



Department of Management Services
Purchasing Division
241 West South Street
Kalamazoo, MI 49007-4796
Phone: 269.337.8020
Fax: 269.337.8500
www.kalamazoo.org

MANDATORY PRE-BID MEETING/SITE INSPECTION – May 10, 2022 @ 10:00 a.m.
Location: Station 4, 2000 West Crosstown Parkway, Kalamazoo, MI 49008

INVITATION FOR BID (IFB)

The City of Kalamazoo, Michigan is soliciting sealed bids for:

PROJECT NAME: Station 4 Roof Replacement

BID REFERENCE #: 91066-033.0

IFB ISSUE DATE: April 26, 2022

BID DUE/OPENING DATE: May 24, 2022 @ 3:00 p.m. Local Time
Facsimile Bids Will Not Be Accepted.

MAILING ADDRESS & INSTRUCTIONS

Mail to:

Purchasing Division
241 W. South Street
Kalamazoo, MI 49007

Questions about this IFB should be directed to:

Department Contact: **Rick Watson, Citywide
Facilities Maintenance Supervisor,**
at (269) 998-3711 or watsonr@kalamazoo.org

Include on the Envelope the Project Name and Bid Reference Number. All Envelopes Must Be Sealed.

You are invited to submit a bid for this project. Specifications, terms, conditions and instructions for submitting bids are contained herein. This Invitation for Bid with all pages, documents and attachments contained herein, or subsequently added to and made a part hereof, submitted as a fully and properly executed bid shall constitute the contract between the City and the successful bidder when approved and accepted on behalf of the City by an authorized official or agent of the City. Please review the bid document as soon as possible and note the **DEADLINE FOR QUESTIONS** in the Instructions to Bidders.

All bidders shall complete and return the Bid and Award page(s) and submit all information requested herein in order for a bid to be responsive. The bid document shall be returned in its entirety, in a properly identified and sealed envelope to the Purchasing Division at the above address. **BIDS MUST BE RECEIVED BEFORE THE DUE DATE - LATE BIDS WILL NOT BE CONSIDERED.** The City reserves the right to postpone the bid opening for its own convenience.

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STATEMENT OF NO BID

NOTE: If you DO NOT intend to bid on this commodity or service, please complete and return this form immediately. Your response will assist us in evaluating all responses for this important project and to improve our bid solicitation process.

The Purchasing Division of the City of Kalamazoo wishes to keep its bidders list file up to date. If, for any reason you cannot supply the commodity/service noted in this bid solicitation, this form must be completed and returned to remain on the particular bid list for future projects of this type.

If you do not respond to this inquiry within the time set for the bid opening date and time noted, we will assume that you can no longer supply this commodity/service, and your name will be removed from this bid list.

- _____ Specifications too "tight", i.e. geared toward one brand or manufacturer only (explain below).
- _____ Specifications are unclear (explain below).
- _____ We are unable to meet specifications.
- _____ Insufficient time to respond to the Invitation for Bid.
- _____ Our schedule would not permit us to perform.
- _____ We are unable to meet bond requirements.
- _____ We are unable to meet insurance requirements.
- _____ We do not offer this product or service.
- _____ Remove us from your bidders list for this commodity or service.
- _____ Other (specify below).

REMARKS: _____

SIGNED: _____ NAME: _____
(Type or Print)

TITLE: _____ DATE: _____

FIRM NAME: _____
(if any)

ADDRESS: _____
(Street address) (City) (State) (Zip)

PHONE: _____ FAX: _____

EMAIL: _____

**SECTION I
INSTRUCTIONS TO BIDDERS**

1. **EXAMINATION OF BID DOCUMENT**-Before submitting a bid, bidders shall carefully examine the specifications and shall fully inform themselves as to all existing conditions and limitations. The bidder shall indicate in the bid the sum to cover the cost of all items included on the bid form.
2. **PREPARATION OF BID**-The bid shall be legibly prepared in ink or typed. If a unit price or extension already entered by the bidder on the Bid and Award form is to be altered, it shall be crossed out and the new unit price or extension entered above or below and initialed by the bidder with ink. The bid shall be legally signed and the complete address of the bidder given thereon.

All bids shall be tightly sealed in an envelope plainly marked SEALED BID and identified by project name, bid opening date and time. Bids opened by mistake, due to improper identification, will be so documented and resealed. The Purchasing Division will maintain and guarantee confidentiality of the contents until the specified opening date and time. Bids submitted by Fax machine will not be accepted.

3. **EXPLANATION TO BIDDERS**-Any binding explanation desired by a bidder regarding the meaning or interpretation of the Invitation for Bid (IFB) and attachments must be requested in writing, **at least 5 days before the bid opening** so a reply may reach all prospective bidders before the submission of bids. Any information given to a prospective bidder concerning the IFB will be furnished to all prospective bidders as an amendment or addendum to the IFB if such information would be prejudicial to uninformed bidders. Receipt of amendments or addenda by a bidder must be acknowledged in the bid by attachment, or by letter or fax received before the time set for opening of bids. Oral explanation or instructions given prior to the opening will not be binding.
4. **CASH DISCOUNTS**-Discount offered for payment of less than thirty (30) days will not be considered in evaluating bids for award. Offered discounts of less than thirty (30) days will be taken if payment is made within the discount period, even though not considered in evaluation of the bid.
5. **WITHDRAWAL OF BIDS**-Bids may be withdrawn in person by a bidder or authorized representative, provided their identity is made known and a receipt is signed for the bid, but only if the withdrawal is made prior to the exact time set for receipt of bid. No bid may be withdrawn for at least ninety (90) days after bid opening.
6. **ALTERNATE BIDS**-bidders are cautioned that any alternate bid, unless specifically requested or any changes, insertions or omissions to the terms and conditions, specifications or any other requirement of this IFB may be considered non-responsive, and at the option of the City, result in rejection of the alternate bid.
7. **LATE BIDS**-Any bid received at the office designated herein after the exact time specified for receipt will not be considered. (Note: The City reserves the right to consider bids that have been determined by the City to be received late due to mishandling by the City after receipt of the bid and no award has been made.)
8. **UNIT PRICES**-If there is a discrepancy between unit prices and their extension, unit prices shall prevail.

**SECTION II
BID AND AWARD**

The undersigned having become thoroughly familiar with all of the bid/contract documents incorporated herein, the project site and the location conditions affecting the work, hereby proposes to perform everything required to be performed in strict conformity with the requirements of these documents, and to provide and furnish all the equipment, labor and materials necessary to complete in a professional manner the furnishing and installing of all of the following, meeting or exceeding the specifications as set forth herein for the prices as stated below.

STATION 4 ROOF REPLACEMENT

TOTAL LUMP SUM BID

Station 4 Building Roof Replacement per specifications and drawings for 2000 West Crosstown Parkway.

\$ _____

Bidder/Contractor has examined and carefully studied the bidding documents and attachments, and acknowledges receipt of the following addenda:

Addendum No: _____

Dated: _____

Bidder shall provide all of the information as requested herein with their bid. **Failure to do so and/or failure to provide post-bid requested information may be cause for rejecting the bid as non-responsive.**

Work shall start within _____ working days after receipt of notification by Contractor of Notice to Proceed and shall be completed within _____ calendar days thereafter (must be COMPLETE within 240 calendar days).

The City encourages the use of local labor in fulfilling the requirements of this contract.

By my signature below, I certify that the firm bidding on this contract, when making hiring decisions, does not use a past criminal conviction as a bar to or preclude a person with a criminal conviction from being considered for employment with the bidding firm unless otherwise precluded by federal or state law. I further certify that I have read and agree to be bound by the provisions of the City’s Non-Discrimination Clause found in Appendix A and as updated by City Ordinance 1856.

Signed: _____ Name: _____

Title: _____

CITY OF KALAMAZOO EX-OFFENDER POLICY CHECKLIST

As part of the City’s commitment to reducing unacceptable poverty, encouraging rehabilitation, reducing recidivism and strengthening families in Kalamazoo, the City has updated its Purchasing Policy to ensure that firms with whom the City does business share in this commitment by utilizing hiring practices that do not unfairly deny people with arrest and conviction records gainful employment. *(Important: This requirement also extends to any subcontractors the bidder intends to use to fulfill the contract for goods or services being sought from the City.)*

Part I: Proof that the bidder does not inquire about an individual’s past arrest or criminal history on the bidders employment application form

- Attach a copy of the current application for employment being used by the bidder

Part II: Certification that the bidder does not use an individual’s past arrest or criminal history to unlawfully discriminate against them by checking *one or more* of the following:

- That pursuant to federal or state law bidder is precluded from hiring persons with certain criminal records from holding particular positions or engaging in certain occupations by providing a cite to the applicable statute or regulation; if checking this box, provide a citation to the applicable statute or rule upon which the bidder is relying:_____
- That bidder conducts criminal history background checks only as necessary, and only after making a conditional offer of employment; that any withdrawal of an offer of employment to an individual because of a past criminal history is job-related and consistent with business necessity after the individual has been provided an individualized assessment opportunity to review and challenge or supplement the history of past criminal conduct being relied upon by the bidder;
- That the use by bidder of criminal history background checks complies with the U.S. Equal Employment Opportunity Commission’s Enforcement Guidance on the Consideration of Arrest and Conviction Records in Employment Decisions and that the bidder has not had a determination rendered against it in past 7 years that it discriminated against a person through the use of an individual’s arrest or criminal history

I CERTIFY THAT THE ABOVE STATEMENTS ARE TRUE.

Date

Signature

Printed Name

Position

CITY OF KALAMAZOO
LOCAL PREFERENCE POLICY AND CERTIFICATION

The lowest responsive Kalamazoo County bidder whose bid is not low but falls within 2% of the lowest responsive bid is afforded the opportunity to become the successful bidder if it agrees to reduce its bid to match the lowest responsive bid. The City of Kalamazoo is the sole determiner whether a bidder is responsible, qualifies as a Kalamazoo County bidder, and if its bid is responsive to the City’s specifications, terms and conditions.

If the lowest Kalamazoo County bidder chooses not to match the lowest bid, the next lowest responsive Kalamazoo County bidder whose bid falls within 2% of the lowest bid, is given the opportunity to match the lowest responsive bid.

To qualify as a Kalamazoo County bidder, the bidder must meet both the following criteria:

1. Have a physical presence in Kalamazoo County by maintaining a permanent office, factory or other facility in Kalamazoo County with employees working in Kalamazoo County.
2. Have paid real or personal property taxes related to said business to the City of Kalamazoo, County of Kalamazoo or other municipal corporation within Kalamazoo County in the previous tax year, except that a non-profit entity need not meet this requirement.

This local preference policy applies only to purchases for materials, supplies, capital outlay, and services for maintenance, repair or operation of City facilities that are over \$25,000. If more than 50% of the contract is sub-contracted to firms located outside of Kalamazoo County that bid does not qualify for the local preference policy outlined above. The local preference policy will not apply if prohibited by law. The Purchasing Agent has the authority to finally determine if the bidder qualifies as a Kalamazoo County bidder as set forth herein. The Purchasing Agent may take into account the permanency of the business in Kalamazoo, and whether the business appears to be claiming to be a Kalamazoo County business solely or primarily to qualify as a Kalamazoo County business under this Resolution, and any other material factors.

CERTIFICATION

If you qualify as a Kalamazoo County bidder and wish to be considered for the local preference provisions as provided above please certify that fact by providing the information requested below and attesting to its accuracy.

Firm Name: _____

Street Address of Business: _____

City, State, and Zip Code: _____

Number of employees working in Kalamazoo County: _____

Name the city or township to which business real and/or personal property taxes are paid or provide non-profit status:

The above information is accurate:
Signature: _____

Date: _____

Title: _____

NOTE: This blanket addendum is for informational purposes only and does not need to be acknowledged by bidders in their submission.

COVID-19 ADDENDUM #2

January 1, 2022

TO: ALL Prospective Bidders
PROJECT: ALL Upcoming Projects

The purpose of this addendum is to clarify and/or modify the sealed bid delivery and bid opening process for all upcoming projects. All work affected is subject to all applicable terms and conditions of the Bidding and Contract Documents.

1. UPDATE TO SEALED BID DELIVERY AND BID OPENING POLICY:

Effective immediately and continuing until further notice, the City of Kalamazoo will return to IN-PERSON bid openings following City Hall guidelines, including Mask Mandate.

BIDS MUST BE RECEIVED BEFORE THE DUE DATE AND TIME – LATE BIDS WILL NOT BE CONSIDERED.

Bidders can submit sealed bids in one of the following ways:

- **Mail your bid**, to be received before the bid due date and time indicated in the bid document, to the City of Kalamazoo at the following address:

City of Kalamazoo
Purchasing Division
241 West South Street
Kalamazoo, MI 49007

- **Deliver your bid to the Treasurer’s Office Payment Drop Box** located in the northwest corner of City Hall before the bid due date and time indicated in the bid document.
- **Deliver your bid to City Hall In Person before** the bid due date and time indicated in the bid document.

All bids shall be tightly sealed in an envelope plainly marked SEALED BID and identified by project name, bid opening date and time. Bids opened by mistake, due to improper identification, will be so documented and resealed. The Purchasing Division will maintain and guarantee confidentiality of the contents until the specified opening date and time. Bids submitted by fax machine or email will not be accepted.

The Purchasing Division will post bid tabulations to the City of Kalamazoo website within 24 hours after the bid opening date and time at: <https://www.kalamazoocity.org/bidopportunities>.

Questions regarding this sealed bid delivery and bid opening policy change related to the COVID-19 virus should be directed to the City of Kalamazoo at (269) 337-8020.

Sincerely,



Michelle Emig
Purchasing Division Manager

I hereby state that all of the information I have provided is true, accurate and complete. I hereby state that I have the authority to submit this bid which will become a binding contract if accepted by the City of Kalamazoo. I hereby state that I have not communicated with nor otherwise colluded with any other bidder, nor have I made any agreement with nor offered/accepted anything of value to/from an official or employee of the City of Kalamazoo that would tend to destroy or hinder free competition.

The firm's identification information provided will be used by the City for purchase orders, payment and other contractual purposes. If the contractual relationship is with, or the payment made to, another firm please provide a complete explanation on your letterhead and attach to your bid. Please provide for accounts payable purposes:

Tax Identification Number (Federal ID): _____

Remittance Address: _____

I hereby state that I have read, understand and agree to be bound by all terms and conditions of this bid document.

SIGNED: _____ NAME: _____
(Type or Print)

TITLE: _____ DATE: _____

FIRM NAME: _____
(if any)

ADDRESS: _____
(Street address) (City) (State) (Zip)

PHONE: _____ FAX: _____

EMAIL ADDRESS: _____

FOR CITY USE ONLY - DO NOT WRITE BELOW

SUB-CONTRACTING INFORMATION

Using the table below provide information regarding the sub-contractors that will be working to fulfill the requirements of this contract. Submit as complete a list as possible at the time of your bid. You will have two business days after the bid opening to update the list as needed. The information provided will be used for evaluating your bid and to assist in determining if you qualify as a Kalamazoo County Bidder.

INSTRUCTIONS:

Nature of Contract - State a brief description of the work or product that will be provided.

BIDDER – Provide the percentage of services or construction activity that will be provided by your firm.

Subcontractors:

- Provide the Name and Address for each subcontractor providing services or construction activities for this contract.
- Indicate with **YES** or **NO** under the “Local?” box if they qualify as a “Kalamazoo County bidder” (see local preference certification page)
- Provide the percentage for the dollar amount of the contract work they will be performing.

If there are not enough lines in the table below make additional copies as needed.

Nature of Contract:		
Subcontractor Name/Address	Local?	% Of Total Contract
<i>BIDDER</i>		

Does this List of Subcontractors need to be updated after the bid opening? **Yes** ___ **No** ___

REFERENCE QUESTIONNAIRE

Please answer the following questions completely.

1. Firm name: _____
2. Established: Year _____ Number of Employees: _____
3. Type of organization:
 - a. Individual: _____
 - b. Partnership: _____
 - c. Corporation: _____
 - d. Other: _____
4. Former firm name(s) if any, and year(s) in business:

5. Include at least 3 references of contracts for similar work performed over the last five (5) years. Include: owner, contact person and phone number and description of work performed.
 - 5.1 Company Name: _____
Address: _____
Phone: _____
Contact: _____
Type of work or contract: _____
 - 5.2 Company Name: _____
Address: _____
Phone: _____
Contact: _____
Type of work or contract: _____
 - 5.3 Company Name: _____
Address: _____
Phone: _____
Contact: _____
Type of work or contract: _____

I hereby certify that all of the information provided is true and answered to the best of my ability.

Signed: _____ Name: _____
(type or print)

Title: _____ Date: _____

SECTION III
CITY OF KALAMAZOO
INDEMNITY AND INSURANCE

Contractor, or any of their subcontractors, shall not commence work under this contract until they have obtained the insurance required under this paragraph, and shall keep such insurance in force during the entire life of this contract. All coverage shall be with insurance companies licensed and admitted to do business in the State of Michigan and acceptable to the City of Kalamazoo within ten (10) days of the Notice of Award. The requirements below should not be interpreted to limit the liability of the Contractor. All deductibles and SIR's are the responsibility of the Contractor.

The Contractor shall procure and maintain the following insurance coverage:

Workers' Compensation Insurance including Employers' Liability Coverage, in accordance with all applicable statutes of the State of Michigan.

Commercial General Liability Insurance on an "Occurrence Basis" with limits of liability not less than \$1,000,000 per occurrence and aggregate. Coverage shall include the following extensions: (A) Contractual Liability; (B) Products and Completed Operations; (C) Independent Contractors Coverage; (D) Broad Form General Liability Extensions or equivalent, if not already included and (E) XCU coverage if the nature of the contract requires XC or U work.

Automobile Liability including Michigan No-Fault Coverages, with limits of liability not less than \$1,000,000 per occurrence, combined single limit for Bodily Injury, and Property Damage. Coverage shall include all owned vehicles, all non-owned vehicles, and all hired vehicles.

Additional Insured: Commercial General Liability and Automobile Liability, as described above, shall include an endorsement stating that the following shall be *Additional Insureds*: The City of Kalamazoo, all elected and appointed officials, all employees and volunteers, all boards, commissions, and/or authorities and board members, including employees and volunteers thereof. It is understood and agreed that by naming the City of Kalamazoo as additional insured, coverage afforded is considered to be primary and any other insurance the City of Kalamazoo may have in effect shall be considered secondary and/or excess.

To the fullest extent permitted by law the Contractor agrees to defend, pay on behalf of, indemnify, and hold harmless the City of Kalamazoo, its elected and appointed officials, employees, agents and volunteers, and others working on behalf of the City of Kalamazoo against any and all claims, demands, suits, or loss, including all costs connected therewith, and for any damages which may be asserted, claimed, or recovered against or from the City of Kalamazoo, by reason of personal injury, including bodily injury or death and/or property damage, including loss of use thereof, which arises out of, or is in any way connected or associated with this contract.

Cancellation Notice: All policies, as described above, shall include an endorsement stating that it is understood and agreed that thirty (30) days, or ten (10) days for non-payment of premium, Advance Written Notice of Cancellation, Non-Renewal, Reduction, and/or Material Change shall be sent to: City of Kalamazoo, Purchasing Department, 241 W. South Street, Kalamazoo, MI 49007.

Proof of Insurance Coverage: The Contractor shall provide the City of Kalamazoo at the time that the contracts are returned by him/her for execution, or within 10 days of Notice of Award, whichever is earlier, a Certificate of Insurance as well as the required endorsements. In lieu of required endorsements, if applicable, a copy of the policy sections where coverage is provided for additional insured and cancellation notice would be acceptable. Copies or certified copies of all policies mentioned above shall be furnished, if so requested.

INDEMNITY AND INSURANCE
Continued

If any of the above coverages expire during the term of this contract, the Contractor shall deliver renewal certificates and/or policies to City of Kalamazoo at least ten (10) days prior to the expiration date.

Scope of Coverage: The above requirements and conditions shall not be interpreted to limit the liability of the Contractor under this Contract, but shall be interpreted to provide the greatest benefit to the City and its officers and employees. The above listed coverages shall protect the Contractor, its employees, agents, representatives and subcontractors against claims arising out of the work performed. It shall be the Contractor's responsibility to provide similar insurance for each subcontractor or to provide evidence that each subcontractor carries such insurance in like amount prior to the time such subcontractor proceeds to perform under the contract.

SECTION IV
SPECIAL REQUIREMENTS

1. BID BOND/GUARANTEE

The bid must be accompanied by a bid bond which shall not be less than five (5%) percent of the total amount of the bid. No bid will be considered unless it is accompanied by the required guarantee. The bid guarantee shall ensure the execution of the bid and award, and the furnishing of a performance bond and a labor and material bond (A and B below) by the successful bidder. (Contractors Note: A cashier's or certified check in lieu of a bid bond is **NOT** acceptable.)

A. PERFORMANCE BOND

A performance bond shall be furnished in the full amount of the contract ensuring the City of faithful performance of all the provisions of the contract, and the satisfactory performance of any equipment required hereunder. The bond shall also ensure the City against defective workmanship and/or materials.

B. LABOR AND MATERIAL (PAYMENT) BOND

A labor and material (payment) bond shall be furnished for the period covered by the contract, in the full amount of the contract for the protection of labor and material suppliers and sub-contractors.

Bonds shall be secured by a guaranty or a surety company listed in the latest issue of the U.S. Treasury, circular 570, and licensed to do business in the State of Michigan and written in favor of the City of Kalamazoo. The amount of such bonds shall be within the maximum amount specified for such company in said circular 570. The bonds shall be accompanied by a power of attorney showing authority of the bonding agent to sign such bonds on behalf of the guaranty or surety company. The cost of the bonds shall be borne by the Contractor.

Failure of the Contractor to supply the required bonds within ten (10) days after Notice of Award, or within such extended period as the Purchasing Agent may agree to, shall constitute a default and the City of Kalamazoo may either award this contract to the next lowest bidder or re-advertise for bids and may charge against the Contractor for the difference between the amount of the bid and the amount for which a contract for the work is subsequently executed, irrespective of whether the amount thus due exceeds the amount of the bid bond. If a more favorable bid is received by re-advertising, the defaulting bidder shall have no claim against the City of Kalamazoo for a refund.

2. WAIVERS OF LIEN

Upon completion of all work and request for final payment, the Contractor shall furnish a 100% waiver of lien from each supplier and sub-contractor covering all items of the work. Failure to supply waivers of lien for the entire job upon completion and final payment request will be considered grounds for withholding final payment.

3. SUBCONTRACTORS

- A. Contractors shall state on the Bid and Award page any and all subcontractors to be associated with their bid, including the type work to be performed. Any and all subcontractors shall be bound by all of the terms, conditions and requirements of the contract; however, the prime contractor shall be responsible for the performance of the total work requirements.
- B. The Contractor shall cooperate with the City of Kalamazoo in meeting its commitments and goals with regard to maximum utilization of minority and women business enterprise, and shall use its best efforts to ensure that minority and women business enterprises have maximum practicable opportunity to compete for subcontract work under this agreement.

4. PREVAILING WAGES

The successful bidder will be required to comply with Section 2-125 of the Code of Ordinances of the City of Kalamazoo regarding prevailing wages and Appendix B attached, incorporated herein by reference. Special note: This provision applies only to projects in excess of \$100,000 for City (\$2,000 federal) funded projects.

The City's requirements as it relates to prevailing wages includes a meeting with the City's Purchasing Division **prior** to work and payroll and work monitoring during the duration of the contract. Please contact Purchasing at (269) 337-8020 if you have any questions regarding Davis-Bacon provisions.

SECTION V
SPECIFICATIONS

1. SCOPE OF WORK

In general, the work of the project is defined by the contract documents and consist of the following:

1. Completely remove and legally dispose of all vegetation, soils and other materials to the structural concrete roof substrate.
2. Remove and legally dispose of existing roofing materials, rails, and wood retainers.
3. Install new liquid applied roof membrane to the concrete roof structure.
4. Install new wood roof structure over concrete roof deck as described in the documents.
5. Install new standing seam metal roof system as described in the documents including all flashings, trim and accessories required for a complete installation.

Station 4 Roof Replacement located at 2000 West Crosstown Parkway

See attached specifications and drawings depicting existing roofing systems for the building.

ACCESS TO SITE

- A. General: Contractor shall have limited use of Project site for construction operations as indicated by requirements of this Section.
- B. Use of Site: Limit use of Project site to work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 1. Limits: Confine construction operations to the areas shown on the drawings or designated by the Owner. Access for vegetation removal may be via Peeler Street with the appropriate right of way permit from the City.
 2. Driveways, Walkways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
- C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weather tight condition throughout construction period. Repair damage caused by construction operations. Insert additional paragraphs specifying specific limitations on use of existing building. See Evaluations for model text.

COORDINATION WITH OCCUPANTS

- A. Owner Occupancy: Owner will occupy site and existing building during entire construction period. Cooperate with Owner during construction operations to minimize conflicts. Maintain existing exits unless otherwise indicated.

WORK RESTRICTIONS

- A. On-Site Work Hours: Work hours are limited to 7:00 am to 5:00 pm unless coordinated with the Owner for other times. Access to the building will be permitted to complete the work within the schedule established for this project. Coordinate building access with the Owner during work operations.
- B. Nonsmoking Building: City of Kalamazoo is a tobacco free environment. Tobacco use is not permitted on City property. Tobacco use within buildings is prohibited.

2. PERFORMANCE REQUIREMENTS

- 2.1 Installed roofing and base flashings shall withstand specified uplift pressures, and exposure to weather without failure due to defective manufacture, fabrication, installation or other defects in construction.
- 2.2 Fire/Windstorm Classification: Class 1A-90.
Hail Resistance: SH

3. QUALITY ASSURANCE

- 3.1 The roofing system must be installed by a qualified firm that is approved, authorized, and licensed by the roofing manufacturer to install provided product.
- 3.2 Obtain components, including roof insulation and fasteners, for roofing system from same manufacturer as roofing.

4. WARRANTY

Manufacturer's standard or customized form, without monetary limitation, in which manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship during a period of 15 years from the date of Substantial Completion. Warranty shall not have limitation for wind damage for wind speed less than 55 mph.

5. SUBMITTALS

The contractor shall provide the following submittals:

- 5.1 Provide 2 copies of shop drawings showing plan, section, and details of proposed work.
- 5.2 Provide a report from the manufacturer certifying that the roofing system complies with all performance requirements.
- 5.3 Provide 2 copies of the Operation and Maintenance (O&M) manual for the roofing system.
- 5.4 Provide a signed and executed Warranty document provided by the roofing system manufacturer.

6. DELIVERY, STORAGE, AND HANDLING

- 6.1 Deliver roofing materials to Project sites in original containers with seals unbroken and labeled with manufacturer's name, product name and type, approval of listing agency.
- 6.2 Protect all stored materials from physical and atmospheric damage. Keep protected in undamaged containers or packaging. Comply with the manufacturer's instructions for handling, storing, and protecting all products during prior to and during installation.

