COUNTY OF McHENRY
McHENRY COUNTY ADMINISTRATION BUILDING
PURCHASING DEPARTMENT – ROOM 200
2200 N. SEMINARY AVENUE
WOODSTOCK, IL 60098

Sealed bids will be accepted in the above office until

February 9, 2016 at 2:00 P.M. (CST)

For

BID #16-15

GOVERNMENT CENTER ROOF REPLACEMENT

CONTACT PERSON – DONALD A. GRAY, CPPB
DIRECTOR OF PURCHASING
MCHENRY COUNTY ADMINISTRATION BUILDING
2200 N. SEMINARY AVENUE-- ROOM 200
WOODSTOCK, IL 60098
Phone - (815) 334-4818
Fax - (815) 334-4680

COMPANY	DATE
CONTACT PERSON	
ADDRESS	E-MAIL ADDRESS
CITY, STATE AND ZIP	
TELEPHONE NO	FAX NO.
TIN (FEIN, or Social Security) NUMBER	

The attention of bidders is directed to the McHenry County Purchasing Ordinance, approved August 1, 2014. This Ordinance is incorporated by reference into this bid as if it were contained herein. If you have not received a copy of the above Ordinance and desire a copy, please contact the office of the Director of Purchasing.

SCOPE OF WORK

The County of McHenry is soliciting bids to perform all necessary work to complete a full roof replacement at the County Government Center located at 2200 N Seminary Road, Woodstock, Illinois 60098. Subject to continuing need and availability of funds. Bid as per specifications contained herein.

A PREBID MEETING will be held at the Administration Building, 667 Ware Road, Room 200, Woodstock IL at 10:00 AM (CST) on 1/14/16. If unable to attend this meeting vendors may be able to contact the Facilities Department at 815-334-0259 to arrange additional site visits between 1/18/16 thru 1/22/16. All vendors **MUST** fill out Attachment "A" (Hold Harmless form) before they will be allowed on the McHenry County Government Center roof. These forms must be signed and returned to Purchasing on or before the day of the site visit or you will not be permitted on the roofs.

SCHEDULE OF EVENTS

January 4, 2016----------	Bid Available
January 14, 2016----------	Site Visits & Tour, McHenry County Administration Bldg., 667 Ware Rd., Rm 200, Woodstock, IL at **10:00 AM (CST)**
January 26, 2016----------	Vendors Questions Submitted via fax to 815-334-4680 by 4:00 P.M.(CST)
January 29, 2016----------	Vendors Questions Answered via fax and Posted on Website by 4:00 P.M.(CST)
February 9, 2016----------	Bid due in Purchasing at 2:00 P.M.(CST)

PAYMENT

Payment will be processed after receipt of delivery invoice and appropriate affidavit.

NON-DISCRIMINATION

Contractor shall comply with the Illinois Human Rights Act, 775 ILCS 5/1-101 et seq., as amended and any rules and regulations promulgated in accordance therewith, including, but not limited to the Equal Employment Opportunity Clause, Illinois Administrative Code, Title 44, Part 750 (Appendix A), 775 ILCS 5/1-102, which is incorporated herein by reference, and constituting of a written EEO Policy and a workforce profile that demonstrates its EEO practices. Furthermore, the Contractor shall comply the Public Works Employment Discrimination Act, 775 ILCS 10/0.01 et seq., as amended. The Contractor must have a written sexual harassment policy which meets Illinois State Statutes, 775 ILCS, 15/3.

PREVAILING WAGE

The State of Illinois requires that all wages paid by the Contractor and each subcontractor shall be in compliance with The Prevailing Wage Act (820 ILCS 130), as amended. This requires payment of the general prevailing rate for each craft or type of worker, including payment of the general prevailing rate for legal holiday and overtime work. The Illinois Department of Labor publishes the prevailing wage rates on its website at www.state.il.us/agency/idol/rates.htm. The Contractor shall review the wage rates applicable to the work of the contract at regular intervals in order to ensure the timely payment of current wage rates. The Contractor agrees that no additional notice is required. The Contractor shall be responsible to notify each subcontractor of the wage rates set forth in this contract and any revisions thereto. A copy of the prevailing wage rates is posted on the McHenry County website at www.co.mchenry.il.us under BIDS and RFP's. If wage rates change during the course of the project, the new rates will be available in the County of McHenry Purchasing Office. Vendors may access the Illinois Department of Labor website for updates www.state.il.us/agency/idol.

CERTIFIED PAYROLL REQUIREMENTS (Public Act 94-0515)

Effective August 10, 2005 contractors and subcontractors on public works projects must submit certified payroll records on a monthly basis to the public body in charge of the construction project, along with a statement affirming that such records are true and accurate, that the wages paid to each worker are not less than the required prevailing rate and that the contractor is aware that filing records he or she knows to be false is a Class B misdemeanor.

The certified payroll records must include for every worker employed on the public works project the name, address, telephone number, social security number, job classification, hourly wages paid in each pay period, number of hours worked each day, and starting and ending time of work each day. These certified payroll records are considered public records and public bodies must make these records available to the public under the Freedom of Information Act, with the exception of the employee's address, telephone number and social security number. Any contractor who fails to submit a certified payroll or knowingly files a false certified payroll is guilty of a Class B misdemeanor.

INCREASED PENALTIES FOR PREVAILING WAGE VIOLATIONS (Public Act 94-0488)

Effective January 1, 2006, penalties for violations of the Prevailing Wage Act will increase from 20% to 50% of the underpaid amounts for second or subsequent violations. An additional penalty of 5% of the underpayment penalty must be paid to workers for each month the wages remain unpaid (up from the current 2% penalty).

For violations that occur after January 1, 2006, the debarment period --during which contractors are ineligible for public works contracts -increases from 2 years to 4 years if two notices of violation are issued/serious violations occur within a 5-year period. In addition, a new monetary penalty of $5,000 may be assessed against contractors who retaliate against employees who report violations or file complaints under the Prevailing Wage Act.

SUBSTANCE ABUSE PREVENTION ON PUBLIC WORKS PROJECTS ACT

The successful bidder must be in compliance with State of Illinois HB-1855 (Public Act095-0635), which amends the Prevailing Wage Act. Before an employer commences work on a public works project, the employer shall have in place a written program which meets or exceeds the program requirements in this Act, to be filed with the public body engaged in the construction of the public works and made available to the general public, for the prevention of substance abuse among its

employees. The testing must be performed by a laboratory that is certified for Federal Workplace Drug Testing Programs by the Substance Abuse and Mental Health Service Administration of the U.S. Department of Health and Human Services.

PROCUREMENT OF GREEN PRODUCTS AND TECHNOLOGIES

As approved by the McHenry County Board in April 2008, it is in the interest of public health, safety and welfare and the conservation of energy and natural resources to use and promote environmentally responsible products. The County should strive to influence private purchases through the example of using government specifications and standards that are green or environmentally friendly when making its purchases.

Whenever available and cost-justified, the County should purchase those materials including the purchase of recycled products containing post-consumer materials rather than residual materials resulting from the processing or manufacturing from another product. To the extent practicable, all products standards shall emphasize functional or performance criteria which do not discriminate against the use of recycled materials.

McHenry County should cooperate to the greatest extent feasible with other governments and organizations to develop a comprehensive, consistent and effective procurement effort intended to stimulate the market for recycled products, reusable products, products designed to be recycled, and other environmentally responsible products.

McHenry County shall continue to participate in and shall encourage other public jurisdictions to participate with the County in the purchase of products containing recycled content. Participation in such cooperative systems shall be aimed at obtaining maximum practical recycled content in County purchases, to obtain best available price for products with recycled content, to facilitate or encourage lower prices industry-wide and to encourage development of industries and markets dealing with recycled content products.

PROCUREMENT OF PRODUCTS THAT ARE ENERGY STAR QUALIFIED

McHenry County shall select, where life cycle and cost-effective, ENERGY STAR and other energy efficient products, when acquiring energy-using products. This information will be required by the bidder in their bid submittal.

SECURITY

The contractor represents and warrants to the County of McHenry that neither it nor any of its principals, shareholders, members, partners or affiliates, as applicable, is a person or entity named as a Specially Designated National and Blocked Person (as defined in Presidential Executive Order 13224) and that it is not acting, directly or indirectly, for or on behalf of a Specially Designated National and Blocked Person. The Contractor further represents and warrants to the County of McHenry that the Contractor and its principals, shareholders, members, partners, or affiliates, as applicable, are not directly or indirectly, engaged in, and are not facilitating, the transactions contemplated by this Agreement on behalf of any person or entity named as Specially Designated National and Blocked Person. The Contractor hereby agrees to defend, indemnify and hold harmless the County of McHenry, the Corporate Authorities, and all County of McHenry elected or appointed officials, officers, employees, agents, representatives, engineers and attorneys, from and against any and all claims, damages, losses, risks, liabilities, and expenses (including reasonable attorneys' fees and costs) arising from or related to any breach of the foregoing representation and warranties.

PURCHASE EXTENSION

This contract shall be offered for purchases to be made by other counties and governmental units within the State of Illinois as authorized by the Government Joint Purchasing Act. All purchases and payments made under this authority shall be made directly by the governmental unit to the Vendor. The County of McHenry shall not be responsible in any way for such purchase orders or payments. All terms and conditions of this contract shall apply to all orders placed by another governmental unit.

ADDENDUM

Should the Vendor require any additional information about this Bid, please fax to Purchasing (815-334-4680) any questions by the deadline as outlined in the schedule of events. ANY AND ALL changes to these specifications are valid only if they are included by Written Addendum to All Bidders. NO interpretation of the meaning of the plans, specifications, or other contract documents will be made orally. If required, all addenda will be faxed to bidder if a Notice of Intent to Bid has been completed and faxed to the Purchasing Office. In addition, all addenda are posted on the County of McHenry's website. Failure of the bidder to receive any such addendum or interpretation shall not relieve the bidder from obligation under this Bid as submitted. All addenda so issued shall become part of the bid documents. Failure to request an interpretation constitutes a waiver to later claim that ambiguities or misunderstandings caused by a bidder to improperly submit a bid.

Response to these questions will be made by means of an addendum. Only the Director of Purchasing has the authority to issue an addendum.

Addenda are written instruments issued by the County prior to the date for receipt of proposals, which modify or interpret the Bid by addition, deletions, clarifications or corrections.

Prior to the receipt of bids, addenda will be faxed or delivered to all who are known to have received a Notice to Bid. Each vendor shall ascertain prior to submitting a bid that all addenda issued have been received and, by submission of a bid, such act shall be taken to mean that such vendor has received all addenda and that the vendor is familiar with the terms thereof and understands fully the contents of the addenda.

TAXES

The County of McHenry is exempt from paying Illinois Use Tax, Illinois Retailers Occupation Tax and Federal Excise Tax. The bidder's attention is directed to the McHenry County Purchasing Ordinance {S3-10, (9), (10), and (11)}.

INSURANCE

(1) GENERAL

The successful bidder shall maintain for the duration of the contract and any extensions thereof, at bidder's expense, insurance that includes "Occurrence" basis wording and is issued by a company or companies qualified to do business in the State of Illinois that are acceptable to the County, which generally requires that the company(ies) be assigned a Best's Rating of A or higher with a Best's financial size category of Class XIV or higher, in the following types and amounts:

(a) Commercial General Liability in a broad form, to include, but not limited to, coverage for the following where exposure exists: Bodily Injury and Property Damage, Premises/Operations, Independent contractors, Products/Completed Operations, Personal Injury and Contractual Liability; limits of liability not less than:

$1,000,000 per occurrence and $2,000,000 in the aggregate;

(b) Business Auto Liability to include, but not be limited to, coverage for the following where exposure exists: Owned Vehicles, Hired and Non-Owned Vehicles and Employee Non-Ownership; limits of liability not less than:

$1,000,000 per occurrence, combined single limit for:
Bodily Injury Liability and Property Damage Liability;

(c) Workers' Compensation Insurance to cover all employees and meet statutory limits in compliance with applicable state and federal laws. The coverage must also include Employer's Liability with minimum limits of $100,000 for each incident.

(2) EVIDENCE OF INSURANCE

The successful bidder agrees that with respect to the above required insurance that:

(a) The County of McHenry shall be provided with Certificates of Insurance evidencing the above required insurance, prior to commencement of the contract and thereafter with certificates evidencing renewals or replacements of said policies of insurance at least fifteen (15) days prior to the expiration or cancellation of any such policies;

(b) The contractual liability arising out of the contract shall be acknowledged on the Certificate of Insurance by the insurance company;

(c) The County of McHenry shall be provided with thirty (30) days prior notice, in writing, of Notice of Cancellation or material change and said notification requirement shall be stated on the Certificate of Insurance;

(d) Subcontractors, if any, comply with the same insurance requirements. In addition to being named as an additional insured on the Certificate of Insurance, each liability policy shall contain an endorsement naming the County of McHenry as an additional insured. A copy of the endorsement shall be provided to McHenry County along with the Certificate of Insurance; and

(e) have McHenry County and Wold Architects and Engineers named as an additional insured and the address for certificate holder must read exactly as:

County of McHenry, **a body politic**
2200 N. Seminary Avenue
Woodstock, IL 60098

(e) Insurance Notices and Certificates of Insurance shall be provided to:

McHenry County, Purchasing Department
2200 N. Seminary Avenue, Room 200

HOLD HARMLESS CLAUSE

The successful bidder will agree to indemnify, save harmless and defend the County of McHenry, its agents, servants, and employees, and each of them against and hold it and them harmless from any and all lawsuits, claims, demands, liabilities, losses and expenses, including court costs and attorney's fees, for or on account of any injury to any person, or any death at any time resulting from such injury, or any damage to property, which may arise or which may be alleged to have arisen out of or in connection with the work covered by this contract upon award. The foregoing indemnity shall apply except if such injury, death or damage is caused directly by the willful and wanton conduct of the County of McHenry, its agents, servants, or employees or any other person indemnified hereunder.

