position as noted on the equipment Schedule.
- O. Balance modulating dampers at extreme conditions and record both sets of data. Balance variable air volume systems at maximum air flow rate (full cooling) and minimum flow rate (full heating) and record all data.
- P. Adjust register, grille and diffuser vanes and accessories to achieve proper air distribution patterns (check with Engineer for optimal configuration), uniform space temperatures, areas free from objectionable noise and drafts — that are within the capabilities of the installed system.
- Q. Final air system measurements to be within the following range (unless directed otherwise by Engineer) of the specified CFM:
 - 1. Fans -5% to +10% of design value
 - 2. Supply grilles, registers, diffusers -10% to +10% of design value
 - 3. Return/exhaust grilles, registers -10% to +10% of design value
 - 4. Room pressurization air -5% to +5% of design value
- R. Permanently mark equipment settings including damper positions, valve positions, and control settings. Set and lock memory stops.
- S. Leave systems in proper working order by replacing belt guards, closing access doors and electrical boxes, and restoring temperature controls to normal operating settings.

3.3 DEFICIENCIES

- A. Notify General Contractor, Owner, and Owner Representative of any installation deficiencies found by the Test and Balance Contractor that were specified and/or shown on the Contract

Documents. The Owner Representative will then instruct the General Contractor to correct the deficient work. All corrective work to be done at no cost to the owner.

3.4 INSTRUMENTATION

- A. Provide all required instrumentation to obtain proper measurements. Application of instruments and accuracy of instruments and measurements to be in accordance with the requirements of Reference Standards and instrument manufacturer's specifications.
- B. All instruments used for measurements shall be accurate and calibrated. Calibration and maintenance of all instruments to be in accordance with the requirements of Reference Standards.
- C. Provide all necessary tools, scaffolding and ladders and other necessary instruments.

3.5 APPROVED TEST AND BALANCE CONTRACTORS

- A. Qualifications: A third party testing and balancing professional with technician's having at least 10-years of successful testing, adjusting, and balancing experience on projects with testing and balancing requirements similar to those required for this project.
- B. Codes and Standards: The Test and Balance Contractor shall be certified by one the following Test and Balance Organizations.
 - 1. National Environmental Balancing Bureau (NEBB).
 - 2. National Balancing Council (NBC).
 - 3. Associated Air Balance Council (AABC).
- C. Approved Test and Balance Contractors:
 - 1. Due to prior test and balance issues, only test and balance contractors listed below are approved for this job. No Voluntary or Deductive Alternates, or other test and balance contractors shall be accepted.
 - a. Integrity Test and Balance, Nathan Heikkila, 231-499-3594
 - b. International Test and Balance, 248-559-5864
 - c. Hi-Tech Test and Balance, Bill Haire, 989-695-5498
- D. Report Format and Contents
 - 1. Format: Bind report forms in three-ring binders or portfolio binders. Label edge and binder front cover with label identifying project name, project number and descriptive title of contents. Divide the contents of the report into the below listed divisions, separated by divider tabs.
 - 2. Report Tags and Labels: Use equipment tags and labels (for example: AHU-1, RTU-1, SD-1, etc.) as listed on the Mechanical Drawings, when labeling report equipment.
 - General Information:
 - a. Summary and Title Page
 - b. Air Systems
 - c. Water Systems
 - d. Special Systems
- E. Report Forms

1. Title Page:
 - a. Name of Testing, Adjusting, and Balancing Agency
 - b. Address of Testing, Adjusting, and Balancing Agency
 - c. Telephone and facsimile numbers of Testing, Adjusting, and Balancing Agency
 - d. Project name
 - e. Project location
 - f. Project Architect
 - g. Project Engineer
 - h. Project Contractor
 - i. Project altitude
 - j. Report date

2. Summary Comments:
 - a. Design versus final performance
 - b. Notable characteristics of system
 - c. Description of systems operation sequence
 - d. Summary of outdoor and exhaust flows to indicate building pressurization
 - e. Nomenclature used throughout report
 - f. Test conditions

3. Instrument List:
 - a. Instrument
 - b. Manufacturer
 - c. Model number
 - d. Serial number
 - e. Range
 - f. Calibration date

4. Air Systems:
 - a. Names and initials of personnel performing the balancing (on each form)
 - b. Dates balancing was performed (on each form)
 - c. Weather conditions at the time of the test (especially temperature)
 - d. All motor rated data: voltages, amps, RPM, HP, manufacturer, starter and overload protective device sizes
 - e. All motor operating data (before and after adjustments) voltages, amps, RPM, HP, BHP, and sheave size/rating and manufacturer
 - f. All fan data (design and operating): supply and return CFM, operating static pressures (suction, discharge, and fan static), fan sheave, belt size, fan RPM
 - g. All drive changes necessitated to obtain design capacities
 - h. List actual minimum outside air volumes measured for each system and the corresponding control setpoint
 - i. All supply and return air outlet airflow (CFM) readings. Include velocity measurements and AK factors where applicable. Include initial and final CFM readings at each box.
 - j. For VAV systems, record static pressure at each terminal box as well as static pressure at static pressure sensor (for temperature control system).

- k. Measure building static pressure at building static pressure sensor and five other locations.
 - l. Heating and cooling coil entering and leaving air temperatures during test (as a reference)
5. Test and Balance Summary:
- a. Provide sheet describing mechanical system deficiencies.
 - b. Describe objectionable noise or drafts found during testing, adjusting and balancing.
 - c. Provide recommendations for correcting deficiencies and unsatisfactory performances and indicate whether modifications required are: within the scope of the contract; design related; or installation related.
 - d. Static pressure and CFM values at each fan system.
 - e. Static pressure and CFM values at each terminal box.
 - f. Static pressure at static pressure sensor (that ensures adequate static pressure at all terminal boxes) and at AHU static pressure sensor.
 - g. For each fan system, outside air damper position that provides required minimum outside air.
 - h. Flow rates and pressures for each hydronic system.
 - i. Pipe pressure at pressure sensor (that ensures adequate pressure at all coil valves) and at pump pressure sensor
6. Exhaust Fans
- a. Location
 - b. Manufacturer
 - c. Model number
 - d. Serial number
 - e. Air flow, specified and actual
 - f. Total static pressure (total external), specified and actual
 - g. Inlet pressure
 - h. Discharge pressure
 - i. Sheave Make/Size/Bore
 - j. Number of Belts/Make/Size
 - k. Fan RPM
7. Sound Level Report:
- a. Location
 - b. Octave bands - equipment off
 - c. Octave bands - equipment on
 - d. RC level - equipment on
8. Vibration Test:
- a. Location of points:
 - 1) Fan bearing, drive end
 - 2) Fan bearing, opposite end
 - 3) Motor bearing, center (when applicable)

- 4) Motor bearing, drive end
- 5) Motor bearing, opposite end
- 6) Casing (bottom or top)
- 7) Casing (side)
- 8) Duct after flexible connection (discharge)
- 9) Duct after flexible connection (suction)

b. Test readings:

- 1) Horizontal, velocity and displacement
- 2) Vertical, velocity and displacement
- 3) Axial, velocity and displacement

- c. Normally acceptable readings, velocity and acceleration
- d. Unusual conditions at time of test
- e. Vibration source (when non-complying)

END OF SECTION

SECTION 23 31 00

HVAC DUCTS AND CASINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Duct materials.
 - 2. Single-wall, spiral round ducts.
 - 3. Casings.
 - 4. Ductwork fabrication.