7. PROJECT CONDITIONS

- 7.1 Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

8. PRE-CONSTRUCTION MEETING

The awarded contractor and the City's project representative will hold a pre-construction meeting prior to the beginning of the project.

9. **SAFETY**

1. The contractor and/or subs are responsible to follow all State and Federal safety regulations and guidelines as they pertain to contractors performing this type of work.
2. While on site, the contractor and /or subs will follow the City of Kalamazoo's safety practices and procedures. These will be presented to the awarded contractor at the pre-construction meeting. The contractor will be required to submit the company's Safety Plan to the City's Safety Representative for review prior to the commencement of any on-site work.
3. Parking and other on-site requirements will be discussed with the awarded contractor at the pre-construction meeting. All sites do have parking available for the contractor to use throughout the project.

SECTION VI
GENERAL PROVISIONS

1. SUBCONTRACTORS

Contractors shall state on the Bid and Award page any and all subcontractors to be associated with their bid, including the type work to be performed. Any and all subcontractors shall be bound by all of the terms, conditions and requirements of the contract; however, the prime contractor shall be responsible for the performance of the total work requirements.

2. PROJECT MANAGER

- 2.1 The Project Manager or his/her duly authorized representative shall have the duties and responsibilities as provided in the contract.
- 2.2 The Project Manager shall have the authority to reject any work or materials that do not conform to the contract and to decide questions or make interpretations that may arise from the contract documents.
- 2.3 The Contractor shall immediately report to the Project Manager any questionable or obvious error or omission that may be apparent in the contract documents and shall not proceed with work until the Project Manager or his/her representative has resolved the error or omission.
- 2.4 The Project Manger shall have authority to stop work whenever such stoppage may be necessary to ensure the proper execution of the contract.

3. CONSTRUCTION SCHEDULE AND COORDINATION

- 3.1 **TIME IS OF THE ESSENCE** in respect to the work contemplated herein, and the Contractor agrees to do the work covered by the contract in conformity with the provisions set forth herein. Failure on the part of the Contractor to complete the work within the stated time he/she has set for and agreed to herein, shall constitute default by the Contractor. Regardless of any other provision of this contract, if Contractor fails to complete the work within the time he/she has set forth and agreed to herein, the Contractor may be liable to the owners(s) for any damages incurred by the owner(s).
- 3.2 The Contractor shall supply the City with an agreeable work schedule before commencing work on this contract. This schedule shall detail beginning and completion dates for each major component of the project.
- 3.3 The Contractor shall coordinate and cooperate with all other contractors who may be working on the site in order to allow for the orderly progress of work being done.
- 3.4 The Contractor is required to keep the Project Manager fully informed of any proposed work that will tend to interfere with the existing operations at the site.
- 3.5 The Contractor shall schedule all work to accommodate the City's schedule. In the event Contractor's schedule falls on weekends, nights or overtime work is required, no additional compensation will be allowed. All work shall be part of this contract without regard to when it is done.

4. PROTECTION OF WORK

The Contractor shall maintain adequate protection of all his/her work from damage and shall protect all public and private abutting property from injury or loss arising in connection with this contract. He/She shall provide and maintain all barricades, lights, fences, watchpersons or other facilities necessary to protect all persons from danger or hazardous conditions resulting from the work in the contract.

5. PROTECTION OF PROPERTY

5.1 The Contractor shall confine his/her equipment and operations to those areas of the work site necessary for the completion of the work, or as authorized by the Project Manager. The Contractor shall protect and preserve from damage any facilities, utilities or features including trees, shrubs and turf that are not required to be disturbed by the scope of work.

5.2 The Contractor shall be responsible for determining the location of and for protecting from damage any utilities or other improvements.

6. REMOVAL OF RUBBISH

The Contractor shall daily remove all rubbish and accumulated materials due to his/her construction.

7. MANDATORY PRE-BID MEETING AND INSPECTION OF SITE

7.1 **A mandatory pre-bid meeting will be held on May 10, 2022, at 10:00 a.m. at Station 4, 2000 West Crosstown Parkway.** Following this pre-bid meeting each bidder shall also visit the site of the proposed work and fully acquaint himself/herself with the existing conditions relating to construction and labor and shall fully inform himself/herself as to the facilities involved and the difficulties and restrictions attending the performance of this contract. **Questions may be emailed to Rick Watson at watsonr@kalamazoo.org by 3:00 p.m. on May 16, 2022.**

7.2 The bidder shall thoroughly examine and become familiar with the drawings, specifications and all other bid/contract documents. The Contractor, by the execution of this contract, shall in no way be relieved of any obligation under it due to his/her failure to receive or examine any form of legal instrument, or to visit the site and acquaint himself/herself with the conditions there existing. No allowance shall be made subsequently in this connection in behalf of the Contract for any negligence of his/her part.

8. RESPONSIBILITY OF CONTRACTOR

8.1 Contractor shall be responsible for his/her own work and every part thereof and all work of every description used in connection with this contract. He/She shall specifically and distinctly assume and does assume all risk of damage from any action or operations under the contract or in connection with his/her work. He/She undertakes and promises to protect and defend the owner(s) against all claims on account any such damage or injury.

8.2 The contractor shall be held responsible for the satisfactory and complete execution of the work in accordance with the true intent of the specifications. He/She shall provide, without extra cost incidental items required as a part of his/her work even though not particularly specified or indicated.

8.3 The contractor shall personally superintend the work or shall have a competent person at the site at all times to act for him/her.

9. SITE SECURITY

The Contractor shall be responsible for job site security of all materials and tools provided by him/her and no claim for loss or damage will be considered by the City.

10. SITE ACCESS

The City will provide fair and reasonable access to the job site within the working schedules of both parties.

11. MATERIALS INSPECTION AND RESPONSIBILITY

11.1 The Project Manager shall have the right to inspect any materials to be used in carrying out the terms of the contract.

11.2 The City does not assume any responsibility for the contracted quality and standard of all materials, equipment, components or completed work furnished under this contract.

11.3 Any materials, equipment, components or completed work which does not comply with contract specifications or applicable city and state codes may be rejected by the City and shall be replaced by the Contractor at no cost to the City.

11.4 Any materials, equipment or components rejected shall be removed within a reasonable period of time from the premises of the City at the entire expense of the Contractor after written notice has been mailed by the City to the Contractor that such materials, equipment or components have been rejected.

11.5 Installation shall comply with the applicable rules of the industry or industries which shall be considered as included in these specifications and shall comply with all local and state codes.

11.6 Any reference in these documents to standard specifications shall mean the latest revisions of these specifications and shall become a part of this contract. Any part of the work not completely detailed in these documents, or referenced to a standard specification, shall be governed by the latest edition of the proper industry document.

12. SAFETY

The Contractor shall comply with all applicable OSHA and MIOSHA regulations.

13. AWARD

Award is subject to availability of funds and will be made to the contractor that best meets the specifications and the following award criteria:

13.1 Bidder's experience on similar type projects; size, type, cost and location.

13.2 Capacity of firm to start and complete a project of this size on target.

13.3 Price.

13.4 References.

14. INSPECTION OF WORK

The City may maintain inspectors on the job who shall at all times have access to work.

15. QUESTIONS

Bidders shall address questions regarding the specifications to Rick Watson, Citywide Maintenance Facilities Supervisor at (269) 998-3711 or watsonr@kalamazoocity.org. (This does not relieve the requirements of Page 1, Item 3). Questions regarding terms, conditions and other related bid requirements may be addressed to Monica Johnson, Buyer at (269) 337-8603 or johnsonm2@kalamazoocity.org.

SECTION VII
TERMS AND CONDITIONS

1. AWARD OF CONTRACT

- A. This contract will be awarded to that responsible bidder whose bid, conforming to this solicitation, will be most advantageous to the City, price and other factors considered. The City reserves the right to accept or reject any or all bids and waive informalities and minor irregularities in bids received. Other factors include, as an example but not limited to, delivery time, conformance to specifications, incidental costs such as demurrage and deposits, etc.

Notification of award will be in writing by the Purchasing Agent. Upon notification, the Contractor shall submit to the Purchasing Division all required insurance certificates (if required) and such other documentation as may be requested or required hereunder. Upon their receipt and subsequent approval by the City, the Purchasing Agent will forward to the Contractor a written **NOTICE TO PROCEED**. Work shall **NOT** be started until such **NOTICE TO PROCEED** is received by the Contractor.

- B. Unilateral changes in bid prices by the bidder shall not be allowed. However, the City, at its sole option, reserves the right to negotiate with bidders in the event of, but not limited to:
- 1) No bids received;
 - 2) A single bid being received; or
 - 3) Prices bid are over budget and/or unreasonable.

2. COMPLETE CONTRACT

This bid document together with its addenda, amendments, attachments and modifications, when executed, becomes the complete contract between the parties hereto, and no verbal or oral promises or representations made in conjunction with the negotiation of this contract shall be binding on either party.

3. SUBCONTRACTORS - NON-ASSIGNMENT

Bidders shall state in writing any and all sub-contractors to be associated with this bid, including the type of work to be performed. The Contractor shall cooperate with the City of Kalamazoo in meeting its commitments and goals with regard to maximum utilization of minority and women-owned business enterprises.

The Contractor hereby agrees and understands that the contract resulting from this solicitation shall not be transferred, assigned or sublet without prior written consent of the City of Kalamazoo.

4. TAXES

The City of Kalamazoo is exempt from all federal excise tax and state sales and use taxes. However, depending upon the situation, the vendor or contractor may not be exempt from said taxes and the City of Kalamazoo is making no representation as to any such exemption.

5. PAYMENTS

Upon issuance of certificates of Payment by the Architect/Engineer for labor and material incorporated in the work and the materials suitably stored at the site payment shall be made up to ninety (90%) percent of the value thereof.

When the cumulative total of payment is equal to fifty (50%) percent of the contract sum, subsequent payments will be made in the full amount for labor and material certified by the Architect/Engineer.

The amount retained shall be held until final acceptance of the work, receipt of all payrolls, releases, and waiver of liens.

6. CHANGES AND/OR CONTRACT MODIFICATIONS

The City reserves the right to increase or decrease quantities, service or requirements, or make any changes necessary at any time during the term of this contract, or any negotiated extension thereof. Price adjustments due to any of the foregoing changes shall be negotiated and mutually agreed upon by the Contractor and the City.

Changes of any nature after contract award which reflect an increase or decrease in requirements or costs shall not be permitted without prior approval by the Purchasing Agent. City Commission approval may also be required. **SUCH CHANGES, IF PERFORMED IN ADVANCE OF PURCHASING AGENT APPROVAL, MAY BE SUBJECT TO DENIAL AND NON-PAYMENT.**

7. LAWS, ORDINANCES AND REGULATIONS

The Contractor shall keep himself/herself fully informed of all local, state and federal laws, ordinances and regulations in any manner affecting those engaged or employed in the work and the equipment used. Contractor and/or employees shall, at all times, serve and comply with such laws, ordinances and regulations.

Any permits, licenses, certificates or fees required for the performance of the work shall be obtained and paid for by the Contractor.

This contract shall be governed by the laws of the State of Michigan.

8. RIGHT TO AUDIT

The City or its designee shall be entitled to audit all of the Contractor's records, and shall be allowed to interview any of the Contractor's employees, throughout the term of this contract and for a period of three years after final payment or longer if required by law to the extent necessary to adequately permit evaluation and verification of:

- A. Contractor compliance with contract requirements,
- B. Compliance with provisions for pricing change orders, invoices or claims submitted by the Contractor or any of his payees.

9. **HOLD HARMLESS**

If the acts or omissions of the Contractor/Vendor or its employees, agents or officers, cause injury to person or property, the Contractor/Vendor shall defend, indemnify and save harmless the City of Kalamazoo, its agents, officials, and employees against all claims, judgments, losses, damages, demands, and payments of any kind to persons or property to the extent occasioned from any claim or demand arising therefrom.

10. **DEFAULT**

The City may at any time, by written notice to the Contractor, terminate this contract and the Contractor's right to proceed with the work, for just cause, which shall include, but is not limited to the following:

- A. Failure to provide insurance and bonds (when called for), in the exact amounts and within the time specified or any extension thereof.
- B. Failure to make delivery of the supplies, or to perform the services within the time specified herein, or any extension thereof.
- C. The unauthorized substitution of articles for those bid and specified.
- D. Failure to make progress if such failure endangers performance of the contract in accordance with its terms.
- E. Failure to perform in compliance with any provision of the contract.
- F. **Standard of Performance** - Contractor guarantees the performance of the commodities, goods or services rendered herein in accordance with the accepted standards of the industry or industries concerned herein, except that if this specification calls for higher standards, then such higher standards shall be provided.

Upon notice by the City of Contractor's failure to comply with such standards or to otherwise be in default of this contract in any manner following the Notice to Proceed, Contractor shall immediately remedy said defective performance in a manner acceptable to the City. Should Contractor fail to immediately correct said defective performance, said failure shall be considered a breach of this contract and grounds for termination of the same by the City.

In the event of any breach of this contract by Contractor, Contractor shall pay any cost to the City caused by said breach including but not limited to the replacement cost of such goods or services with another Contractor.

The City reserves the right to withhold any or all payments until any defects in performance have been satisfactorily corrected.

In the event the Contractor is in breach of this contract in any manner, and such breach has not been satisfactorily corrected, the City may bar the Contractor from being awarded any future City contracts.

- G. All remedies available to the City herein are cumulative and the election of one remedy by the City shall not be a waiver of any other remedy available to the City either listed in this contract or available by operation of law.

11. INDEPENDENT CONTRACTOR

At all times, the Contractor, any of his/her employees, or his/her sub-contractors and their subsequent employees shall be considered independent contractors and not as City employees. The Contractor shall exercise all supervisory control and general control over all workers' duties, payment of wages to Contractor's employees and the right to hire, fire and discipline their employees and workers. As an independent contractor, payment under this contract shall not be subject to any withholding for tax, social security or other purposes, nor shall the Contractor or his/her employees be entitled to sick leave, pension benefit, vacation, medical benefits, life insurance or workers' unemployment compensation or the like.

12. PROJECT SUPERVISOR

The Contractor shall employ an individual to act as Project Supervisor. The Project Supervisor shall be available to the Contractor's workers and the Project Manager at all times by use of a beeper or other reliable means. The Project Supervisor shall prepare daily work plans for the employees, monitor employee performance, attendance and punctuality, and work closely with the City's Project Manager in assuring contract compliance.

13. MEETINGS

The Contractor and/or Project Supervisor shall be available to meet with the Department Head or Project Manager at a mutually agreeable time to discuss problems, issues or concerns relative to the contract. Either party may call a meeting at any time. When such a request for a meeting is made, the meeting date shall, in no case exceed five (5) working days after the request; and, if in the sole opinion of the Department Head, the severity of the circumstance warrants, no more than one (1) working day.

APPENDIX A
NON-DISCRIMINATION CLAUSE FOR ALL CITY OF KALAMAZOO CONTRACTS

The Contractor agrees to comply with the Federal Civil Rights Act of 1964 as amended; the Federal Civil Rights Act of 1991 as amended; the Americans With Disabilities Act of 1990 as amended; the Elliott-Larson Civil Rights Act, Act No. 453, Public Act of 1976 as amended; the Michigan Handicappers Civil Rights Act, Act No. 220, Public Act of 1976 as amended, City Ordinance 1856 and all other applicable Federal and State laws. The Contractor agrees as follows:

1. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, national origin, sex, age, height, weight, marital status, physical or mental disability, family status, sexual orientation or gender identity that is unrelated to the individual's ability to perform the duties of the particular job or position. Such action shall include, but not be limited to the following: employment, upgrading, demotion or transfer, recruitment advertising, layoff or termination; rates of pay or other forms of compensations; and selection for training, including apprenticeship.
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, national origin, sex, age, height, weight, marital status, physical or mental disability family status, sexual orientation or gender identity that is unrelated to the individuals ability to perform the duties of the particular job or position.
3. If requested by the City, the Contractor shall furnish information regarding practices, policies and programs and employment statistics for the Contractor and subcontractors. The Contractor and subcontractors shall permit access to all books, records and accounts regarding employment practices by agents and representatives of the City duly charged with investigative duties to assure compliance with this clause.
4. Breach of the covenants herein may be regarded as a material breach of the contract or purchasing agreement as provided in the Elliott-Larsen Civil Rights Act and City Ordinance 1856.
5. The Contractor will include or incorporate by reference the provisions of the foregoing paragraphs 1 through 4 in every subcontract or purchase order unless exempted by the rules, regulations or orders of the Michigan Civil Rights Commission* and will provide in every subcontract or purchase order that said provision will be binding upon each subcontractor or seller.
6. The Contractor will not preclude a person with a criminal conviction from being considered for employment unless otherwise precluded by federal or state law. (for contracts over \$25,000)

The Elliott-Larson Civil Rights Act, Sec. 202 of Act. No. 453 of 1976 reads in part as follows:

Sec. 202. (1) An employer shall not:

- (a) Fail or refuse to hire, or recruit, or discharge or otherwise discriminate against an individual with respect to employment, compensation, or a term condition or privilege of employment because of religion, race, color, national origin, age, sex, height, weight or marital status.
- (b) Limit, segregate or classify an employee or applicant for employment in a way which deprives or tends to deprive the employee or applicant of an employment opportunity or otherwise adversely affects the status of an employee or applicant because of religion, race, color, national origin, age, sex, height, weight or marital status.
- (c) Segregate, classify or otherwise discriminate against a person on the basis of sex with respect to a term, condition or privilege of employment, including a benefit plan or system.

* Except for contracts entered into with parties employing less than three employees.

APPENDIX B - PREVAILING WAGES

Prevailing wages are applicable to this contract, therefore, rates will apply as follows:

- (XX) Project is funded by City of Kalamazoo monies and is estimated to be in excess of \$100,000.00. The applicable prevailing wage rates are attached.

Specifications for projects in which the City of Kalamazoo is party for construction, alterations and/or repair including painting and decorating of public buildings or public works in or for the City of Kalamazoo and which requires or involves the employment of mechanics and/or laborers shall contain the following provisions stating the minimum wages to be paid the various classes of laborers and mechanics for the project. Prevailing wage rates determined by the U.S. Department of Labor under Davis Bacon and related acts will be used for City of Kalamazoo construction projects.

By the incorporation of prevailing wage rates within this specification, the City of Kalamazoo stipulates that:

- ✓ Contractor or his/her subcontractor shall pay all mechanics and laborers employed directly upon the site of the work, unconditionally and not less than once a week and without subsequent deduction or rebate on any account the full amount, accrued at the time of payment, computed at wage rates as incorporated herein regardless of any contractual relationship which may be alleged to exist between the contractor or subcontractor and such laborers and mechanics;
- ✓ The scale of wages to be paid shall be posted by the contractor in a prominent and easily accessible place at the site of the work;
- ✓ The Prime Contractor and all subcontractors shall submit weekly certified payrolls documenting the hours worked and wages paid by work classification. **NOTE: Contactor shall not include Social Security numbers of employees on certified payrolls.**
- ✓ There may be withheld from the contractor's accrued payments the amount considered necessary by the City's Contracting Official to pay to laborers and mechanics employed by the contractor or any subcontractor on the work for the difference between the rates of wages required by the contract and the rates of wages received by such laborers and mechanics except those amounts properly deducted or refunded pursuant to the terms of the Davis-Bacon Act (USC, Title 40, Sec. 276a) and interpretations thereof.

Special Note: The City's requirements as it relates to prevailing wages **includes a meeting with the City's Purchasing Agent prior to starting work and the submission of weekly certified payrolls by prime contractors and all subcontractors.** The City will monitor certified payrolls, work progress, and conduct interviews with the mechanics and labors employed directly upon the site during the duration of the contract Please contact the Purchasing Department at (269) 337-8020 if you have any questions regarding prevailing wage provision.

The overtime pay to which a laborer or mechanic is entitled under this contract shall be that overtime pay to which he/she is entitled by any agreement made with the contractor or subcontractor or by any applicable provision of law; but in no event shall such amount be less than the prevailing wage in the Kalamazoo community for such overtime.

Revised 4-08



PREVAILING WAGES

Station 4 Roof Replacement

Bid Reference #: 91066-033.0

"General Decision Number: MI20220087 04/01/2022

Superseded General Decision Number: MI20210087

State: Michigan

Construction Type: Building

County: Kalamazoo 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)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$15.00 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 2022.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$11.25 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 2022.

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 <https://www.dol.gov/agencies/whd/government-contracts>.

Modification Number	Publication Date
0	01/07/2022
1	02/18/2022

2 02/25/2022
 3 04/01/2022

ASBE0047-002 07/01/2021

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR.....	\$ 33.77	18.18

BOIL0169-001 01/01/2021

	Rates	Fringes
BOILERMAKER.....	\$ 35.95	34.52

BRMI0009-031 08/01/2020

	Rates	Fringes
BRICKLAYER.....	\$ 31.01	20.36
TILE FINISHER.....	\$ 23.17	13.79
TILE SETTER.....	\$ 24.23	15.56

CARP0525-013 06/01/2021

	Rates	Fringes
CARPENTER (Including Acoustical Ceiling Installation, Drywall Hanging, Form Work, Metal Stud Installation & Scaffold Builder).....	\$ 25.94	20.59

CARP1102-001 06/01/2019

	Rates	Fringes
MILLWRIGHT.....	\$ 28.59	24.79

ELEC0131-001 06/01/2021

	Rates	Fringes
ELECTRICIAN Excludes Low Voltage Wiring.	\$ 36.61	7.95+27%

ENGI0324-002 06/01/2021

	Rates	Fringes
OPERATOR: Power Equipment		
GROUP 1.....	\$ 42.38	24.85
GROUP 2.....	\$ 39.08	24.85
GROUP 3.....	\$ 36.43	24.85
GROUP 4.....	\$ 34.72	24.85
GROUP 5.....	\$ 34.72	24.85
GROUP 6.....	\$ 28.86	24.85
GROUP 7.....	\$ 26.38	24.85

FOOTNOTES:

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, whirley derrick

GROUP 3: Backhoe/Excavator/Trackhoe; Crane; Concrete Pump; Grader/Blade; Highlift; Hoist; Loader; Roller; Scraper; Stiff Leg Derrick; Trencher

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

GROUP 5: Boom Truck (non-swinging)

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

GROUP 7: Oiler

IRON0340-002 06/19/2017

	Rates	Fringes
IRONWORKER, REINFORCING AND STRUCTURAL.....	\$ 24.43	24.67

LABO0355-022 06/01/2021

	Rates	Fringes
LABORER Common or General; Grade Checker; Mason Tender - Brick; Mason Tender - Cement/Concrete; Sandblaster.....	\$ 24.90	12.95
Pipelayer.....	\$ 20.34	12.85

PAIN0312-002 06/01/2020

	Rates	Fringes
PAINTER: Brush and Roller.....	\$ 23.74	13.35
PAINTER: Drywall Finishing/Taping.....	\$ 23.74	13.35
PAINTER: Spray.....	\$ 25.22	13.47

PLAS0016-003 04/01/2014

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 22.31	12.83

PLUM0357-001 07/01/2020

Excluding Fort Custer

	Rates	Fringes
PIPEFITTER, Includes HVAC Pipe and Unit Installation.....	\$ 35.20	22.35
PLUMBER, Excludes HVAC Pipe and Unit Installation.....	\$ 35.20	22.35

ROOF0070-002 06/01/2021

	Rates	Fringes
ROOFER.....	\$ 29.09	16.53

* SFMI0669-001 04/01/2022

	Rates	Fringes
SPRINKLER FITTER (Fire Sprinklers).....	\$ 38.69	24.66

SHEE0007-010 05/01/2018

	Rates	Fringes
SHEET METAL WORKER (HVAC Duct Installation Only).....	\$ 32.61	19.66

* SUMI2011-012 02/01/2011

	Rates	Fringes
IRONWORKER, ORNAMENTAL.....	\$ 18.48	7.93
LABORER: Landscape & Irrigation.....	\$ 10.38 **	0.50
OPERATOR: Bulldozer.....	\$ 19.68	6.64
OPERATOR: Tractor.....	\$ 19.10	8.48
SHEET METAL WORKER, Excludes HVAC Duct and Unit Installation.....	\$ 23.59	5.66
TRUCK DRIVER: Dump Truck.....	\$ 17.26	11.42
TRUCK DRIVER: Lowboy Truck.....	\$ 14.50 **	0.44
TRUCK DRIVER: Tractor Haul Truck.....	\$ 13.57 **	1.18

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 (\$15.00) or 13658
(\$11.25). Please see the Note at the top of the wage
determination for more information.

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) (ii)).

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.

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.

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END OF GENERAL DECISIO"



SPECIFICATIONS

Station 4 Roof Replacement

Bid Reference #: 91066-033.0

SECTION 024119 - SELECTIVE DEMOLITION

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.
- B. Refer to drawing AD100.

1.2 SUMMARY

- A. Section Includes:
 - 1. Demolition and removal of selected portions of building elements.
 - 2. Demolition and removal of selected site elements.

1.3 DEFINITIONS

- A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled.
- B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage.
- C. Remove and Reinstall: Detach items from existing construction, in a manner to prevent damage, prepare for reuse, and reinstall where indicated.
- D. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.
- E. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

1.4 MATERIALS OWNERSHIP

- A. The Owner has 'first right of refusal' for all salvage items. If Owner wants salvage items, carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner ready for reuse. All other demolition waste becomes property of Contractor.

1.5 PREINSTALLATION MEETINGS

- A. Predemolition Conference: Conduct conference at Project site.
 - 1. Inspect and discuss condition of construction to be selectively demolished.
 - 2. Review structural load limitations of existing structure.
 - 3. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
 - 4. Review areas where existing construction is to remain and requires protection.

1.6 INFORMATIONAL SUBMITTALS

- A. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for dust control and, for noise control. Indicate proposed locations and construction of barriers.
- B. Schedule of Selective Demolition Activities: Indicate the following:
 - 1. Coordination of Owner's continuing occupancy of portions of existing building.
- C. Predemolition Photographs or Video: Show existing conditions of adjoining construction, including finish surfaces, that might be misconstrued as damage caused by demolition operations.

1.7 FIELD CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
 - 1. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Service: Maintain existing utilities to remain in service and protect them against damage during selective demolition operations.

1.8 COORDINATION

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

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

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

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped, where required, before starting selective demolition operations.
- B. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs or video.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

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

3.3 PROTECTION

- A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 - 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
 - 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
 - 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
 - 4. Cover and protect furnishings, and equipment that have not been removed.
- B. Remove temporary barricades and protections where hazards no longer exist.

3.4 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
1. Proceed with selective demolition systematically, from higher to lower level.
 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 4. Do not use cutting torches until work area is cleared of flammable materials. Maintain portable fire-suppression devices during flame-cutting operations.
 5. Maintain adequate ventilation when using cutting torches.
 6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
 8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 9. Dispose of demolished items and materials promptly.
- B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

3.5 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove demolition waste materials from Project site.
1. Do not allow demolished materials to accumulate on-site.
 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.6 CLEANING

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

END OF SECTION 024119

SECTION 061053 - MISCELLANEOUS ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Rooftop equipment bases and support curbs.
2. Wood blocking, cants, and nailers.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product.