BID RESPONSE

It is highly recommended that the vendor completely read the bid prior to filling out to become acquainted with terms and conditions of the bid document and merchandise requirements. No relief will be allowed from the bid conditions unless you take written exception to that condition on your bid. **BIDS MUST BE SUBMITTED IN DUPLICATE FORM, (One Original, and One Copy). BIDS ARE DUE BACK BY 2:00 P.M. (CST) ON FEBRUARY 9, 2016.**

Bidders are urged to respond to this bid request in every case to insure being maintained on current bid lists. Explanations of the reasons for not bidding will assist in maintaining the bidder on the correct bid list(s).

SUBMITTAL

Submit one (1) bid, multiple bids will not be accepted.

GENERAL CONDITIONS

This bid shall be firm for at least 120 days after the latest time specified for submission for bids and thereafter until written notice is received from the bidder.

AWARD OF ORDER

The County will award a purchase order to the lowest responsive, responsible bidder meeting the County's requirements as listed in this document. The County will be the sole judge of acceptability of any products offered.

WORKMANSHIP

Items shall be manufactured according to the highest traditions of the industry and shall meet all commercial standards of quality. The County shall be the sole judge of acceptable products. Unacceptable products will be rejected and suitable price adjustments made.

MISCELLANEOUS

It is the bidder’s task to be familiar with the referenced items and to offer only products of equal or greater quality. Any questions on specifications should be directed to the Purchasing Department.

EXCEPTIONS

The bid speaks for itself. Bidders taking exception to any terms, conditions or specifications of this bid must clearly state in writing such exception(s) either on or with their bid. The County will be the sole judge of the acceptability of any exception noted, and is not bound to consider any bid submitted with exceptions.

ALTERNATES

Trade names are used solely for the purpose of setting minimum standards of quality and performance and are not to be construed as exclusionary. Bidders are encouraged to contact the Purchasing Department prior to the bid opening for the purpose of clarifying specifications.

FULL PRICING AND CONTINGENCIES

The County shall hold the successful bidder to bid pricing. Additional charges for contingencies discovered by the vendor at any time after the date of opening of this bid will not be considered for payment by the County.

RECOURSE FOR UNSATISFACTORY MATERIALS

Payment shall be contingent upon the County's inspection of and satisfaction with completed work. Any defective work or materials, non-conformance to bid specifications, damaged materials, or unsatisfactory installation shall be corrected to the County's satisfaction by the successful bidder at no additional charge.

TERMINATION

Failure to comply with the terms and conditions as herein stated shall be cause for cancellation of the contract. The County will give written notice of unsatisfactory performance and the contractor will be allowed thirty (30) days to take corrective action and accomplish satisfactory control. If at the end of the thirty days, the County deems the contractor's performance still unsatisfactory, the contract shall be canceled. The exercise of its right of cancellations shall not limit the County's right to seek any other remedies allowed by law.

The successful bidder will agree that the resulting contract is made subject to available budgetary appropriations and shall not create any obligation on behalf of the County in excess of such appropriations. In the event that no funds or insufficient funds are appropriated and budgeted, this Contract shall terminate without penalty or expense to the County thirty (30) days after written notification of termination from the County.

The successful bidder will agree that pursuant to requirements imposed under Illinois law, the County shall have 120 days after each election of county board members to terminate this Agreement, without cause and without penalty.

CHOICE OF LAW AND VENUE

The bidder agrees that this bid has been executed and delivered in Illinois and that their relationship and any and all disputes, controversies or claims arising under this bid or any resulting contract shall be governed by the laws of the State of Illinois, without regard to conflicts of laws principles. The bidder further agrees that the exclusive venue for all such disputes shall be the Circuit Court of the 22nd Judicial Circuit of McHenry County, Illinois, and the bidder hereby consent to the personal jurisdiction thereof.

COMPLIANCE WITH LAWS

The bidder hereto covenants and agrees to comply with all applicable federal, state, and local laws, codes, ordinances, rules and regulations. Failure to comply with the terms of this provision shall constitute a breach of contract and permit the County to terminate this (Request for Sealed Proposal/Bid) in accordance with the termination provisions stated herein.

REJECTION OF BIDS, WAIVER OF IRREGULARITIES

McHenry County reserves the right to reject any or all bids, to waive irregularities, and to accept that bid which is considered to be in the best interest of the County. Any such decision shall be considered final.

PROTEST PROCEDURES

Any Bidder who believes contractual terms or specifications are unnecessarily restrictive or limit competition may submit a protest, in writing, to the Director of Purchasing. To be considered, the protest must be received by McHenry County five (5) days prior to the stated bid opening. Any adversely affected or aggrieved Bidder shall have ten (10) days from the date of the bid opening to file a written protest regarding the intent to award the bid. Protests submitted after that date will not be accepted. Protests must specify the grounds upon which the protest is based (refer to appropriate statute, rule, code, or ordinance which defines the protest process).

BIDDER'S ATTACHMENT TO THE BID

Any attachment to this bid, as required by the bid conditions, or made at the bidder's option, must reference on their face the bid title, opening date, and time.

DELIVERY

Delivery will be considered in making the award and the bidders shall state, in the spaces provided, expected delivery after receipt of Purchase Order. Failure to meet said delivery promises without prior consent of the Director of Purchasing will be considered a breach of faith.

PERFORMANCE AND PAYMENT BOND:

A Performance and Payment Bond will be required by the accepted bidder as described below if the bid amount exceeds $50,000.00.

- Payment and Performance Bond shall be in the amount of 110% of the bid value. Any additional scope value during the project must be covered by the bonds.
- Obligee is County of McHenry, project owner for the Payment and Performance Bonds.
- Payment and Performance Bonds must be signed by an official of the bonding company and accompanied by the bonding agent’s written Power of Attorney.
- Provide three (3) copies of each of the bonds and the Power of Attorney in order that one copy of each may be attached to each copy of the contract agreement. Bonds must be submitted to McHenry County within two (2) weeks of the notice of award, if start of construction is sooner, then bonds must be submitted a minimum of two (2) days prior.
- Date of Agreement and Payment and Performance Bonds shall be the same.
- Such Payment and Performance Bonds shall be issued by a surety listed on the Department of Treasury’s listing as approved sureties (Department Circular 570) with an A.M. Best Rating of “A” or better which is licensed in the state of the location of the project and must be acceptable to the design-builder.

BID BOND:

Each separate bid shall be accompanied by a bid bond, certified check, or a cashier's check, drawn on a bank authorized to do business in Illinois, in a dollar amount of not less than five percent (5%) of the sum of the computed total amount of the bid or five hundred dollars ($500), whichever is greater.

FREIGHT

Freight is all inclusive unless otherwise stated.

FUEL SURCHARGE

The County of McHenry does NOT accept any fuel surcharges.

***** NOTE THIS BID REQUIRES PREVAILING WAGES. PLEASE VISIT THE IDOL WEBSITE FOR INSTRUCTIONS. IT IS THE RESPONSIBILITY OF THE AWARDED VENDOR TO SUBMIT CERTIFIED PAYROLLS TO THE COUNTY *****

ATTACHMENT A

COUNTY of McHENRY
McHENRY COUNTY GOVERNMENT CENTER
2200 NORTH SEMINARY AVENUE
WOODSTOCK, IL 60098-2637
815/334-4924
Fax 815/334-4629

_____, hereby releases, hold harmless, and waives all claims of action.

(Name of Company)

against the County of McHenry (hereinafter County), its officers, agents, and employees, from any loss, liability claim, injury or damage, arising out of, or in connection with onsite inspection of County-owned buildings for the purpose of submitting a bid for Government Center Roof Replacement.

Knowing, understanding, and fully appreciating all possible risks, _____

(Name of Company)

Hereby expressly, voluntarily, and willingly assume all risks and dangers associated with inspection of onsite roofing systems on County-owned buildings for the purpose of submitting a bid for future inspection services.

_____ has reviewed this waiver and release and understands the terms used in it

(Name of Company)

and their legal significance. This waiver and release is freely and voluntarily given with the understanding that right to legal recourse against the County, its officers, agents, and employees in knowingly given up in return for participation of inspection of onsite roofing systems on County-owned buildings for the purpose of submitting a bid for future inspection services.

I, _____ am authorized to make the above representation on behalf of

(Company Representative)

_____.

(Name of Company)

Dated this _____ day of _____, 2016.

_____

(Company Representative)

SPECIFICATIONS

WOLD
architects
engineers
www.woldae.com

110 North Brockway St
Two Hundred Twenty
Palatine, IL 60067

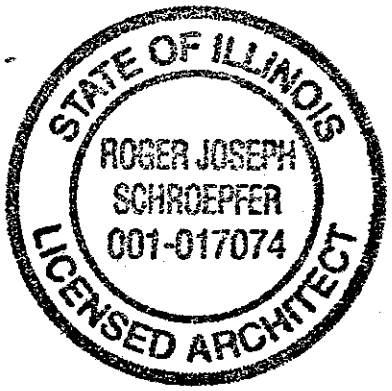
tel 847 241 6100
fax 847 241 6105
mail@woldae.com

Project Manual

Government Center Roof Replacement

MCHENRY COUNTY

Woodstock, Illinois
January 4, 2016



Book 1 of 1

Minnesota
Illinois
Michigan
Colorado

Set No. _____
Commission No: 153021

SECTION 00 01 01

PROJECT IDENTIFICATION PAGE

P R O J E C T M A N U A L

PROJECT IDENTIFICATION

BIDDING REQUIREMENTS

CONDITIONS OF THE CONTRACT

GENERAL REQUIREMENTS

AND SPECIFICATIONS FOR:

GOVERNMENT CENTER ROOF REPLACEMENT

MCHENRY COUNTY GOVERNMENT CENTER
2200 NORTH SEMINARY AVENUE
WOODSTOCK, ILLINOIS 60098

MCHENRY COUNTY
WOODSTOCK, ILLINOIS 60098

SECTION 00 01 03

TITLE PAGE

PROJECT TITLE AND LOCATION:	Government Center Roof Replacement 2200 North Seminary Avenue Woodstock, Illinois 60098
OWNER:	McHenry County
ARCHITECTS:	Wold Architects and Engineers 110 North Brockway, Suite 220 Palatine, Illinois 60067 Tel. (847) 241-6100
DATE:	January 4, 2016

SECTION 00 01 05

PROFESSIONAL CERTIFICATIONS

GOVERNMENT CENTER ROOF REPLACEMENT

MCHENRY COUNTY

Wold Architects and Engineers

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision, and that I am a duly Licensed Architect under the laws of the State of Illinois.

Signature	January 4, 2016 Date	001-017074 Registration

SECTION 00 01 10

PROJECT MANUAL TABLE OF CONTENTS

SECTION 00 72 00

GENERAL CONDITIONS

The "General Conditions of the Contract for Construction", AIA Document A201, Fifteenth Edition, 2007 is attached after this section.

END OF SECTION 00 72 00

AIA® Document A201™ – 2007

General Conditions of the Contract for Construction

for the following PROJECT:
(Name and location or address)
Government Center Roof Replacement
2200 North Seminary Avenue
Woodstock, Illinois 60098

THE OWNER:
(Name and address)
McHenry County
200 North Seminary Avenue
Woodstock, Illinois 60098

THE ARCHITECT:
(Name and address)
Wold Architects and Engineers
110 North Brockway Street
Suite 220
Palatine, Illinois 60067

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

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

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14 TERMINATION OR SUSPENSION OF THE CONTRACT

15 CLAIMS AND DISPUTES

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 BASIC DEFINITIONS

§ 1.1.1 THE CONTRACT DOCUMENTS

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

§ 1.1.2 THE CONTRACT

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

§ 1.1.3 THE WORK

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

§ 1.1.4 THE PROJECT

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

§ 1.1.5 THE DRAWINGS

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

§ 1.1.6 THE SPECIFICATIONS

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

§ 1.1.7 INSTRUMENTS OF SERVICE

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

§ 1.1.8 ARCHITECT/INITIAL DECISION MAKER

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

§ 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

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

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

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings. In the event of conflicts or discrepancies among the Contract Documents, interpretations will be based on the following priorities:

1. The Agreement
2. Change Orders and Supplemental Instructions.
3. Addenda, with those of later date having precedence over those of earlier date.
4. The Supplementary Conditions.
5. The General Conditions of the Contract for Construction.
6. Drawings and Specifications.

In the case of an inconsistency between Drawings and Specifications or within either Document not clarified by addendum, the better quality or greater quantity of Work shall be provided in accordance with the Architect's interpretations.

§ 1.3 CAPITALIZATION

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

§ 1.4 INTERPRETATION

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

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

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

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

§ 1.6 TRANSMISSION OF DATA IN DIGITAL FORM

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

ARTICLE 2 OWNER

§ 2.1 GENERAL

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

§ 2.1.2 The Owner shall furnish to the Contractor within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of or enforce mechanic's lien rights. Such

information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

§ 2.2.1 Prior to commencement of the Work, the Contractor may request in writing that the Owner provide reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. Thereafter, the Contractor may only request such evidence if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum; or (3) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or the portion of the Work affected by a material change. After the Owner furnishes the evidence, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

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

§ 2.2.3 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work with the exception of utilities to be field verified by the Contractor. The Contractor shall be responsible to have public and private utilities located within the areas being disturbed to implement the work on site.

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

§ 2.2.5 Unless otherwise provided in the Contract Documents, the Contractor will be furnished free of charge, such copies of the Contract Documents as are reasonably necessary for execution of the Work. Following the initial issue of Drawings and Project Manuals, additional copies requested by the Contractor will be furnished at the cost of reproduction, postage and handling.