- B. Related Requirements:
 - 1. Section 23 33 00 - Air Duct Accessories: Requirements for duct accessories as specified in this Section.

1.2 REFERENCE STANDARDS

- A. American Society of Heating, Refrigerating and Air-Conditioning Engineers:
 - 1. ASHRAE Handbook - Fundamentals.

- B. American Welding Society:
 - 1. AWS D1.1 - Structural Welding Code - Steel.
 - 2. AWS D1.1M - Structural Welding Code - Steel.
 - 3. AWS D1.2 - Structural Welding Code - Aluminum.
 - 4. AWS D1.2M - Structural Welding Code - Aluminum.
 - 5. AWS D9.1 - Sheet Metal Welding Code.
 - 6. AWS D9.1M - Sheet Metal Welding Code.

- C. ASTM International:
 - 1. ASTM A36 - Standard Specification for Carbon Structural Steel.
 - 2. ASTM A36M - Standard Specification for Carbon Structural Steel.
 - 3. ASTM A90 - Standard Test Method for Weight [Mass] of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings.
 - 4. ASTM A90M - Standard Test Method for Weight [Mass] of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings.
 - 5. ASTM A240 - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
 - 6. ASTM A240M - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
 - 7. ASTM A568 - Standard Specification for Steel, Sheet, Carbon, Structural, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for.
 - 8. ASTM A568M - Standard Specification for Steel, Sheet, Carbon, Structural, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for.

9. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
10. ASTM A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
11. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
12. ASTM A1008 - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.
13. ASTM A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.
14. ASTM A1011 - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.
15. ASTM A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.
16. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
17. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
18. ASTM C14 - Standard Specification for Nonreinforced Concrete Sewer, Storm Drain, and Culvert Pipe.
19. ASTM C14M - Standard Specification for Nonreinforced Concrete Sewer, Storm Drain, and Culvert Pipe (Metric).
20. ASTM C443 - Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
21. ASTM C443M - Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets (Metric).
22. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

D. International Code Council:

1. International Energy Conservation Code (IECC).
2. International Mechanical Code (IMC).
3. 2015 Michigan Mechanical Code (MMC).

E. NFPA:

1. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems.
2. NFPA 90B - Standard for the Installation of Warm Air Heating and Air-Conditioning Systems.
3. NFPA 96 - Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations.

F. Sheet Metal and Air Conditioning Contractors' National Association:

1. SMACNA 016 - HVAC Air Duct Leakage Test Manual.
2. SMACNA 1767 - Kitchen Ventilation Systems and Food Service Equipment Guidelines.
3. SMACNA 1884 - Fibrous Glass Duct Construction Standards.
4. SMACNA 1966 - HVAC Duct Construction Standards - Metal and Flexible.

- G. UL:
 - 1. UL 181 - Factory-Made Air Ducts and Air Connectors.
 - 2. UL 181A - Closure Systems for Use With Rigid Air Ducts.
 - 3. UL 1978 - Grease Ducts.

1.3 PREINSTALLATION MEETINGS

- A. See General Requirements - Administrative Requirements: Requirements for preinstallation meeting.
- B. Convene minimum two weeks prior to commencing Work of this Section.

1.4 SUBMITTALS

- A. See General Requirements - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit manufacturer information for duct materials and manufactured spiral duct.

1.5 CLOSEOUT SUBMITTALS

- A. See General Requirements - Execution and Closeout Requirements: Requirements for submittals.

1.6 QUALITY ASSURANCE

- A. Perform Work according to SMACNA 1884 and 1966.

1.7 QUALIFICATIONS

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

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Store materials according to manufacturer instructions.
- D. 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.

1.9 AMBIENT CONDITIONS

- A. Section 01 50 00 - Temporary Facilities and Controls: Requirements for ambient condition control facilities for product storage and installation.
- B. Minimum Conditions: Do not install duct sealant when temperatures are less than those recommended by sealant manufacturer.
- C. Subsequent Conditions: Maintain temperatures during and after installation of duct sealant.

1.10 EXISTING CONDITIONS

- A. Field Measurements:
 - 1. Verify field measurements prior to fabrication.
 - 2. Indicate field measurements on Shop Drawings.

1.11 WARRANTY

- A. See General Requirements - Execution and Closeout Requirements: Requirements for warranties.
- B. Furnish two-year manufacturer's warranty for ducts.

PART 2 - PRODUCTS

2.1 RECTANGULAR DUCTS

- A. Performance and Design Criteria:
 - 1. Variation of duct configuration or sizes other than those of equivalent or lower loss coefficient is not permitted except by written permission of Engineer.
 - 2. Size round ducts installed in place of rectangular ducts according to ASHRAE Handbook - Fundamentals.
- B. Materials:
- C. Galvanized-Steel Ducts
 - 1. Material: ASTM A653 hot-dipped galvanized-steel sheet, FS Type B.
 - 2. Quality: Lock forming.
 - 3. Finish: G90 zinc coating according to ASTM A90.
 - 4. Hanger Rod:
 - a. Material: Aluminum.
 - b. Comply with ASTM A36.
 - c. Type: Threaded
- D. Stainless-Steel Ducts
 - 1. Material: 304 Stainless Steel.
 - 2. Quality: Welded
 - 3. Finish: Natural.
 - 4. Hanger Rod:

- a. Material: T304 Stainless Steel
- b. Type: Threaded rod strut with stainless steel fasteners.

2.2 SINGLE-WALL, SPIRAL ROUND DUCTS

- A. Manufacturers:
 1. Universal Spiral Air.
 2. Spiral Manufacturing
 3. Or Approved Equal
- B. Description:
 1. UL 181, Class 1, round spiral lockseam duct.
 2. Material: G-90, Galvanized steel.
- C. Minimum Duct Wall Thicknesses:
 1. Diameter: 6"-8" 26 gage; 10"-16" 24 gage, 20"-24" 20 gage; 26"-32" 20 gage; 36"-40" 18 gage; 42" – 60" 16 gage.