1.3 INFORMATIONAL SUBMITTALS

- A. Evaluation Reports: For the following, from ICC-ES:

1. Preservative-treated wood.
2. Fire-retardant-treated wood.
3. Power-driven fasteners.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.

- B. Maximum Moisture Content of Lumber: 15 percent.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.

- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

2.3 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
 - 1. Blocking.
 - 2. Nailers.
 - 3. Rooftop equipment bases and support curbs.
 - 4. Cants.
- B. Dimension Lumber Items: Construction or No. 2 grade lumber of any species.

2.4 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
 - 1. Where carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A153.

2.5 MISCELLANEOUS MATERIALS

- A. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber or rubberized-asphalt compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.025 inch.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- B. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry accurately to other construction. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

- C. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

- 1. Table 2304.9.1, "Fastening Schedule," in Michigan Building Code.

3.2 PROTECTION

- A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061053

SECTION 061600 - SHEATHING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Wall sheathing.
 - 2. Roof sheathing.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

2.2 PRESERVATIVE-TREATED PLYWOOD

- A. Preservative Treatment by Pressure Process: AWWPA U1; Use Category UC2.
- B. Mark plywood with appropriate classification marking of an inspection agency acceptable to authorities having jurisdiction.
- C. Application: plywood in contact with masonry or concrete or used with roofing.

2.3 WALL SHEATHING

- A. Plywood Sheathing: Structural I sheathing.

2.4 ROOF SHEATHING

- A. Plywood Sheathing: Either DOC PS 1 or DOC PS 2, Exterior, Structural I sheathing.

2.5 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. For roof and wall sheathing, provide fasteners with hot-dip zinc coating complying with ASTM A153.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.
- B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.
- C. Securely attach to substrate by fastening as indicated, complying with the following:
 1. Table 2304.9.1, "Fastening Schedule," in the Michigan Building Code.
- D. Coordinate roof sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.
- E. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.

END OF SECTION 061600

SECTION 061753 - SHOP-FABRICATED WOOD TRUSSES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Wood roof trusses.

1.2 ACTION SUBMITTALS

A. Product Data: For metal-plate connectors, metal truss accessories, and fasteners.

B. Shop Drawings: Show fabrication and installation details for trusses.

1. Show location, pitch, span, camber, configuration, and spacing for each type of truss required.
2. Indicate sizes, stress grades, and species of lumber.
3. Indicate locations, sizes, and materials for permanent bracing required to prevent buckling of individual truss members due to design loads.
4. Indicate type, size, material, finish, design values, orientation, and location of metal connector plates.
5. Show splice details and bearing details.

C. Delegated-Design Submittal: For metal-plate-connected wood trusses indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.3 QUALITY ASSURANCE

A. Metal Connector-Plate Manufacturer Qualifications: A manufacturer that is a member of TPI and that complies with quality-control procedures in TPI 1 for manufacture of connector plates.

1. Manufacturer's responsibilities include providing professional engineering services needed to assume engineering responsibility.
2. Engineering Responsibility: Preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.

B. Fabricator Qualifications: Shop that participates in a recognized quality-assurance program, complies with quality-control procedures in TPI 1, and involves third-party inspection by an independent testing and inspecting agency acceptable to Architect and authorities having jurisdiction.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Handle and store trusses to comply with recommendations in SBCA BCSI, "Building Component Safety Information: Guide to Good Practice for Handling, Installing, Restraining, & Bracing Metal Plate Connected Wood Trusses."

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer to design metal-plate-connected wood trusses.
- B. Structural Performance: Metal-plate-connected wood trusses shall be capable of withstanding design loads within limits and under conditions indicated. Comply with requirements in TPI 1.
- C. Comply with applicable requirements and recommendations of TPI 1, TPI DSB, and SBCA BCSI.
- D. Wood Structural Design Standard: Comply with applicable requirements in AF&PA's "National Design Specifications for Wood Construction" and its "Supplement."

2.2 DIMENSION LUMBER

- A. Lumber: DOC PS 20 and applicable rules of any rules-writing agency certified by the American Lumber Standard Committee (ALSC) Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
 - 1. Provide dry lumber with 15 percent maximum moisture content at time of dressing.
- B. Permanent Bracing: Provide wood bracing that complies with requirements for miscellaneous lumber in Section 061053 "Miscellaneous Rough Carpentry."

2.3 METAL CONNECTOR PLATES

- A. Fabricate connector plates to comply with TPI 1.
- B. Hot-Dip Galvanized-Steel Sheet: ASTM A653/A653M; Structural Steel (SS), high-strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS Type B); G60 coating designation; and not less than 0.036 inch thick.

2.4 FASTENERS

- A. Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
 - 1. Provide fasteners for use with metal framing anchors that comply with written recommendations of metal framing manufacturer.
 - 2. Where trusses are exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A153/A153M.
- B. Nails, Brads, and Staples: ASTM F1667.

2.5 METAL FRAMING ANCHORS AND ACCESSORIES

- A. Allowable design loads, as published by manufacturer, shall comply with or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency. Framing anchors shall be punched for fasteners adequate to withstand same loads as framing anchors.
- B. Galvanized-Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A653/A653M, G60 coating designation.

2.6 FABRICATION

- A. Assemble truss members in design configuration indicated; use jigs or other means to ensure uniformity and accuracy of assembly, with joints closely fitted to comply with tolerances in TPI 1. Position members to produce design camber indicated.
 - 1. Fabricate wood trusses within manufacturing tolerances in TPI 1.
- B. Connect truss members by metal connector plates located and securely embedded simultaneously in both sides of wood members by air or hydraulic press.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install wood trusses only after supporting construction is in place and is braced and secured.
- B. If trusses are delivered to Project site in more than one piece, assemble trusses before installing.
- C. Hoist trusses in place by lifting equipment suited to sizes and types of trusses required, exercising care not to damage truss members or joints by out-of-plane bending or other causes.

- D. Install and brace trusses according to TPI recommendations and as indicated.
- E. Anchor trusses securely at bearing points; use metal truss tie-downs or floor truss hangers as applicable. Install fasteners through each fastener hole in metal framing anchors according to manufacturer's fastening schedules and written instructions.
- F. Install and fasten permanent bracing during truss erection and before construction loads are applied. Anchor ends of permanent bracing where terminating at walls or beams.
 - 1. Install bracing to comply with Section 061053 "Miscellaneous Rough Carpentry."
- G. Install wood trusses within installation tolerances in TPI 1.
- H. Do not alter trusses in field. Do not cut, drill, notch, or remove truss members.
- I. Replace wood trusses that are damaged or do not comply with requirements.

END OF SECTION 061753

SECTION 072100 - THERMAL INSULATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Molded polystyrene foam-plastic board.
 2. Polyisocyanurate foam-plastic board.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 EXPANDED POLYSTYRENE FOAM-PLASTIC BOARD

- A. Expanded polystyrene boards in this article are also called "EPS boards."
- B. Expanded Polystyrene Board, Type and compressive strength suitable for below grade applications, unfaced; maximum flame-spread and smoke-developed indexes of 25 and 450, respectively, per ASTM E84.
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. Dow Chemical Company (The).
 - b. Owens Corning.
 2. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.

2.2 POLYISOCYANURATE FOAM-PLASTIC BOARD

- A. Polyisocyanurate Board: ASTM C1289, Type I, Class 1 or 2. See drawings for R-values and thicknesses required
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. Atlas Roofing Corporation.

- b. Dow Chemical Company (The).
 - c. Firestone Building Products.
2. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.

2.3 ACCESSORIES

- A. Insulation for Miscellaneous Voids:
 - 1. Spray Polyurethane Foam Insulation: ASTM C1029, Type II, closed cell, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E84.
- B. Insulation Anchors, Spindles, and Standoffs: As recommended by manufacturer.
- C. Adhesive for Bonding Insulation: Product compatible with insulation and air and water barrier materials, and with demonstrated capability to bond insulation securely to substrates without damaging insulation and substrates.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and applications.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.
- C. Extend insulation to envelop entire area to be insulated. Fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. Provide sizes to fit applications and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units unless multiple layers are otherwise shown or required to make up total thickness or to achieve R-value.

3.2 INSTALLATION OF SLAB INSULATION

- A. On vertical slab edge and foundation surfaces, set insulation units using manufacturer's recommended adhesive according to manufacturer's written instructions.
 - 1. Extend insulation a minimum of 24 inches below exterior grade line unless noted otherwise.

- B. On horizontal surfaces, loosely lay insulation units according to manufacturer's written instructions. Stagger end joints and tightly abut insulation units.
 - 1. Extend insulation a minimum of 36 inches in from exterior walls unless noted otherwise.

3.3 INSTALLATION OF FOUNDATION WALL INSULATION

- A. Butt panels together for tight fit.
- B. Anchor Installation: Install board insulation on concrete substrates by adhesively attached, spindle-type insulation anchors.
- C. Adhesive Installation: Install with adhesive or press into tacky waterproofing or dampproofing according to manufacturer's written instructions.

END OF SECTION 072100

SECTION 074113.16 - STANDING-SEAM METAL ROOF PANELS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Standing-seam metal roof panels.

1.2 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Include fabrication and installation layouts of metal panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details.
- C. Samples: For each type of metal panel indicated.

1.4 INFORMATIONAL SUBMITTALS

- A. Product test reports.
- B. Warranties: Sample of special warranties.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance data.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

1.7 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: One years from date of Substantial Completion.
- B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Finish Warranty Period: 20 years from date of Substantial Completion.
- C. Special Weathertightness Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace standing-seam metal roof panel assemblies that fail to remain weathertight, including leaks, within specified warranty period.
 - 1. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E1592:
 - 1. Wind Loads: 115 MPH.
 - 2. Other Design Loads: Exposure B, Wind importance factor 1.00.
 - 3. Deflection Limits: For wind loads, no greater than 1/240 of the span.
- B. Hydrostatic-Head Resistance: No water penetration when tested according to ASTM E2140.
- C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

2.2 STANDING-SEAM METAL ROOF PANELS

- A. Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and

mechanically attaching panels to supports using concealed clips in side laps. Include clips, cleats, pressure plates, and accessories required for weathertight installation.

1. Steel Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E1514.
 2. Aluminum Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E1637.
- B. Vertical-Rib, Snap-Joint or Seamed-Joint, Standing-Seam Metal Roof Panels: Formed with vertical ribs at panel edges and a flat pan between ribs; designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of panels, engaging opposite edge of adjacent panels, and mechanically seaming panels together.
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. AEP Span
 - b. Berridge Manufacturing Co.
 - c. CENTRIA Architectural Systems.
 2. Metallic-Coated Steel Sheet: Zinc-coated (galvanized) steel sheet complying with ASTM A653/A653M, G90 coating designation, or aluminum-zinc alloy-coated steel sheet complying with ASTM A792/A792M, Class AZ50 coating designation; structural quality. Prepainted by the coil-coating process to comply with ASTM A755/A755M.
 - a. Nominal Thickness: 0.028 inch.
 - b. Exterior Finish: Two-coat fluoropolymer.
 - c. Color: As selected by Architect from manufacturer's full range.
 3. Aluminum Sheet: Coil-coated sheet, ASTM B209, alloy as standard with manufacturer, with temper as required to suit forming operations and structural performance required.
 - a. Thickness: 0.040 inch.
 - b. Surface: Smooth, flat finish.
 - c. Exterior Finish: Two-coat fluoropolymer.
 - d. Color: As selected by Architect from manufacturer's full range.
 4. Clips: One-piece fixed or Two-piece floating to accommodate thermal movement.
 - a. Material: 0.064-inch-nominal thickness, zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet.
 5. Joint Type: As standard with manufacturer.
 6. Panel Coverage: 16 inches.
 7. Panel Height: 1.5 inches.

2.3 UNDERLAYMENT MATERIALS

- A. Self-Adhering, High-Temperature Underlayment: Provide self-adhering, cold-applied, sheet underlayment, a minimum of 30 mils thick, consisting of slip-resistant, polyethylene-film top surface laminated to a layer of butyl or SBS-modified asphalt adhesive, with release-paper backing. Provide primer when recommended by underlayment manufacturer.
 - 1. Thermal Stability: Stable after testing at 240 deg F; ASTM D1970.
 - 2. Low-Temperature Flexibility: Passes after testing at minus 20 deg F; ASTM D1970.
- B. Slip Sheet: Manufacturer's recommended slip sheet, of type required for application.

2.4 MISCELLANEOUS MATERIALS

- A. Miscellaneous Metal Subframing and Furring: ASTM C645; cold-formed, metallic-coated steel sheet, ASTM A653/A653M, G90 coating designation or ASTM A792/A792M, Class AZ50 coating designation unless otherwise indicated. Provide manufacturer's standard sections as required for support and alignment of metal panel system.
- B. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.
 - 1. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal panels.
 - 2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
 - 3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch-thick, flexible closure strips; cut or premolded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.
- C. Flashing and Trim: Provide flashing and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.
- D. Roof Curbs: Fabricated from same material as roof panels, 0.048-inch nominal thickness; with bottom of skirt profiled to match roof panel profiles and with welded top box and integral full-length cricket. Fabricate curb subframing of 0.060-inch-nominal thickness, angle-, C-, or Z-shaped steel sheet. Fabricate curb and subframing to withstand indicated loads of size and height indicated. Finish roof curbs to match metal roof panels.
- E. Panel Fasteners: Self-tapping screws designed to withstand design loads.

- F. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are nonstaining, and do not damage panel finish.
 - 1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing; 1/2 inch wide and 1/8 inch thick.
 - 2. Joint Sealant: ASTM C920; as recommended in writing by metal panel manufacturer.
 - 3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C1311.

2.5 FABRICATION

- A. Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.
- B. On-Site Fabrication: Subject to compliance with requirements of this Section, metal panels may be fabricated on-site using UL-certified, portable roll-forming equipment if panels are of same profile and warranted by manufacturer to be equal to factory-formed panels. Fabricate according to equipment manufacturer's written instructions and to comply with details shown.
- C. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.
- D. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.

2.6 FINISHES

- A. Panels and Accessories:
 - 1. Two-Coat Fluoropolymer: AAMA 621 or AAMA 2605. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in color coat.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages according to ASTM C754 and metal panel manufacturer's written recommendations.

3.2 INSTALLATION OF UNDERLAYMENT

- A. Self-Adhering Sheet Underlayment: Apply primer if required by manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation. Apply at locations indicated on Drawings, wrinkle free, in shingle fashion to shed water, and with end laps of not less than 6 inches staggered 24 inches between courses. Overlap side edges not less than 3-1/2 inches. Roll laps with roller. Cover underlayment within 14 days.
 - 1. Apply over the entire roof surface.
- B. Slip Sheet: Apply slip sheet over underlayment before installing metal roof panels.
- C. Flashings: Install flashings to cover underlayment to comply with requirements specified in Section 076200 "Sheet Metal Flashing and Trim."

3.3 INSTALLATION OF STANDING SEAM METAL ROOF PANELS

- A. Standing-Seam Metal Roof Panel Installation: Fasten metal roof panels to supports with concealed clips at each standing-seam joint at location, spacing, and with fasteners recommended in writing by manufacturer.
 - 1. Install clips to supports with self-tapping fasteners.
 - 2. Install pressure plates at locations indicated in manufacturer's written installation instructions.
 - 3. Snap Joint: Nest standing seams and fasten together by interlocking and completely engaging factory-applied sealant.
 - 4. Seamed Joint: Crimp standing seams with manufacturer-approved, motorized seamer tool so clip, metal roof panel, and factory-applied sealant are completely engaged.
- B. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting and provide for thermal expansion. Coordinate installation with flashings and other components.
- C. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

3.4 CLEANING AND PROTECTION

- A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.

END OF SECTION 074113.16

SECTION 07 56 30 - FLUID APPLIED ROOFING RESTORATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Smooth Surface or Mineral Modified Roof Restoration.

1.2 SYSTEM DESCRIPTION

- A. Smooth or Mineral Modified Surface Roof Restoration: Renovation work includes:
 - 1. Surface preparation: Remove dirt, and debris.
 - 2. Fascia Edges: Cut back edges. Prime, coat with mastic, cover with fabric.
 - 3. Metal Flashings: Repair/Replace metal flashings, pitch pockets, etc.
 - 4. Primer: Prime over new asphaltic materials only.
 - 5. Install Base Coat and fabric reinforcement on flashings and entire roof surface. Let cure.
 - 6. Topcoat: Apply coating over entire roof surface.

1.3 SUBMITTALS

- A. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- B. Shop Drawings: Submit shop drawings including installation details of roofing, flashing, fastening, insulation and vapor barrier, including notation of roof slopes and fastening patterns of insulation and base modified bitumen membrane, prior to job start.
- C. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
- D. Closeout Submittals: Provide manufacturer's maintenance instructions that include recommendations for periodic inspection and maintenance of all completed roofing work. Provide product warranty executed by the manufacturer.

1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with NRCA Roofing and Waterproofing Manual.
- B. Manufacturer Qualifications: Manufacturer: Company specializing in manufacturing products specified in this section.
- C. Installer Qualifications: Company specializing in performing Work of this section with

minimum five years documented experience and certified pre-approved by manufacturer.

- D. Installer's Field Supervision: Maintain a full-time Supervisor/Foreman on job site during all phases of roofing work while roofing work is in progress.
- E. Source Limitations: Obtain all components of roof system from a single manufacturer. Secondary products that are required shall be recommended and approved in writing by the roofing system Manufacturer.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store products in manufacturer's unopened packaging with labels intact until ready for installation.
- B. Store all roofing materials in a dry place, on pallets or raised platforms, out of direct exposure to the elements until time of application. Store materials at least 4 inches above ground level and covered with "breathable" tarpaulins.
- C. Stored in accordance with the instructions of the manufacturer prior to their application or installation. Store roll goods on end on a clean flat surface. No wet or damaged materials will be used in the application.
- D. Store at room temperature wherever possible, until immediately prior to installing the roll. During winter, store materials in a heated location with a 50-degree F minimum temperature, removed only as needed for immediate use. Keep materials away from open flame or welding sparks.
- E. Avoid stockpiling of materials on roofs without first obtaining acceptance from the Architect/Engineer.
- F. Adhesive storage shall be between the range of above 50 degree F (10 degree C) and below 80 degree F (27 degree C). Area of storage shall be constructed for flammable storage.

1.6 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- B. Weather Condition Limitations: Do not apply products during inclement weather or when precipitation is expected.
- C. Proceed with roofing work only when existing and forecasted weather conditions will permit unit of work to be installed in accordance with manufacturer's recommendations and warranty requirements.
- D. Do not expose materials vulnerable to water or sun damage in quantities greater than

can be weatherproofed during same day.

- E. When applying materials with spray equipment, take precautions to prevent over spray and/or solvents from damaging or defacing surrounding walls, building surfaces, vehicles or other property. Care should be taken to do the following:
 - 1. Close air intakes into the building.
 - 2. Have a dry chemical fire extinguisher available at the jobsite.
 - 3. Post and enforce "No Smoking" signs.
 - 4. Avoid inhaling spray mist; take precautions to ensure adequate ventilation.
 - 5. Protect completed roof sections from foot traffic for a period of at least 48 hours at 75 degrees F and 50 percent relative humidity or until fully cured.
 - 6. Take precautions to ensure that materials do not freeze.
 - 7. Minimum application temperature is 50°F and rising.

1.7 WARRANTY

- A. Upon completion of the work, provide the Manufacturer's written and signed limited labor and materials Warranty, warranting that, if a leak develops in the roof during the term of this warranty, due either to defective material or defective workmanship by the installing contractor, the manufacturer shall provide the Owner, at the Manufacturer's expense, with the labor and material necessary to return the defective area to a watertight condition.
 - 1. Warranty Period: 20 years.
 - a. Upon completion of the work, provide the Manufacturer's written and signed limited labor and materials Warranty, warranting that, if a leak develops in the roof during the term of this warranty, due either to defective material or defective workmanship by the installing contractor, the manufacturer shall provide the Owner, at the Manufacturer's expense, with the labor and material necessary to return the defective area to a watertight condition.
- B. Installer is to guarantee all work against defects in materials and workmanship for a period indicated following final acceptance of the Work.
 - 1. Warranty Period: 2 years from date of acceptance.

PART 2 - PRODUCTS

2.1 ROOF RESTORATION SYSTEM FOR METAL SURFACE ROOFS

- A. Basis of Design: Garland Company "LiquiTec System".
 - 1. Primer: Garla-Block on new asphaltic materials.
 - 2. Coating: LiquiTec Base & LiquiTec
 - 3. Flashing: Repair or replace as needed.
 - 4. Reinforcement: Grip Polyester Soft.

5. Surfacing: None.

2.2 EDGE TREATMENT AND ROOF PENETRATION FLASHINGS

- A. Flashing Boot - Rubbertite Flashing Boot: Neoprene pipe boot for sealing single or multiple pipe penetrations adhered in approved adhesives as recommended and furnished by the membrane manufacturer.
- B. Vents and Breathers: Heavy gauge aluminum and fully insulated vent that allows moisture and air to escape but not enter the roof system as recommended and furnished by the membrane manufacturer.
- C. Pitch pans, Rain Collar 24 gauge stainless. All joints should be welded/soldered watertight. See details for design.
- D. Drain Flashings should be 4lb sheet lead formed and rolled.
- E. Plumbing stacks should be 4lb sheet lead formed and rolled.
- F. Liquid Flashing – Coating: LiquiTec or LiquiTec Base: Multi-purpose, 100% solids, two-part, fast-cure, polyurea
- G. Fabricated flashings and trim shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual".
- H. Manufactured roof specialties shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the NRCA "Roofing and Waterproofing Manual" as applicable.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Verify that work penetrating the roof deck, or which may otherwise affect the roofing, has been properly completed.
- C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 ROOF PREPARATION AND REPAIR

- A. General: All necessary field and flashing repairs must be done according to good construction practices, including the removal of all wet insulation and defective materials as identified through a moisture detection survey such as an infrared scan and replacement with like-materials.

1. Remove existing roof flashings down to the surface of the roof. Remove existing flashings at roof drains and roof penetrations.
 2. Remove all wet, deteriorated, blistered or delaminated roofing membrane fill in any low spots occurring as a result of removal work to create a smooth, even surface for application of new roof membranes.
 3. Re-roofing over coal tar pitch requires a mechanically attached recovery board or insulation and a base sheet prior to the application of roofing system.
 4. Existing roof surfaces shall be primed as necessary and allowed to dry prior to installing the fluid-applied roofing system.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Repair all defects such as deteriorated roof decks; replace loose or brittle membrane or membrane flashings. Verify that existing conditions meet the following requirements:
1. Existing membrane is either fully adhered or that the membranes mechanical fasteners are secured and functional.
 2. Application of roofing materials over a brittle roof membrane is not recommended.
- D. Remove all loose dirt and foreign debris from the roof surface. Do not damage roof membrane in cleaning process.
- E. Clean and seal all parapet walls, gutters and coping caps, and repair any damaged metal where necessary. Seal watertight all fasteners, pipes, drains, vents, joints and penetrations where water could enter the building envelope.
- F. Clean the entire roof surface by removing all dirt, algae, paint, oil, talc, rust or foreign substance. Use a 10 percent solution of TSP (tri-sodium phosphate), Simple Green and warm water. Scrub heavily soiled areas with a brush. Rinse with fresh water to remove all TSP solution. Allow roof to dry thoroughly before continuing.
- G. Repair existing roof membrane as necessary to provide a sound substrate for the liquid membrane. All surface defects (cracks, blisters, tears) must be repaired with similar materials.
- H. Pre-Treatment of Known Growth - General Surfaces: Once areas of moss, mold, algae and other fungal growths or vegetation have been removed and surfaces have also been thoroughly cleaned, apply a biocide wash at a maximum spread rate of 0.2 gallons/square (0.08 liters/m), to guard against subsequent infection. Allow to dry onto absorbent surfaces before continuing with the application. On non-absorbent surfaces, allow to react before thoroughly rinsing to remove all traces of the solution.

3.3 INSTALLATION

- A. General Installation Requirements:
1. Install in accordance with manufacturer's instructions. Apply to minimum coating thickness required by the manufacturer.
 2. Cooperate with manufacturer inspection and test required to perform services in

- connection with installing the roof system.
3. Insurance/Code Compliance: Where required by code, install and test the roofing system to comply with governing regulation and specified insurance requirements.
 4. Protect work from spillage of roofing materials and prevent materials from entering or clogging drains and conductors. Replace or restore work damaged by installation of the roofing system.
 5. All primers must be top coated within 24 hours of application. Re-prime if more time passes after priming.
 6. Keep roofing materials dry during application.
 7. Coordinate counter flashing, cap flashings, expansion joints and similar work with work specified in other Sections under Related Work.
 8. Coordinate roof accessories and miscellaneous sheet metal accessory items, including piping vents and other devices with work specified in other Sections under Related Work.

B. Smooth Surface or Mineral Modified Roof Restoration: Renovation work includes:

1. Surface preparation: Remove dirt, and debris.
2. Fascia Edges: Cut back edges. Prime, coat with mastic, cover with membrane.
3. Parapets and Vertical Surfaces: Cut back and replace fabric base flashings. Prime, coat with mastic, cover with fabric.
4. Metal Flashings: Repair/Replace metal flashings, pitch pockets, etc.
5. Roof Repairs: Repair blisters, holes, cuts, cracks, splits or other surface defects. Loose or damaged modified bitumen laps must be resealed/repaired
6. Primer: Prime new asphaltic materials only at a rate of 0.5 gallons per 100 SF.
7. Coating Mixing Procedure:
 - a. Mix Part A liquid for one minute using an electric heavy duty power drill and Jiffy mixer blade.
 - b. Slowly pour contents of Part B jug, located inside the Part A pail, into the Part A container and mix the two components together for two minutes moving the Jiffy blade from top to bottom and along the sides to ensure the product is thoroughly mixed.
 - c. Always mix entire kit contents together as packaged. Do not break down into smaller quantities.
8. Application of LiquiTec Base and Reinforcement:
 - a. On field surfaces run fabric reinforcement parallel to the low edge using a shingling method up the slope with minimum 3 inch fabric laps.
 - b. After positioning reinforcement to roll out, apply coating about 40 inches wide to surface where reinforcement ply is to be applied at a rate of 3.0 gallons per 100 SF over smooth modified bitumen or 4.0 gallons per 100 SF over granule modified bitumen.
 - c. Use a notched squeegee to spread coating and roller apply with 3/4" nap roller to obtain uniform coverage.
 - d. Do not apply coating too far ahead of fabric so coating does not dry before fabric can be embedded.
 - e. Immediately roll reinforcement into wet coating.
 - f. Ensure roller is fully saturated with coating and backroll over the reinforcement surface to fully saturate.