§ 2.3 OWNER'S RIGHT TO STOP THE WORK

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

§ 2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

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

§ 2.4.2 After substantial completion, if the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails to correct such deficiencies within 3 days of receipt of written notice from the Architect or Owner, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the

reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

ARTICLE 3 CONTRACTOR

§ 3.1 GENERAL

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

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

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

§ 3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

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

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

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

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

§ 3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety

thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Architect and shall not proceed with that portion of the Work without further written instructions from the Architect. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures.

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

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

§ 3.4 LABOR AND MATERIALS

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work authorized by the Architect in accordance with Sections 3.12.8 or 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive. After the Contract has been executed, the Owner and Architect will consider a formal request for the substitution of products in place of those specified only under the conditions set forth in Section 01 25 00 – Substitutions and Product Options.

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

§ 3.5 WARRANTY

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

§ 3.6 TAXES

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

§ 3.7 PERMITS, FEES, NOTICES, AND COMPLIANCE WITH LAWS

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

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

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

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

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 ALLOWANCES

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

§ 3.8.2 Unless otherwise provided in the Contract Documents,

.1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;

.2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and

.3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

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

§ 3.9 SUPERINTENDENT

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. Important communications shall be confirmed in writing. Other communications shall be similarly confirmed on written request in each case.

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

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

§ 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work as required by Section 01 32 00 Construction Scheduling. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

§ 3.10.2 The Contractor shall prepare a submittal schedule as required by Section 01 32 00 Construction Scheduling, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Architect's approval. The Architect's approval shall not unreasonably be delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the Architect's time required for review of submittals.

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

§ 3.11 DOCUMENTS AND SAMPLES AT THE SITE

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

§ 3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

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

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

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

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

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

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials,

field measurements and field construction criteria related thereto, or will do so and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents. Submittals which are not marked as reviewed for compliance with the Contract Documents and approved by the Contractor may be returned by the Architect without action.

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

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

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

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

§ 3.13 USE OF SITE

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities and the Contract Documents and shall not unreasonably encumber the site with materials or equipment. The Contractor shall accept the site as it exists. The care, custody and control of the project site shall be vested in the Contractor, subject to the rights of the Owner.

§ 3.14 CUTTING AND PATCHING

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

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

§ 3.15 CLEANING UP

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

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

§ 3.16 ACCESS TO WORK

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

§ 3.17 ROYALTIES, PATENTS AND COPYRIGHTS

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

§ 3.18 INDEMNIFICATION

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

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

§ 3.19 PROJECT MANAGER

§ 3.19.1 The Contractor shall employ a competent project manager who shall be present and run all construction progress meetings. The project manager shall be responsible for providing accurate and up-to-date construction and submittal schedules at each construction progress meeting.

§ 3.19.2 When requested by the Owner or Architect, the project manager shall:

a. Assist in resolving scope conflicts between sub-contractors in a timely fashion to ensure project progress matches published construction schedule.
b. Have sub-contractors attend construction progress meetings.
c. Manage the resolution of issues that arise during the punchlist/closeout/warranty period when the job superintendent is no longer on site.

§ 3.19.3 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the name and qualifications of a proposed project manager. The Architect may reply within 14 days to the Contractor is writing stating (1) whether the Owner or the Architect has reasonable objection to the

proposed project manager or (2) that the Architect required additional time to review. Failure of the Architect to reply within the 14 days period shall constitute notice of no reasonable objection.

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

ARTICLE 4 ARCHITECT

§ 4.1 GENERAL

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

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

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

§ 4.2 ADMINISTRATION OF THE CONTRACT

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the end of the warranty period which ends one year from the date the Architect issues the final Certificate For Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

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

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

§ 4.2.4 COMMUNICATIONS FACILITATING CONTRACT ADMINISTRATION

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

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

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.5.2 and 13.5.3, whether or not such Work is fabricated, installed or completed.

However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and take one of the following actions Reviewed; Rejected; Review Comments; Revise and Resubmit upon, the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, the Architect will determine review timelines. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, coordinating the work, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5 and 3.12. The Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect, of any construction means, methods, techniques, sequences or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

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

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

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

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

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

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

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 DEFINITIONS

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

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

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

§ 5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Architect may reply within 20 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to any such proposed person or entity or (2) that the Architect requires additional time for review. Failure of the Owner or Architect to reply within the 20 day period shall constitute notice of no reasonable objection.

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

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

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

§ 5.3 SUBCONTRACTUAL RELATIONS

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

§ 5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

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

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

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

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

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

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

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

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

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

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

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

§ 6.2 MUTUAL RESPONSIBILITY

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

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

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

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

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

§ 6.3 OWNER'S RIGHT TO CLEAN UP

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

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 GENERAL

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

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

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

§ 7.2 CHANGE ORDERS

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

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

§ 7.3 CONSTRUCTION CHANGE DIRECTIVES

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

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

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

.1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
.2 Unit prices stated in the Contract Documents or subsequently agreed upon;
.3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
.4 As provided in Section 7.3.7.

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

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

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

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

.1 Costs of labor, and overhead as provided in Section 7.5.

.2 Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;

.3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;

.4 Costs of premiums for all, permit fees, and sales, use or similar taxes related to the Work; and

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

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

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

§ 7.4 MINOR CHANGES IN THE WORK

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

§ 7.5 CHANGES IN CONTRACT SUM

§ 7.5.1 For any adjustments to the Contract Sum based on other than the unit prices method, the Contractor agrees to charge and accept payment for his overhead, bond, insurance, office project management, estimating time, field supervision, as-built modification and profit at the following percentages of the cost attributable to the change in the Work:

1. **Ten percent (10%) for Work (labor, labor insurance and materials by the Contractor not involving subcontractors;**
2. **Five percent (5%) for Work (labor, labor insurance and materials) by subcontractors;**
3. **When both additions and credits are involved in any one proposal request, the allowance for overhead, bond, insurance, office project management, estimating time, field supervision, as-built modification and profit shall be figured on the basis of the net increase, if any;**
4. **For additional Work ordered as described above which will be executed by Subcontractors of the Contractor, it is agreed Subcontractors will be permitted to charge ten percent (10%) for work not involving sub-subcontractors and five percent (5%) for Work by sub subcontractors. to the net subcontract amount the Contractor may add five percent (5%).**

§ 7.5.2 A breakdown of material and an hourly breakdown of labor must be submitted with each request for additional compensation.

ARTICLE 8 TIME

§ 8.1 DEFINITIONS

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

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

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

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

§ 8.2 PROGRESS AND COMPLETION

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

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

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

§ 8.3 DELAYS AND EXTENSIONS OF TIME

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

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

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

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 CONTRACT SUM

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

§ 9.2 SCHEDULE OF VALUES

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

§ 9.2.2 Projects with multiple sites or multiple phased projects, provide separate schedule of values for each building, phase or site.

§ 9.2.3 The schedule of values shall include the following line items with values calculated as follows:

Operations and maintenance manuals	**.125% of contract value**
As-built drawings	**.0625% of contract value**
Training	**.125% of contract value**
Attic stock materials	**.0625% of contract value**
Mechanical/Electrical Coordination Drawings	**.0625% of contract value**

§ 9.2.4 The schedule of values shall be broken down with separate line items for labor and materials corresponding to each specification section.

§ 9.3 APPLICATIONS FOR PAYMENT

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit four copies to the Architect an itemized Application for Payment (AIA Document G702 and G703) prepared in accordance with the schedule of values, if required under Section 9.2., for completed portions of the Work. Such application shall be notarized, , and supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and shall reflect retainage if provided for in the Contract Documents.

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

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

§ 9.3.1.3 Contractor shall request payment of ninety percent (90%) of the portion of the Contract Sum properly allocable to labor, materials and equipment incorporated in the Work and ninety percent (90%) of the portion of the Contract Sum properly allocable to materials and equipment suitably stored at the site up to the first day of that month, less the aggregate of previous payment in each case.

§ 9.3.1.4 A sworn 'Contractor's Affidavit' shall be submitted with each payment request in sufficient form for the Owner to determine Contractor's right to payment and compliance with the Illinois Mechanic's Lien law. Each payment request shall include properly executed waivers of lien in conformity with information set forth on a properly completed Contractor's Affidavit. In the event that the Owner is satisfied with Contractor's payment procedures, the Owner may accept partial waivers of lien of subcontractors and suppliers who were included in the immediate proceeding payment. The Contractor shall submit waivers on a current basis, but the Owner may allow Subcontractors and suppliers to be not more than one payment late with their partial waivers.

§ 9.3.1.5 Provide that there are no outstanding liens or claims and that in the opinion of the Owner the previous work has been done properly and is on schedule for completion of construction and the unpaid balance in each case is sufficient to complete the unfinished work, upon fifty percent (50%) completion of the Work, the Owner shall have the option, in its sole discretion, to make subsequent payments in each case for ninety-five percent (95%) of the value of the completed Work, the retainage thus being reduced to five percent (5%).

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

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or

encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

§ 9.4 CERTIFICATES FOR PAYMENT

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

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

§ 9.5 DECISIONS TO WITHHOLD CERTIFICATION

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

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

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

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

§ 9.6 PROGRESS PAYMENTS

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

§ 9.6.2 The Contractor shall pay each Subcontractor no later than ten days after receipt of payment from the Owner the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. **Per 50 ILCS 505/9, the Contractor must pay subcontractors within fifteen (15) days of receipt of payment from the local government entity for undisputed work. If the Contractor, without reasonable cause, fails to make payment to subcontractors within this period of time, in addition to the payment due the Contractor shall pay interest in the amount of 2% per month, calculated from the expiration of the fifteen (15) day period until fully paid.** The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

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

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

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

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

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

§ 9.7 FAILURE OF PAYMENT

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

§ 9.8 SUBSTANTIAL COMPLETION

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use. **If the Work is to be followed by construction by the Owner or by the separate contractors, Substantial Completion shall be defined as the readiness of the Work for the commencement of such construction.**

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

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not

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

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time which the Contractor shall complete all items on the list accompanying the Certificate **to sixty (60) calendar days. The Contractor will submit a punchlist completion schedule within ten (10) days of receipt of Certificate of Substantial Completion. Any cost incurred by the Architect or Architect's consultants (after 60 calendar days of substantial completion) to close out the project will be deducted from the Contractor's contract by change order**. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion. Warranties on punchlist items will commence on the date of final payment.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents. **The payment shall be sufficient to increase the total payments to one hundred percent (100%) of the Contract Sum, less such amounts as the Owner and Architect shall determine for incomplete work and unsettled claims. The Owner has no obligation to make incremental retainage reductions after the initial determination for the incomplete work and unsettled claims.**

§ 9.9 PARTIAL OCCUPANCY OR USE

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

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

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 FINAL COMPLETION AND FINAL PAYMENT

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

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

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

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

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

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

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 SAFETY PRECAUTIONS AND PROGRAMS

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

§ 10.2 SAFETY OF PERSONS AND PROPERTY

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

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

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

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

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

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

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

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

§ 10.2.8 INJURY OR DAMAGE TO PERSON OR PROPERTY

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

§ 10.3 HAZARDOUS MATERIALS

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

§ 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up.

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

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

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

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

§ 10.4 EMERGENCIES

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

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 CONTRACTOR'S LIABILITY INSURANCE

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

.1 Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed;

.2 Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;

.3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;

.4 Claims for damages insured by usual personal injury liability coverage; **which are sustained (1) by a person as a result of an offense directly or indirectly related to employment of such person by the Contractor, or (2) by another person;**

.5 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;

.6 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;

.7 Claims for bodily injury or property damage arising out of completed operations; and

.8 Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

.9 **Liability insurance shall include all major divisions of coverage and be on a comprehensive basis including:**

a. Premises Operations (including X, C, and U coverages as applicable).

b. Independent Contractors' Protective.

c. Products and Completed Operations.

d. Personal Injury Liability with Employment Exclusion deleted, or Employment Practices Liability.

e. Contractual – including specified provision for Contractor's obligations under Paragraph 3.18.

f. Owned, non-owned and hired motor vehicles.

g. Broad Form Property Damage including Completion Operations.

h. Umbrella Excess Liability.

.10 **A General Liability or Umbrella Liability Policy on a claims-made basis will not be accepted.**

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

a. Workers' Compensation:
1) Illinois Statutory
2) Employer's Liability: **$100,000 per accident**
$500,000 disease, policy limit
$100,000 disease, each employee

b. Comprehensive or Commercial General Liability (including Premises-Operations; Independent Contractor's Protective; Products and Completed Operations; Broad Form Property Damage):
1) Bodily Injury: **$1,000,000 each occurrence**
$2,000,000 aggregate
2) Property Damage: **$1,000,000 each occurrence**
$2,000,000 aggregate
3) Products and Completed Operations to be maintained for 2 years after final payment:
$2,000,000 aggregate
4) Property Damage Liability Insurance shall provide X, C and U coverage.
5) Broad Form Property Damage Coverage shall include Completed Operations.

c. Contractual Liability
1) Bodily Injury **$1,000,000 each occurrence**
$2,000,000 aggregate
2) Property Damage: **$1,000,000 each occurrence**
$2,000,000 aggregate

d. Personal Injury, with Employment Exclusion deleted:
$2,000,000 aggregate

Employment Practices Liability **$2,000,000 aggregate**

e. Business Auto Liability (including owned, non-owned and hired vehicles):
1) Bodily Injury: **$1,000,000 each person**
$1,000,000 each occurrence
2) Property Damage: **$1,000,000 each occurrence**

f. If the General Liability coverages are provided by a Commercial Liability policy, the:
1) General Aggregate shall be not less than $2,000,000 and it shall apply, in total, to this Project only.
2) Fire Damage Limit shall be not less than $100,000 on any one fire.
3) Medical Expense Limit shall be not less than $5,000 on any one person.

g. Umbrella Excess Liability: **$3,000,000 over primary insurance.**
$10,000 retention for self-insured hazards, each occurrence.