2.3 CASINGS

- A. Fabricate casings according to SMACNA 1966 and construct for indicated operating pressures.
- B. Doors:
 1. Reinforce access door frames with steel angles tied to horizontal and vertical plenum supporting angles.
 2. Furnish hinged access doors where indicated or required for access to equipment for cleaning and inspection.

2.4 FABRICATION

- A. Rectangular Ducts:
 1. Fabricate and support in accordance with SMACNA HVAC Duct Construction Standards Metal and Flexible Duct. Current edition.
 - a. Provide duct material, gages, reinforcing, welding, and sealing for indicated operating pressures.
 - b. Construct T's, bends, and elbows with radius of not less than 1-1/2 times width of duct on centerline. Where not possible and where rectangular elbows must be used, provide air foil turning vanes. Where acoustical lining is indicated, provide turning vanes of perforated metal with glass fiber insulation. For stainless steel welded duct mitered transitions may be used in lieu of radius elbows or turning vanes.
 - c. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30 degrees divergence upstream of equipment and 45 degrees convergence downstream.
 - d. Rectangular duct pressure class = 4" w.g.
 - e. Stiffeners and reinforcement shall be per SMACNA duct construction standards, typically when duct dimension exceeds 36", and 4'-0" in length.

PART 3 -

A. Round Ducts:

1. According to SMACNA 1966.
2. Seams: Longitudinal.
3. Provide duct material, gages, reinforcing, and sealing for indicated operating pressures.
4. Tees, Bends, and Elbows:
 - a. Minimum Radius: 1-1/2 times centerline duct width. Short sweep elbows are not allowed.
 - b. Increase duct sizes gradually, not exceeding 15 degrees of divergence wherever possible.
 - c. Upstream of Equipment: Maximum 30 degrees.

B. Welding:

1. Continuously Welded Round and Oval Duct Fittings: Two gages heavier than duct gages according to SMACNA 1966.
2. All stainless-steel duct shall have continuous external welds. Braised or electrically welded.

C. Takeoffs:

1. Provide standard 45-degree lateral wye takeoffs.
2. If not possible due to space limitations, provide 90-degree conical tee connections.
3. Stainless steel take-offs may be 90 degree welded.

D. Sealing:

1. Seal joints between duct sections and duct seams with welds, gaskets, mastic adhesives, mastic plus embedded fabric systems, or tape.
2. Sealants, Mastics, and Tapes: Comply with UL 181A and provide products bearing appropriate UL 181A markings.

3.2 ACCESSORIES

A. Hangers and Supports:

1. Hanger rods, bolts, and strut for galvanized duct in Noncorrosive Environments: Cadmium-plated steel rods and nuts.
2. Hanger rods, bolts, and strut for stainless steel welded duct shall be 304 stainless steel.

PART 4 - EXECUTION

4.1 EXAMINATION

- A. See General Requirements- Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify sizes of equipment connections before fabricating transitions.

4.2 PREPARATION

- A. See General Requirements - Execution and Closeout Requirements: Requirements for installation preparation.
- B. Obtain manufacturer's inspection and acceptance of fabrication and installation at beginning of installation.
- C. Install temporary closures of metal or taped polyethylene plastic on open ductwork to prevent construction dust from entering ductwork system.

4.3 INSTALLATION

- A. Duct sizes indicated are inside clear dimensions. For lined ducts, maintain sizes inside lining.
- B. Install and seal metal and flexible ducts in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible.
- C. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities.
- D. During construction provide temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system.
- E. Install and seal ducts according to SMACNA 1966.
- F. Hanger and Supports:
 - 1. Fabricate and support ducts according to SMACNA 1884 and 1966.
 - 2. Threaded Rods: Provide double nuts and lock washers.
 - 3. Building Attachments:
 - a. Provide concrete inserts or structural-steel fasteners appropriate for construction materials to which hangers are being attached.
 - b. If possible, install concrete inserts before placing concrete.
 - c. Powder-Actuated Concrete Fasteners:
 - 1) Use only for slabs more than 4 inches thick.
 - 2) Install after concrete is placed and completely cured.
 - 3) Do not use powder-actuated concrete fasteners for seismic restraints.
 - 4. Hanger Spacing:
 - a. Comply with SMACNA 1884 and 1966.
 - b. Install hangers and supports within 24 inches of each elbow and within 48 inches of each branch intersection.
 - c. Extend strap supports down both sides of ducts and turn under bottom at least 1 inch.
 - d. Secure hanger to sides and bottom of ducts with sheet metal screws.
 - 5. Hangers Exposed to View: Provide threaded rod and angle or channel supports.
 - 6. Vertical Ducts:
 - a. Support with steel angles or channel secured to sides of duct with welds, bolts, sheet metal screws, or blind rivets.
 - b. Support at each floor and at maximum intervals of 16 feet.

7. Upper Attachments:
 - a. Attach to structures.
 - b. Selection and Sizing: Provide pull-out, tension, and shear capacities as required for supported loads and building materials.

4.4 CLEANING

- A. See General Requirements - Execution and Closeout Requirements: Requirements for cleaning.
- B. Protect sensitive equipment with temporary filters or bypass during cleaning.
- C. Clean exterior of ductwork free of grease, grime, flux, stickers, markers, etc.

END OF SECTION

SECTION 23 34 23

HVAC POWER VENTILATORS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Centrifugal Upblast Ventilators
- B. Related Requirements:
 - 1. Division 23 31 00 HVAC Ducts and Casings
 - 2. Division 26 Electrical

1.2 UNIT PRICE – MEASUREMENT AND PAYMENT

- A. HVAC Power Ventilators:
 - 1. Basis of Measurement: Included in other pay items for this project.
 - 2. Basis of Payment: Includes all associated labor, materials, equipment, placement, etc. for a complete installation.

1.3 SUBMITTALS

- A. See General Requirements - Submittal Procedures specifies requirements for submittals.
- B. General: submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- C. Certified fan performance curves with system operating conditions indicated.
- D. Certified fan sound power ratings.
- E. Motor ratings and electrical characteristics, voltage, plus motor and electrical accessories.
- F. Material gages and finishes, including color charts.
- G. Dampers, including housing, linkages, and operators.
- H. Shop Drawings:
 - 1. Shop Drawings shall be submitted as described under General Requirements.
 - 2. Shop Drawings shall be submitted by the manufacturer supplier, detailing equipment assemblies and indicating dimensions, weights, loadings, required clearances, method of field assembly, components, and location and size of each field connection.