- g. Use care to lay the fabric tight to the roof surface without air pockets, wrinkles, fishmouths, etc.
 - h. Lap adjacent rolls of reinforcement 3 inches and end laps 6 inches.
 - i. Allow to dry, but no more than 72 hours before applying top coat.
9. Application of Finish Coat
- a. Apply top coat at 2.0 gallon per 100 SF to clean and dry reinforced base coat application.
10. Liquid Flashings:
- a. All flashings are coated in the same manner as the field prior to field application.
 - b. Vertical liquid flashings shall run a minimum of 4" onto the horizontal surface
 - c. At the drain flashing lift strainer and clamp ring. Remove all asphalt and debris from drain bowl to ensure a clean substrate for coating application.

3.4 INSTALLATION EDGE TREATMENT AND ROOF PENETRATION FLASHING

- A. Fabricated flashings and trim shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual".
- B. Manufactured roof specialties shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the National Roofing Contractor's Association "Roofing and Waterproofing Manual" as applicable.
- C. Metal Edge:
 - 1. Inspect the nailers to assure proper attachment and configuration.
 - 2. Run one ply over the edge. Assure coverage of all wood nailers. Fasten plies with ring shank nails at 8 inches (203 mm) o.c.
 - 3. Install continuous cleat and fasten at 6 inches (152 mm) o.c.
 - 4. Install new metal edge hooked to continuous cleat and set in bed of roof cement. Fasten flange to wood nailers every 3 inches (76 mm) o.c. staggered.
 - 5. Prime metal edge at a rate of 100 square feet per gallon and allow to dry.
 - 6. Strip in flange with base flashing ply covering entire flange in bitumen with 6 inches (152 mm) on to the field of roof. Assure ply laps do not coincide with metal laps.
 - 7. Install a second ply of modified flashing ply in bitumen over the base flashing ply, 9 inches (228 mm) on to the field of the roof. Seal outside edge with rubberized cement.

3.5 CLEANING

- A. Clean-up and remove daily from the site all wrappings, empty containers, paper, loose particles and other debris resulting from these operations.
- B. Remove asphalt markings from finished surfaces.

- C. Repair or replace defaced or disfigured finishes caused by Work of this section.

3.6 PROTECTION

- A. Provide traffic ways, erect barriers, fences, guards, rails, enclosures, chutes and the like to protect personnel, roofs and structures, vehicles and utilities.
- B. Protect exposed surfaces of finished walls with tarps to prevent damage.
- C. Plywood for traffic ways required for material movement over existing roofs shall be not less than 5/8 inch thick.
- D. In addition to the plywood listed above, an underlayment of minimum 1/2 inch recover board is required on new roofing.
- E. Special permission shall be obtained from the Manufacturer before any traffic shall be permitted over new roofing.

3.7 FIELD QUALITY CONTROL

- A. Require attendance of roofing materials manufacturers' representatives at site during installation of the roofing system.
- B. Correct defects or irregularities discovered during field inspection.

3.8 FINAL INSPECTION

- A. At completion of roofing installation and associated work, meet with Contractor, Architect, installer, installer of associated work, roofing system manufacturer's representative and others directly concerned with performance of roofing system.
- B. Walk roof surface areas, inspect perimeter building edges as well as flashing of roof penetrations, walls, curbs and other equipment. Identify all items requiring correction or completion and furnish copy of list to each party in attendance.
- C. Repair or replace deteriorated or defective work found at time above inspection as required to a produce an installation that is free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- D. Advise architect upon completion of corrections.
- E. Following the final inspection, provide written notice of acceptance of the installation from the roofing system manufacturer.

3.9 PROTECTION

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

END OF SECTION 07 56 30

SECTION 07920 - JOINT SEALANTS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. The provisions of the General Conditions, Supplementary Conditions, and the Sections included under Division 1, General Requirements, are included as a part of this Section as though bound herein.

1.2 SUMMARY

- A. Provide labor, materials, and equipment necessary to complete sealant work, both interior and exterior of the Project. The extent of each type of sealant and caulking work is indicated.
 - 1. Work of this Section shall be subcontracted to a single firm specializing in sealant and caulking installation.
- B. Surface Hardness: Provide types of sealant to withstand anticipated abrasive or possible indentation as recommended by manufacturer.

1.3 PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.

1.4 SUBMITTALS

- A. Product Data: Provide data and installation recommendations, including joint preparation instructions for each material provided.
- B. Samples for Initial Selection: Submit at jobsite complete color charts or sample kits for each exposed sealant and caulking material provided.
 - 1. Samples for selection purposes: Manufacturer's standard bead samples consisting of strips of actual products showing full range of colors available for each product exposed to view.
- C. Compatibility and Adhesion Test Reports: From sealant manufacturer indicating the following:
 - 1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
 - 2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

- D. Warranties: Special warranties specified in this Section.

1.5 QUALITY ASSURANCE

- A. Obtain elastomeric materials only from manufacturers who will, if required, send a qualified technical representative to project site for the purpose of advising the Installer of proper procedures and precautions for the use of the materials.
- B. Installer: Shall be a sealant and caulking subcontractor with a minimum of 5 years of successful experience in the application of the types of materials required, and who agrees to employ only skilled tradesmen for the Work.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration period for use, pot life, curing time, and mixing instructions for multicomponent materials.
- B. Store and handle materials in compliance with manufacturer's recommendations to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.7 PROJECT CONDITIONS

- A. Preparation of joint surfaces, backing, and the conditions under which the sealant and caulking is to be installed shall conform to manufacturer's recommendations.
 - 1. Use of bond break tape is prohibited without the expressed permission of the Architect. Each situation will be evaluated with regard to inability to properly use backer rod to prevent adhesion.
- B. Environmental Conditions: Do not proceed with installation of joint sealants under the following conditions:
 - 1. When ambient and substrate temperature conditions are outside the limits permitted by joint sealant manufacturer or are below 40 degrees F.
 - 2. When joint substrates are wet.
 - 3. Where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.
 - 4. Contaminants capable of interfering with adhesion have not yet been removed from joint substrate.

- C. Joint Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than allowed by joint sealant manufacturer for application indicated.
- D. Joint Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with their adhesion are removed from jointsubstrates.

1.8 WARRANTY

- A. General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Special Installer's Warranty: Written warranty signed by Installer agreeing to repair or replace elastomeric 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.
- C. Special Manufacturer's Warranty: Written warranty, signed by elastomeric sealant manufacturer agreeing to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified including adhesive and cohesive failure and infiltration of water and air, within the specified warranty period.
 - 1. Warranty Period: Three years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - 1. Dow Corning Corp., Midland, Michigan
 - 2. Pecora Corp., Harleysville, Pennsylvania
 - 3. Tremco, Inc., Beachwood, Ohio
 - 4. Hilti Construction Chemicals, Tulsa, Oklahoma

2.2 MATERIALS

- A. General

1. Where the term "Acceptable Standard" is used within this Section, it refers to the manufacturer and product listed, which is specified as the type and quality required for this Project.
 2. Single source responsibility for joint sealer materials: Obtain joint sealer materials from a single manufacturer for each different product required.
 3. Compatibility: Provide joint sealers, joint fillers, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and final experience.
 4. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range for this characteristic.
- B. Additional Movement Capability: Where additional movement capability is specified, provide products with the capability, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719, to withstand the specified percentage change in the joint width existing at the time of installation and remain in compliance with other requirements of ASTM C 920 for uses indicated.
- C. Caulking Compounds (Acrylic Latex Sealant)
1. Latex rubber modified, acrylic emulsion polymer sealant compound; manufacturer's standard, one part, nonsag, mildew resistant, acrylic emulsion sealant complying with ASTM C 834, formulated to be paintable and recommended for exposed applications on interior locations involving joint movement of not more than plus or minus 5 percent.
 - a. Products: Subject to compliance with requirements, provide one of the products specified, or the most recent equivalent product available:
 - 1) Sonolac; Sonneborn Building Products, Inc.
 - 2) Acrylic Latex Caulk 834; Tremco, Inc.
 - 3) Acrylic Latex Caulk with Silicone; DAP
 - 4) AC-20; Pecora Corp.
- D. One Component Elastomeric Sealant (Silicone)
1. One component elastomeric sealant, complying with ASTM C 920, Class 25, Type NS (nonsag), unless Type S (self-leveling) recommended by manufacturer for the application shown. Provide additional movement capability where indicated.
 - a. Products: Subject to compliance with requirements, provide one of the products specified, or the most recent equivalent product available:
 - 1) Pecora 864 Architectural Silicone Sealant; Pecora Corp.
 - 2) Dow Corning 790; Dow Corning Corp.
 - 3) Silpruf; General Electric

- 4) Omniseal; Sonneborn Building Products, Inc.
- 5) Spectrem 1; Tremco Inc.

E. Miscellaneous Materials

1. Provide joint cleaner and joint primer sealer as recommended by the sealant or caulking compound manufacturer.
2. Sealant backer rod shall be compressible rod stock polyethylene foam, polyethylene jacketed polyurethane foam, butyl rubber foam, neoprene foam, or other material as recommended by the sealant manufacturer.
 - a. Cylindrical Sealant Backings: ASTM C 1330, of type indicated below and size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
 - 1) Type C: Closed cell material with a surface skin.
 - b. Where a 2-inch building expansion joint is indicated, provide an expanding foam secondary sealant, unless otherwise noted as metal. Provide manufacturer's standard preformed, precompressed, open cell foam sealant that is manufactured from high density urethane foam impregnated with a nondrying, water repellent agent; is factory produced in precompressed sizes in roll or stick form to fit joint widths indicated; is coated on one side with a pressure sensitive adhesive and covered with protective wrapping; develops a watertight and airtight seal when compressed to the degree specified by manufacturer.
 - 1) Products: Subject to compliance with requirements, provide one of the products specified, or the most recent equivalent product available:
 - a) Polytite Standard; Polytite Manufacturing Corp., Cambridge, Massachusetts.
 - b) Polyseal; Sandell Manufacturing Company, Schenectady, New York.
 - c) Backerseal; EMSEAL Joint Systems, Westborough, Massachusetts.
3. Primer: Provide type recommended by joint sealer manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint sealer substrate tests and field tests.
4. Cleaners for Nonporous Surfaces: Provide nonstaining, chemical cleaners of type which are acceptable to manufacturers of sealants and sealant backing materials, which are not harmful to substrates and adjacent nonporous materials, and which do not leave oily residues or otherwise have a detrimental effect on sealant adhesion or in service performance.

5. Masking Tape: Provide nonstaining, nonabsorbent type compatible with joint sealants and to 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 joint sealant performance. Do not proceed with installation of joint sealants until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealers to comply with recommendations of joint sealer manufacturers and the following requirements:
 1. Remove foreign material from joint substrates which could interfere with adhesion of joint sealer, including dust; paints, except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer; old joint sealers; oil; grease; waterproofing; water repellents; water; surface dirt; and frost.
 2. Clean concrete, masonry, unglazed surfaces of ceramic tile, and similar porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealers. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil free compressed air.
 3. Remove laitance and form release agents from concrete.
 4. Clean metal, glass, porcelain enamel, glazed surfaces of ceramic tile, and other nonporous surfaces by chemical cleaners or other means, which are not harmful to substrates or leave residues capable of interfering with adhesion of joint sealers.
- B. Joint priming: Prime joint substrates where indicated or where recommended by joint sealer manufacturer based on preconstruction joint sealer substrate tests or prior experience. Apply primer to comply with joint sealer manufacturer's recommendations. Confine primers to areas of joint sealer bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces which 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 SELECTION OF MATERIAL

- A. Caulking compounds shall be used for interior nonmoving joints and at locations indicated, including, but not limited to, the following locations:
 - 1. Perimeter joints of exterior openings, unless otherwise noted.
- B. One component elastomeric silicone sealants shall be used at exterior and interior joints where thermal or dynamic movement is anticipated including, but not limited to, the following locations:
 - 1. Metal to metal joints.
 - 2. Sheet metal flashing, coping, preformed metal caps, fascias, extenders, trim, and panels.

3.4 INSTALLATION

- A. General: Comply with joint sealer manufacturers' printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply. Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
 - 1. Exterior joints, which require sealant, are to be filled with one of the specified sealants even though the note may read "Caulked".
 - 2. Joints to be filled shall be thoroughly dry and free from dust, dirt, oil, and grease at the time of application of caulks or sealants.
 - 3. Masking: Metal shall be masked with masking tape, as well as other surfaces where it is required to prevent the sealant smearing the adjacent surface. Upon completion of the caulking, remove the tape.
- B. Prime or seal the joint surfaces as recommended by sealant manufacturer.
- C. Install sealant backer rod of the proper size for the joint to be sealed at locations receiving sealants and as recommended by sealant manufacturer.
 - 1. Do not split (longitudinally cut) backer rod, cut to length only.
 - 2. Do not leave gaps between ends of sealant backings.
 - 3. Do not stretch, twist, puncture, or tear sealant backings.
 - 4. Install expanding foam secondary sealant at 2 inch expansion joints in masonry as recommended by sealant manufacturer.
 - a. Install each length of sealant immediately after removing protective wrapping, taking care not to pull or stretch material, to produce seal continuity at ends, turns, and intersections of joints. For applications at low ambient temperatures where expansion of sealant requires acceleration to produce seal, apply heat to sealant to comply with sealant manufacturer's written instructions.
- D. Install bond breaker tape behind sealants where sealant backings are not

used between sealants and backs of joints.

- E. Employ only proven installation techniques that comply with the following and at the same time backing 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.
 - 4. Apply sealant material within its recommended temperature range, with respect to surface and ambient temperatures.
 - 5. Mix multi-component materials thoroughly and consistently.
- F. Install sealants to depths shown or as recommended by manufacturer.
 - 1. Maintain consistent sealant depth-to-width ratios during application, typically between 1:2 and 1:1.
- G. Do not allow sealants to spill or stain adjoining surfaces.
- H. Remove spillage promptly without damage to the adjoining surfaces.
- I. Tooling of nonsag sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents, which discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.
 - 1. Provide concave joint configuration per figure 8A in ASTM D41, unless otherwise indicated.
 - 2. Avoid "over-tooling" or "stretching" sealant material during application.
- J. Protect joint sealers during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealers immediately, and the repaired areas shall be made indistinguishable from original work.
- K. Install preformed tapes according to manufacturer's written instructions.

3.5 CLEANING

- A. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approving in writing by manufacturers of joint sealants and of products in which joints occur.

3.6 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substrates and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION

SECTION 07 56 30 - FLUID APPLIED ROOFING RESTORATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Smooth Surface or Mineral Modified Roof Restoration.

1.2 SYSTEM DESCRIPTION

- A. Smooth or Mineral Modified Surface Roof Restoration: Renovation work includes:
 1. Surface preparation: Remove dirt, and debris.
 2. Fascia Edges: Cut back edges. Prime, coat with mastic, cover with fabric.
 3. Metal Flashings: Repair/Replace metal flashings, pitch pockets, etc.
 4. Primer: Prime over new asphaltic materials only.
 5. Install Base Coat and fabric reinforcement on flashings and entire roof surface. Let cure.
 6. Topcoat: Apply coating over entire roof surface.

1.3 SUBMITTALS

- A. Product Data: Manufacturer's data sheets on each product to be used, including:
 1. Preparation instructions and recommendations.
 2. Storage and handling requirements and recommendations.
 3. Installation methods.
- B. Shop Drawings: Submit shop drawings including installation details of roofing, flashing, fastening, insulation and vapor barrier, including notation of roof slopes and fastening patterns of insulation and base modified bitumen membrane, prior to job start.
- C. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
- D. Closeout Submittals: Provide manufacturer's maintenance instructions that include recommendations for periodic inspection and maintenance of all completed roofing work. Provide product warranty executed by the manufacturer.

1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with NRCA Roofing and Waterproofing Manual.
- B. Manufacturer Qualifications: Manufacturer: Company specializing in manufacturing products specified in this section.
- C. Installer Qualifications: Company specializing in performing Work of this section with

minimum five years documented experience and certified pre-approved by manufacturer.

- D. Installer's Field Supervision: Maintain a full-time Supervisor/Foreman on job site during all phases of roofing work while roofing work is in progress.
- E. Source Limitations: Obtain all components of roof system from a single manufacturer. Secondary products that are required shall be recommended and approved in writing by the roofing system Manufacturer.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store products in manufacturer's unopened packaging with labels intact until ready for installation.
- B. Store all roofing materials in a dry place, on pallets or raised platforms, out of direct exposure to the elements until time of application. Store materials at least 4 inches above ground level and covered with "breathable" tarpaulins.
- C. Stored in accordance with the instructions of the manufacturer prior to their application or installation. Store roll goods on end on a clean flat surface. No wet or damaged materials will be used in the application.
- D. Store at room temperature wherever possible, until immediately prior to installing the roll. During winter, store materials in a heated location with a 50-degree F minimum temperature, removed only as needed for immediate use. Keep materials away from open flame or welding sparks.
- E. Avoid stockpiling of materials on roofs without first obtaining acceptance from the Architect/Engineer.
- F. Adhesive storage shall be between the range of above 50 degree F (10 degree C) and below 80 degree F (27 degree C). Area of storage shall be constructed for flammable storage.

1.6 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- B. Weather Condition Limitations: Do not apply products during inclement weather or when precipitation is expected.
- C. Proceed with roofing work only when existing and forecasted weather conditions will permit unit of work to be installed in accordance with manufacturer's recommendations and warranty requirements.
- D. Do not expose materials vulnerable to water or sun damage in quantities greater than

can be weatherproofed during same day.

- E. When applying materials with spray equipment, take precautions to prevent over spray and/or solvents from damaging or defacing surrounding walls, building surfaces, vehicles or other property. Care should be taken to do the following:
 - 1. Close air intakes into the building.
 - 2. Have a dry chemical fire extinguisher available at the jobsite.
 - 3. Post and enforce "No Smoking" signs.
 - 4. Avoid inhaling spray mist; take precautions to ensure adequate ventilation.
 - 5. Protect completed roof sections from foot traffic for a period of at least 48 hours at 75 degrees F and 50 percent relative humidity or until fully cured.
 - 6. Take precautions to ensure that materials do not freeze.
 - 7. Minimum application temperature is 50°F and rising.

1.7 WARRANTY

- A. Upon completion of the work, provide the Manufacturer's written and signed limited labor and materials Warranty, warranting that, if a leak develops in the roof during the term of this warranty, due either to defective material or defective workmanship by the installing contractor, the manufacturer shall provide the Owner, at the Manufacturer's expense, with the labor and material necessary to return the defective area to a watertight condition.
 - 1. Warranty Period: 20 years.
 - a. Upon completion of the work, provide the Manufacturer's written and signed limited labor and materials Warranty, warranting that, if a leak develops in the roof during the term of this warranty, due either to defective material or defective workmanship by the installing contractor, the manufacturer shall provide the Owner, at the Manufacturer's expense, with the labor and material necessary to return the defective area to a watertight condition.
- B. Installer is to guarantee all work against defects in materials and workmanship for a period indicated following final acceptance of the Work.
 - 1. Warranty Period: 2 years from date of acceptance.

PART 2 - PRODUCTS

2.1 ROOF RESTORATION SYSTEM FOR METAL SURFACE ROOFS

- A. Basis of Design: Garland Company "LiquiTec System".
 - 1. Primer: Garla-Block on new asphaltic materials.
 - 2. Coating: LiquiTec Base & LiquiTec
 - 3. Flashing: Repair or replace as needed.
 - 4. Reinforcement: Grip Polyester Soft.

5. Surfacing: None.

2.2 EDGE TREATMENT AND ROOF PENETRATION FLASHINGS

- A. Flashing Boot - Rubbertite Flashing Boot: Neoprene pipe boot for sealing single or multiple pipe penetrations adhered in approved adhesives as recommended and furnished by the membrane manufacturer.
- B. Vents and Breathers: Heavy gauge aluminum and fully insulated vent that allows moisture and air to escape but not enter the roof system as recommended and furnished by the membrane manufacturer.
- C. Pitch pans, Rain Collar 24 gauge stainless. All joints should be welded/soldered watertight. See details for design.
- D. Drain Flashings should be 4lb sheet lead formed and rolled.
- E. Plumbing stacks should be 4lb sheet lead formed and rolled.
- F. Liquid Flashing – Coating: LiquiTec or LiquiTec Base: Multi-purpose, 100% solids, two-part, fast-cure, polyurea
- G. Fabricated flashings and trim shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual".
- H. Manufactured roof specialties shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the NRCA "Roofing and Waterproofing Manual" as applicable.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Verify that work penetrating the roof deck, or which may otherwise affect the roofing, has been properly completed.
- C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 ROOF PREPARATION AND REPAIR

- A. General: All necessary field and flashing repairs must be done according to good construction practices, including the removal of all wet insulation and defective materials as identified through a moisture detection survey such as an infrared scan and replacement with like-materials.

1. Remove existing roof flashings down to the surface of the roof. Remove existing flashings at roof drains and roof penetrations.
 2. Remove all wet, deteriorated, blistered or delaminated roofing membrane fill in any low spots occurring as a result of removal work to create a smooth, even surface for application of new roof membranes.
 3. Re-roofing over coal tar pitch requires a mechanically attached recovery board or insulation and a base sheet prior to the application of roofing system.
 4. Existing roof surfaces shall be primed as necessary and allowed to dry prior to installing the fluid-applied roofing system.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Repair all defects such as deteriorated roof decks; replace loose or brittle membrane or membrane flashings. Verify that existing conditions meet the following requirements:
1. Existing membrane is either fully adhered or that the membranes mechanical fasteners are secured and functional.
 2. Application of roofing materials over a brittle roof membrane is not recommended.
- D. Remove all loose dirt and foreign debris from the roof surface. Do not damage roof membrane in cleaning process.
- E. Clean and seal all parapet walls, gutters and coping caps, and repair any damaged metal where necessary. Seal watertight all fasteners, pipes, drains, vents, joints and penetrations where water could enter the building envelope.
- F. Clean the entire roof surface by removing all dirt, algae, paint, oil, talc, rust or foreign substance. Use a 10 percent solution of TSP (tri-sodium phosphate), Simple Green and warm water. Scrub heavily soiled areas with a brush. Rinse with fresh water to remove all TSP solution. Allow roof to dry thoroughly before continuing.
- G. Repair existing roof membrane as necessary to provide a sound substrate for the liquid membrane. All surface defects (cracks, blisters, tears) must be repaired with similar materials.
- H. Pre-Treatment of Known Growth - General Surfaces: Once areas of moss, mold, algae and other fungal growths or vegetation have been removed and surfaces have also been thoroughly cleaned, apply a biocide wash at a maximum spread rate of 0.2 gallons/square (0.08 liters/m), to guard against subsequent infection. Allow to dry onto absorbent surfaces before continuing with the application. On non-absorbent surfaces, allow to react before thoroughly rinsing to remove all traces of the solution.

3.3 INSTALLATION

- A. General Installation Requirements:
1. Install in accordance with manufacturer's instructions. Apply to minimum coating thickness required by the manufacturer.
 2. Cooperate with manufacturer inspection and test required to perform services in

- connection with installing the roof system.
3. Insurance/Code Compliance: Where required by code, install and test the roofing system to comply with governing regulation and specified insurance requirements.
 4. Protect work from spillage of roofing materials and prevent materials from entering or clogging drains and conductors. Replace or restore work damaged by installation of the roofing system.
 5. All primers must be top coated within 24 hours of application. Re-prime if more time passes after priming.
 6. Keep roofing materials dry during application.
 7. Coordinate counter flashing, cap flashings, expansion joints and similar work with work specified in other Sections under Related Work.
 8. Coordinate roof accessories and miscellaneous sheet metal accessory items, including piping vents and other devices with work specified in other Sections under Related Work.

B. Smooth Surface or Mineral Modified Roof Restoration: Renovation work includes:

1. Surface preparation: Remove dirt, and debris.
2. Fascia Edges: Cut back edges. Prime, coat with mastic, cover with membrane.
3. Parapets and Vertical Surfaces: Cut back and replace fabric base flashings. Prime, coat with mastic, cover with fabric.
4. Metal Flashings: Repair/Replace metal flashings, pitch pockets, etc.
5. Roof Repairs: Repair blisters, holes, cuts, cracks, splits or other surface defects. Loose or damaged modified bitumen laps must be resealed/repaired
6. Primer: Prime new asphaltic materials only at a rate of 0.5 gallons per 100 SF.
7. Coating Mixing Procedure:
 - a. Mix Part A liquid for one minute using an electric heavy duty power drill and Jiffy mixer blade.
 - b. Slowly pour contents of Part B jug, located inside the Part A pail, into the Part A container and mix the two components together for two minutes moving the Jiffy blade from top to bottom and along the sides to ensure the product is thoroughly mixed.
 - c. Always mix entire kit contents together as packaged. Do not break down into smaller quantities.
8. Application of LiquiTec Base and Reinforcement:
 - a. On field surfaces run fabric reinforcement parallel to the low edge using a shingling method up the slope with minimum 3 inch fabric laps.
 - b. After positioning reinforcement to roll out, apply coating about 40 inches wide to surface where reinforcement ply is to be applied at a rate of 3.0 gallons per 100 SF over smooth modified bitumen or 4.0 gallons per 100 SF over granule modified bitumen.
 - c. Use a notched squeegee to spread coating and roller apply with 3/4" nap roller to obtain uniform coverage.
 - d. Do not apply coating too far ahead of fabric so coating does not dry before fabric can be embedded.
 - e. Immediately roll reinforcement into wet coating.
 - f. Ensure roller is fully saturated with coating and backroll over the reinforcement surface to fully saturate.

- g. Use care to lay the fabric tight to the roof surface without air pockets, wrinkles, fishmouths, etc.
 - h. Lap adjacent rolls of reinforcement 3 inches and end laps 6 inches.
 - i. Allow to dry, but no more than 72 hours before applying top coat.
9. Application of Finish Coat
- a. Apply top coat at 2.0 gallon per 100 SF to clean and dry reinforced base coat application.
10. Liquid Flashings:
- a. All flashings are coated in the same manner as the field prior to field application.
 - b. Vertical liquid flashings shall run a minimum of 4" onto the horizontal surface
 - c. At the drain flashing lift strainer and clamp ring. Remove all asphalt and debris from drain bowl to ensure a clean substrate for coating application.

3.4 INSTALLATION EDGE TREATMENT AND ROOF PENETRATION FLASHING

- A. Fabricated flashings and trim shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual".
- B. Manufactured roof specialties shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the National Roofing Contractor's Association "Roofing and Waterproofing Manual" as applicable.
- C. Metal Edge:
 - 1. Inspect the nailers to assure proper attachment and configuration.
 - 2. Run one ply over the edge. Assure coverage of all wood nailers. Fasten plies with ring shank nails at 8 inches (203 mm) o.c.
 - 3. Install continuous cleat and fasten at 6 inches (152 mm) o.c.
 - 4. Install new metal edge hooked to continuous cleat and set in bed of roof cement. Fasten flange to wood nailers every 3 inches (76 mm) o.c. staggered.
 - 5. Prime metal edge at a rate of 100 square feet per gallon and allow to dry.
 - 6. Strip in flange with base flashing ply covering entire flange in bitumen with 6 inches (152 mm) on to the field of roof. Assure ply laps do not coincide with metal laps.
 - 7. Install a second ply of modified flashing ply in bitumen over the base flashing ply, 9 inches (228 mm) on to the field of the roof. Seal outside edge with rubberized cement.