§ 11.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall

be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness. **If this insurance is written on the Comprehensive General Liability policy form, the Certificates shall be AIA Document G705, Certificate of Insurance. If this insurance is written on a Commercial General Liability policy form, ACORD form 25S will be acceptable. In addition to the required certificates, copies of policy endorsements indicating the Owner as Additional Insured shall be provided to the Owner.**

§ 11.1.4 The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Owner, the Architect and the Architect's Consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations. The policy limits shall be not less than $1,500,000.

§ 11.1.5 The insurance required by subparagraph 11.1.1 shall include an Indemnification clause as respect to General Liability and Worker's Compensation coverages.

§ 11.2 OWNER'S LIABILITY INSURANCE

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

§ 11.3 PROPERTY INSURANCE

§ 11.3.1 The Contractor shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance (Special Form) in the amount of the initial Contract Sum as well as subsequent modifications thereto for the entire work at the site on a replacement cost basis. The Contractor shall be responsible for payment of all deductibles resulting from losses under the coverage provided herein. Such insurance will cover damage to work completed, materials installed and awaiting installation, and all materials in transit for the Project. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until all phases are substantially complete or until no person or entity other than the Owner has an insurable interest in the property required by this Paragraph 11.4 to be covered, whichever is earlier. This insurance shall include interests of the Owner, Architects, Engineers, Architect's consultants, Contractor, Subcontractors and Sub-subcontractors in the Work. The form of policy for this coverage shall be completed Value. If the Owner is damaged by the failure of the Contractor to maintain such insurance, then the contractor shall bear all reasonable costs properly attributable thereto.

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

(Paragraphs deleted)

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

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

§ 11.3.2 BOILER AND MACHINERY INSURANCE

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

§ 11.3.3 LOSS OF USE INSURANCE

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

(Paragraph deleted)

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

§ 11.3.6 Before an exposure to loss may occur, the Contractor shall file with the Owner through the Architect, two certified copies of the policy or policies providing this Property Insurance Coverage, each containing those endorsements specifically related to the Project.

§ 11.3.7 WAIVERS OF SUBROGATION

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

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

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

§ 11.3.10 The Contractor as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Contractor's exercise of this power; if

such objection is made, arbitrators shall be chosen as provided in Paragraph 15.4. The Contractor as fiduciary shall in that case make settlement with insurers or, in accordance with the directions of the arbitrators.

§ 11.3.11 In the event of partial occupancy or use in accordance with Paragraph 9.9, the Contractor shall notify the insurance company and obtain a "Use and Occupancy Waiver" such that the policy will not be invalidated by occupancy.

§ 11.3.12 All insurance policies shall contain a provision stating that coverages afforded under any of the aforesaid insurance policies shall not be cancelled or materially changed without at least thirty (30) days prior written notice to the Owner. On all Certificate forms, the words "endeavor to" and the remaining words beginning with "but failure to" shall be stricken from the cancellation notice provision.

§ 11.3.13 All insurance policies shall be underwritten with responsible insurance carriers with Best's Rating of not less than A and X and otherwise satisfactory to the Owner and licensed to provide insurance in the state in which the project is located. Non-admitted carriers may be considered on an individual basis.

§ 11.4 PERFORMANCE BOND AND PAYMENT BOND

§ 11.4.1 The Contractor shall furnish bond or bonds as described below, covering the faithful performance of the Contract and the payments of all obligations arising thereunder. The Contract will not be signed until the Owner has received the proper bond specified under this Article, issued by a bonding company licensed to do business in the State where the construction will take place, and on the current list of Company's Holding Certificates of Authority as acceptable Sureties on Federal Bonds and as acceptable reinsuring companies as published in Circular 570 (Amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department. All bonds signed by an agent must be accompanied by a certified copy of the authority to act.

§ 11.4.1.1 Furnish both AIA A312 Performance Bond and AIA A312 Payment Bond in the amount of 110% of the Contract Price.

§ 11.4.1.2 The Performance Bond and Payment Bond shall be submitted in the exact form specified in Section 11.4.1.1, above, and with the certificates specified in Section 11.4.1.3, below, and no other modifications or addendum whatsoever shall be allowed.

§ 11.4.1.3 Duly executed, notarized and updated Acknowledgements of both the Principal and Surety and the Surety's Power of Attorney must be attached to each of the two required bonds.

§ 11.4.1.4 Bond amounts shall not exceed the single bond limit for the Contractor's bonding company as set forth in the Federal Register current as of the bid date.

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

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 UNCOVERING OF WORK

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

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

§ 12.2 CORRECTION OF WORK

§ 12.2.1 BEFORE OR AFTER SUBSTANTIAL COMPLETION

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

§ 12.2.2 AFTER SUBSTANTIAL COMPLETION

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner or Architect to do so unless the Owner or Architect has previously given the Contractor a written acceptance of such condition. The Owner or Architect shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner or Architect fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.4.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions incomplete or defective Work noted on the Certificate of Substantial Completion shall commence at final payment.

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

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

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

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

§ 12.3 ACCEPTANCE OF NONCONFORMING WORK

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

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 GOVERNING LAW

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

§ 13.2 SUCCESSORS AND ASSIGNS

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

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

§ 13.3 WRITTEN NOTICE

Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity, or to an officer of the corporation for which it was intended; or if delivered at, or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

§ 13.4 RIGHTS AND REMEDIES

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

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

§ 13.5 TESTS AND INSPECTIONS

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

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

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

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

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

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

§ 13.6 INTEREST

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

§ 13.7 TIME LIMITS ON CLAIMS

Accrual dates for Statutes of Limitations are controlled by Illinois Law.

§ 13.8 EQUAL OPPORTUNITY

§ 13.8.1 Human Rights Act: To the extent required by law, Contractor shall comply with the terms and procedures of the Illinois Human Rights Act. 775 ILCS 10/0.01 et seq. To the extent required by law Contractor agrees as follows:

§ 13.8.1.1 The Contractor and the Contractor's Subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex or national origin. The Contractor shall take affirmative action to insure that applicants are employed, and that employees are treated during employment without regard to their race, religion, color, sex or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the policies of non-discrimination.

§ 13.8.1.2 The Contractor and the Contractor's Subcontractors shall, in all solicitations or advertisements for employees placed by them or on their behalf, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex or national origin.

§ 13.9 DRUG FREE WORKPLACE

§ 13.9.1 The Contractor by submitting its bid certifies that it will provide a drug free workplace and that it is in compliance with the requirements of the Drug Free Workplace Act. 30 ILCS 580.1 et seq.

§ 13.10 SEXUAL HARRASSMENT POLICY

§ 13.10.1 The Contractor by submitting its bid certifies that it has a written sexual harassment policy which includes (I) the illegality of sexual harassment; (ii) a definition of sexual harassment (iii) a description of sexual harassment, utilizing examples; (iv) an internal complaint process including penalties; (v) the legal recourse, investigate and complaint process through the Illinois Department of Human Rights; (vi) Directions on how to contact the Department and Commission; and (vii) Protection against retaliation for exercising rights under the policy in accordance with 775 ILCS 5/2-105(A) (4).

§ 13.11 PREVAILING WAGE ACT

§ 13.11.1 The Contractor shall pay, if applicable, no less than the prevailing rate of wages as established, to all laborers, workers and mechanics in the performance of the Work under this Contract in accordance with "An Act regulating wages of laborers, mechanics and other workmen employed under contracts for Public Works." 820 ILCS 130/1 et seq. Section 00 73 43 Prevailing Wages contain the scale of prevailing wages to be paid shall be posted by the Contractor in a prominent and easily accessible place a site of work.

§ 13.11.2 Any increases in costs to the Contractor due to changes in the prevailing rate of wages or labor law during the term of any contract shall be at the expense of the Contractor and not all the expense of the Owner.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 TERMINATION BY THE CONTRACTOR

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

.1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;

.2 An act of government, such as a declaration of national emergency that requires all Work to be stopped;

.3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or

.4 The Owner has failed to furnish to the Contractor promptly, upon the Contractor's request, reasonable evidence as required by Section 2.2.1.

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

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

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

§ 14.2 TERMINATION BY THE OWNER FOR CAUSE

§ 14.2.1 The Owner may terminate the Contract if the Contractor

.1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;

.2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;

.3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or

.4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

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

.1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

.2 Accept assignment of subcontracts pursuant to Section 5.4; and

.3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

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

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

§ 14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

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

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

.1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or

.2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

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

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

.1 cease operations as directed by the Owner in the notice;

.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

.3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

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

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 CLAIMS

§ 15.1.1 DEFINITION

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

§ 15.1.2 NOTICE OF CLAIMS

Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Architect/Initial Decision Maker . Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3 CONTINUING CONTRACT PERFORMANCE

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

§ 15.1.4 CLAIMS FOR ADDITIONAL COST

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

§ 15.1.5 CLAIMS FOR ADDITIONAL TIME

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

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

§ 15.1.6 CLAIMS FOR CONSEQUENTIAL DAMAGES

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

.1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

.2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

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

§ 15.2 INITIAL DECISION

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

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

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

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

§ 15.2.5 The Architect/Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Architect/Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties , of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to arbitration.

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

§ 15.2.6.1 When a written decision of the Architect/Initial Decision Maker states that (1) the decision is final but subject to arbitration**, as provided for herein,** and (2) a demand for arbitration of a Claim covered by such decision must be made within 30 days after the date on which the party making the demand receives the final written decision, then failure to demand arbitration within said 30 days' period shall result in the Architect's decision becoming final and binding upon the Owner and Contractor. If the Architect/Initial Decision Maker renders a decision after arbitration

proceedings have been initiated, such decision may be entered as evidence, but shall not supersede arbitration proceedings unless the decision is acceptable to all parties concerned.

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

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

(Paragraphs deleted)

§ 15.4 ARBITRATION

NOTE: All references to "Arbitration" in Section 15.4 shall be considered permissive and not mandatory. The Owner shall, in its sole discretion, have the right and option to enforce any claim it may have against the Contractor, or against any of the Subcontractors, Sub-subcontractors, Suppliers or Vendors of Contractor, through litigation. The Owner shall, in its sole discretion, also have the right and option to refuse to arbitrate any claim brought against Owner by the Contractor, either on Contractor's own behalf, or on behalf of any of the Subcontractors, Sub-subcontractors, Suppliers or Vendors of Contractor, and demand that such claim be pursued through litigation. In the event the Owner exercises its right and option to refuse to arbitrate a claim brought against the Owner, written notice of such refusal shall be given by Owner to the party making the claim and to any tribunal administering the claim at any time up to and including the date when Owner is required by any applicable statute, rule or order to respond to such claim.

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim shall be subject to arbitration unless the Owner decides to pursue the claim through litigation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

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

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

§ 15.4.4 CONSOLIDATION OR JOINDER

§ 15.4.4.1 Limitation on Consolidation or Joinder. No arbitration arising out of or relating to the Contract shall include, by consolidation or joinder or in any other manner, the Architect, the Architect's employees or consultants, except by written consent containing specific reference to the Agreement and signed by the Architect, Owner, Contractor and any other person or entity sought to be joined. No arbitration shall include, by consolidation or joinder or in any other manner, parties other than the Owner, Contractor, a separate contractor as described in Article 6 and other persons substantially involved in a common question of fact or law whose presence is required if complete relief is to be accorded in arbitration. No person or entity other than the Owner, Contractor or a separate contractor as described in Article 6 shall be included as an original third party or additional third party to an arbitration whose interest or responsibility is insubstantial. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of a Claim not described therein or with a person or entity not named or described therein. The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

(Paragraphs deleted)

SECTION 01 11 00

SUMMARY OF THE WORK

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. This Section includes the following:

1. Work covered by the Contract Documents.
2. Work phases.
3. Use of premises.
4. Noise requirements.
5. Owner's occupancy requirements.
6. Punchlist Completion.
7. Work restrictions.
8. Specification formats and conventions.

1.03 PROJECT IDENTIFICATION

A. Project Name: Government Center Roof Replacement
2200 North Seminary Avenue
Woodstock, Illinois 60098

B. Owner: McHenry County
2200 North Seminary Avenue
Woodstock, Illinois 60098

1. Owner's Project Coordinator: Dave Hasse
2200 North Seminary Avenue
Woodstock, Illinois 60098

C. Architect: Wold Architects and Engineers
110 North Brockway Street, Suite 220
Palatine, Illinois, 60067

1.04 SUMMARY OF THE WORK

Briefly and without force and effect upon the Contract Documents, the Work of this single prime Contract can be summarized as follows:

A. Work under this Contract includes:

1. Building Enclosure

a. Exterior wall system repairs of concrete block and face brick, cavity wall insulation, flexible flashing, and tuckpointing.

b. Tear off and removal of existing ballasted EPDM membrane and replacement of damaged roof insulation. Reinstallation of new insulation and ballasted EPDM membrane.

c. By Alternate, complete tear-off and removal of existing ballasted EPDM roofing system down to structural deck.

d. Roofing systems of fully adhered single ply EPDM and TPO at locations noted on Drawings, with pre-finished metal coping, flashing, and counterflashing.

2. Keep Architect fully informed about progress of the work, performance of the work and potential problems.

1.05 WORK PHASES

A. Start work immediately upon contract award by the County.

1.06 USE OF PREMISES

A. General: Contractor shall have full use of premises for construction operations, including use of Project site, during construction period. Contractor's use of premises is limited only by Owner's right to perform work or to retain other contractors on portions of Project.

1. Contractor is to visit site and be familiar with existing conditions. Contractor will be required to accept existing conditions on site prior to mobilizing.