- I. Maintenance data for power ventilators to include in the operation and maintenance manual specified in Division 1 and in Division 23 Section "Basic Mechanical Requirements."

1.4 QUALITY ASSURANCE

- A. Electrical Component Standard: Provide components that comply with NFPA 70 and that are listed and labeled by UL where available.
- B. Listing and Labeling: Provide electrically operated fixtures specified in this Section that are listed and labeled.
- C. The Terms "Listed" and "Labeled": As defined in the National Electrical Code, Article 100.
- D. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7.
- E. AMCA Compliance: Provide products that meet performance requirements and are licensed to use the AMCA Seal.
- F. NEMA Compliance: Provide components required as part of fans that comply with applicable NEMA standards.
- G. UL Standard: Provide power ventilators that comply with UL 705.
- H. NFPA 91: Standard for the installation of "Blower and Exhaust Systems" Comply with.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Loren Cook
 - 2. Greenheck
 - 3. Or Approved Equals

2.2 CENTRIFUGAL VENTILATORS

- A. Description: Belt-driven or direct-drive centrifugal fans, as indicated, consisting of housing, wheel, fan shaft, bearings, motor and disconnect switch, drive assembly, curb base, and accessories.
- B. Housings:
 - 1. Upblast: Removable, spun-aluminum, dome top and outlet baffle; square, one-piece, aluminum base with venturi inlet cone. Spark resistant for explosion proof installation.
 - 2. Hooded: Removable, extruded-aluminum, rectangular top; square, one-piece, aluminum base with venturi inlet cone.

3. Downflow: Removable, galvanized steel, mushroom-domed top; square, one-piece, hinged, aluminum base with venturi inlet cone.
- C. Fan Wheels: Spark-resistant, aluminum hub and wheel with backward-inclined blades.
 - D. Drive Assembly: Resiliently mounted to the housing, with the following features:
 1. Fan Shaft: Turned, ground, and polished steel drive shaft keyed to wheel hub.
 2. Shaft Bearings: Permanently lubricated, permanently sealed, self-aligning ball bearings.
 3. Pulleys: Cast-iron, adjustable-pitch motor pulley.
 4. Fan and motor isolated from exhaust air stream.
 5. Belt Drive or Direct Drive as listed in the Exhaust Fan Schedule.
 - E. Accessories: The following items are required:
 - F. Variable-Speed Controller: Where indicated on schedules or required. Provide solid-state control to reduce speed from 100 percent to less than 50 percent.
 - G. Disconnect Switch: Lockable Nonfusible type, with thermal-overload protection mounted inside fan housing, factory wired through an internal aluminum conduit. Disconnect shall be lock out type.
 - H. Bird Screens: Removable 1/2-inch (13-mm) mesh, aluminum or brass wire, where applicable.
 - I. Dampers: Where indicated on Exhaust Fan Schedule, Mechanical Drawings, or temperature Control Specifications include:
 1. Low pressure, gravity back draft damper, round or rectangular or square parallel blade
 2. Motorized, parallel-blade, motorized, 2-position or modulating, medium pressure
 - J. Motors:
 1. Refer to Division 26 for motor requirements.
 2. Motor Construction: NEMA MG 1, general purpose, continuous duty, Design B.
 3. Enclosure Type: The following features are required as indicated:
 4. Open drip-proof motors where satisfactorily housed or remotely located during operation
 - K. Roof Curbs:
 1. Height: 12" minimum
 2. Galvanized steel; mitered and welded corners; 2-inch thick, rigid, fiberglass insulation adhered to inside walls; and 2-inch wood nailer.
 3. Dimensions: Size as required to suit roof opening and fan base.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install according to manufacturer's written instructions.
- B. Install units with clearances for service and maintenance.

3.2 FIELD QUALITY CONTROL

- A. Adjusting
 - 1. Adjust damper linkages for proper damper operation.
 - 2. Adjust belt tension.
 - 3. Adjust sheaves.
 - 4. Lubricate bearings.

3.3 CLEANING

- A. After completing installation, inspect exposed finish. Remove burrs, dirt, and construction debris, and repair damaged finishes including chips, scratches, and abrasions.
- B. Clean fan interiors to remove foreign material and construction debris. Vacuum clean fan wheel and cabinet.

END OF SECTION

SECTION 26 00 00

ELECTRICAL GENERAL PROVISIONS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. The general provisions of the contract including General and Supplementary Conditions and General Requirements shall apply to all work under this Specification Division.

1.02 REQUIREMENTS OF REGULATORY AGENCIES AND STANDARDS

- A. Equipment, fixtures, materials, and installation shall conform to the requirements of the local Building Department, the serving utility companies, the National Electrical Code, National Electrical Safety Code, Life Safety Code, Occupational Safety and Health Act, and applicable national, state, and local codes, ordinances, and regulations.
- B. All equipment shall be equal to or exceed the minimum requirements of NEMA, IEEE, and UL.
- C. Should any change in Drawings or Specifications be required to comply with governmental regulations, the Contractor shall notify Architect/Engineer prior to execution of the Work. The work shall be carried out according to the requirements of this code in accordance with the instruction of the Architect/Engineer and at no additional cost to the Owner.
- D. The provisions of Standards, Codes, Laws, Ordinances, etc., shall be considered minimum requirements. In case of conflict between their published requirements, the Owner's Representative shall determine which is to be followed and their decision shall be binding. Specific requirements of this specification or the drawings, which exceed the published requirements, shall take precedence over them.

1.03 FEES

- A. All local fees, permits, and services of inspection authorities shall be obtained and paid for by the Contractor. The Contractor shall cooperate fully with local companies with respect to their services. The Contractor shall include in their bid any costs to be incurred relative to power service (primary and/or secondary) requirements.

1.04 SCOPE OF WORK

- A. This division of the specifications covers the electrical systems of the project. It includes work performed by the electrical trades, as well as trades not normally considered as electrical trades.
- B. Provide all incidentals, equipment, appliances, services, hoisting, scaffolding, supports, tools, supervision, labor consumable items, fees, licenses, etc., necessary to provide complete system. Perform start-up and checkout on each item and system to provide complete and fully operable systems.