3.5 CLEANING

- A. Clean-up and remove daily from the site all wrappings, empty containers, paper, loose particles and other debris resulting from these operations.
- B. Remove asphalt markings from finished surfaces.

- C. Repair or replace defaced or disfigured finishes caused by Work of this section.

3.6 PROTECTION

- A. Provide traffic ways, erect barriers, fences, guards, rails, enclosures, chutes and the like to protect personnel, roofs and structures, vehicles and utilities.
- B. Protect exposed surfaces of finished walls with tarps to prevent damage.
- C. Plywood for traffic ways required for material movement over existing roofs shall be not less than 5/8 inch thick.
- D. In addition to the plywood listed above, an underlayment of minimum 1/2 inch recover board is required on new roofing.
- E. Special permission shall be obtained from the Manufacturer before any traffic shall be permitted over new roofing.

3.7 FIELD QUALITY CONTROL

- A. Require attendance of roofing materials manufacturers' representatives at site during installation of the roofing system.
- B. Correct defects or irregularities discovered during field inspection.

3.8 FINAL INSPECTION

- A. At completion of roofing installation and associated work, meet with Contractor, Architect, installer, installer of associated work, roofing system manufacturer's representative and others directly concerned with performance of roofing system.
- B. Walk roof surface areas, inspect perimeter building edges as well as flashing of roof penetrations, walls, curbs and other equipment. Identify all items requiring correction or completion and furnish copy of list to each party in attendance.
- C. Repair or replace deteriorated or defective work found at time above inspection as required to a produce an installation that is free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- D. Advise architect upon completion of corrections.
- E. Following the final inspection, provide written notice of acceptance of the installation from the roofing system manufacturer.

3.9 PROTECTION

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

END OF SECTION 07 56 30



DRAWINGS

Station Roof Replacement

Bid Reference #: 91066-033.0

CITY OF KALAMAZOO STATION 4 ROOF REPLACEMENT

2000 W. CROSSTOWN PKWY. KALAMAZOO, MI 49008

CONTACT INFORMATION:

OWNER:
NAME: CITY OF KALAMAZOO
ADDRESS: 415 E. STOCKBRIDGE AVE
KALAMAZOO, MI 49001
PHONE: (269) 337-8000
CONTACT: RICK WATSON
EMAIL: WATSONR@KALAMAZOOCITY.ORG
CONTACT PHONE: (269) 998-3711

BUILDING OFFICIAL:
NAME: ROGER IVESON
ADDRESS: 245 N. ROSE ST.
KALAMAZOO, MI 49007
PHONE: (269) 337-6000

ARCHITECT/ENGINEER:
WIGHTMAN & ASSOCIATES, INC.
433 E. RANSOM ST.
KALAMAZOO, MI 49007

ENGINEER CONTACT: FRANK RENALDI
PHONE: (269) 487-9659
EMAIL: FRENALDI@GOWIGHTMAN.COM

ARCHITECT CONTACT: SHELBY KINTZ
PHONE: (269) 487-9605
EMAIL: SKINTZ@GOWIGHTMAN.COM

GENERAL NOTES:

- ALL WORK SHALL CONFORM TO ALL LOCAL AND FEDERAL LAWS, RULES AND REGULATIONS IN FORCE AT THE TIME OF CONSTRUCTION.
- ARCHITECTURAL WORK SHALL BE IN ACCORDANCE WITH THE MICHIGAN BUILDING CODE.
- ALL WORK SHALL CONFORM TO THE MICHIGAN HANDICAPPED ACCESSIBILITY CODE & THE AMERICANS W/ DISABILITIES ACT.
- IF ANY ERRORS, OMISSIONS, OR DISCREPANCIES BECOME APPARENT, THESE SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO CONSTRUCTION OF ANYTHING AFFECTED SO THAT CLARIFICATION OR REDESIGN MAY OCCUR.
- DIMENSIONS TAKE PRECEDENCE OVER SCALE. CONTRACTOR TO VERIFY ALL DIMENSIONS IN THE FIELD.
- THE GENERAL CONTRACTOR AND SUB-CONTRACTORS SHALL NOT ORDER EQUIPMENT OR FABRICATE BUILDING COMPONENTS WITHOUT FIRST FIELD VERIFYING ALL DIMENSIONS.
- THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE EXISTING FIELD CONDITIONS AND NOTIFY THE ARCHITECT OF DISCREPANCIES BETWEEN THE EXISTING BUILT ENVIRONMENT AND THE PLANS.
- THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN A MANNER TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.
- NOTIFY "MISS DIG" (811) AT LEAST 72 HOURS PRIOR TO THE START OF CONSTRUCTION FOR THE LOCATION OF ANY UNDERGROUND UTILITIES. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE PART OF THE "MISS DIG" ALERT SYSTEM.

LEGAL TABLE	
LEGAL JURISDICTION:	CITY OF KALAMAZOO, MICHIGAN
BUILDING CODE:	2015 MICHIGAN REHABILITATION CODE
MECHANICAL CODE:	NA
PLUMBING CODE:	NA
ELECTRICAL CODE:	NA
FIRE CODE:	NA
TYPE OF CONSTRUCTION:	VB
NEW BUILDING AREA:	NA
EXISTING BUILDING AREA:	2423 SQ. FT. (APPROX)
OCCUPANT LOAD:	NA - UNCHANGED

NOTE: THIS PROJECT CONSISTS OF A ROOFING TEAR OFF AND CONSTRUCTION OF A NEW ROOF AND ITS ASSOCIATED STRUCTURE. THIS NEW SCOPE OF WORK IS NOT TO IMPACT THE EXISTING BUILDING'S OCCUPANCY, EGRESS, OR USE. ALL WORK TO BE PERFORMED IS EXTERIOR TO THE BUILDING SHELL.

ENERGY CODE TABLE		
BUILDING ELEMENT	REQUIRED MIN. INSULATION	NOTES
ROOF: ATTIC	R-49	POLY-ISO RIGID INSUL.
WALL ABOVE GRADE: WOOD FRAMED	R13 + R7.5 C.I. OR R19 + R5 C.I.	GLASS BATT INSUL. AND POLY-ISO RIGID INSUL.
WALL BELOW GRADE	R-7.5 C.I.	-

- NOTES:
- PER 2015 MICHIGAN ENERGY CODE - ASHRAE 90.1-2013
 - C.I. = CONTINUOUS INSULATION
 - SEE TECHNICAL SPECIFICATIONS SECTIONS FOR ADDITIONAL INSULATION INFORMATION.

SHEET LIST	
SHEET NO.	SHEET TITLE
G100	TITLE SHEET
CG100	SITE GRADING & SESC PLAN
S100	STRUCTURAL FRAMING & DETAILS
S200	TRUSS TYPES
AD100	DEMOLITION
A101	ATTIC PLAN & ROOF PLAN
A200	EXTERIOR ELEVATIONS
A201	EXTERIOR ELEVATIONS
A300	SECTIONS & DETAILS

ABBREVIATIONS

A.B. ANCHOR BOLTS
A.C.T. ACOUSTICAL COMPOSITE TILE
A.F.F. ABOVE FINISHED FLOOR
A.F.G. ABOVE FINISHED GRADE
ALT. ALTERNATE
ALUM. ALUMINUM
AUX. AUXILIARY
B.F.C. BELOW FINISHED CEILING
B.O. BOTTOM OF
BD. BOARD
BLDG. BUILDING
BLK'G. BLOCKING
BM. BEAM
BTM. BOTTOM
C. CONCUI
C.W. COLD WATER
CL. CENTER LINE
CLG. CEILING
COL. COLUMN
CONC. CONCRETE
CONN. CONNECTION
CONT. CONTINUOUS
CONTR. CONTRACTOR
CPT. CARPET
CTR. CENTER
DBL. DOUBLE
DIA. DIAMETER
DN. DOWN
DWG. DRAWING
E.F. EXHAUST FAN
E.W. EACH WAY
EL. ELEVATION
ELEV. ELEVATION
EQ. EQUAL
EQUIP. EQUIPMENT
EX. EXHAUST
EXIST. EXISTING
EXT. EXTERIOR
F.D. FLOOR DRAIN
F.O.M. FACE OF MASONRY
F.O.S. FACE OF STUD
F.P.H.B. FREEZE POINT OF HOSE BIBB
FIN. FL. FINISHED FLOOR
FND. FOUNDATION
FRP. FIBERGLASS REINFORCED PANEL
FT. FOOT
FTG. FOOTING
G.C. GENERAL CONTRACTOR
GA. GAUGE
GAL. GALLON
GALV. GALVANIZED
GPM. GALLONS PER MINUTE
GRD. GROUND
GYP. BD. GYPSUM BOARD
H.M. HOLLOW METAL
H.P. HORSE POWER, HIGH POINT
H.W. HOT WATER
HORIZ. HORIZONTAL
HT. HEIGHT
INUSL. INSULATION
J.C. JANITORS CLOSET
L.P. LOW POINT
LAM. LAMINATE
LAV. LAVATORY
LG. LONG
LLH. LONG LEG HORIZONTAL
LLV. LONG LEG VERTICAL

ABBREVIATIONS

LOC. LOCATE
MAS. MASONRY
MAX. MAXIMUM
MDP. MODIFIED PROCTOR
MECH. MECHANICAL
MFGR. MANUFACTURERS
MFR. MANUFACTURES
MIN. MINIMUM
MTD. MOUNTED
MTL. METAL
N.I.C. NOT IN CONTRACT
NA. NOT APPLICABLE
O.C. ON CENTER
O.D. OUTSIDE DIMENSION
O.H. OVERHANG
O/O. OUT TO OUT
OSB. ORIENTED STRAND BOARD
P.R. PROXIMITY READER
P.T. PRESSURE TREATED
PL. PLATE
PLYWD., PLYWOOD
PLVD. PLYWOOD
PRE-FAB. PREFABRICATED
PRE-FIN. PREFINISHED
PSF. POUNDS PER SQUARE FOOT
PSI. POUNDS PER SQUARE INCH
PTN. PARTITION
PVC. POLYVINYL CHLORIDE
R.D. ROOF DRAIN
R.O. ROUGH OPENING
RECEPT. RECEPTACLE
REINF. REINFORCING
RM. ROOM
S.S. STAINLESS STEEL
S.V. SHEET VINYL
SQ. SQUARE
STL. STEEL
STRUC. STRUCTURAL
SURF. SURFACE MOUNTED
MTD. TONGUE AND GROOVE
T.C. TOP OF CURVE
T.O.F. TOP OF FOOTING
T.O.S. TOP OF SLAB
T.O.W. TOP OF WALKWAY
TYP. TYPICAL
U.D. UNIT DIMENSION
U.N.O. UNLESS NOTED OTHERWISE
V.B. VAPOR BARRIER
V.T.R. VENT THRU ROOF
VCT. VINYL COMPOSITE TILE
VEN. VENEER
VERT. VERTICAL
VEST. VESTIBULE
W. WIDE, WASTE
W.C. WATER CLOSET
W.C.O. WALL CLEAN OUT
W.H. WATER HEATER
W.P. WATER PROOF
W.W.F. WELDED WIRE FABRIC
W.W.M. WELDED WIRE MESH
W. WITH
WD. WOOD



WIGHTMAN

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Allegan, MI 49010
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www.gowightman.com

PROJECT NAME:

STATION 4 ROOF REPLACEMENT

2000 W. CROSSTOWN PKWY.
KALAMAZOO, MI 49008

CITY OF KALAMAZOO

415 E. STOCKBRIDGE AVE.
KALAMAZOO, MI 49001

1 ISSUE FOR BID 2/14/2022

REVISIONS

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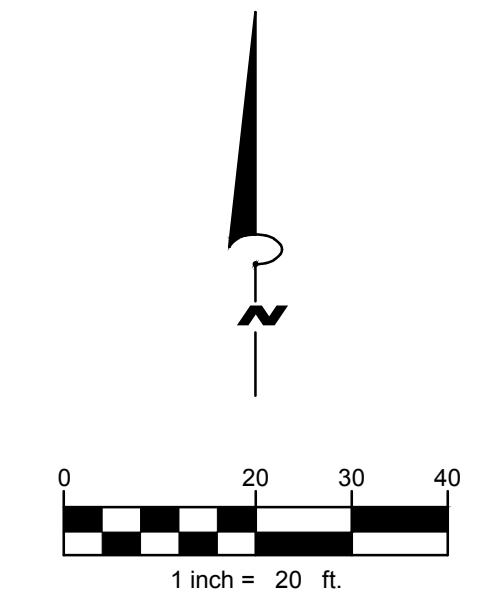
DATE: 2/14/2022

SCALE: 1/4" = 1'-0"

TITLE SHEET

JOB NO: 214089

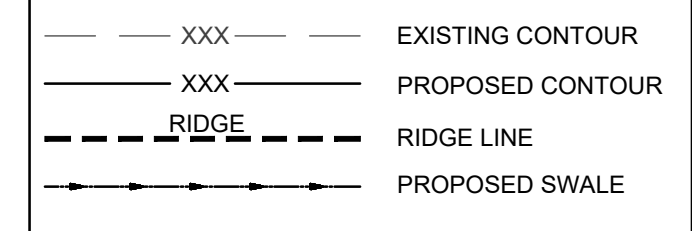
G100



GRADING NOTES

- ELEVATIONS SHOWN DEPICT FINISHED GRADE UNLESS OTHERWISE NOTED. CONTRACTOR SHALL COORDINATE WITH EXCAVATOR, AND LANDSCAPE SUBCONTRACTORS REGARDING TOPSOIL THICKNESS FOR LANDSCAPE AREAS AND PAVEMENT SECTION THICKNESS FOR PAVED AREAS TO PROPERLY ENSURE ADEQUATE CUT TO ESTABLISH SUBGRADE ELEVATIONS.
- ALL EARTHEN SLOPES SHALL BE LESS THAN 3:1 UNLESS OTHERWISE NOTED
- THE CONTRACTOR SHALL MATCH EXISTING ELEVATIONS AT THE GRADING LIMITS UNLESS OTHERWISE NOTED

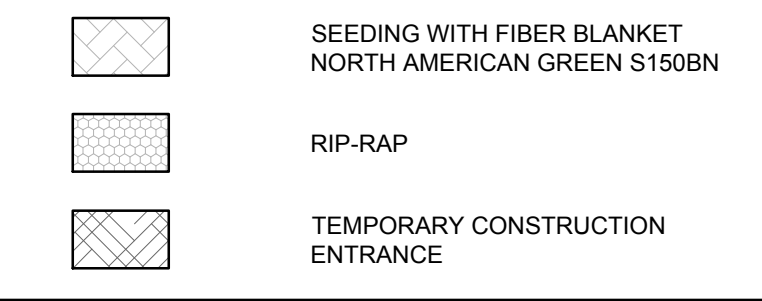
GRADING LEGEND



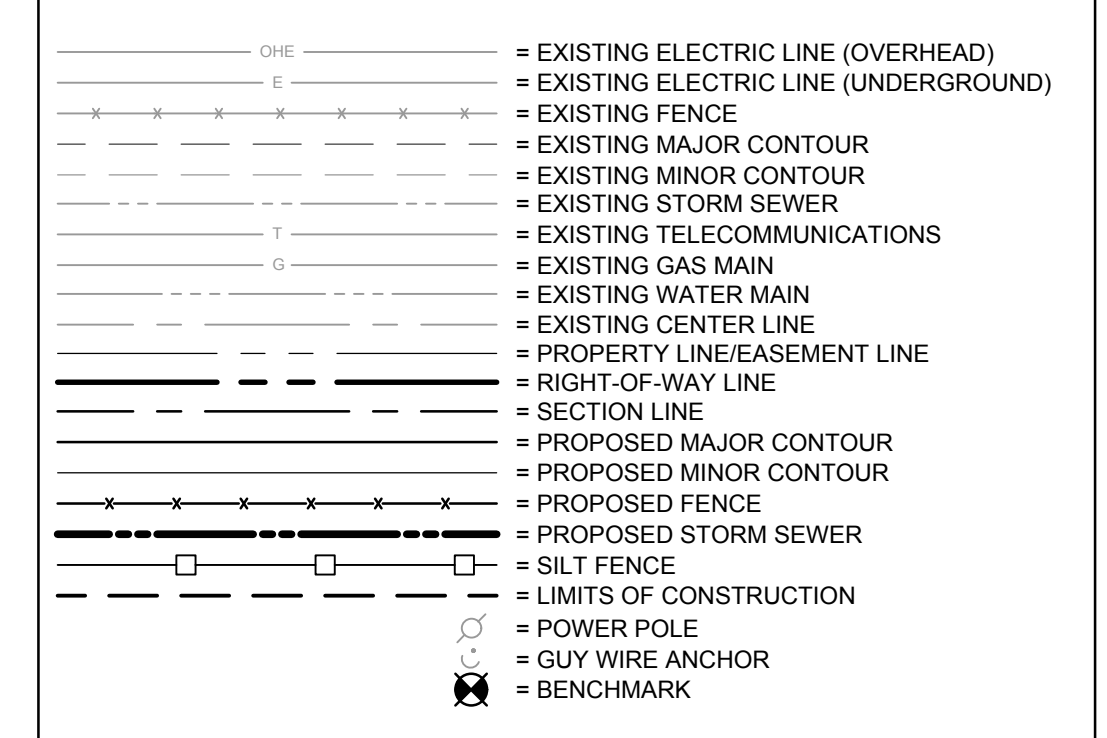
SOIL EROSION & SEDIMENTATION CONTROL NOTES

- ALL CONSTRUCTION METHODS SHALL BE DONE IN COMPLIANCE WITH THE MICHIGAN SOIL EROSION AND SEDIMENTATION CONTROL ACT. THE OWNER SHALL BE RESPONSIBLE FOR OBTAINING A "SOIL EROSION PERMIT" FROM THE COUNTY AND A "PERMIT BY RULE/NOTICE OF COVERAGE" FROM THE MDEQ PRIOR TO START OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL REQUIREMENTS OF THE COUNTY "SOIL EROSION PERMIT" AND FOR ALL CERTIFIED STORM WATER INSPECTION SERVICE REQUIRED BY THE "PERMIT BY RULE". EROSION CONTROL MEASURES SHOWN ON THE PLANS ARE THE MINIMUM REQUIREMENTS AND SHALL NOT RELIEVE THE CONTRACTOR'S RESPONSIBILITY FOR PROVIDING ALL REQUIRED EROSION CONTROL MEASURES.
 - AVOID UNNECESSARY DISTURBING OR REMOVING OF EXISTING VEGETATED TOPSOIL OR EARTH COVER. THESE COVER AREAS ACT AS SEDIMENT FILTERS.
 - ALL TEMPORARY SOIL EROSION PROTECTION SHALL REMAIN IN PLACE UNTIL REMOVAL IS REQUIRED FOR FINAL CLEAN UP AND APPROVAL.
 - GEOTEXTILE SILT FENCE SHALL BE INSTALLED AS REQUIRED WHEN CROSSING CREEKS OR WHEN ADJACENT TO WETLANDS OR SURFACE WATER BODIES TO PREVENT SILTATION AND ELSEWHERE AS DIRECTED BY THE ENGINEER. SEEDING AND/OR SODDING SHALL BE INSTALLED ON CREEK BANKS IMMEDIATELY AFTER CONSTRUCTION TO PREVENT EROSION.
 - MAINTENANCE, CLEANING, AND REMOVAL OF THE VARIOUS SEDIMENT CONTROL MEASURES SHALL BE INCLUDED IN THE VARIOUS EROSION CONTROL ITEMS.
- NUMBER IN CIRCLE REFERS TO NUMBERED DETAILS ON MDOT STANDARD PLAN R-96 SERIES, SOIL EROSION & SEDIMENTATION CONTROL MEASURES. "P" DENOTES PERMANENT MEASURE AND "T" DENOTES TEMPORARY MEASURE. SOIL EROSION CONTROL PLANS DENOTE MINIMUM EROSION MEASURES REQUIRED AS DESCRIBED BELOW.
- (3P) DENOTES PERMANENT SEEDING. ALL DISTURBED AREAS NOT PAVED OR GRAVELED SHALL BE RESTORED. PLACE TOPSOIL SURFACE, SALV. 3 INCH, MDOT SEEDING MIXTURE TUF APPLIED AT A RATE OF 176 LB/ACRE, FERTILIZER, CHEMICAL NUTRIENT, CL A APPLIED AT A RATE OF 228 LB/ACRE, MULCH AT A RATE OF 2 TON/ACRE AND MULCH ANCHORING. (APPLIES TO ENTIRE PROJECT)
 - (7P) DENOTES RIPRAP. INSTALL RIPRAP, PLAIN AS DIRECTED BY THE ENGINEER IN THE FIELD. THE RIPRAP, PLAIN PAY ITEM SHALL INCLUDE A GEOTEXTILE UNDERLAYMENT.
 - (14T) DENOTES GRAVEL ACCESS APPROACH. APPROACH SHALL BE INSTALLED TO PROVIDE STABLE ACCESS TO ROADWAYS AND MINIMIZE DUST AND TRACKING OF MATERIALS ONTO PUBLIC STREETS AND HIGHWAYS. CONSTRUCT PER TEMPORARY CONSTRUCTION ENTRANCE DETAIL.
 - (26T) DENOTES TEMPORARY SILT FENCE. SILT FENCE SHALL BE INSTALLED AT CREEK CROSSINGS, ADJACENT TO ALL WETLANDS AND SURFACE WATERS, AND OTHER LOCATIONS AS DIRECTED BY THE ENGINEER. EACH SILT FENCE SHALL BE INSTALLED GENERALLY ALONG THE SAME CONTOUR ELEVATION.
 - (33 MB) DENOTES MULCH BLANKETS. MULCH BLANKET SHALL BE PROVIDED AT LOCATIONS SHOWN ON THE PLANS, AT SLOPES GREATER THAN 1:3, AREAS WITH CONCENTRATED FLOWS, AND AS DIRECTED BY THE ENGINEER IN THE FIELD, TO PREVENT RUNOFF AND EROSION.

EROSION CONTROL LEGEND



LEGEND



CUT AND FILL QUANTITIES:

CUT = 535 CYD
 FILL = 3 CYD
 NET = 532 CYD (CUT)

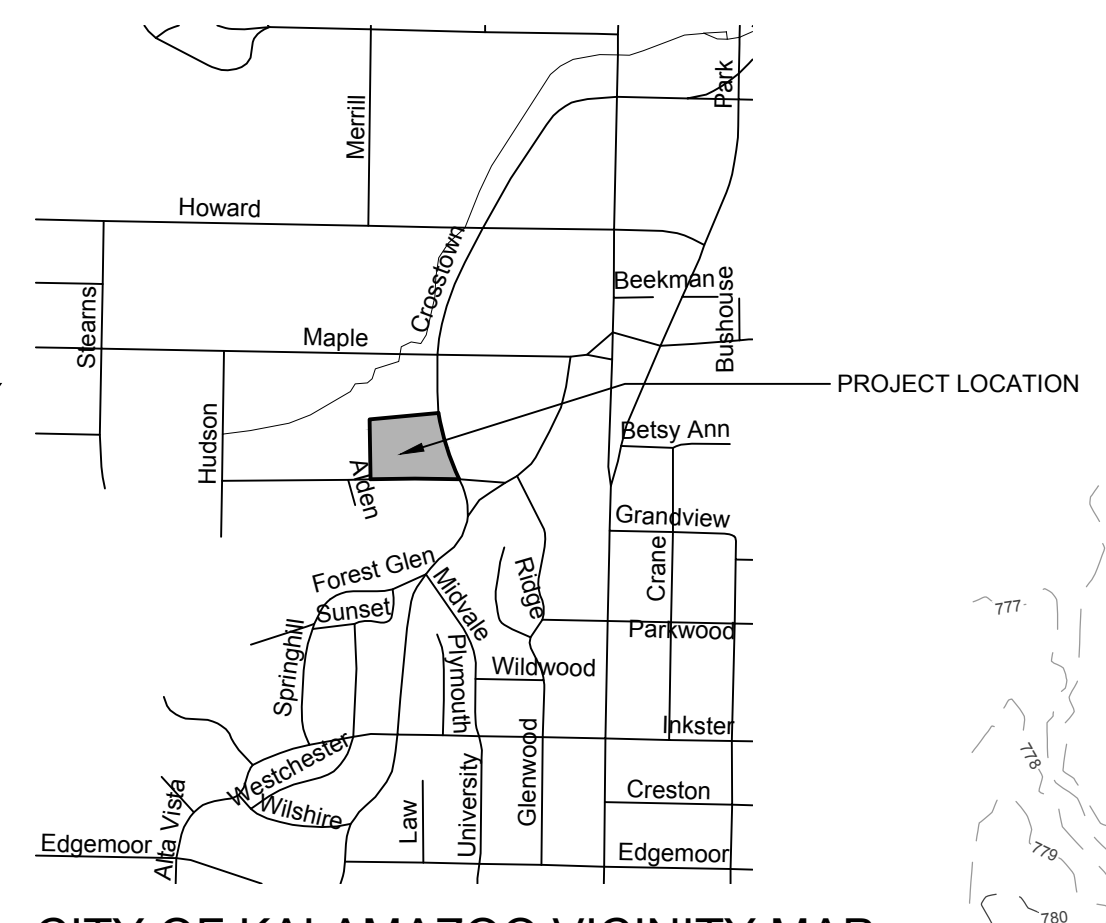
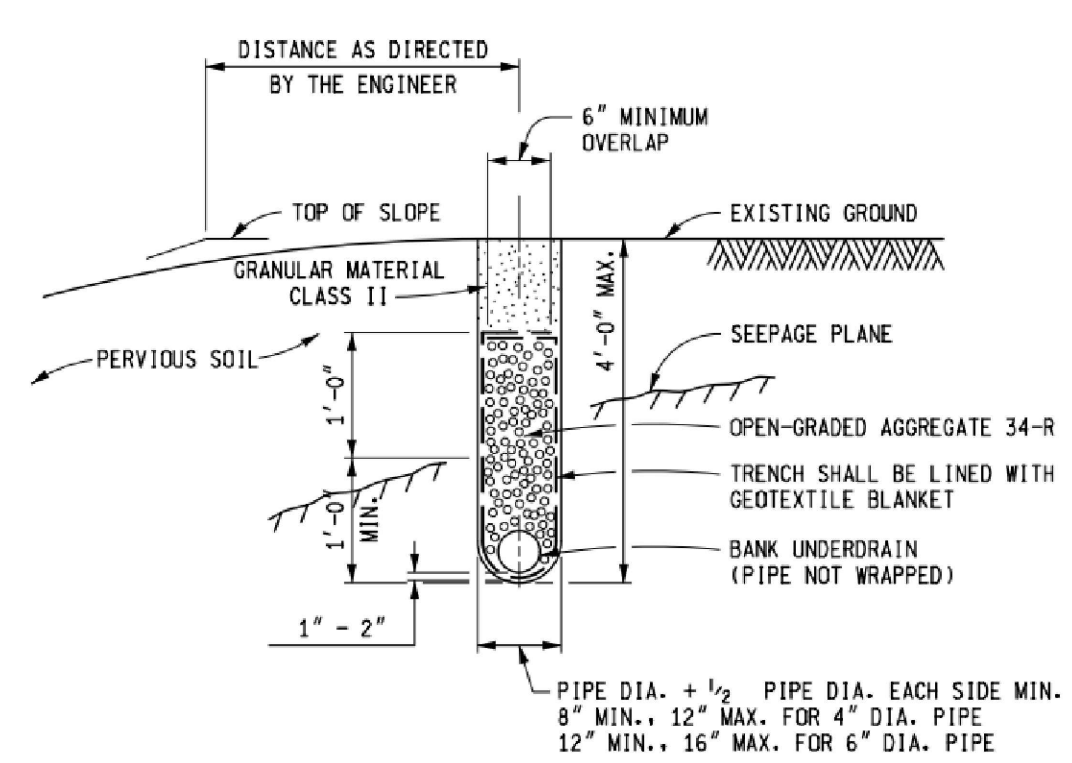