B. Use of Site: Limit use of premises to work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Allow for Owner occupancy of Project site and use by the public.

2. Driveways and Entrances: Keep driveways, loading areas, 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.

a. Schedule deliveries to minimize use of driveways and entrances.
b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

3. Public Streets: Maintain clear of automobile parking, equipment or material storage unless arrangements have been made with the appropriate jurisdiction.

4. Lock automotive type vehicles, such as passenger cars and trucks and other mechanized or motorized construction equipment, when parked and unattended, so as to prevent unauthorized use. Do not leave such vehicles or equipment unattended with the motor running or the ignition key in place.

C. All contractors and employees that will be on site and entering the building at any time shall be background checks completed by the McHenry County Sheriff's Department prior to starting any work. It is the contractor's responsibility to coordinate all activities related to their employee's and their subcontractor's background checks and photo IDs. Contractors performing work solely on the building exterior are not required to have background checks.

D. Do not allow construction waste and debris to accumulate; remove debris as it accumulates and, unless specified otherwise, dispose of legally off-site.

E. Conform to City's noise control regulations, including limited hours of construction operations.

F. Use of Existing Building: Maintain existing building in a weathertight condition throughout construction period. Repair damage caused by construction operations. Protect building and its occupants during construction period.

G. Contractor to provide portable toilet facilities for use by contractors. Contractors will not be permitted to use the toilet facilities within the building.

1.07 LAYING OUT WORK

A. Locate all general reference points. Where dimensions or observed scope of work differ substantially from Drawings, notify Architect for decision.

B. Lay out Work from the reference points furnished and be responsible for all lines, elevations, and measurements inside workspace. Exercise proper precaution to verify figures shown on Drawings before laying out work and will be held responsible for any error resulting from his failure to exercise such precaution.

C. Hire the services of a locator company to locate all privately owned utilities that may be disturbed by construction operations.

D. Coordinate utility connections with municipality/utility company in which project is being constructed.

1.08 OWNER'S OCCUPANCY REQUIREMENTS

A. Full Owner Occupancy: Owner will occupy portions of the site and existing building during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits, unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.

2. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.

B. Owner Occupancy of Completed Areas of Construction: Owner reserves the right to place and install equipment in completed areas of building, before Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and partial occupancy shall not constitute acceptance of the total Work.

1. Architect will prepare a punchlist for each specific portion of the Work to be occupied before Owner move in.

2. Obtain a temporary Certificate of Occupancy if required from authorities having jurisdiction before Owner occupancy to install furnishings and equipment.

1.09 WORK RESTRICTIONS

A. The Contractor's access to and use of the site/facility for completion of work shall be subject to the following:

1. The building is open to the public between the hours of 8:00 a.m. and 5:00 p.m. Hours of operation are 6:30 a.m. to 5:00 p.m. and no work shall be performed in occupied areas during these times.

   a. Coordinate schedule with Owner's designated building representative.

2. Business activities within the facility are noise sensitive. As such, construction activities which generate noise detrimental to these business activities shall only occur between the hours of 6:00 a.m. and 8:00 a.m., and after 5:00 p.m. Monday through Friday of each week. These restrictions apply only to courtroom areas of the facility; there are no noise-related work restrictions at non-courtroom areas of the building such as the jail, mechanical areas, loading docks, etc. These construction activities may include, but are not limited to the following:

   a. Hammer-drilling.

b. Masonry demolition and removal.

c. Sawcutting of new or existing masonry.

d. Ballast removal and replacement.

e. Base sheet fastening with mechanical fasteners to roof decks.

f. Stockpiling of new materials onto roof.

g. The Contractor shall plan their construction activities accordingly, and allow adequate time within their schedule to complete noise-generating work within the hours indicated.

3. Should the Contractor choose to perform work after normal business hours when the building is occupied, the Contractor shall:

a. Maintain access, building utilities, and services to allow full and free use of the facility during this time. All temporary conditions, re-routing of services, utilities and/or power are the Contractor's responsibility.

b. Coordinate access and storage of materials and equipment with the Owner's designated building representative. To the fullest extent possible provide for normal building operation, and the safety of the building's occupants. Work in areas that occur during evenings and weekends shall be cleaned and available for use the following business day.

c. Coordinate schedule with the Owner's designated building representative.

4. Should the Contractor have additional work to complete after the Substantial Completion Date, including punchlist work within the existing building, continuous use of facilities is required by the Owner during regular business hours of 6:30 a.m. to 5:00 p.m. Work in those areas shall occur during evenings and weekends and shall be cleaned and available for use the following business day.

B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Architect not less than seven (7) days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Architect's or Owner's permission.

1.10 SPECIFICATION FORMATS AND CONVENTIONS

A. Specification Format: The Specifications are organized into Division and Sections using the 49-division format and CSI/CSC's "Master Format" numbering system.

1. Division 1: Sections in Division 1 govern the execution of the Work of all Sections in the Specifications.

B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.

2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.

    a. The words “shall,” “shall be,” or “shall comply with,” depending on the context, are implied where a colon (:) is used within a sentence or phrase.

END OF SECTION 01 11 00

SECTION 01 22 00

UNIT PRICES

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. This Section specifies administrative and procedural requirements for unit prices.

1. In the space indicated on the Bid Form, submit unit prices as required by this section and listed in the Unit Price Schedule. Only one value for each unit price will be allowed.

2. A unit price is a price per unit of measurement for materials or services that will be added to or deducted from the Contract Sum by Change Order in the event the quantities of Work required by the Contract Documents are increased or decreased.

3. Unit prices include all necessary material, overhead, profit and applicable taxes.

4. Refer to individual Specification Sections for construction activities requiring the establishment of unit prices.

B. While unit prices are not to be used in the selection of the successful Bidder, they must be submitted and approved prior to execution of the Contract.

1. The Owner reserves the right to reject a unit price he deems unsatisfactory and to require a resubmittal.

2. The Owner reserves the right to reject the Contractor's measurement of quantities, and to have this Work measured by an independent surveyor.

C. The Owner reserves the right to throw out a bid that does not include a unit price or assign a unit price based on other bidder's unit prices.

PART 2: PRODUCTS – (Not Applicable).

PART 3: EXECUTION

3.01 UNIT PRICE SCHEDULE

A. Unit Price No. 1 – Wet Tapered and Flat Stock Insulation Replacement

1. Provide a cost per board foot to replace tapered and/or flat stock insulation with new loose laid tapered and flat stock polyisocyanurate insulation as specified.

B. Unit Price No. 2 – TPO Walkway Protection

1. Provide a cost per lineal foot to provide and install additional walkway pad material of 30" (minimum) width.

2. On bid form note width of walkway pad to be provided. (Width varies by manufacturer, but 30" minimum width is required.)

C. Unit Price No. 3 – EPDM Walkway Protection

1. Provide a cost per pad (30”x30” minimum dimension) to provide and install additional walkway pads.

2. On bid form note dimensions of pad to be provided. (Dimensions vary by manufacturer, but 30”x30” is minimum dimensions of acceptable pad under this unit price.)

D. Unit Price No. 4 – New Precast Concrete Coping Section

1. Provide a cost per unit to provide a replacement unit of precast concrete coping. New units are to match dimensions of existing units being replaced under this unit cost in all respects. Existing precast concrete coping units are typically 48” – 56” in length (+/-), but can vary based on location. Existing dimensions will need to be field verified and matched by contractor as part of the replacement cost.

2. This unit price will be used to replace units of Precast Concrete Coping damaged through no fault of the contractor during the removal process.

E. Unit Price No. 5 – Weekend Premium Time

1. Provide a cost per man-hour for weekend premium time (Saturday and Sunday) should McHenry County elect to request work be performed on a weekend. This unit cost is to include a per hour cost for the working superintendent, foreman and journeyman of each trade working on the project. These hourly costs are to include any costs for General Conditions, management, and necessary supervision.

END OF SECTION 01 22 00

SECTION 01 23 00

ALTERNATES

PART 1: GENERAL

1.01 DESCRIPTION

A. This Section describes the limits of the requested alternates to the Contract work. Refer to the Product/Execution Articles of the appropriate Specifications and the Drawings for information pertaining to the work of each alternate.

B. Each proposal under an alternate shall include all incidental work and all adjustments necessary to accommodate the changes. All work shall meet the requirements of the Drawings, Specifications and appropriate details.

C. Submit each alternate proposal as an individual cost for the particular alternate and shall be proposed under the premise that no other alternates have been accepted. Should the work of an alternate called for by the Bid Form not affect the cost of the work, state "No Change" in the space provided. If an alternate is left blank, the Owner reserves the right to throw out the entire bid or interpret the alternate as "No Change".

D. Include taxes which are applicable to work involved in alternates as well as costs, if any, for increased coverage of bonds and insurance.

E. Any of the alternates may be accepted by Owner and will be used in determining the low bidder.

F. Owner may, at his option, vary the scope of the work by authorizing alternates which will add to the work, deduct from the work or substitute materials, equipment or methods.

G. Each Bidder shall examine the Drawings and Specifications to determine the extent to which his work is affected by bid alternates. Include in the space provided on the bid form the cost of any added or deducted work resulting from each alternate.

H. Contractor is responsible for providing work if applicable to each alternate, whether or not an added or deducted cost is included on his bid form.

I. Pricing for all Alternates shall be provided as an adjustment to the Base Bid amount.

PART 2: EXECUTION

2.01 IMPLEMENTATION

A. If the Owner elects to proceed on the basis of one or more of the alternates, make all modifications to the Work required in the furnishing and installation of the selected alternate or alternates subject to the approval of the Architect at no additional cost to the Owner except as proposed in the Bid.

B. Coordinate pertinent related work and modify surrounding work as required to properly integrate the work under each alternate, and to provide the complete construction required by Contract Documents.

C. If so stated in the Agreement, or modifications thereto, provide alternate materials, equipment and/or construction as specified.

2.02 ALTERNATES

A. Alternate No. 1 – Salvage and Reinstall Existing Roofing Ballast

1. Provide cost adjustment to reuse existing ballast on areas of roof called out to receive new ballasted EPDM roofing membrane, in lieu of providing new ballast as specified.

2. Prior to reinstallation of existing roofing ballast install geotextile protection fabric as specified continuously over the entire EPDM surface.

B. Alternate No. 2 – Complete Roofing and Insulation Tear-off and Replacement.

1. Provide cost adjustment to remove existing roofing systems down to existing roof decks and provide new fully adhered roofing systems as specified.

C. Alternate No. 3 – Provide White EPDM membrane

1. Provide cost adjustment to remove existing roofing systems down to existing roof decks and provide new fully adhered roofing systems as specified.

2. At areas called to receive new fully adhered EPDM roofing system provide white EPDM membrane (in lieu of black).

3. Except for EPDM color being white where EPDM is called for, this alternate is the same as Alternate No. 2.

D. Alternate No. 4 – Remove Existing Window Wash Davits and Tie-Backs

1. Provide cost adjustment to cut and remove existing window wash steel davits and tie-backs at all locations shown on plans.

E. Alternate No. 5 – Stone Coping Rehabilitation

1. Provide cost adjustment to remove and reinstall existing stone coping sections where stone coping currently exists (in lieu of demolition of same and installation of new prefinished metal coping at these areas).

F. Alternate No. 6 – Structural and Masonry Repairs at Corners of 1990 Addition

1. Provide cost adjustment to perform masonry and structural repairs at the Penthouse built during the 1990 addition to the facility.

G. Alternate No. 7 – Structural and Masonry Repairs at Corners of 1971 Addition

1. Provide cost adjustment to perform masonry repairs at the Penthouse built during the 1971 addition to the facility

H. Alternate No. 8 – Replace Through-Wall Flashings

1. Provide cost adjustment to remove existing face brick, install new through wall flashing, and reinstall face brick at cavity walls built during the 1990 addition to the facility.

END OF SECTION 01 23 00

SECTION 01 25 00

SUBSTITUTIONS AND PRODUCT OPTIONS

PART 1: GENERAL

1.01 DESCRIPTION

A. This Section defines procedures to be followed to gain acceptance of products in the Work which are not listed in the individual specification sections. A two step process is required.

B. Requests for acceptance for bidding purposes of alternative manufacturers are encouraged except where specifically prohibited by this Project Manual.

C. Submit Prior Approval request via fax to McHenry County Purchasing Department (815) 334-4680 with the following information in the subject line: Prior Approval 153021 XX XX XX (Specification Section).

1.02 PRODUCT OPTIONS NOT REQUIRING PRE-BID SUBMITTAL

A. Where a single manufacture is specified and acceptable manufacturer are also listed, acceptable manufacturers must provide an identical product or accept responsibility for all design implications when providing a product other than the specified product.

B. Where products are specified by reference standards, any product established by a material testing agency to meet these standards is acceptable.

C. Where multiple manufacturers and associated models are specified, select any one named.

D. Where manufacturer(s) alone are specified, select any manufacturer and the product recommended in writing by the manufacturer as most suited to the application shown on the Drawings and Specifications.

E. Where the phrase "or equal" follows the name of a manufacturer, any product which meets the performance and appearance standards established by the specified manufacturer may be selected, subject to the Architect's acceptance.

F. Where a manufacturer is listed in both a technical specification section and the Material Finish/Color Schedule, on Architectural Drawings and a color is provided.

1.03 PRODUCT SUBSTITUTIONS REQUIRING PRE-BID SUBMITTALS

A. Step One - Manufacturers Acceptance

1. Individual specification sections may be amended by the Architect during the bid period to include additional names of manufacturers determined to be capable of providing acceptable materials.