- C. Examine and compare the Electrical Drawings with these specifications and report any discrepancies between them to the Architect/Engineer and obtain written instructions for changes necessary in the work. At time of bid the most stringent requirements must be included in the bid.
- D. Examine and compare the Electrical Drawings and Specifications with the Drawings and Specifications of other trades and report any discrepancies between them to the Architect/Engineer and obtain written instructions for changes necessary in the work. At time of bid, the most stringent requirements must be included in said bid.
- E. Install and coordinate the electrical work in cooperation with other trades installing interrelated work. Before installation, make proper provisions to avoid interferences in a manner approved by the Architect/Engineer. All changes required in the work of the Contractor, caused by their neglect to do so, shall be made by them at their own expense.
- F. It is the intent of the Drawings and Specifications to provide a complete workable system ready for the Owner's operation. Any item not specifically shown on the Drawings or called for in the Specifications, but normally required to conform with the intent, are to be considered a part of the Contract.
- G. All materials furnished by the Contractor shall be new and unused (temporary lighting and power products are excluded) and free from defects. All material used shall bear the Underwriter's Laboratory, Inc. label provided a standard has been established for the material in question.
- H. Except for conduit, conduit fittings, outlet boxes, wire and cable, all items of equipment or materials shall be the product of one manufacturer throughout the entire project. Multiple manufacturers will not be permitted.

1.05 REFERENCES

- A. Utilize the following abbreviations and definitions for discernment within the Drawings and Specifications.
 - 1. Abbreviations
 - a. NEC National Electrical Code.
 - b. OSHA Occupational Safety and Health Act.
 - c. ANSI American National Standards Institute.
 - d. NFPA National Fire Protection Association.
 - e. ASA American Standards Association.
 - f. IEEE Institute of Electrical and Electronics Engineers.
 - g. NEMA National Electrical Manufacturers Association.
 - h. UL Underwriters' Laboratories, Inc.
 - i. IBC International Building Code.
 - j. IES Illuminating Engineering Society.
 - k. ICEA Insulated Cable Engineers Association.
 - l. ASTM American Society of Testing Materials.
 - m. ETL Electrical Testing Laboratories, Inc.
 - n. CBM Certified Ballast Manufacturers.
 - o. EIA Electronic Industries Association.
 - p. LED Light Emitting Diode.
 - q. OEM Original Equipment Manufacturer.

1.06 DEFINITIONS

- A. Provide: means to supply, purchase, transport, place, erect, connect, test, and turn over to Owner, deplete and ready for regular operations, the particular Work referred to.
- B. Install: means to join, unite, fasten, link, attach, set up, or otherwise connect together before testing and turning over to Owner, complete and ready for regular operation, the particular Work referred to.
- C. Furnish: means to supply all materials, labor, equipment, testing apparatus, controls, tests, accessories, and all other items customarily required for the proper and complete application for the particular Work referred to.
- D. Wiring: means the inclusion of all raceways, fittings, conductors, connectors, tape, junction and outlet boxes, connections, splices, and all other items necessary and/or required in connections with such Work.
- E. Conduit: means the inclusion of all fittings, hangers, supports, sleeves, etc.
- F. As Directed: means as directed by the Architect/Engineer, or their representative.
- G. Concealed: means embedded in masonry or other construction, installed behind wall furring or within double partitions, installed above suspended ceilings, or installed below grade.

1.07 COORDINATION OF THE WORK

- A. Certain materials will be provided by other trades. Examine the Contract Documents to ascertain these requirements.
- B. Carefully check space requirements with other trades and the physical confines of the area to ensure that all material can be installed in the spaces allotted thereto including finished suspended ceilings and the spaces within the existing building. Make modifications here to as required and approved.
- C. Transmit to other trades all information required for work to be provided under their respective Sections in ample time for installation.
- D. Wherever work interconnects with work of other trades, coordinate with other trades to ensure that all trades have the information necessary so that they may properly install all the necessary connections and equipment. Identify all items of work that require access so that the ceiling trade will know where to install access doors and panels.
- E. Coordinate, forecast, and schedule work with other trades in accordance with the construction sequence.
- F. The Drawings show only the general run of raceways and approximate location of outlets. Any significant changes in the location of outlets, cabinets, etc., necessary to meet field conditions shall be brought to the immediate attention of the Architect/Engineer and receive their approval before such alterations are made. All such modifications shall be made without additional cost to the Owner.

- G. Obtain from the Architect/Engineer in the field the location of such outlets or equipment not definitely located on the Drawings.
- H. Circuit “tags” are used where shown to indicate the designated branch circuits. These tags show the branch circuits and the panel designation. Show the actual circuits numbers used on the finished record drawings and on panel directory card. Where circuiting is not indicated, Electrical Subcontractor must provide required circuiting in accordance with the loading indicated on the drawings and/or as directed.
- I. Adjust location of raceways, conduits, panels, equipment, pull boxes, fixtures, etc. to accommodate the work to prevent interferences, both anticipated and encountered. Determine the exact route and location of each raceway prior to fabrication.
 - 1. Right-of-Way:
 - a. Lines that pitch have the right-of-way over those that do not pitch. For example: steam, condensate, and plumbing drains normally have right-of-way. Lines whose elevations cannot be changed to have right-of-way over lines whose elevations can be changed.
 - b. Make offsets, transitions, and changes in direction in raceways as required to maintain proper headroom in pitch of sloping lines whether indicated on the Drawings or not.
- J. Wherever the work is of sufficient complexity, prepare additional Detail Drawings to scale like that of the bidding Drawings, prepared on tracing medium of the same size as Contract Drawings. With these layouts, coordinate the work with the work of other trades. Such detailed work is to be clearly identified on the Drawings as to the area to which it applies. Submit for review Drawings clearly showing the work and its relation to the work of other trades before commencing shop fabrication or erection in the field.
- K. Coordinate with contractors for work under other Divisions of this specification for all work necessary to accomplish this contractor’s work.

1.08 EXAMINATION OF SITE

- A. Prior to the submitting of bids, the Contractor shall visit the site of the job and shall familiarize themselves with all conditions affecting the proposed installation and shall make provisions as to the cost thereof. Failure to comply with the intent of this paragraph will in no way relieve the contractor of performing all necessary work shown on the Drawings.

1.09 PROGRESS OF THE WORK

- A. The Contractor shall order the progress of their work to conform to the progress of the work of other trades and shall complete the entire installation as soon as the conditions of the building will permit. Any cost resulting from the defective or ill-timed work performed under this section shall be borne by the Contractor.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Ship and store all products and materials in a manner that will protect them from damage, weather, and entry of debris. If items are damaged, do not install, but take immediate steps to obtain replacement or repair. Any such repairs shall be subject to review and acceptance of the Architect/Engineer.

- B. Deliver materials in manufacturer's unopened container fully identified with manufacturer's name, trade name, type, class, grade, size, and color.
- C. Store materials suitably sheltered from the elements, but readily accessible for inspection by the Architect/Engineer until installed. Store all items subject to moisture damage in dry, heated spaces.