NOTIFY UTILITY COMPANIES BEFORE YOU DIG

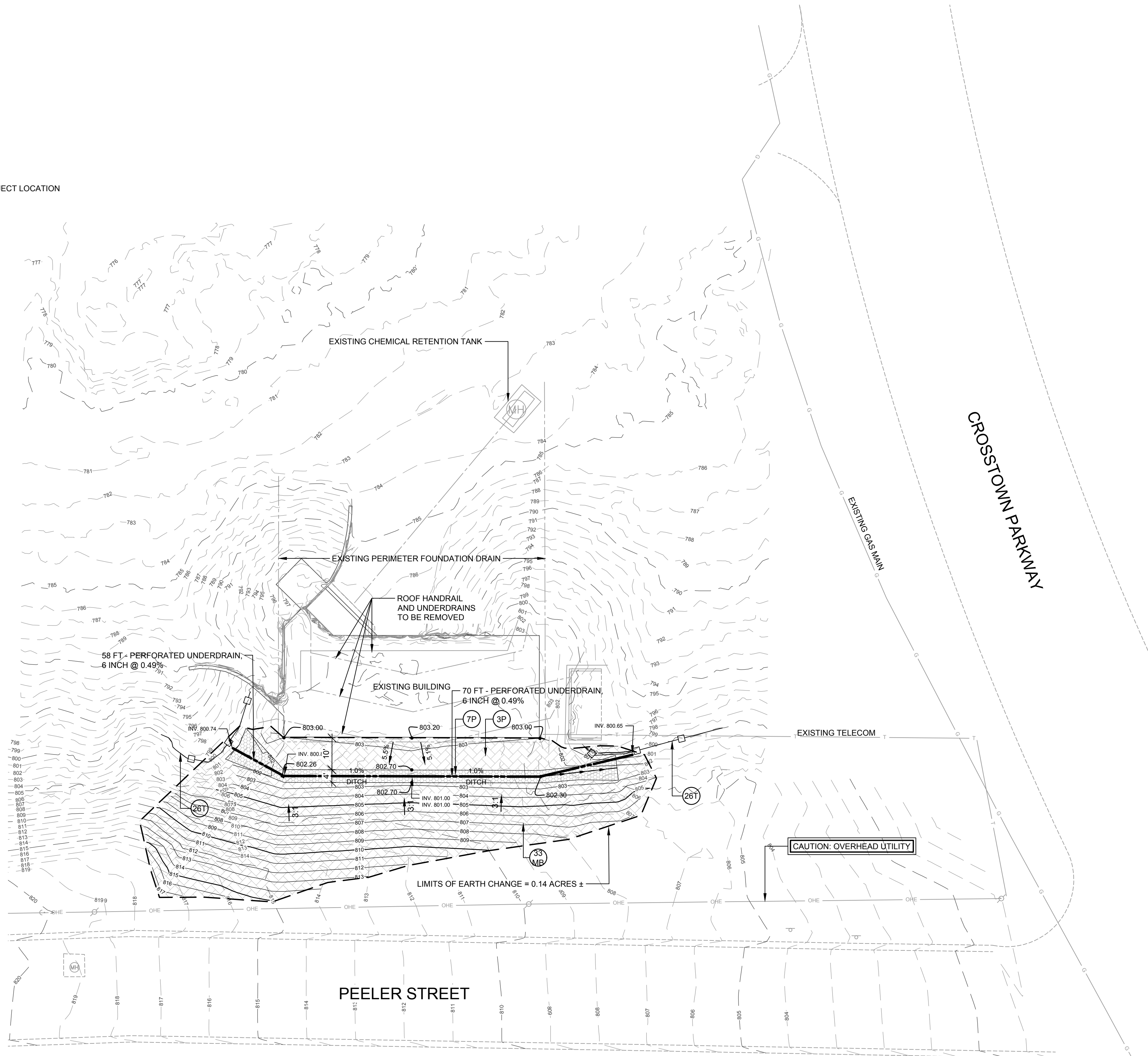
IN CONFORMANCE WITH PUBLIC ACT 174 OF 2013, ALL CONTRACTORS SHALL CALL MISS DIG @ 811 OR 800-482-7171 FOR PROTECTION OF UNDERGROUND UTILITIES. A MINIMUM OF THREE FULL WORKING DAYS (EXCLUDING SATURDAYS, SUNDAYS AND HOLIDAYS) PRIOR TO BEGINNING EACH EXCAVATION IN ANY AREA. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

MDOT DETAIL R-80-F: BANK UNDERDRAIN, OPEN-GRADED

SCALE: NONE



CITY OF KALAMAZOO VICINITY MAP
 SCALE: 1" = 1,000'

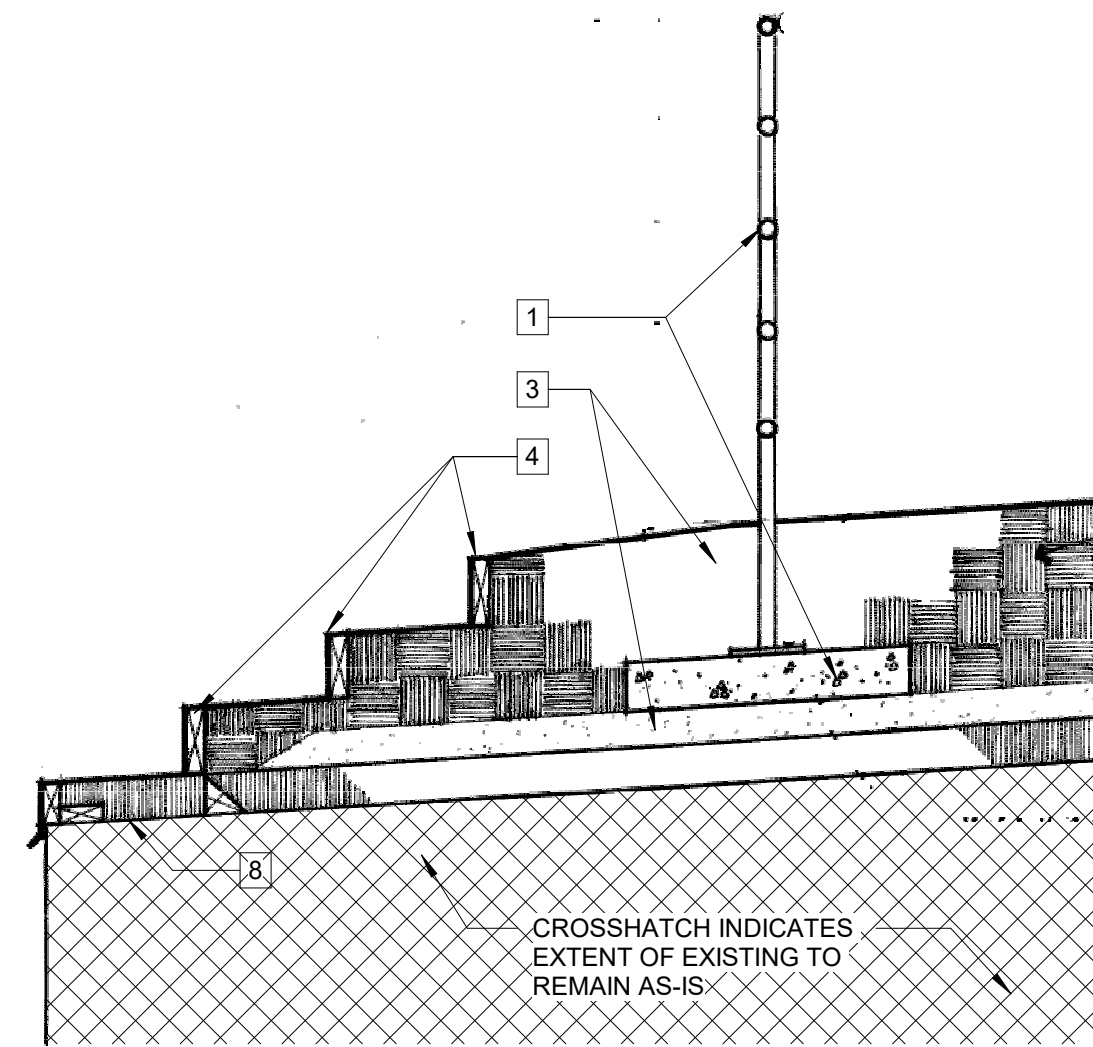


DEMOLITION KEY NOTES:

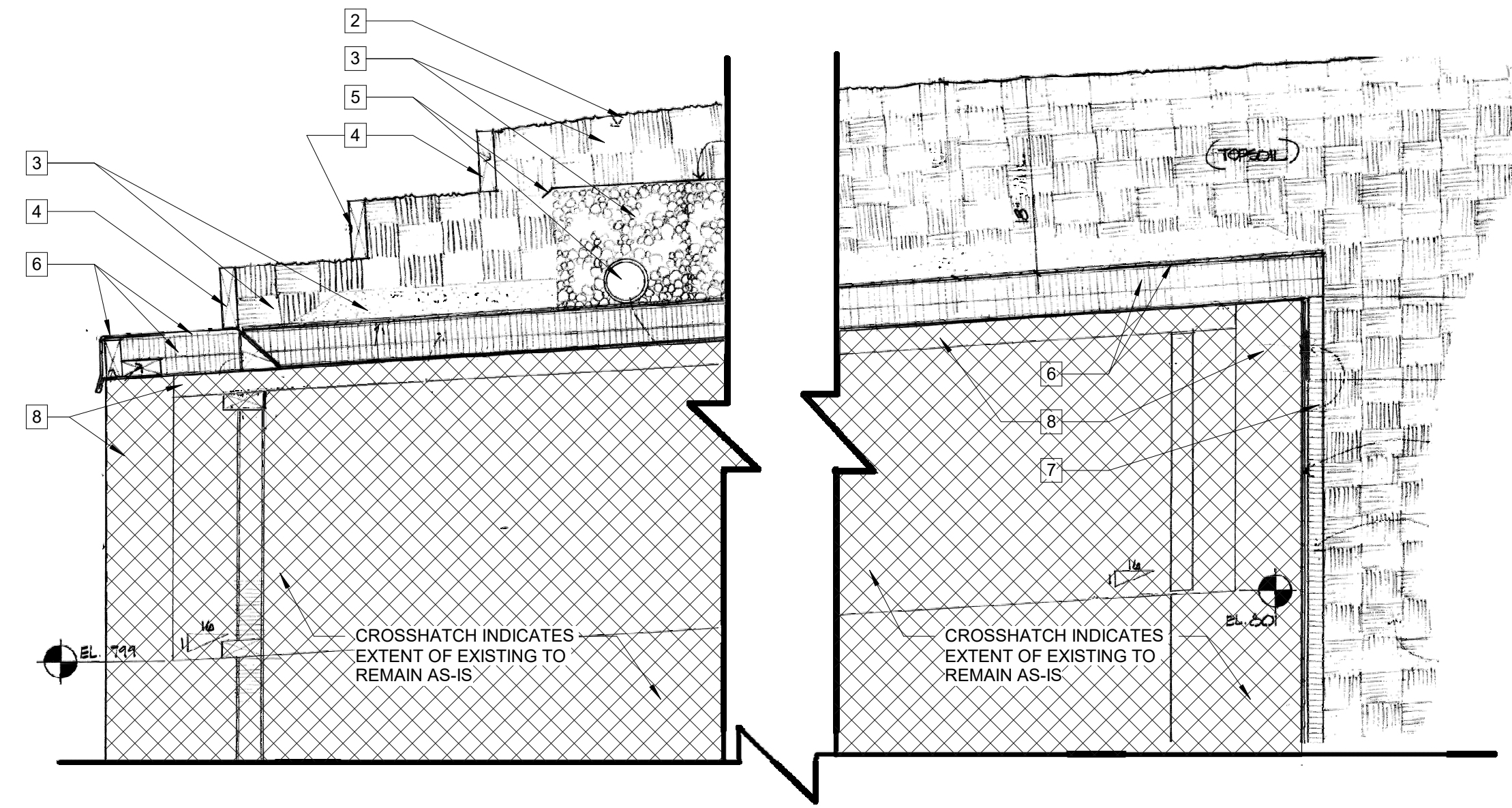
- 1 REMOVE EXISTING RAILING INDICATED IN ITS ENTIRETY INCLUDING ALL ASSOCIATED COMPONENTS.
- 2 COMPLETELY REMOVE ALL VEGETATION FROM EXISTING ROOF STRUCTURE. (SEE SITE PLAN/GRADING PLAN FOR VEGETATION REMOVAL.) IF VEGETATION REMOVAL WILL CAUSE DAMAGE TO STRUCTURE, INFORM ARCHITECT IMMEDIATELY.
- 3 COMPLETELY REMOVE ALL SOIL MATERIALS FROM ROOF STRUCTURE. (SEE SITE PLAN/GRADING PLAN.)
- 4 REMOVE ALL REMNANTS OF ROTTABLE WOOD RETAINERS INCLUDING ALL ANCHORS, ATTACHMENTS AND ACCESSORIES.
- 5 REMOVE ALL DRAINAGE MATERIALS (PIPING, GUTTER, SCUPPER, ETC.) THAT ARE PART OF EARTHEN ROOF DRAINAGE SYSTEM FROM THE ROOF STRUCTURE.
- 6 REMOVE MEMBRANE ROOFING SYSTEM AND ALL ASSOCIATED ACCESSORIES (MEMBRANE, BLOCKING, INSULATION, FLASHING, ANCHORS, ATTACHMENTS, TRIM, ETC.)
- 7 REMOVE RIGID INSULATION AND ANY LOOSE COMPONENTS OF WATERPROOFING SYSTEM FROM EXTERIOR WALL AS REQUIRED FOR INSTALLATION OF NEW WORK.
- 8 CLEAN EXISTING CONCRETE ROOF STRUCTURE OF ALL DEBRIS OR DELETERIOUS MATERIALS AND PREPARE SURFACE FOR INSTALLATION OF NEW ROOFING MATERIALS. COORDINATE WITH ROOFING INSTALLER.
- 9 REMOVE LOOSE OR DAMAGED SEALANTS FROM ALL EXISTING EXTERIOR STRUCTURE.
- 10 DASHED LINE - INDICATES LINE OF BUILDING BELOW EXISTING GRADE
- 11 EXISTING EXTERIOR STRUCTURE OR RETAINING WALL TO REMAIN. TAKE CARE NOT TO DAMAGE EXISTING FINISHES. IF DAMAGE OCCURS, REPAIR TO MATCH ADJACENT EXISTING FINISH

DEMOLITION GENERAL NOTES:

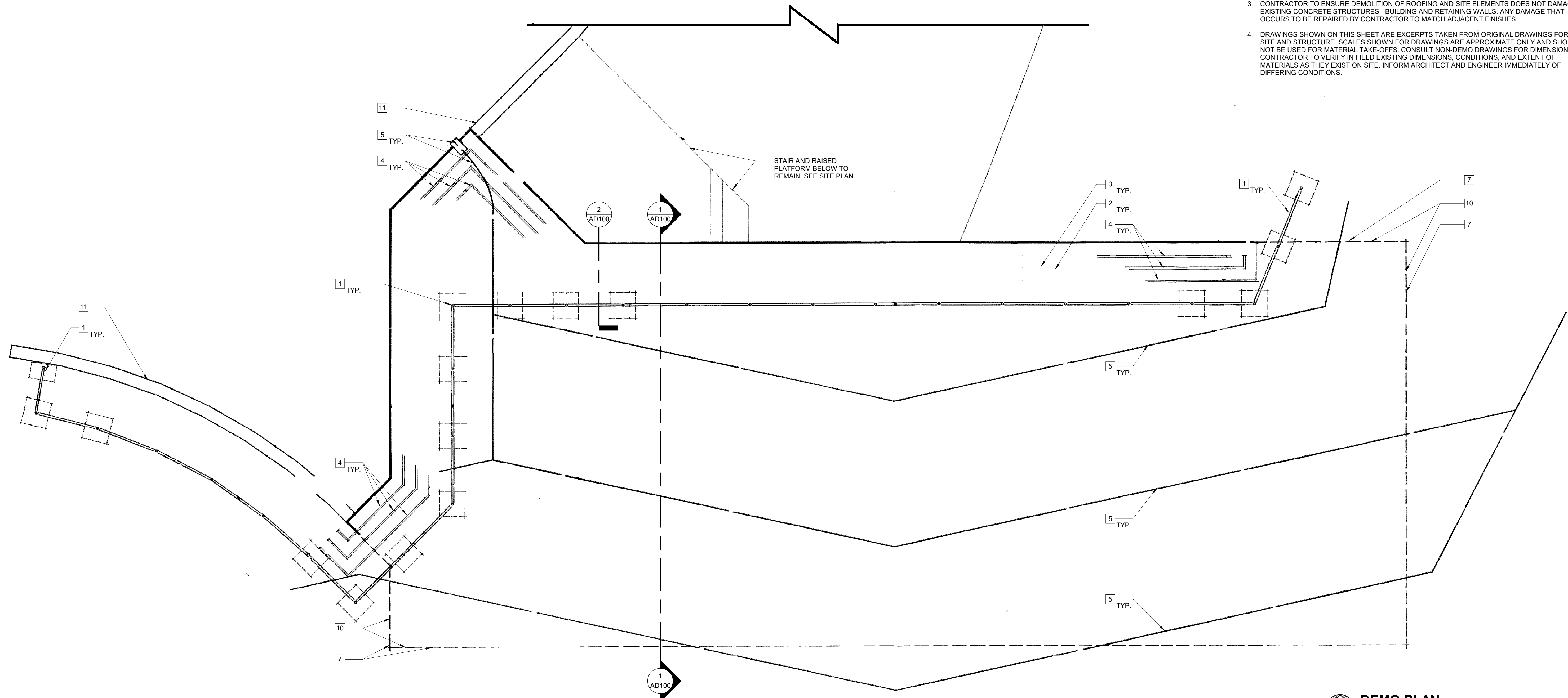
- 1 CONTRACTOR TO VERIFY LOCATION OF ALL UTILITIES AND COORDINATE WITH DEMO WORK TO BE COMPLETED.
- 2 SEE CIVIL DRAWINGS FOR FULL EXTENT OF SITE DEMOLITION
- 3 CONTRACTOR TO ENSURE DEMOLITION OF ROOFING AND SITE ELEMENTS DOES NOT DAMAGE EXISTING CONCRETE STRUCTURES - BUILDING AND RETAINING WALLS. ANY DAMAGE THAT OCCURS TO BE REPAIRED BY CONTRACTOR TO MATCH ADJACENT FINISHES.
- 4 DRAWINGS SHOWN ON THIS SHEET ARE EXCERPTS TAKEN FROM ORIGINAL DRAWINGS FOR THIS SITE AND STRUCTURE. SCALES SHOWN FOR DRAWINGS ARE APPROXIMATE ONLY AND SHOULD NOT BE USED FOR MATERIAL TAKE-OFFS. CONSULT NON-DEMO DRAWINGS FOR DIMENSIONS. CONTRACTOR TO VERIFY IN FIELD EXISTING DIMENSIONS, CONDITIONS, AND EXTENT OF MATERIALS AS THEY EXIST ON SITE. INFORM ARCHITECT AND ENGINEER IMMEDIATELY OF DIFFERING CONDITIONS.



2 EXISTING RAILING TO BE REMOVED
AD100 SCALE: 3/4" = 1'-0"



1 EXISTING BUILDING SECTION
AD100 SCALE: 1" = 1'-0"





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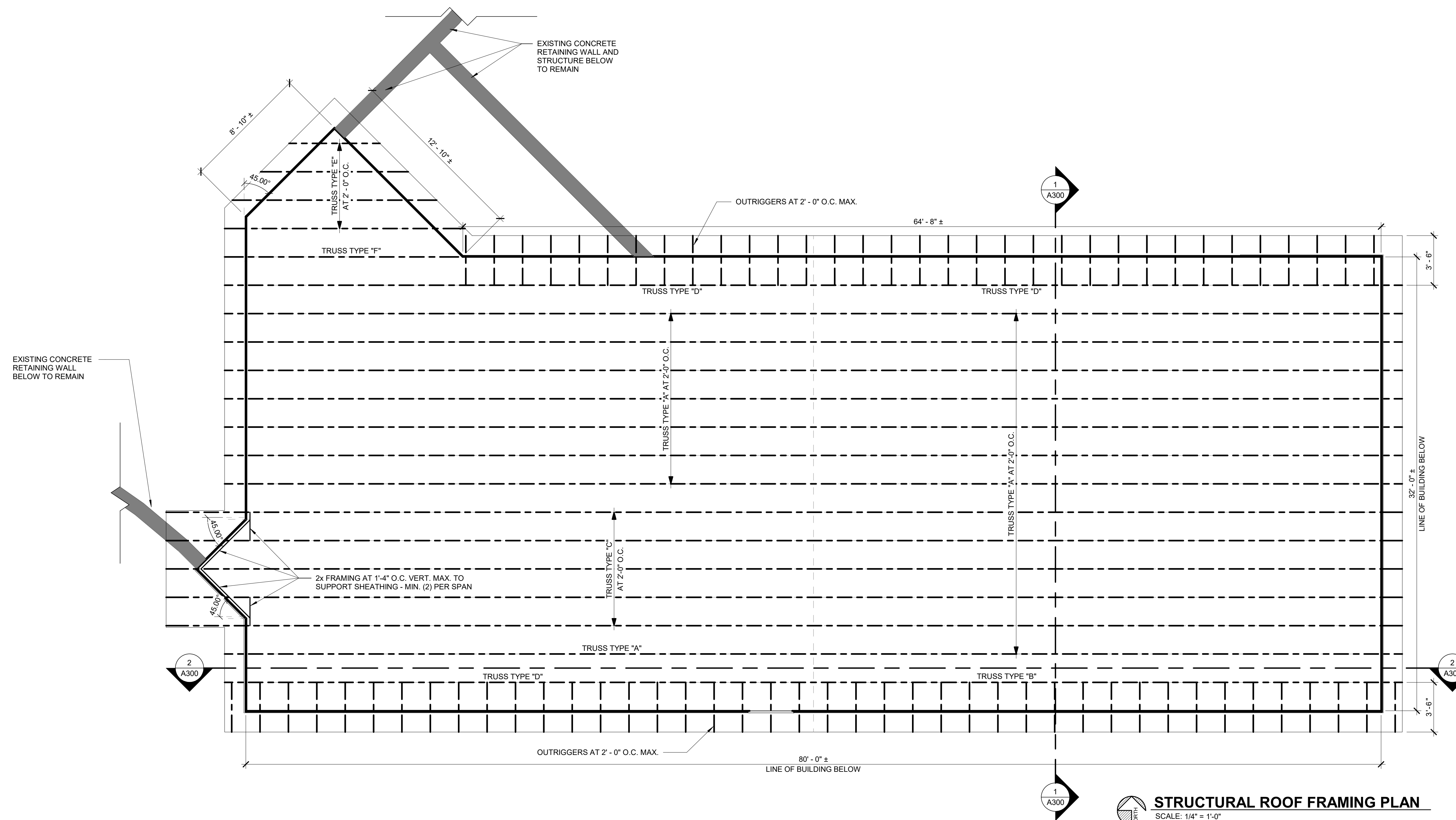
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PROJECT NAME:
STATION 4 ROOF REPLACEMENT

2000 W. CROSSTOWN PKWY.
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CITY OF KALAMAZOO
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STRUCTURAL ROOF FRAMING PLAN
SCALE: 1/4" = 1'-0"

STRUCTURAL DESIGN LOAD NOTES:

1. ROOF LIVE LOAD = 20 PSF
2. GROUND SNOW LOAD $P_g = 20$ PSF
SNOW EXPOSURE FACTOR $C_e = 1.0$
SNOW LOAD IMPORTANCE FACTOR $I_s = 1.0$
THERMAL FACTOR $C_t = 1.1$
FLAT ROOF SNOW LOAD $P_f = 15.4$ PSF
3. BASIC WIND SPEED = 90 MPH
EXPOSURE CATEGORY "B"
IMPORTANCE FACTOR $I = 1.0$ (OCCUPANCY CATEGORY II)
INTERNAL PRESSURE COEFFICIENT $GC_{pi} = +/- 0.18$
4. SEISMIC IMPORTANCE FACTOR $I = 1.0$ (OCCUPANCY CATEGORY II)
SPECTRAL RESPONSE ACCELERATIONS: $S_s = 0.20$, $S_1 = 0.08$
SITE CLASS "D"
SPECTRAL RESPONSE COEFFICIENTS: $S_{ds} = 0.21$, $S_{d1} = 0.13$
SEISMIC DESIGN CATEGORY "B"
BASIC S-F-R SYSTEM: BEARING WALL SYSTEM
DESIGN BASE SHEAR = 31 KIPS
SEISMIC RESPONSE COEFFICIENT $C_s = 0.032$
RESPONSE MODIFICATION FACTOR $R = 6.5$
ANALYSIS PROCEDURE: EQUIV. LATERAL FORCE

STRUCTURAL GENERAL NOTES:

- STRUCTURAL NOTES - WOOD**
1. PROVIDE BRIDGING, SQUASH BLOCKS, WEB STIFFENERS AND BLOCKING PER TRUSS MANUFACTURERS RECOMMENDATIONS.
 2. FRAMING AND STRUCTURAL LUMBER TO BE NO. 1 OR BETTER SOUTHERN PINE WITH 19% MAXIMUM MOISTURE CONTENT. ALL LUMBER IN CONTACT WITH CONCRETE OR MASONRY OR WHERE EXPOSED TO WEATHER IS TO BE WOLMANIZED. ALL WOOD COLUMNS TO BE DENSE NO. 1 SOUTHERN PINE. PLATES AND BLOCKING SHALL BE NO. 2 OR BETTER HEM-FIR.
 3. ALL SHEATHING SHALL BE EXTERIOR GRADE CDX PLYWOOD FOR EXTERIOR APPLICATIONS.
 4. ALL WALL SHEATHING TO BE FULLY BLOCKED. PLYWOOD ROOF & WALL SHEATHING TO BE INSTALLED IN STRICT ACCORDANCE W/ THE RECOMMENDATIONS & REQUIREMENTS OF THE AMERICAN PLYWOOD ASSOCIATION, (A.P.A.), PLYWOOD ROOF, WALL SHEATHING TO BE FASTENED IN ACCORDANCE WITH THE MINIMUM LOAD CAPACITIES IN THE BUILDING CODE TABLES FOR UNBLOCKED HORIZONTAL DIAPHRAGMS & BLOCKED SHEAR WALL DIAPHRAGMS OF THE THICKNESS INDICATED CORRESPONDING TO THE MAXIMUM SIZE FASTENERS INDICATED, OR AS OTHERWISE NOTED IN THE PROJECT DESIGN DETAILS.
 5. PROVIDE HURRICANE CLIPS AND TIE-DOWNS AS REQUIRED IN THE BUILDING CODE.
 6. TRUSS SPACING 2'-0" O.C. MAX. END SPACING EQUAL AT EACH END IF LESS THAN 2'-0"

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STRUCTURAL FRAMING & DETAILS



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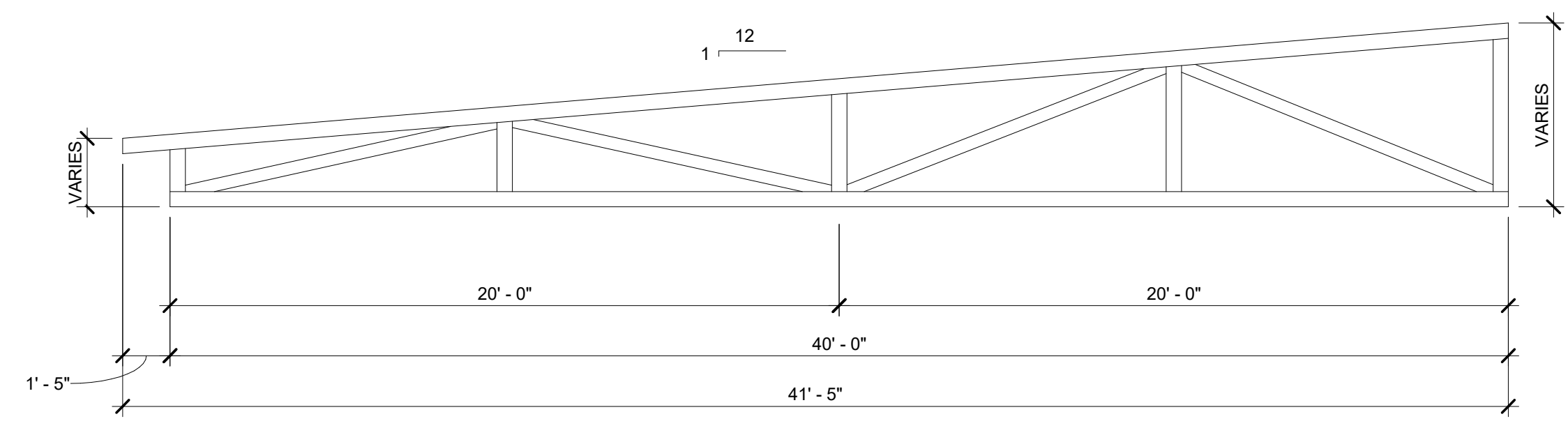
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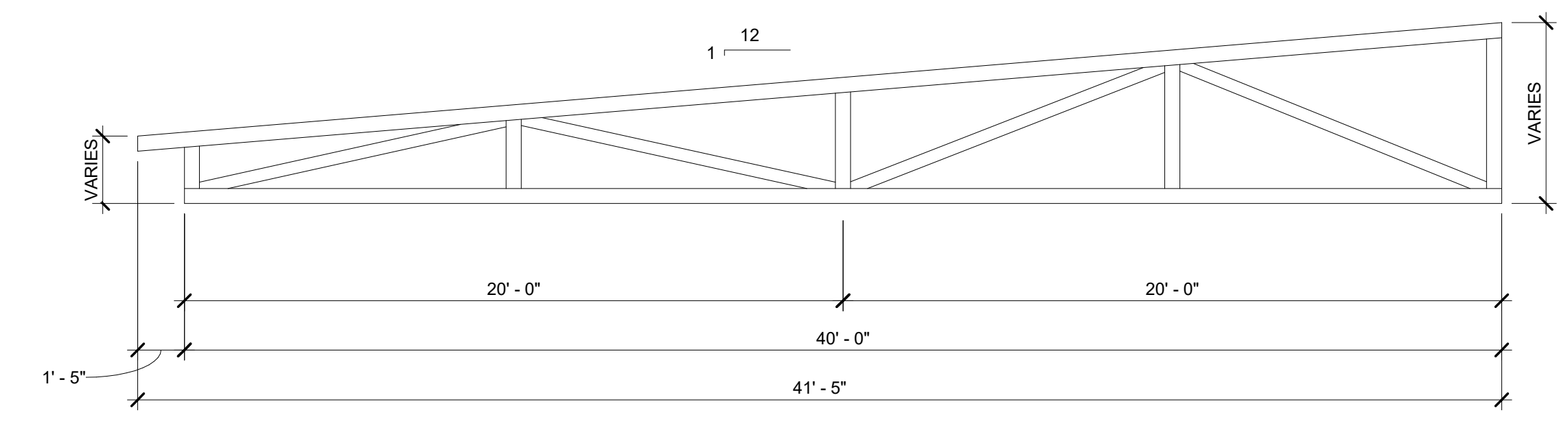
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TRUSS TYPES

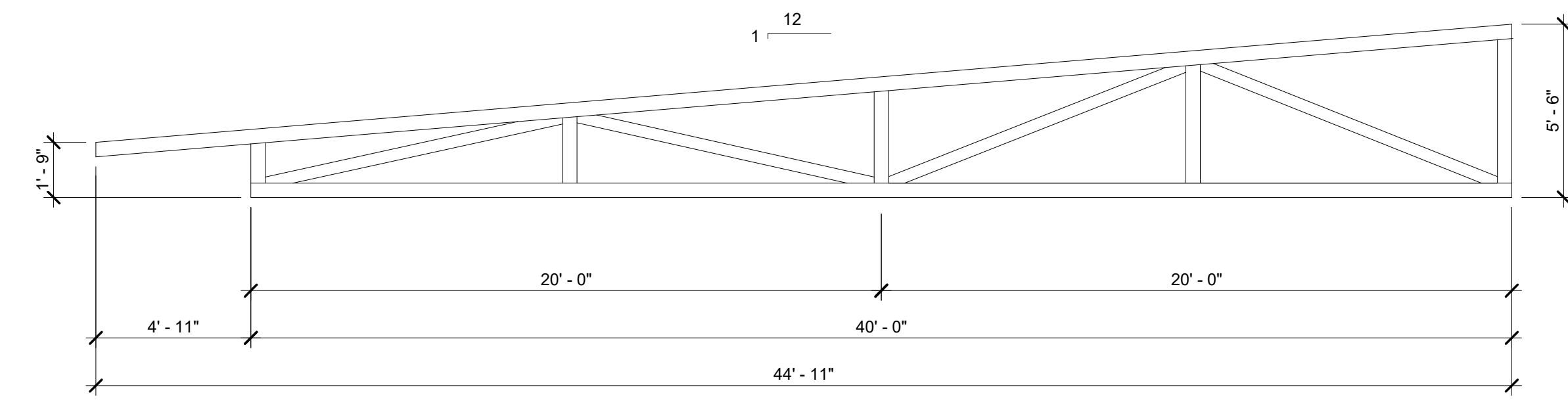
JOB NO: 214089
S200



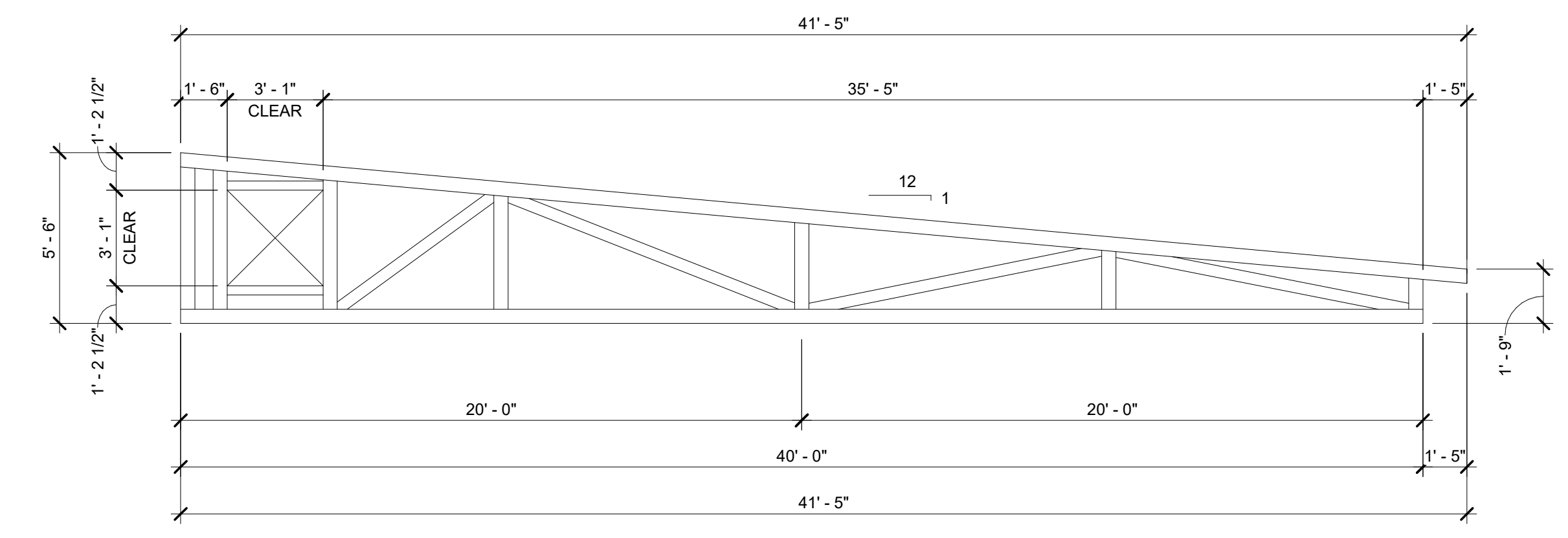
4 BOTTOM CHORD BEARING TRUSS - TRUSS TYPE "C"
S200 SCALE: 1/4" = 1'-0"



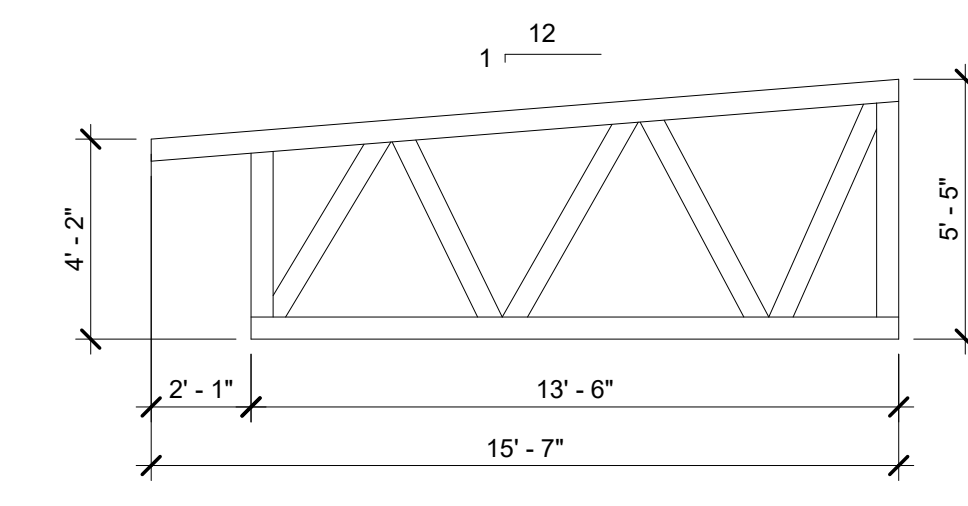
1 BOTTOM CHORD BEARING TRUSS - TRUSS TYPE "A"
S200 SCALE: 1/4" = 1'-0"



5 GABLE END TRUSS AT OUTRIGGERS - TRUSS TYPE "D"
S200 SCALE: 1/4" = 1'-0"

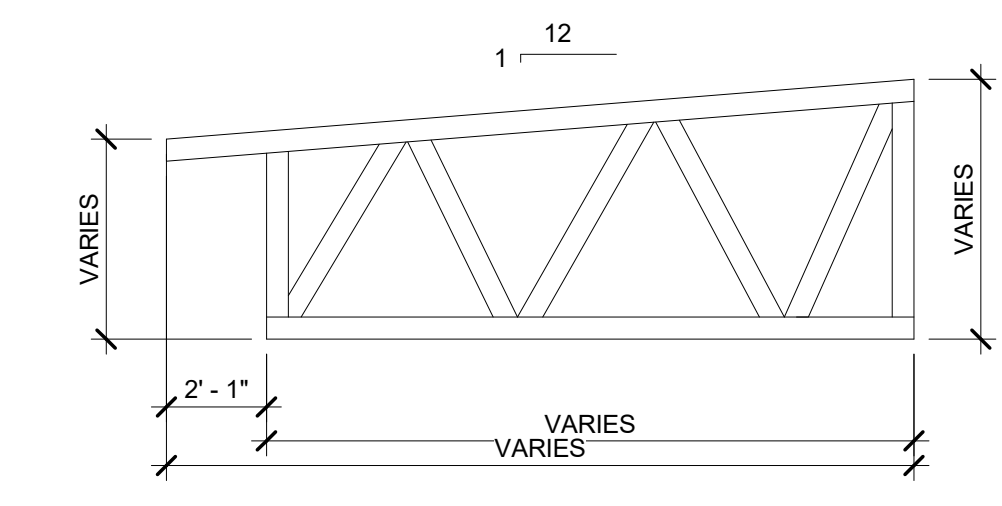


2 BOTTOM CHORD BEARING TRUSS - TRUSS TYPE "B"
S200 SCALE: 1/4" = 1'-0"



6 GABLE END TRUSS AT OUTRIGGERS - TRUSS TYPE "F"
S200 SCALE: 1/4" = 1'-0"

NOTE:
1. VERIFY ALL DIMENSIONS PRIOR TO FABRICATION
2. ALL TRUSSES ARE BOTTOM CHORD BEARING



3 GABLE END TRUSS AT OUTRIGGERS - TRUSS TYPE "E"
S200 SCALE: 1/4" = 1'-0"



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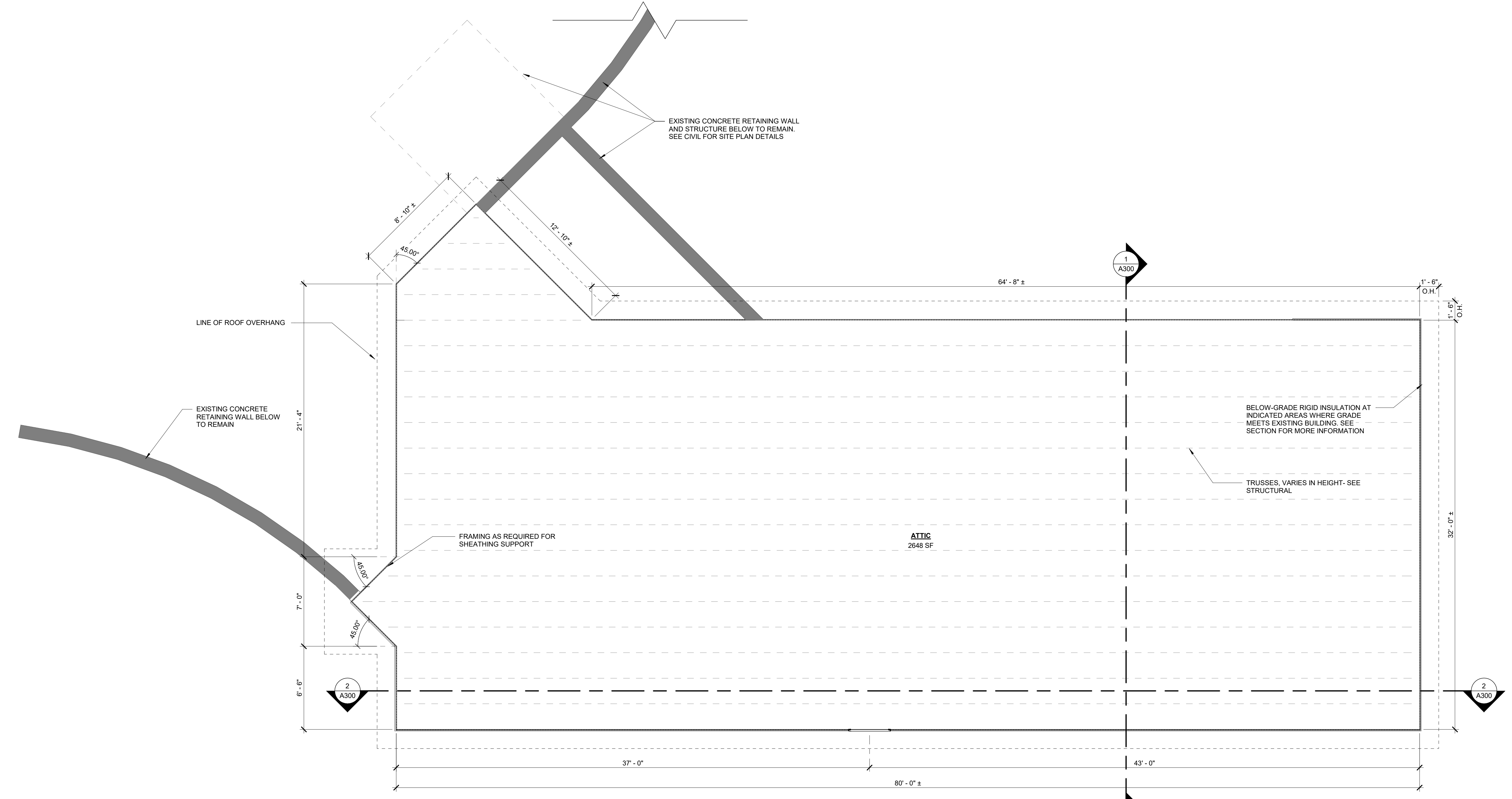
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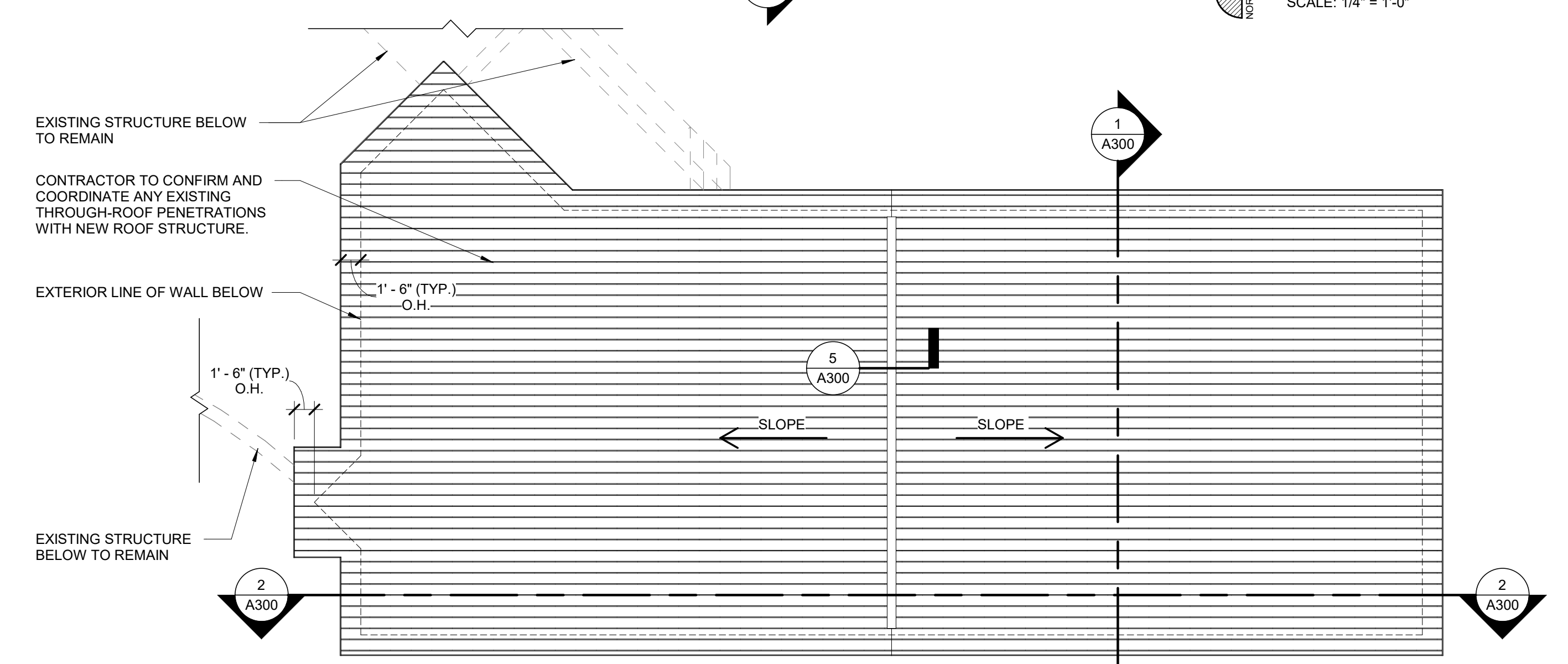
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ATTIC PLAN
SCALE: 1/4" = 1'-0"

- ROOF PLAN NOTES**
1. STANDING SEAM METAL ROOF ON FULLY ADHERED WATERPROOF MEMBRANE.
 2. EXTERIOR GRADE 3/4" PLYWOOD SHEATHING
 3. SEE STRUCTURAL FOR FULL TRUSS INFORMATION
 4. EXISTING ROOFING PENETRATIONS TO BE COORDINATED IN THE FIELD WITH NEW ROOF
 5. ROOF PENETRATIONS PER DETAILS. TO BE COORDINATED WITH MANUFACTURER DETAILS.
 6. SEE TECHNICAL SPECIFICATIONS FOR FULL PRODUCT INFORMATION.



ROOF PLAN
SCALE: 1/8" = 1'-0"

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SCALE: As indicated

ATTIC PLAN & ROOF PLAN

JOB NO: 214089
A101



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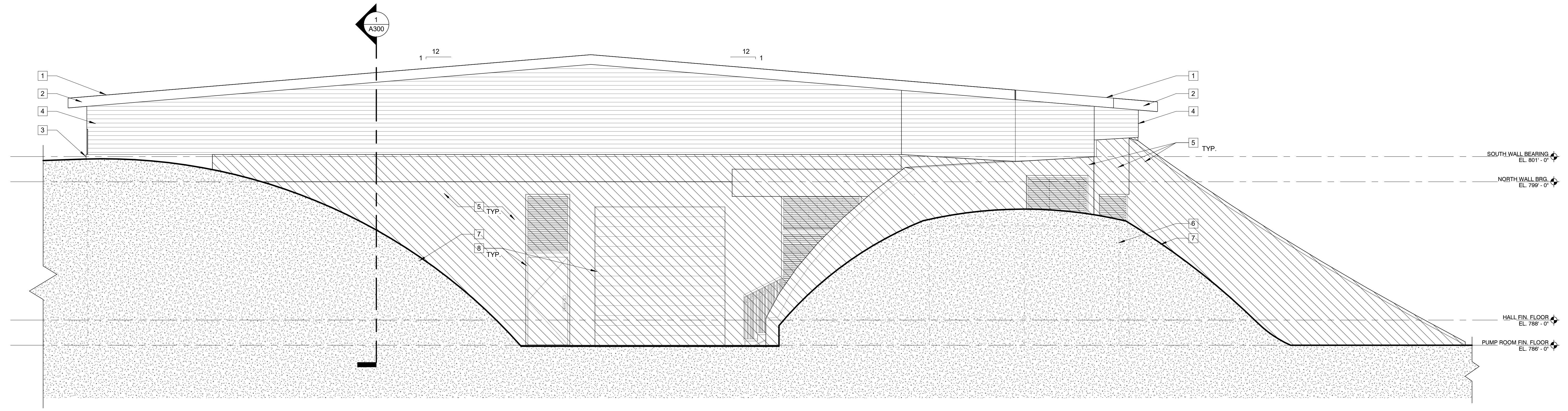
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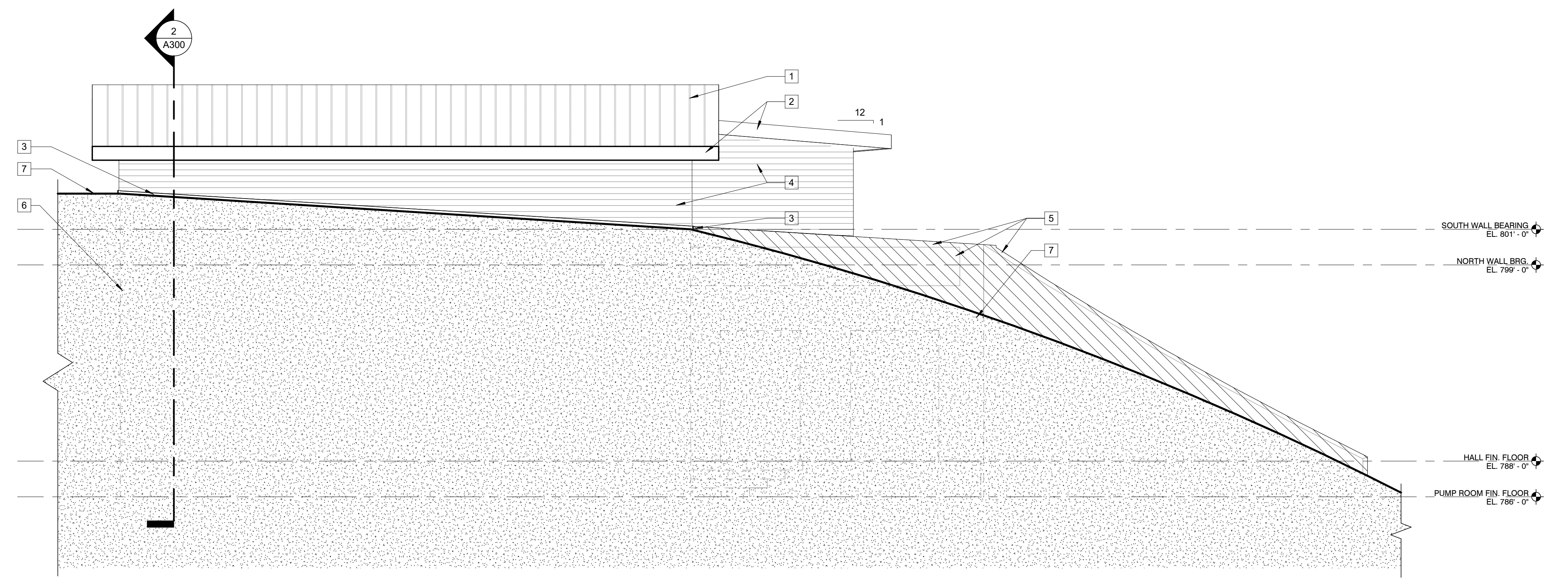
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SCALE: 1/4" = 1'-0"