2. To propose the names of specific manufacturers, submit, or arrange for suppliers to submit, written requests to McHenry County Purchasing Department. Requests received ten (10) calendar days prior to bid date will be considered.

    a. Provide sufficient review data. Include specified manufacturer's model numbers and proposed manufacturer's product literature, noting product numbers for proposed substitutions, and where appropriate, samples and data relating to construction details. If the product is not identical to specified product, submit letter stating proposed manufacturer will custom make products to meet specified product.

b. Architect's acceptance is based upon his determination that a manufacturer is capable of supplying acceptable materials. Approval is not assured or implied for a specific material, item of equipment, color or finish.

c. Official notification will be by addendum to the Contract Documents. However, in addition, if letters of request are delivered in duplicate with accompanying stamped self addressed envelopes, copies may be returned with Architect's decision in advance.

B. Step Two - Product Acceptance

1. Upon award of a construction contract, accepted manufacturers may submit for review to the Architect through the General Contractor or Construction Manager, specific products, materials or equipment items as substitutes for those specified. Contractor to provide letter stating they will reimburse Architect to review substitutions.

2. Architect will review substitute products for performance, appearance, color, finish, size and suitability for inclusion in the work. If a substitute product is not accepted, submit another product by the same or other accepted manufacturer or provide the specified product.

3. Match specified colors and dimensions exactly, whether or not they are standard with the substitute product, unless a minor variation is accepted by the Architect.

4. If a substitute product is accepted, coordinate any necessary changes in other related work and pay for these changes. Pay cost of architectural or engineering services, if any, required to incorporate substitute products in the Work.

1.04 SUBSTITUTIONS BY CHANGE ORDER

A. A substitution for a specified product may be permitted by "change order" at no additional cost to the Owner if product proposed is determined to be equivalent in performance and suitability, and if at least one of the following conditions apply:

1. Owner is given a credit for the work.

2. Product is of superior quality than product specified.

3. Product color or finish selection is preferable.

4. Products specified and upon which building is designed have been discontinued by manufacturer.

B. Provide Architect, through Owner, reasonable compensation for product evaluation.

END OF SECTION 01 25 00

SECTION 01 26 63

CHANGE ORDERS

1.01 CHANGE ORDER PROCEDURES

A. Changes in the Project scope of work affecting the project cost can be made only through AIA Document G701 - Change Order.

B. The procedures for processing changes in the scope of Work are listed as follows:

1. The Architect prepares one of the following documents to modify the scope of work. Documents and attachments revising the drawings and specifications will be distributed electronically and the Contractor will be responsible for printing.

    a. Supplemental Instructions (SI) which are used for no cost changes.

    b. Proposal Request (PR) to be used for proposed changes that need written approval on cost prior to proceeding.

    c. Construction Change Directive AIA Document G714 (CCD) which is used when the work must proceed immediately and time and material cost submitted as soon as possible for review by the Architect.

2. The Contractor reviews and responds as follows:

    a. Supplemental Instructions (SI): This no cost change is to be carried out in accordance with the following modifications to the contract documents described herein. If this change affects cost, do not proceed with this change. Notify the Architect in writing within 10 days of receipt that an itemized (labor and material) quotation will be submitted within 21 days of initial receipt of this Supplemental Instruction. If a cost is not submitted within 21 days, this Supplemental Instruction will be accepted at no additional cost.

    b. Proposal Request (PR): Submit an itemized (labor and material) quotation for the proposed modifications to the contract documents as described herein within 21 days of receipt. If a cost is not submitted within 21 days, this Proposal Request can be accepted at no additional cost. Written approval is required prior to proceeding with this change.

    c. Construction Change Directive AIA Document G714 (CCD): Proceed immediately to carry out this change in the contract documents as described herein. If this revision effects cost, submit an itemized (labor and material) quotation within 21 days of receipt. If a cost is not submitted within 21 days this Change Directive will be accepted at no additional cost.

3. The Architect will review the Contractor's labor and material itemized quotation and respond in writing whether it is acceptable or needs revision. When all pricing is accepted by the Architect and Owner, a Change Order will be processed. Change Orders will be processed at increments determined by the Architect throughout the construction schedule.

C. See General Conditions and Supplementary Conditions of the Work for methods of determining cost or credit, mark-up and schedule on submitting claims.

END OF SECTION 01 26 63

SECTION 01 31 19

PROJECT MEETINGS

PART 1: GENERAL

1.01 DESCRIPTION

A. Schedule and administer pre-construction meeting, periodic progress meetings, and specially called meetings throughout the progress of the work.

1. Notify Architect in advance.

2. Prepare agenda for meetings.

3. Make physical arrangements for meetings.

4. Preside at meetings.

B. Representatives of contractors, subcontractors and suppliers attending the meetings shall be qualified and authorized to act on behalf of the entity each represents.

C. Architect may attend meetings to ascertain that Work is expedited consistent with Contract Documents and the construction schedules.

1.02 PRE-CONSTRUCTION MEETING

A. Schedule within 15 days after date of Notice to Proceed.

B. Location: A central site, convenient for all parties, designated by Contractor.

C. Attendance:

1. Owner's representative

2. Architect and his professional consultants

3. Resident Project representative

4. Contractor's superintendent

5. Major subcontractors

6. Major suppliers

7. Others as appropriate

D. Suggested Agenda:

1. Distribution and discussion of:

a. List of major subcontractors and suppliers

b. Projected construction schedules Refer to Section 01 32 00

- Critical Path Method. Schedule for entire construction period.
- Submittal Schedule
- Schedule pre-scheduling conf.

2. Critical work sequencing.

3. Major equipment deliveries and priorities.

4. Project coordination and scheduling:

   a. Designation of responsible personnel.

   b. Pre-installation conference.

      - Masonry flashing
      - Roofing

   c. Mock-up panels.

5. Procedures and processing of:

   a. Field decisions

   b. Proposal Requests/Supplemental Instructions

   c. Submittals

   d. 21 day time limit on claims

   e. Change orders

   f. Applications for payment

6. Adequacy of distribution of Contract Documents.

7. Procedures for maintaining Record Documents.

8. Use of premises:

   a. Office, work and storage areas

   b. Owner's requirements

9. Construction facilities, controls and construction aids.

10. Temporary utilities.

11. Safety and first-aid procedures

12. Security procedures

13. Final Cleaning Refer to Spec 01 74 00

    - Any cleaning done by Owner due to unacceptable cleaning by Contractor, or to and contractor in completing cleaning on schedule will be back charged to Contractor.

1.03 PROGRESS MEETINGS

A. Schedule regular periodic meetings, as required.

B. Hold called meetings as required by progress of the work.

C. Location of the meetings: The project field office of the Contractor.

D. Attendance:

1. Architect and his professional consultants may attend as needed.
2. Subcontractors as appropriate to the agenda.
3. Suppliers as appropriate to the agenda.
4. Others

E. Suggested Agenda:

1. Review, approval of minutes of previous meeting.
2. Review of work progress since previous meeting.
3. Field observations, problems, conflicts.
4. Problems which impede Construction Schedule.
5. Review of off-site fabrication, delivery schedules.
6. Corrective measures and procedures to regain projected schedule.
7. Revisions to Construction Schedule.
8. Plan progress, schedule, during succeeding work period.
9. Coordination of schedules.
10. Review submittal schedules; expedite as required.
11. Maintenance of quality standards.
12. Review proposed changes for:
    a. Effect on Construction Schedule and on completion date.
    b. Effect on other contracts of the Project.
13. Other business

END OF SECTION 01 31 19

SECTION 01 32 00

CONSTRUCTION SCHEDULING

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Contractor's Construction (CPM) Schedule.
2. Shop Drawing Submittals Schedule
3. CPM Reports

1.03 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.

2. Predecessor activity is an activity that must be completed before a given activity can be started.

B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

C. Critical Path: The longest continuous chain of activities through the network schedule that establishes the minimum overall Project duration and contains no float.

D. Event: The starting or ending point of an activity.

E. Float: The measure of leeway in starting and completing an activity.

1. Float time is for the exclusive use or benefit of the Contractor to meet schedule milestones and Contract completion date.

2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the following activity.

3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

F. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.

G. Major Area: A story of construction, a separate building, or a similar significant construction element.

H. Milestone: A key or critical point in time for reference or measurement.

I. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.

1.04 SUBMITTALS

A. Submittals Schedule: Submit six copies of schedule. Arrange the following information in a tabular format:

1. Scheduled date for first submittal.
2. Specification Section number and title.
3. Submittal category (action or informational).
4. Name of subcontractor.
5. Description of the Work covered.
6. Scheduled date for Architect's final release or approval. (Assume 15 working day turnaround.)
7. Identify submittals that effect critical path.

B. Contractor's Construction (CPM) Schedule: Submit two printed copies of initial schedule large enough to show entire schedule for entire construction period.

C. CPM Reports: Concurrent with CPM schedule, submit three printed copies of the following computer-generated reports. Format for each activity in reports shall contain activity number, activity description, original duration, early start date, early finish date, late start date, late finish date, and total float.

1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.

1.05 QUALITY ASSURANCE

A. Prescheduling Conference: Conduct conference at Project site to review methods and procedures related to the Contractor's Construction (CPM) Schedule, including, but not limited to, the following:

1. Discuss constraints, including phasing, work stages, area separations, interim milestones and partial Owner occupancy.
2. Review delivery dates for Owner-furnished products.
3. Review schedule for work of Owner's separate contracts.
4. Review time required for review of submittals and resubmittals.
5. Review requirements for tests and inspections by independent testing and inspecting agencies.
6. Review time required for completion and startup procedures.
7. Review and finalize list of construction activities to be included in schedule.
8. Review submittal requirements and procedures.
9. Review procedures for updating schedule.

1.06 COORDINATION

A. Coordinate requirements in this Article with "Submittals Schedule" Article in Part 2. If a submittal review sequence policy governs, revise this Article to comply with requirements. See Evaluations for discussion on submittal review sequence policies.

PART 2: PRODUCTS

2.01 SUBMITTALS SCHEDULE

A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates. Identify items that affect critical path.

2.02 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)

A. General: Prepare network diagrams using CPM (critical path method) format.

B. Preliminary Network Diagram: Submit diagram within 14 days from the Notice to Proceed. Outline significant construction activities for the first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

C. CPM Schedule: Prepare Contractor's Construction Schedule using a CPM network analysis diagram.

1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted prior to first pay request.

2. Establish procedures for monitoring monthly and updating CPM schedule if work is not on schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.

3. Use "one workday" as the unit of time. Activities should not be shorter than 2 work days or longer than 10 work days for projects with a construction period over 6 months and/or longer than 5 work days for projects with a construction period under 6 months.

D. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the preliminary network diagram, prepare a skeleton network to identify probable critical paths.

1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:

a. Preparation and processing of submittals.
b. Purchase of materials.
c. Delivery.
d. Fabrication.
e. Installation.

2. Processing: Process data to produce output data or a computer-drawn, logic network diagram. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.

PART 3: EXECUTION

3.01 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating:

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.

B. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.

2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 01 32 00

SECTION 01 33 00

SUBMITTALS

PART 1: GENERAL

1.01 DESCRIPTION

A. This Section defines procedures for the following submittals required by the Contract Documents.

B. Provide submittals as noted in each Section.

C. Allow for two weeks review of submittals to avoid delay of Work.

D. Include with submittal preparation, field verifications of measurements, field construction criteria, verification of catalog numbers and similar data, and coordination of Work requirements and Contract Documents.

E. Submit all color samples within 45 days of contract award for Architect's use in color selections. The Architect will not start the color schedule until all samples are received.

PART 2: REQUIRED SUBMITTALS

2.01 SHOP DRAWINGS AND SAMPLES

A. Submit shop drawings in accordance with Article 3 of the General Conditions and the following.

B. Prepare clearly identified shop drawings or schedules to this specific project, containing only data applicable. Include with the shop drawings or schedules a letter of transmittal listing and dating the submitted drawings in sets.

C. Contractor to review all submittals prior to submittal to Architect, and indicate such review with a stamp and signature. Review submittals for conformance to Drawings, Specifications, coordination with other trades and adjacent construction and verification of field dimensions. Failure of Contractor to adequately review submittals shall be cause for rejection.

D. Prepare and submit electronically (with exception for color charts and samples) to Architect for review, all shop drawings and manufacturers catalog sheets showing illustrated cuts of items to be furnished, scale details, sizes, dimensions, performance characteristics, capacities, wiring diagrams, weights and arrangements. Each submittal to include a transmittal on contractor letterhead. Submittal to be in the form of one combined PDF, professionally assembled so all documents are facing the same way.

1. The Contractor will provide submittals labeled as follows:

   a. 153021 – Government Center Roof Replacement,
   XX-XX-XX-X [SPECIFICATION # AND CONSECUTIVELY NUMBERED SUBMITTAL]
   _____[SPECIFICATION NAME] _____[SUBMITTAL NAME].

   Example: 153021 – Government Center Roof Replacement,
   07 53 25-01 EPDM Adhered Roofing – Product Data

E. The Architect will take one of the following actions on submittals:

1. "Reviewed": Contractor shall proceed with ordering and/or fabrication.

2. "Review Comments": Contractor shall proceed with ordering and/or fabrication after taking into account noted comments.

3. "Rejected": Contractor shall provide a submittal that meets the intent of the specifications.

4. "Revise and Resubmit": Contractor shall modify submittal to address comments and resubmit.

F. If equipment other than that used in the design of this project is proposed to be used, the Contractor and/or supplier shall verify electrical differences, dimension variations and weight increases. The Contractor shall be responsible for any extra costs incurred as a result of equipment substitutions.

G. Information submittals and submittals that are not required shall be for Architects' and Engineers' use and be available for the design team's review at the jobsite. Quantity of submittals will be the same for Architect as noted under shop drawings. These submittals will not be reviewed, stamped or returned to the Contractor.