1.11 EQUIPMENT ACCESSORIES

- A. Provide supports, hangers and auxiliary structural members required for support of the work.
- B. Furnish and set all sleeves for passage of raceways through structural, masonry and concrete walls of floors and elsewhere as will be required for the proper protection of each raceway passing through building surfaces.

1.12 RECORD DOCUMENTS

- A. During construction, keep an accurate record of all deviations between the work as shown on Drawings and that which is installed. Keep this record set of prints at the job site for review by the Architect/Engineer and the Code Officials.
- B. Upon completion of the installation and acceptance by the owner, transfer all record drawing information to one neat and legible set of prints. Then deliver them to the Architect/Engineer for transmittal to the Owner.

1.13 GUARANTEE

- A. Guarantee all material and workmanship for a period of one (1) year from date of final acceptance by the Owner. Where guarantees or warranties for longer terms are specified herein, such longer terms shall apply. Within 24 hours after notification, correct any deficiencies that occur during the guarantee period at no additional cost to the Owner, all to the satisfaction of the Owner and Architect/Engineer. Obtain similar guarantees from subcontractors, manufacturers, suppliers and subtrade specialists.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Applicable equipment and materials shall be listed by Underwriters' Laboratories and manufactured in accordance with ASME, NEMA, ANSI or IEEE standards, and as approved by local authorities having jurisdiction.
- B. If products and materials are specified or indicated on the Drawings for a specific item or system, use those products or materials. If products and materials are not listed in either of the above, use first class products and materials, subject to approval of Shop Drawings where Shop Drawings are required or as approved in writing where Shop Drawings are not required.
- C. All equipment capacities, etc. are listed for job site operating conditions. All equipment sensitive to altitudes or ambient temperatures to be derated and method of derating shown on Shop Drawings. Where operating conditions shown differ from the laboratory test conditions, the equipment to be derated and the method of derating shown in Shop Drawings.

2.02 SUBSTITUTION OF MATERIALS OR EQUIPMENT

- A. All requests for substitution of materials or equipment shall be made in writing by the Contractor. The request must be in the Architect/Engineers' office not less than 10 days prior to the bid date. Samples of proposed substitute materials or equipment shall be submitted to the Architect/Engineer for review whenever they are requested. Bids shall be based only upon the specified materials and equipment or substitutes that have received written acceptance from the Architect/Engineer prior to the bid.
- B. Wherever the words "for approval" or "approved" are used regarding manufactured specialties, or wherever it is desired to substitute a different make or type of apparatus for that specified, submit all information pertinent to the adequacy and adaptability of the proposed apparatus, and secure Architect/Engineer's acceptance before apparatus is ordered.
- C. Wherever quantities or a definite make and size of apparatus is specified, the make and size of apparatus which is proposed must conform substantially (regarding the operating results) to that specified or implied. The same shall apply to important dimensions relating to the operation of apparatus in coordination with the rest of the system, or to properly fitting it into available space conditions. Any substitution of equipment or apparatus shall include all necessary revisions, as required to complete the installation.
- D. Acceptance of substitutions, for equipment specified herein, will not be given merely upon submission of manufacturer's names, and will be given only after receipt of complete and satisfactory performance data covering the complete range of operating conditions. Furnish complete and satisfactory information relative to equipment dimensions, weight, etc. Any additional construction and design costs incurred because of any accepted substitution shall be borne by the Contractor. The opinion and judgement of the Architect/Engineer shall be final, conclusive, and binding.

2.03 SHOP DRAWINGS

- A. Prepare and submit detailed Shop Drawings for materials, systems, and equipment as listed herein, including locations and sizes of all openings in floor decks, walls, and floors. Submit under provisions of Section 01 33 00.
- B. The Work described in any Shop Drawing submission shall be carefully checked for all clearances (including those required for maintenance and servicing), field conditions, maintenance of architectural conditions, and proper coordination with all trades on the job. Each submitted Shop Drawing shall include a verification that all related job conditions have been checked and that no conflict exists.
- C. All drawings shall be submitted sufficiently in advance of field requirements to allow ample time for checking and resubmittal as may be required. All submittals shall be complete and contain all required information.
- D. Acceptance of any submitted data or Shop Drawings for material, equipment apparatus, devices, arrangements, and layout shall not relieve Contractor from responsibility of furnishing same of proper dimensions and weight, capacities, sizes, quantity, quality, and installation details, to efficiently perform the requirements and intent of the Contract. Such acceptance shall not relieve the Contractor from responsibility for errors, omissions, or inadequacies of any sort on submitted data or Shop Drawings.

- E. Each Shop Drawing shall contain the following information:
 - 1. Provide general information on each copy of the submittal.
 - a. Project title.
 - b. Reference to the applicable drawing and specification article.
 - c. Contractor and supplier identification, addresses and telephone numbers.
 - d. Submittal date.
 - 2. Certification that the contractor has reviewed the submittal.
 - 3. Refer to individual specification sections for additional information requirements.

- F. Shop Drawing submittals shall be provided for each specific material, system, or equipment as identified herein.
 - 1. As a minimum, make submittals on the following items:
 - a. Surface raceways, conduit, and wire
 - b. Motor toggle disconnects, safety-switches, combination motor-starter safety-switches.
 - 2. Refer to individual specification sections for additional information requirements.

2.04 LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

- A. Conductor sizes are based on copper "CU", unless otherwise indicated as aluminum or "AL".

- B. Route wire and cable to meet Project conditions.

- C. Provide the following wire color identification as required.
 - 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.

 - 3. Neutral Conductors: When two or more neutrals are located in one conduit, individually identify each with proper circuit number.
 - a. White for single phase circuits at 120/240 volts.
 - b. White for circuits at 120/208 volts single or three phase.
 - c. Gray for circuits at 277/480 volts single or three phase.

 - 4. Ground Conductors:
 - a. For 6 AWG and smaller: Green.
 - b. For 4 AWG and larger: Identify with green tape at both ends and visible points including junction boxes.

- D. When two or more neutrals are in one conduit, individually identify each with proper circuit number.

- E. Concealed Dry Interior Locations: Use only building wire, Type THHN/THWN insulation, in raceway, or metal-clad cable.

- F. Above Accessible Ceilings: Use only building wire, Type THHN/THWN insulation, in raceway, armored cable or metal clad cable.
- G. Wet or Damp Interior Locations: Use only building wire, Type THWN insulation, in raceway, or metal-clad cable.
- H. Exterior Locations: Use only building wire, Type THWN insulation, in raceway, or metal-clad cable.
- I. 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.