EXTERIOR ELEVATIONS

JOB NO: 214089
A200

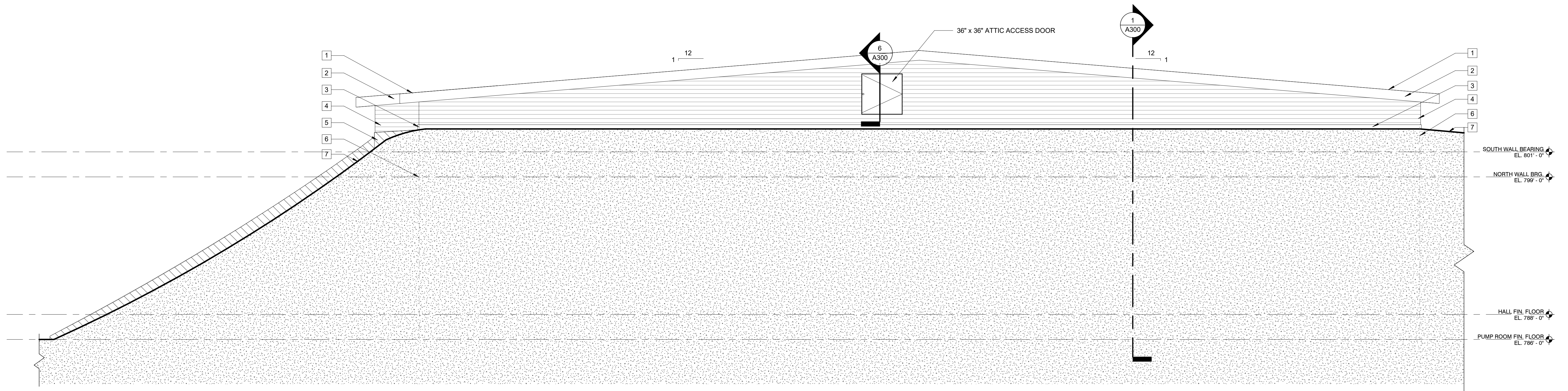


NORTH ELEVATION
SCALE: 1/4" = 1'-0"

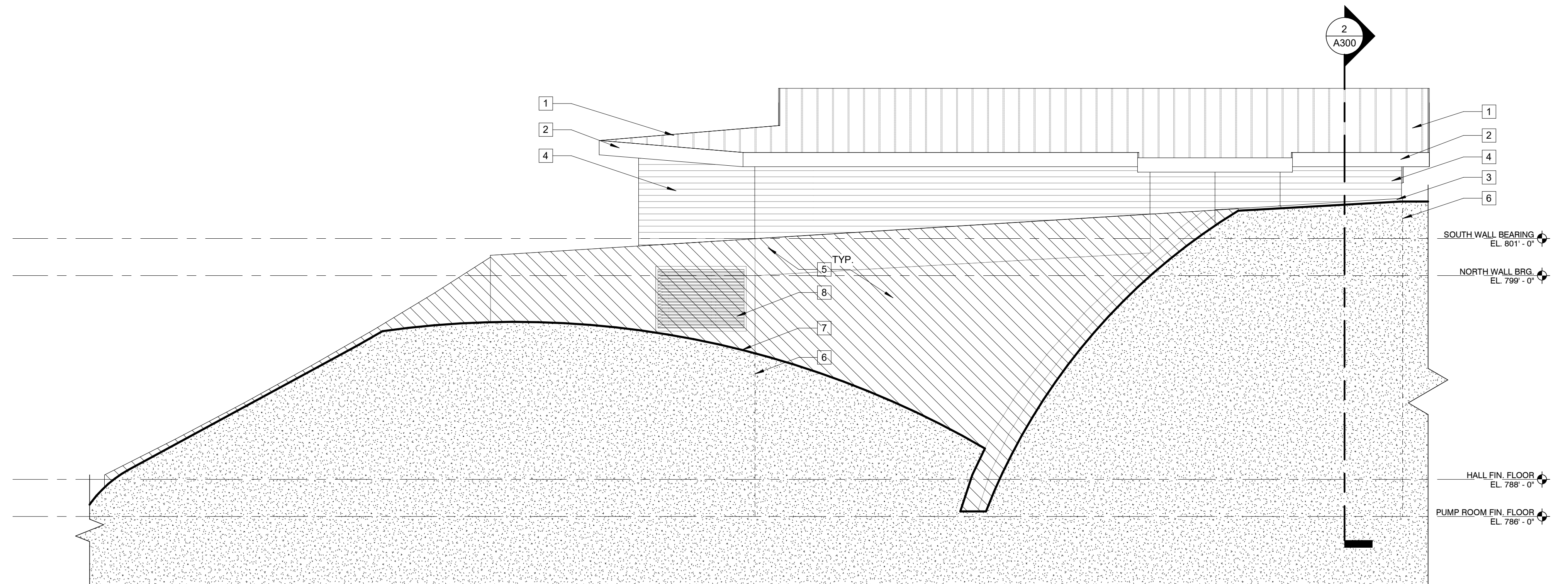


EAST ELEVATION
SCALE: 1/4" = 1'-0"

EXTERIOR ELEVATION SHEET NOTES	
1.	METAL ROOF SLOPED 1" PER 12". SEE ROOF PLAN AND SPECIFICATIONS
2.	2x FASCIA WRAPPED IN METAL
3.	EXTERIOR SUB-GRADE INSULATION - SEE PLAN AND SECTIONS FOR LOCATION AND ADDITIONAL INFORMATION
4.	EXTERIOR WALL - FIBER CEMENT PLANK SIDING
5.	EXISTING STRUCTURE TO REMAIN (DIAGONAL HATCH)
6.	EXISTING SUB-GRADE STRUCTURE TO REMAIN
7.	SEE CIVIL DRAWINGS FOR FULL SITE INFORMATION. GRADE SHOWN ON ELEVATIONS ARE FOR DIAGRAMMATIC VISUAL PURPOSES ONLY
8.	ALL EXISTING DOORS, VENTS, LOUVERS, AND WINDOWS IN EXISTING WALLS TO REMAIN.
9.	CONTRACTOR TO EVALUATE SEALANTS AT ALL EXTERIOR JOINTS (STRUCTURE, WALLS, WINDOWS, VENTS ETC.) AND REMOVE DETERIORATED SEALANT COMPLETELY, AND REPLACE WITH APPROPRIATE NEW SEALANT FOR WEATHERTIGHT APPLICATION.
NOTES: SEE TECHNICAL SPECIFICATIONS FOR FULL PRODUCT AND SYSTEMS INFORMATION.	



SOUTH ELEVATION
SCALE: 1/4" = 1'-0"

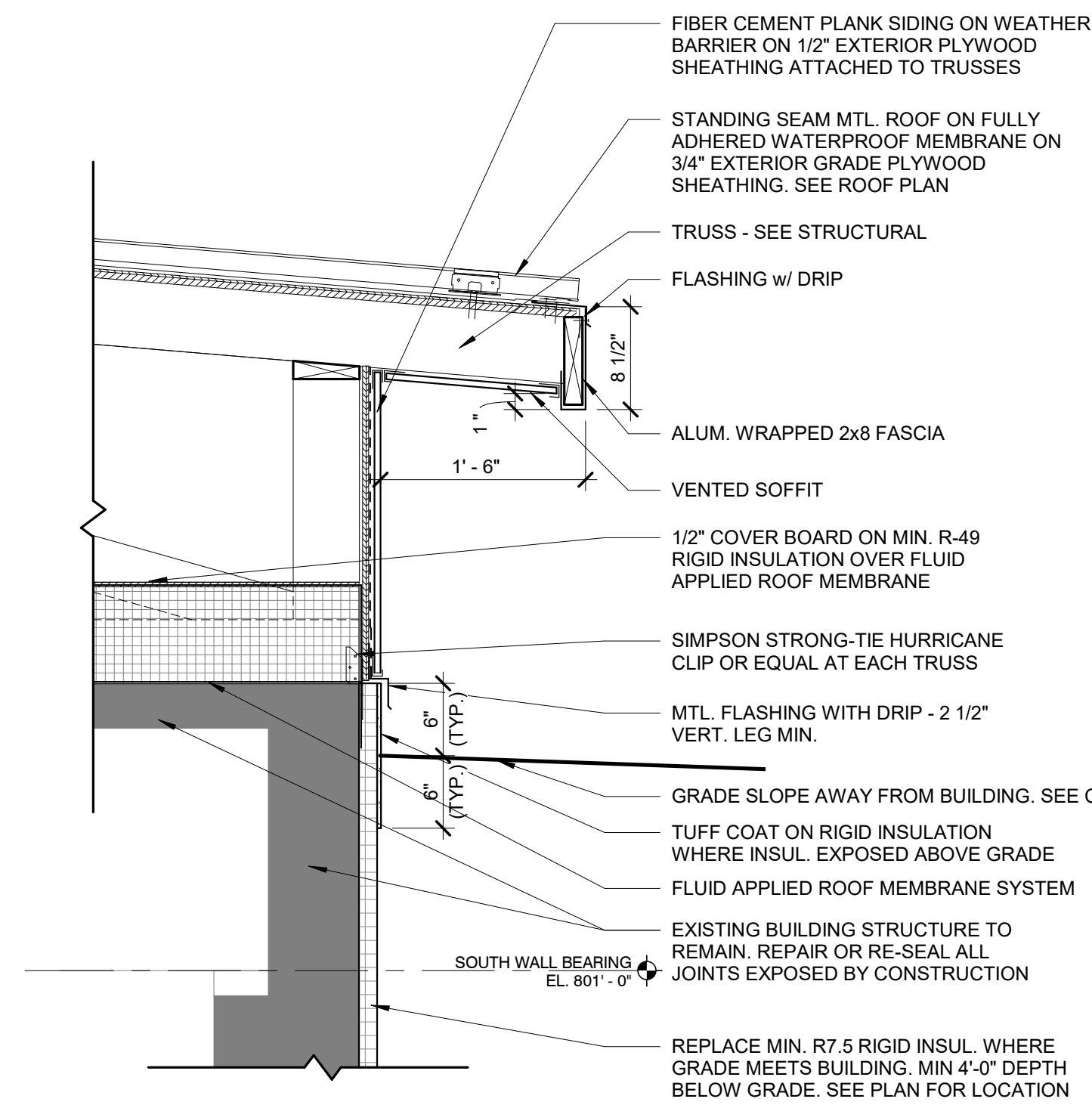


WEST ELEVATION
SCALE: 1/4" = 1'-0"

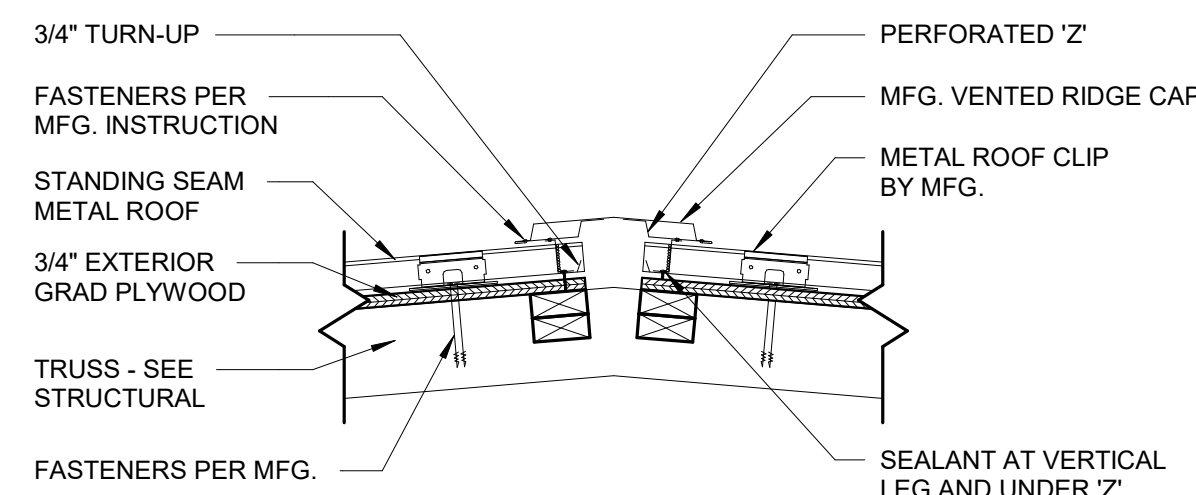
EXTERIOR ELEVATION SHEET NOTES

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2. 2x FASCIA WRAPPED IN METAL
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8. ALL EXISTING DOORS, VENTS, LOUVERS, AND WINDOWS IN EXISTING WALLS TO REMAIN.
9. CONTRACTOR TO EVALUATE SEALANTS AT ALL EXTERIOR JOINTS (STRUCTURE, WALLS, WINDOWS, VENTS ETC.) AND REMOVE DETERIORATED SEALANT COMPLETELY, AND REPLACE WITH APPROPRIATE NEW SEALANT FOR WEATHERTIGHT APPLICATION.

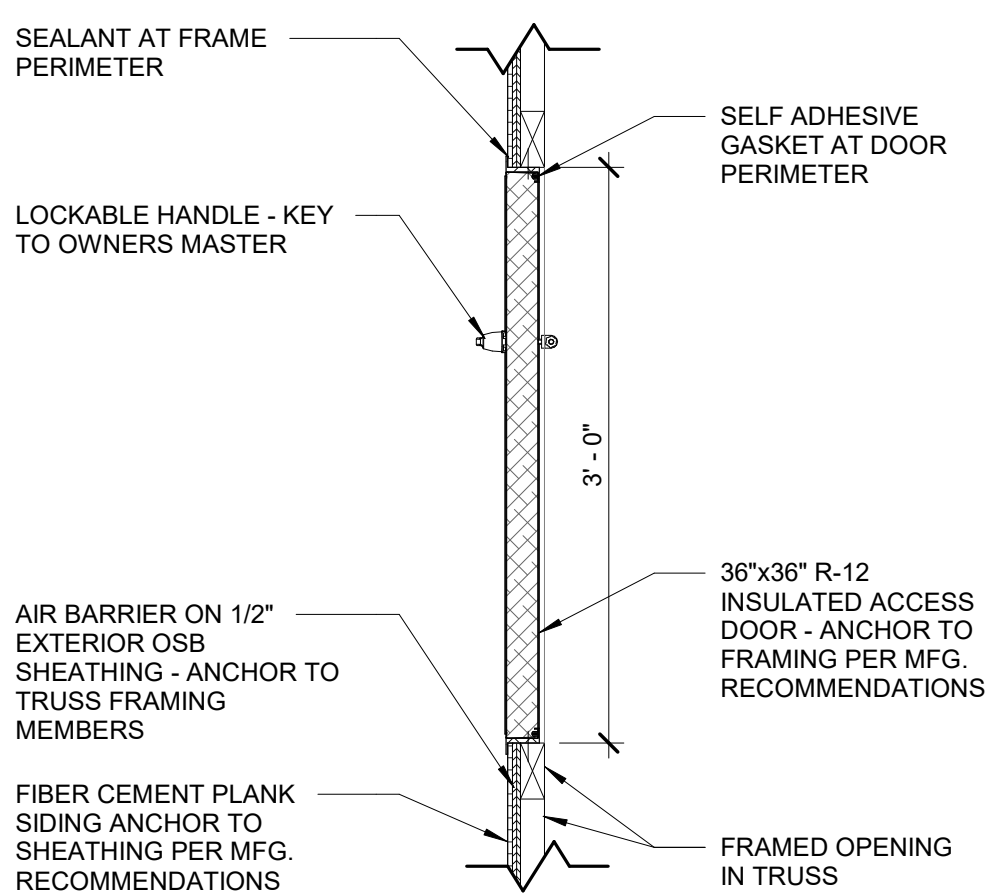
NOTES:
SEE TECHNICAL SPECIFICATIONS FOR FULL PRODUCT AND SYSTEMS INFORMATION.



4 WALL SECTION @ EAVE ROOF EDGE
SCALE: 1" = 1'-0"

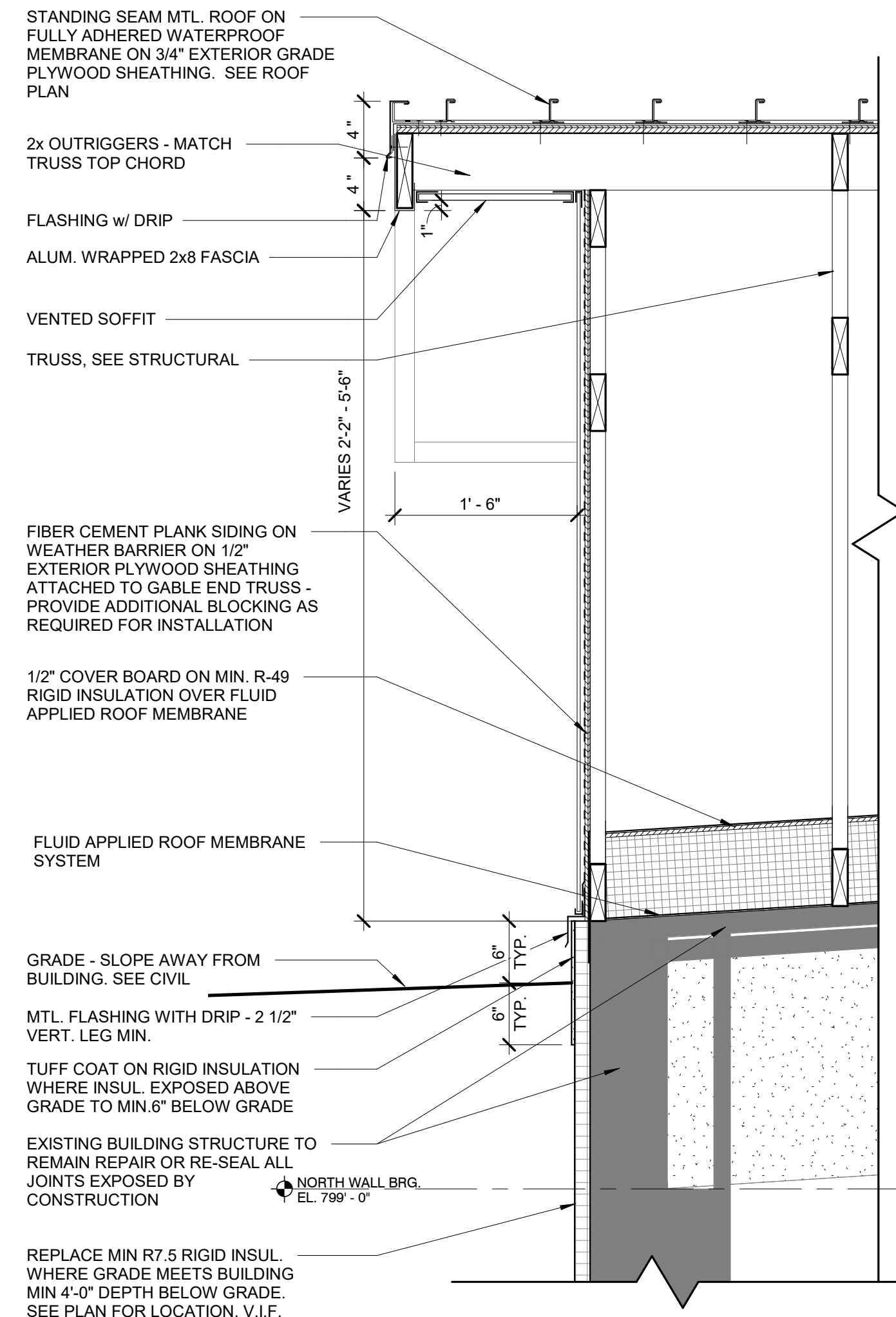


5 RIDGE VENT
SCALE: 1" = 1'-0"

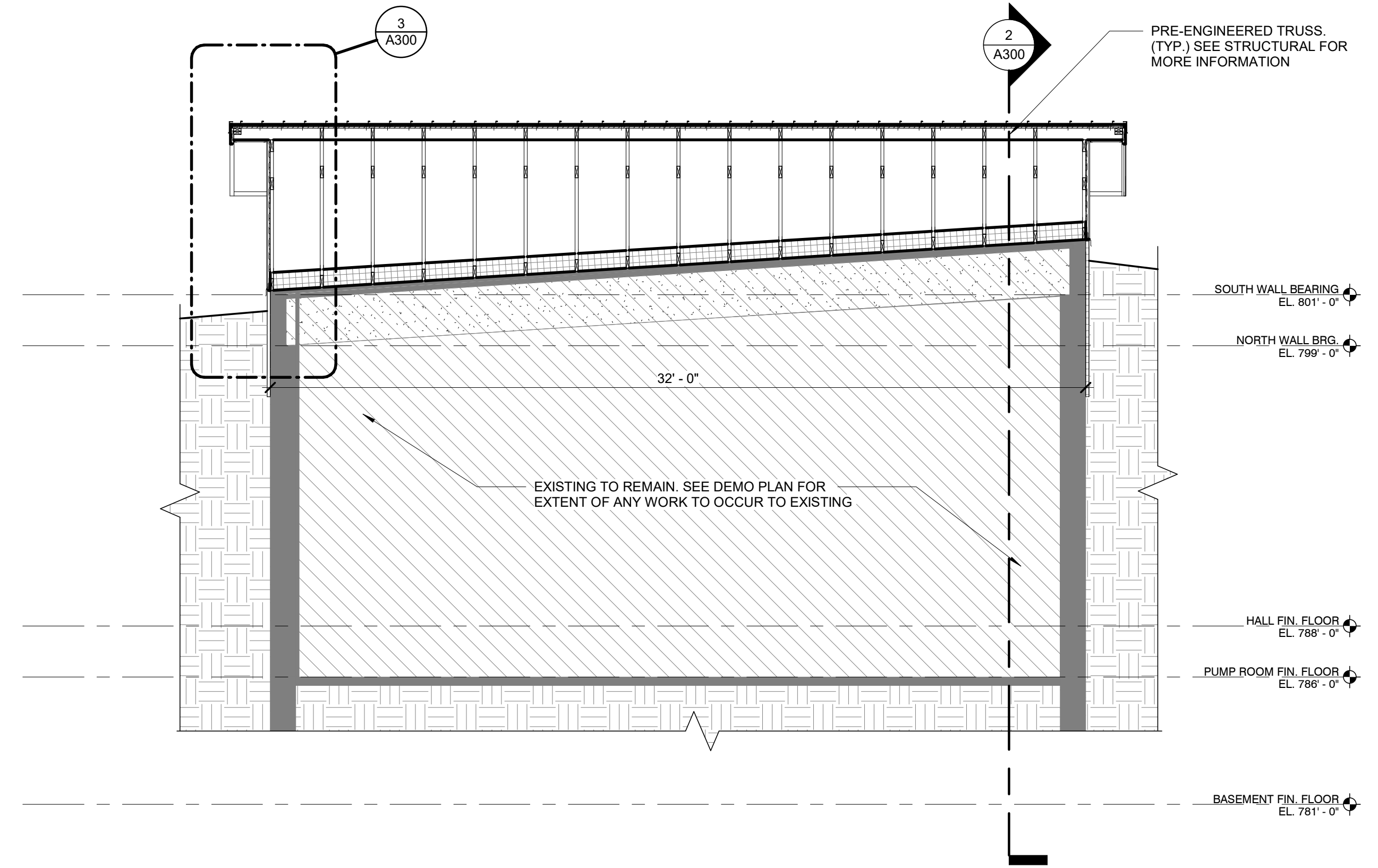


NOTE:
1. PROVIDE SECURITY ALARM COMPATIBLE WITH OWNERS SECURITY SYSTEM. COORDINATE INSTALLATION WITH OWNER.

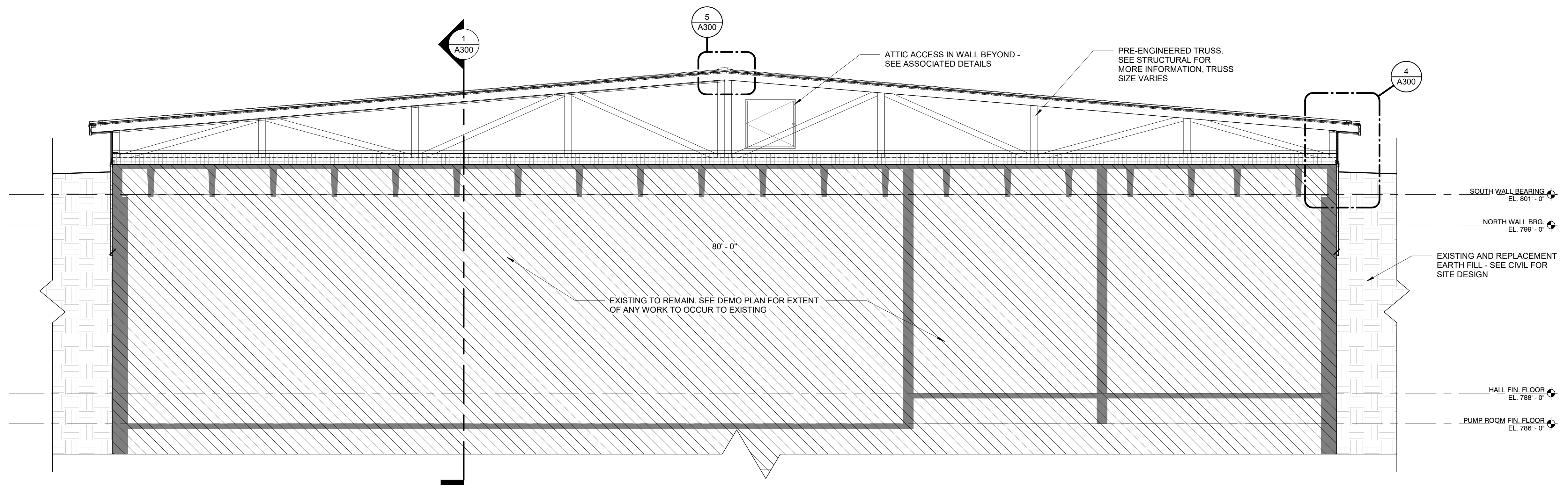
6 EXT. ACCESS DOOR SECTION
SCALE: 1" = 1'-0"



3 WALL SECTION @ RAKE ROOF EDGE
SCALE: 1" = 1'-0"



1 TRANSVERSE BUILDING SECTION
SCALE: 1/4" = 1'-0"



2 LONGITUDINAL BUILDING SECTION
SCALE: 1/4" = 1'-0"