2.05 RACEWAY AND BOXES

- 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.
- B. Concealed and Exposed Dry Locations: Provide rigid steel conduit or electrical metallic tubing. Provide sheet-metal boxes. Provide flush mounting outlet box in finished areas. Provide hinged enclosure for large pull boxes.
- C. Wet and Damp Locations: Provide rigid steel conduit, plastic coated conduit, PVC Schedule 40 or 80 nonmetallic conduit. Provide liquidtight flexible metal conduit for equipment connections. Provide cast metal or nonmetallic outlet, junction, and pull boxes. Provide flush mounting outlet box in finished areas.
- D. Minimum Raceway Size: 3/4 inch unless otherwise specified.
- E. Section 01 60 00 - Product Requirements: Product storage and handling requirements.
- F. Mount surface raceway, conduit, and boxes parallel/perpendicular to building lines. Arrange raceway and boxes to maintain headroom and present neat appearance.
- G. Close ends and unused openings in raceways.
- H. Maintain access to existing boxes and other installations remaining active and requiring access. Modify installation or provide access panel.
- I. Clean interior of boxes to remove dust, debris, and other material.
- J. Cut conduit square using saw or pipe cutter; de-burr cut ends.
- K. Install conduit hubs or sealing locknuts to fasten conduit to sheet metal boxes in damp and wet locations and to cast boxes.

- L. Install no more than equivalent of three 90-degree bends between boxes. Install conduit bodies to make sharp changes in direction, as around beams. Install factory elbows for bends in metal conduit larger than 2-inch size.
- M. Support boxes independently of conduit.
- N. Install conduit to preserve fire resistance rating of partitions and other elements, using materials and methods in accordance with all State and Local Code Requirements and Standards.
- O. Route conduit through roof openings for piping and ductwork or through suitable roof jack with pitch pocket. Coordinate location with roofing installation as required.
- P. Install knockout closures in unused openings in boxes.

2.06 WIRE MARKERS

- A. Manufacturers:
 - 1. Brady ID.
 - 2. Grafoplast Wire Markers.
 - 3. Ideal Industries, Inc.
 - 4. Substitutions: Section 01 60 00 - Product Requirements.
- B. Description: Cloth tape, split sleeve, or tubing type wire markers.
- C. Install wire marker for each conductor at panelboard gutters, pull boxes, outlet and junction boxes, and each load connection.
- D. Identify branch circuit or feeder number on each power and lighting branch circuitry (wiring).

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify field measurements and circuiting arrangements are as shown on Drawings.
- B. Verify that abandoned wiring and equipment serve only abandoned facilities.
- C. Demolition Drawings are based on field observation and existing record documents. Report discrepancies to Architect/Engineer before disturbing existing installation.
- D. Beginning of demolition means installer accepts existing conditions.

3.02 PREPARATION

- A. Existing Electrical Service: Maintain existing electrical systems in service on the property. Disable the existing systems only to make switchovers and connections. Obtain permission from Owner at least 72 hours before partially or completely disabling existing systems. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area as required.

3.03 INSTALLATION

- A. Follow manufacturer's instructions for installing, connecting, and adjusting all equipment. Provide one copy of such instructions to the Architect/Engineer before installing any equipment. Provide a copy of such instructions for the equipment during any work on the equipment.
- B. Use mechanics skilled in their trade for all work.
- C. Keep all items protected before and after installation. Clean up all debris at the end of each workday. Maintain public access/entries as coordinated with the Owner during construction.
- D. Before commencing Work, examine all adjoining, underlying, etc. on which this Work is in any way dependent for perfect workmanship and report any condition which prevents performance of first-class work. Become thoroughly familiar with actual existing conditions to which connections must be made or which must be changed or altered.
- E. Neatly train and lace wiring inside boxes, equipment, and panelboards.
- F. Install insulated spring wire connectors with plastic caps for copper conductor splices and taps, 10 AWG and smaller.
- G. Equipment Grounding Conductor (EGC): Install separate, insulated conductor within each new feeder and branch circuit raceway. Terminate each end on suitable lug, bus, or bushing. Field verify existing equipment grounding conductors (EGC) and notify the Architect/Engineer.
- H. Panelboards/Loadcenters: Clean exposed surfaces and check tightness of electrical connections. Replace damaged circuit breakers and provide closure plates for vacant positions. Provide typed circuit directory showing revised circuiting arrangement.
- I. Install enclosed safety switches plumb. Provide support as required (field verify).
- J. Install fuses for fusible disconnect safety switches as required.
- K. Install engraved plastic nameplates on all enclosed safety switches with equipment served and associated branch circuit.

3.04 CUTTING, PATCHING AND REPAIRING

- A. The work shall be carefully laid out in advance. Where cutting, channeling, chasing, or drilling of floors, walls, partitions, ceilings, or other surfaces is necessary for the proper installation, support or anchorage of raceway, outlets or other equipment, the work shall be carefully done. Any damage to the building, piping, equipment or defaced finish plaster, woodwork, metalwork, etc. shall be repaired by skilled mechanics of the trades involved at no additional cost to the Owner.
- B. Where surface mounted raceways, conduits, mounting channels, outlet, junction, or pull boxes are mounted on a painted or stucco finished surface, or a surface to be finished, they shall be painted to match the surface. Whenever support channels are cut, the bare metal shall be cold galvanized.

- C. Repair adjacent construction and finish damaged during demolition and extension work to match existing.

3.05 CLEANING UP

- A. The Contractor shall take care to avoid accumulation of debris, boxes, crates, etc., resulting from the installation of their work. The contractor shall remove from the premises each day all debris, boxes, etc., and keep the premises clean.
- B. The contractor shall clean up all fixtures and equipment at the completion of the project.
- C. All switchboards, panelboards, wireways, trench ducts, cabinets and enclosures shall be thoroughly vacuumed clean prior to energizing equipment and at the completion of the project. Equipment shall be opened for observation by the Architect/Engineer as required.
- D. Clean exposed surfaces to remove splatters and restore finish.

3.06 WATERPROOFING

- A. Avoid, if possible, the penetration of any waterproof membranes such as roofs, machine room floors, basement walls, and the like. If such penetration is necessary, perform it prior to the waterproofing and furnish all sleeves or pitch-pockets required. Advise the Architect/Engineer and obtain written permission before penetrating any waterproof membrane, even where such penetration is shown on the Drawings.
- B. If Contractor penetrates any walls or surfaces after they have been waterproofed, they shall restore the waterproof integrity of that surface as directed by the Architect/Engineer at their own expense.

3.07 SUPPORTS

- A. Support work in accordance with the best industry practice and the following.
- B. Include supporting frames or racks extending from building structure for work indicated as being supported from walls where the walls are incapable of supporting the weight. Provide such frames or racks in electric closets.
- C. Include supporting frames or racks for equipment, intended for vertical surface mounting, which is required in a free-standing position.
- D. Supporting frames or racks shall be of standard angle, standard channel, or specialty support system steel members. They shall be rigidly bolted or welded together and adequately braced to form a substantial structure. Racks shall be of ample size to assure a workmanlike arrangement of all equipment mounted on them.
- E. Nothing, (including outlet, pull and junction boxes for fittings) shall depend on electric conduits, raceways, or cables for support, except that threaded hub type fittings having a gross volume not more than 100 cubic inches may be supported from heavy wall conduit, where the conduit is securely supported from the structure within five inches of the fitting on two opposite sides.

- F. Nothing shall rest on, or depend for support on, suspended ceilings media (tiles, lath, plaster, as well as splines, runners, bars, and the like in the plane of the ceiling).
- G. Provide required supports and hangers for conduit, equipment, etc., so that loading will not exceed allowable loadings of structure.

3.08 FASTENING AND ADJUSTING

- A. Fasten electric work to building structure in accordance with the best industry practice.
- B. Floor or pad mounted equipment shall not be held in place solely by its own dead weight. Include anchor fastening in all cases.
- C. For items which are shown as being ceiling mounted at locations where fastening to the building construction element above is not possible, provide suitable auxiliary channel or angle iron bridging, tying to the building structure elements.
- D. Adjust devices and wall plates to be flush and level.

3.09 TESTING EQUIPMENT AND MATERIALS

- A. The Contractor shall provide all testing instruments, equipment and all materials, connections, labor, etc., required to perform tests.
- B. Test all modified and new circuits, fixtures, equipment, and systems for proper operation and freedom from grounds, shorts and open circuits before acceptance is requested.
- C. Measure voltage at panelboards/load centers and outlets after the building is fully occupied. Make final transformer tap adjustments based on these measurements.
- D. Perform all tests required by local authorities, such as tests of life safety systems, in addition to tests specified herein.
- E. Perform tests required by other specification sections.

END OF SECTION

SECTION 26 05 01

SELECTIVE ELECTRICAL DEMOLITION

PART 1 - GENERAL

1.1 SCOPE

- A. Work Included: Selective electrical demolition for remodeling.
- B. Removal of existing electrical equipment, wiring, and conduit in areas to be remodeled; removal of designated construction; dismantling, cutting and alterations for completion of the Work.
- C. Disposal of materials.
- D. Storage of removed materials.
- E. Identification of utilities.
- F. Salvaged items.
- G. Protection of items to remain as scheduled at end of section or as indicated on Drawings.
- H. Relocate existing equipment to accommodate construction.

1.2 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.
- B. Project Record Documents: Record actual locations of capped utilities, conduits and equipment abandoned in place, and any remaining items originally scheduled for demolition.

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

- A. Materials and equipment for patching and extending work: As specified in individual Sections.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify field measurements and circuiting arrangements are as shown on Drawings.
- B. Verify that abandoned wiring and equipment serve only abandoned facilities.
- C. Verify termination points for demolished services.
- D. Demolition Drawings are based on field observation and existing record documents. Report discrepancies to Architect/Engineer before disturbing existing installation.
- E. Beginning of demolition means installer accepts existing conditions.
- F. CAUTION!!! Cease operations immediately when the structure appears to be in danger and notify Architect/Engineer. Do not resume operations until directed.

- G. Field identify salvage items in cooperation with Owner prior to demolition.

3.2 PREPARATION

- A. Disconnect electrical systems in walls, floors, and ceilings scheduled for removal.
- B. Coordinate utility service outages with the Owner and the Electric Utility Company.
- C. Conduct demolition to minimize interference with adjacent building areas.
- D. Coordinate demolition work with Owner, Architect/Engineer, and all other trades.
- E. Coordinate and sequence demolition so as not to cause shutdown of operation of surrounding areas.
- F. Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.
- G. Existing Electrical Service: Maintain existing systems in service until new systems are complete and ready for service. Disable systems only to make switchovers and connections. Obtain permission from the Owner at least 72 hours before partially or completely disabling systems. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work areas.
- H. Erect and maintain temporary safeguards, including warning signs and lights, barricades, and similar measures, for protection of the public, Owner, Contractor's employees, and existing improvements to remain.
- I. Provide and install temporary egress signage and emergency lighting as required during construction.

3.3 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK

- A. Demolish and extend existing electrical work as indicated on Drawings.
- B. Remove, relocate, and extend existing installations to accommodate new construction.
- C. Remove abandoned wiring to source of supply, as coordinated with the Owner. This includes but is not limited to power conductors, fire alarm cables, intercom cables, voice cables, data cables, coaxial cable, audio/visual, and control wiring, unless noted otherwise.
- D. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces to match existing adjacent finishes.
- E. Repair adjacent construction and finishes damaged during demolition and extension work to match existing.
- F. Maintain access to existing electrical installations that remain active. Modify installation or provide access panel as appropriate.
- G. Extend existing installations using materials and methods as specified.

3.4 EXISTING PANELBOARDS/LOADCENTERS

- A. Ring out circuits in existing electrical panels affected by the Work. Where additional circuits are needed, reuse circuits that are available for reuse. Install new breakers as required.
- B. Tag unused circuit breakers as "Spare C.B."

- C. Where existing circuits are indicated to be reused, use sensing measuring devices to verify circuits feeding Project area or are not in use.
- D. Remove existing wire no longer in use from panel to equipment.
- E. Provide new updated directories where circuits have been modified or rewired.

3.5 CLEANING AND REPAIR

- A. Clean and repair existing materials and equipment that remain or are to be reused.
- B. Remove demolished materials as work progresses. Legally dispose.
- C. Panelboards/loadcenters: Clean exposed surfaces and check tightness of electrical connections. Replace damaged circuit breakers and provide closure plates for vacant positions. Provide typed circuit directory showing revised circuiting arrangement.

3.6 INSTALLATION

- A. Install relocated materials and equipment as indicated in other specification Sections and on the Drawings.
- B. Remove existing wire no longer in use from panel to equipment.
- C. Include new blank filler plates, as required, on all open circuit breaker spaces that will remain a prepared space at project completion.
- D. Carefully remove equipment, materials, or fixtures which are to be reused/relocated and remain.
- E. Disconnect, remove, or relocate existing electrical material and equipment interfering with new installation.

END OF SECTION