H. Unless otherwise specified, submit to the Architect's office samples of size, and nature representing typical qualities. Where required, submit a sufficient number of samples to demonstrate the complete range of variations of the material or quality. Written acceptance of the Architect is required prior to ordering any item for which samples are required.

I. Submit samples to Architect's office, securely packaged, with the name of the Project clearly indicated on the package exterior. Each physical sample shall have a label or tag, firmly attached to the sample, bearing the following information: (a) Name of Project, (b) Name of Supplier, (c) Name of Contractor, and (d) Product information such as manufacturer's designation, finish, type, class, grade, etc. as is appropriate. The Architect will retain one copy of each sample.

2.02 LIST OF MATERIALS

A. Within 7 days after the award of the Contract (notice to proceed or letter of intent), submit 4 copies of a complete list of all material, products, and equipment proposed to be used in construction to the Architect for acceptance. Do not order materials until the proposed listed materials, products and equipment to be used in construction are accepted by the Architect.

B. Where two or more makes or kinds of items are named in the specifications (or additional names are called for in addenda), the Contractor shall state which particular make or kind of each item he proposes to provide. If the Contractor fails to state a preference, the Owner shall have the right to select any of the makes or kinds named without change in price.

C. This list shall be arranged generally in order of specification sections. The items listed shall fully conform to project requirements and specifications. All materials are subject to the Architect's acceptance. After acceptance, changes or substitutions will not be permitted.

D. Clearly identify or list the material, product or equipment by manufacturer and brand by listing the names for all items, including those where only one material or product is specified. Each and every material, product and equipment shall be specifically named, not listed "as specified".

2.03 LIST OF SUBCONTRACTORS

A. Refer to the General Conditions of the Contract for Construction.

B. Propose use of subcontractors or sub-subcontractors who are established, reputable firms of recognized standing with a record of successful and satisfactory past performance. Include the following information: specification section, item of work, subcontractor or supplier, material/manufacturer (as specified will not be allowed), project manager, phone and facsimile numbers. List major sub-subcontractors for mechanical and electrical work. Use only those subcontractors (and sub-sub-contractors, when appropriate) who are acceptable to the Architect and Owner on the Work.

2.04 SCHEDULE OF VALUES

A. Requirements

1. Submit separate Schedule of Values for each building or phase to Architect ten (10) days prior to first Application For Payment (AIA Form G702, G702a).

2. Use Schedule of Values only as basis for Contractor's Application For Payment.

B. Form of Submittal

1. Base format on Sections listed in Section 00 01 10 Table of Contents.

2. Round off amounts to nearest ten dollars.

2.05 PROGRESS SCHEDULE

A. Refer to the General Conditions of the Contract for Construction and Section 01 32 00 Construction Scheduling for submittal requirements.

2.06 SUBMITTAL LIST

A. The following submittal list is a guide for submittals required for specification divisions 2-14 on the project. Inconsistencies or omissions from the list does not relieve the contractor from required submittals delineated in each specification section.

Section	Pre-Installation Conference	Product Data, Install Instruction, Wiring Diagrams	Shop Drawing	Samples	Mock-Up Panel	Design Data, Mix Design	Reports/Sched. Calculations	Qualification/ Certification	Source Quality Control Tests/Reports	Reference Specs	Warranty	Maint. & Operation Manual
03 45 00			X	X	X		X	X	X			
04 01 20		X		X	X		X	X	X			
04 20 00		X	X	X	X				X			
04 27 31		X	X	X	X	X	X		X			
05 50 00			X				X	X				X
06 10 53		X						X				
07 53 23	X	X	X	X				X	X		X	X
07 53 25	X	X	X	X				X	X		X	X
07 54 23	X	X	X	X				X	X		X	X
07 62 00			X	X							X	X
07 65 00		X		X								
07 92 00		X		X								
08 10 00		X	X									
08 71 00		X	X									X

Section	Pre-Installation Conference	Product Data, Install Instruction, Wiring Diagrams	Shop Drawing	Samples	Mock-Up Panel	Design Data, Mix Design	Reports/Sched. Calculations	Qualification/ Certification	Source Quality Control Tests/Reports	Reference Specs	Warranty	Maint. & Operation Manual
08 91 00		X	X	X								
09 91 00		X										

END OF SECTION 01 33 00

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.

B. Support facilities include, but are not limited to, the following:

1. Housekeeping and waste disposal facilities.
2. Field offices.
3. Storage and fabrication sheds.
4. Lifts and hoists.
5. Construction aids and miscellaneous services and facilities.

C. Security and protection facilities include, but are not limited to, the following:

1. Environmental protection.
2. Tree and plant protection.
3. Site enclosure fence.
4. Security enclosure and lockup.
5. Barricades, warning signs, and lights.

D. Related Sections include the following:

1. Division 1 Section "Submittals" for procedures for submitting copies of implementation and termination schedule and utility reports.

1.03 DEFINITIONS

A. Permanent Enclosure: As determined by Architect, permanent or temporary roofing is complete, insulated, and weather-tight; exterior walls are insulated and weather-tight; and all openings are closed with permanent construction or substantial temporary closures.

1.04 USE CHARGES

A. General: Cost or use charges for temporary facilities are not chargeable to Owner or Architect and shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, the following:

1. Owner's construction forces.
2. Occupants of Project.
3. Architect.
4. Testing agencies.
5. Personnel of authorities having jurisdiction.

B. Water Service: Use water from Owner's existing water system without metering and without payment of use charges.

1. Pay for pumps, pipe, hoses, and backflow preventors as required to distribute water.

B. Electric Power Service: Use electric power from Owner's existing system without metering and without payment of use charges.

PART 2: PRODUCTS

2.01 MATERIALS

A. General: Provide new materials or undamaged, previously used materials in serviceable condition. Provide materials suitable for use intended.

B. Portable Chain-Link Fencing: Minimum 2-inch 9-gage, galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts; minimum 2-3/8-inch OD line posts and 2-7/8-inch OD corner and pull posts, with 1-5/8-inch OD top and bottom rails. Provide concrete or galvanized steel bases for supporting posts.

C. Lumber and Plywood: Comply with requirements in Division 6 Section "Carpentry."

D. Paint: Comply with requirements in Division 9 Section "Painting."

E. Tarpaulins: Fire-resistive labeled with flame-spread rating of 15 or less.

F. Water: Potable.

G. Wood Walkways: ¾" Plywood, framed with 2x__ joists (size as required to support span), with wood rails to contain occupants.

H. Poly Film Guard: 3 mil. self adhering clear poly film utilizing tack water-based adhesive.

2.02 EQUIPMENT

A. General: Provide equipment suitable for use intended.

B. Field Offices: Prefabricated with lockable entrances, insulated, weather-tight; heated and air conditioned. Provide stairs with handrails as required for accessibility.

C. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures.

1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

D. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.

E. Drinking-Water Fixtures: Containerized, tap-dispenser, bottled-water drinking-water units, including paper cup supply.

PART 3: EXECUTION

3.01 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.02 TEMPORARY UTILITY INSTALLATION

A. Water Service: Use of Owner's existing water service facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

1. Provide rubber hoses as necessary to serve Project site.

2. Where installations below an outlet might be damaged by spillage or leakage, provide a drip pan of suitable size to minimize water damage. Drain accumulated water promptly from pans.

3. Provide pumps if required due to low static pressure on-site. Equip pumps with surge and storage tanks and automatic controls to supply water uniformly at reasonable pressures.

4. Provide backflow prevention devices to protect Owner’s water system.

B. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.

1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.

2. Provide safety showers, eyewash fountains, and similar facilities for convenience, safety, and sanitation of personnel as required by government jurisdictions.

C. Power is available on-site.

1. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations and to maintain schedule.

2. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and to meet government regulations.

    a. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

D. Telephone Service: Provide temporary telephone service throughout construction period for common-use facilities used by all personnel engaged in construction activities. Install separate telephone line for each field office and first-aid station.

1. Provide additional telephone lines for the following:

    a. Provide a dedicated telephone line for each facsimile machine and computer with modem in each field office.

2. Provide an answering machine or voice-mail service on superintendent's telephone.

3. Provide a portable cellular telephone for superintendent's use in making and receiving telephone calls when away from field office.

3.03 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Locate field offices, storage sheds, sanitary facilities, and other temporary construction and support facilities for easy access.

2. Provide incombustible construction for offices, shops, and sheds located within construction area or within 30 feet of building lines. Comply with NFPA 241.

3. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Comply with Division 1 Section for progress cleaning requirements.

1. If required by authorities having jurisdiction, provide separate containers, clearly labeled, for each type of waste material to be deposited.

2. Develop a waste management plan for Work performed on Project. Indicate types of waste materials Project will produce and estimate quantities of each type. Provide detailed information for on-site waste storage and separation of recyclable materials. Provide information on destination of each type of waste material and means to be used to dispose of all waste materials.

C. Housekeeping

1. Do not allow debris to accumulate on-site or within the building work areas. The contractor shall implement and provide the following cleaning services:

a. Debris shall be removed from the construction site and police exterior project site area on a weekly basis at a minimum to clean-up any wind-blown or excess construction materials or debris and dispose of in construction dumpsters to maintain a clean project site.

b. Debris shall be removed from interior of the buildings on a daily basis and disposed of in construction dumpsters.

c. Lower waste materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights.

d. Where Contractor has periodic access to ancillary spaces occupied by Owner, thoroughly clean after each use, so as to not disrupt Owner’s ongoing operations.

e. Failure to maintain a clean construction area may result in the Owner cleaning the site and back-charging the Contractor.

f. Remove waste materials, rubbish and debris from the site and legally dispose of at public or private dumping areas off the Owner’s property.

D. Common-Use Field Office: Provide an insulated, weather-tight, air-conditioned field office for use as a common facility by all personnel engaged in construction activities; of sufficient size to accommodate required office personnel and meetings of 12 persons at Project site. Keep office clean and orderly.

1. Furnish and equip offices as follows:

a. Desk and four chairs, file cabinets in quantities to file shop drawings, supplemental instructions, proposal requests, and change orders, a plan table, a plan rack, and bookcase to store project manuals, detail books, and addenda.

b. Provide a room of not less than 240 sq. ft. for Project meetings. Furnish room with conference table, 12 folding chairs, and 4-foot square markerboard.

E. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment involved, including temporary utility services. Sheds may be open shelters or fully enclosed spaces within building or elsewhere on-site.

F. Lifts and Hoists: Provide facilities for hoisting materials and personnel. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.04 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Avoid using tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms near Project site.

B. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from construction damage. Protect tree root systems from damage, flooding, and erosion.

C. Site Enclosure Fence: Before construction operations begin, install chain-link enclosure fence with lockable entrance gates. Locate where indicated, or enclose entire Project site or portion determined sufficient to accommodate construction operations. Install in a manner that will prevent people, dogs, and other animals from easily entering site except by entrance gates.

1. Drive fence posts in existing soil of gravel and earth.

2. Provide gates in sizes and at locations necessary to accommodate delivery vehicles and other construction operations.

3. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Provide Owner with one set of keys.

D. Food Consumption: Limit food and soft drink consumption to within the Contractor’s trailer or out of the building.

E. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weather-tight enclosure for building exterior.

F. Temporary Fire Protection: Provide temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses as required by the local fire marshal.

3.05 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

2. Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.

C. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are the property of Contractor.

2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 1 Section "Closeout Procedures."

END OF SECTION 01 50 00

SECTION 01 73 29

CUTTING AND PATCHING

PART 1: GENERAL

1.01 DESCRIPTION

A. Execute cutting, fitting or patching of Work, required to:

1. Make several parts fit properly.
2. Uncover Work to provide for installation of ill-timed Work.
3. Remove and replace defective Work.
4. Remove and replace Work not conforming to requirements of Contract Documents.
5. Install specified Work in existing construction.
6. Provide finished surfaces (to match adjacent existing surfaces) to fill in voids caused by removal or replacement of materials.

B. Pay for costs caused by ill-timed or defective Work, or Work not conforming to Contract Documents, including costs for additional services of Architect/Engineer.

PART 2: PRODUCTS

2.01 MATERIALS

A. Replacement of Work Removed: Comply with specifications for type of Work to be done.

B. Placement of Work to fill Voids caused by Removal: Comply with latest industry standards for type of Work to be done.

PART 3: EXECUTION

3.01 INSPECTION

A. Inspect existing conditions of Work, including elements subject to movement or damage during:

1. Cutting and patching.

B. After uncovering Work, inspect conditions affecting installation of new products.

C. Provide digital photographic evidence of all roof deck repairs. Photo evidence shall include photos of initial condition discovered and final repairs made. Submit to Architect for review.

3.02 PREPARATION PRIOR TO CUTTING

A. Provide shoring, bracing and support as required to maintain structural integrity of Project.

B. Provide protection for other portions of Project.

C. Provide protection from elements.

3.03 PERFORMANCE

A. Neatly cut or demolish along straight, true, square lines.

B. Execute cutting and demolition by methods which will prevent damage to other Work, and will provide proper surfaces to receive installation of repairs and new Work.

C. Restore Work which has been cut or removed; install new products to provide complete Work in accordance with requirements of Contract Documents.

D. Refinish entire surfaces as necessary to provide an even finish.

1. Continuous Surfaces: To nearest intersections.

2. Assembly: Entire refinishing.

END OF SECTION 01 73 29

SECTION 01 74 00

FINAL CLEANING

PART 1: GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. Cleaning required for specified work is specified in sections pertaining to that work.

B. Cleaning during construction and prior to substantial completion – Section 01 50 00 Temporary Facilities and Controls.

PART 2: PRODUCTS

2.01 CLEANING MATERIALS

A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.

B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3: EXECUTION

3.01 FINAL CLEANING

A. Employ experienced workers or professional cleaners for final cleaning.

B. At completion of construction and just prior to acceptance or occupancy, conduct a final inspection of exposed interior and exterior surfaces.

C. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from interior and exterior surfaces.

D. Repair, patch and touch up marred surfaces to match adjacent finishes.

E. Remove any and all debris from the Project Site and adjacent properties attributable to construction work. Obtain permission of property owners as required.

F. Broom clean paved surfaces; rake clean other surfaces of grounds.

G. Maintain cleaning until the Building or portion thereof, is accepted by the Owner.

END OF SECTION 01 74 00

SECTION 01 77 00

PROJECT CLOSEOUT

PART 1: GENERAL

1.01 GENERAL

A. Comply with requirements stated in Conditions of the Contract and in Specifications for administrative procedures in closing out the Work.

B. Related requirements in other parts of the Project Manual

1. Fiscal provisions, legal submittals and additional administrative requirements: Conditions of the Contract.

C. Related requirements specified in other sections

1. Closeout Submittals Required: The respective sections of specifications.

1.02 SUBSTANTIAL COMPLETION

A. Refer to the General Conditions of the Contract for Construction.

B. When the Project is determined by the Architect to be sufficiently complete to permit utilization for the intended use, the Architect will issue a Certificate of Substantial Completion.

C. To receive the Certificate of Substantial Completion, perform the following:

1. Submit to the Architect a notice declaring that work is believed to be substantially complete.

2. Submit a list of work items that remain to be completed or corrected and the date this work will be accomplished.

3. Obtain Occupancy certificate when required from governing municipality.

D. Architect will visit the project to evaluate the request for issuance of a Certificate of Substantial Completion.

1. If the Architect concurs that the Project is substantially complete, the Architect will deliver a Certificate of Substantial Completion and a list of work items necessary for completion or correction prior to request for inspection for final completion.

2. If the Architect determines that the work is not substantially complete, the Architect will deliver to the Contractor a written statement including reasons.

3. Complete work on the items required by the Architect for achieving substantial completion and make additional written requests for issuance of a Certificate of Substantial Completion until the Architect determines that sufficient Work has been performed.

1.03 FINAL INSPECTION

A. When the Work is considered complete, submit written certification that:

1. Contract Documents have been reviewed.

2. Work has been completed and inspected by the Contractor for compliance with Contract Documents and is ready for final inspection.

3. Building Permit Final has been submitted.

B. Architect will make an inspection to verify the status of completion with reasonable promptness after receipt of such certification.

C. Should Architect consider that the Work is incomplete or defective:

1. Architect will notify the Contractor in writing, listing the incomplete or defective work.

2. Take immediate steps to remedy the stated deficiencies, and send a second written certification to Architect that the Work is complete.

3. Architect will reinspect the Work.

D. When the Architect finds that the Work is acceptable under the Contract Documents, he will request preparation of closeout submittals.

1.04 REINSPECTION FEES

A. Should Architect perform reinspections due to failure of the Work to comply with the claims of status of completion made by the Contractor:

1. Owner will compensate Architect for such additional services.

2. Owner will deduct the amount of such compensation from the final payment.

1.05 CLOSEOUT SUBMITTALS TO ARCHITECT

A. When the Architect has determined that the Construction Work is acceptable under the Contract Documents and the Contract fully performed, prepare and submit final Application for Payment to the Architect together with one original and one copy of the following:

1. A letter recommending acceptance of the Project and indicating all punch list items are complete.

2. Contractor's Affidavit of Payment of Debts and Claims, AIA Document G706, with bonds for any exceptions.

3. Contractors Affidavit of Release of Liens, AIA Document G706A.

4. Consent of Surety to Final Payment on Consent of Surety Company to Final Payment, AIA Document G707.

5. Project Record Documents, if required.

6. Warranties and Bonds.

7. Letter from roofing manufacturer that roof warranty has been activated.

1.06 FINAL ADJUSTMENT OF ACCOUNTS

A. Submit a final statement of accounting to Architect.

B. Statement shall reflect all adjustments to the Contract Sum:

1. The original Contract Sum.

2. Additions and deductions resulting from:

a. Previous Change Orders

b. Deductions for uncorrected Work

c. Penalties and Bonuses

d. Deductions for reinspection payments and costs incurred by Architect or Architect's Consultants if project is not closed out within sixty (60) days of Substantial Completion.

e. Other adjustments

3. Total Contract Sum, as adjusted.

4. Previous payments.

5. Sum remaining due.

C. Architect will prepare a final Change Order, reflecting approved adjustments to the Contract Sums which were not previously made by Change Orders.

1.07 FINAL APPLICATION FOR PAYMENT

A. Submit the final Application for Payment in accordance with procedures and requirements stated in the Conditions of the Contract.

END OF SECTION 01 77 00

SECTION 01 78 23

OPERATING, MAINTENANCE AND WARRANTY DATA

PART 1: GENERAL

1.01 GENERAL

A. Compile product data and related information appropriate for Owner's maintenance and operation of products furnished under the Contract.

B. Prepare operating, maintenance and warranty data as specified in this Section and as referenced in other pertinent section of Project Manual.

C. Instruct Owner's personnel in the maintenance of products and in the operation of equipment and systems.

D. Related requirements specified in other sections:

1. Shop drawings, product data and samples: Section 01 33 00.

2. Project Closeout: Section 01 77 00.

3. Project Record Documents: Section 01 78 39.

1.02 QUALITY ASSURANCE

A. Preparation of data shall be done by personnel with the following qualifications:

1. Trained and experienced in maintenance and operation of the described products.

2. Completely familiar with requirements of this Section.

3. Skilled as a technical writer to the extent required to communicate essential data.

4. Skilled as a draftsman competent to prepare required drawings.

1.03 FORM OF SUBMITTALS

A. Prepare data in the form of an instructional manual for use by the Owner's personnel.

B. Format shall conform to the following:

1. Size: 8½" x 11".

2. Paper: 20 pound minimum, white, for typed pages.

3. Text: Manufacturer's printed data, or neatly typewritten.

4. Drawings

a. Provide reinforced punched binder tab, bind in with text.

b. Fold larger drawings to the size of the text pages.

5. Provide fly-leaf for each separate product, or each piece of operating equipment.

    a. Provide typed description of product, and major component parts of equipment.

    b. Provide indexed tabs.

6. Cover: Identify each volume with typed or printed title "OPERATING, MAINTENANCE AND WARRANTY INSTRUCTIONS". List:

    a. Title of Project

    b. Identity of separate structure as applicable.

    c. Identity of general subject matter covered in the manual.

C. Binders

1. Commercial quality three-ring binders with durable and cleanable plastic cover.

2. Maximum ring size: 2 inch.

3. When multiple binders are used, correlate the data into related consistent groupings.

D. Digital Format: Submit one PDF copy of the O&M Manual on a DVD Disk.

1.04 CONTENT OF MANUAL

A. Arrange neatly typewritten table of contents for each volume, in the following systematic order.

1. Contractor, name of responsible principal, address and telephone number.

2. A list of each product required to be included, indexed to the content of volume.

3. List, with each product, the name, address and telephone number of:

    a. Contractor or installer.

    b. Maintenance contractor, as appropriate.

    c. Identify the area of responsibility of each.

    d. Local source of supply for parts and replacement.

    e. Include warranty information as specified.

4. Identify each product by product name and other identifying symbols such as set in Contract Documents.

B. Product Data

1. Include only those sheets which are pertinent to the specific product.

2. Annotate each sheet to:

    a. Clearly identify the specific product or part installed.

C. Content, for moisture-protection and weather-exposed products:

1. Manufacturer's data, giving full information on products.

a. Applicable standards

b. Chemical composition

c. Details of installation

2. Instructions for inspection, maintenance and repair.

D. Additional requirements for maintenance data: The respective section of the Project Manual.

1.05 SUBMITTAL SCHEDULE

A. Submit one copy of completed data in final form within thirty days of substantial completion. Copy will be returned with comments.

B. Submit two copies of approved data in final form ten (10) days after comments are received.

END OF SECTION 01 78 23

SECTION 01 78 39

PROJECT RECORD DOCUMENTS

PART 1: GENERAL

1.01 GENERAL

A. Fully cooperate with the Architect to accomplish the following.

B. These requirements supplement the requirements set forth in the General Conditions.

C. Maintain at each site one record copy, as applicable, of:

1. Drawings and Details with addenda marked in.
2. Specifications with addenda marked in.
3. Addenda.
4. Change Orders and other modifications to the Contract.
5. Architect/Engineer Supplemental Instructions, Proposal Requests or written instructions.
6. Approved shop drawings, product data and samples.
7. Field test records.

1.02 MAINTENANCE OF RECORD DOCUMENTS AND SAMPLES

A. Store record documents and samples in Contractor's field office in files and racks. Provide locked cabinet or secure storage space for storage of samples.

B. File documents and samples in accordance with the Construction Specifications Institute MASTERFORMAT.

C. Maintain record documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.

D. Make record documents and samples available at all times for inspection by Architect or Owner.

1.03 RECORDING

A. Label each document "PROJECT RECORD" in neat large printed letters.

B. Continuously record information and changes.

C. Drawings: Legibly mark to record actual construction.

1. Depths of various elements of foundation in relation to finish first floor datum.
2. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
3. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.

4. Field changes of dimension and detail.

5. Changes made by Field Order or by Change Order.

6. Details not on original contract drawings.

D. Specifications and Addenda - Legibly mark each Section to record:

1. Manufacturer, trade name, catalog number, and Supplier of each Product and item of equipment actually installed.

2. Changes made by Field Order or by Change Order.

E. Shop Drawings – Label each set by corresponding specification section. At the completion of the project, provide the Owner with one complete set, reviewed and stamped by architect, organized by specification section in the following formats:

1. Paper (various sizes) folded to 8 1/2" x 11" and boxed with project name and completion date clearly labeled on exterior.

2. Scanned PDF copy on a compact disk, ordered by specification section.

1.04 SUBMITTAL

A. Deliver Record Documents to the Owner at contract close-out.

B. Accompany submittal with transmittal letter in duplicate, containing:

1. Date

2. Project title

3. Title and number of each Record Document

END OF SECTION 01 78 39

SECTION 02 41 19

SELECTIVE DEMOLITION

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. This Section requires the selective removal of the following:

1. Portions of existing building indicated on drawings, and as required to be removed and disposed of off site, to accommodate new construction.

2. Removal and protection of existing materials items indicated to be salvaged or reused.

B. Related work specified elsewhere:

1. Removal of roofing, roof insulation and flashing is specified in Division 7.

2. Scheduling and Occupancy requirements – Section 01 11 00.

1.03 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

B. Schedule indicating proposed sequence of operations for selective demolition work to Owner's Representative and Architect for review prior to start of work. Include coordination for shutoff and restart of HVAC components required to be temporarily disconnected due to new work, together with details for dust and noise control.

1. Provide detailed sequence of demolition and removal work to ensure uninterrupted progress of Owner's on-site operations.

2. Coordinate with Owner’s continuing occupation of existing building.

C. Photographs of existing conditions of structure surfaces, equipment, and adjacent improvements that might be misconstrued as damage related to removal operations. File with Owner’s Representative and Architect prior to start of work.

D. Product data and Material Safety Data Sheets for any hazardous, highly odoriferous, or high volatile materials to be used, along with procedure and safeguards to be followed during the use of each.

1.04 JOB CONDITIONS

A. Occupancy: Owner will occupy the building during selective demolition. Conduct selective demolition work in manner that will minimize need for disruption of Owner’s normal operations. Provide minimum of 72 hours advance notice to Owner’s Representative of demolition activities that will affect Owner’s normal operations.

B. Condition of Structures: Owner assumes no responsibility for actual condition of items or structures to be demolished.

1. Conditions existing at time of inspection for bidding purposes will be maintained by Owner insofar as practicable.

C. Partial Demolition and Removal: Items indicated to be removed but of salvageable value to Contractor may be removed as work progresses. Remove items of salvageable value to the Contractor from the site as they are removed.

1. Storage or sale of removed items on site will not be permitted.

D. Protection: Provide temporary barricades and other forms of protection to protect Owner's personnel and general public from injury due to selective demolition work.

1. Provide protective measures as required to provide free and safe passage of Owner's personnel and general public to occupied portions of building.

2. Erect temporary covered passageways as required by authorities having jurisdiction.

3. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to be demolished and adjacent facilities or work to remain.

4. Protect from damage existing finish work that is to remain in place and which becomes exposed during demolition operations.

5. Protect floors and roofs with suitable coverings when necessary.

6. Provide temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces and installation of new construction to ensure that no water leakage or damage occurs to structure or interior areas of existing building.

E. Damages: Promptly repair damages caused to adjacent facilities by demolition work.

F. Traffic: Conduct selective demolition operations and debris removal to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.

1. Do not close, block, or otherwise obstruct streets, walks, or other occupied or used facilities without written permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.

G. Flame Cutting: Do not use cutting torches for removal until work area is cleared of flammable materials. At concealed spaces, flame cutting will not be allowed. Maintain portable fire suppression devices during flame-cutting operations.

H. Utility Services: Maintain existing utilities indicated to remain in service and protect them against damage during demolition operations.

1. Do not interrupt utilities serving occupied or used facilities or spaces, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to Owner.

2. Maintain fire protection services during selective demolition operations.

3. Maintain HVAC functions in occupied spaces, in so far as possible. Provide temporary heating and ventilation as required to maintain acceptable working conditions. Do not interrupt functions to occupied spaces, except as shown on the demolition plans or when authorized in writing by the Owner.

I. Environmental Controls: Use temporary enclosures, and other methods to limit dust and dirt migration. Comply with governing regulations pertaining to environmental protection.

1. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution, or damage to finishes or occupied spaces.

J. Do not use highly odoriferous, hazardous or highly volatile chemicals during demolition without the approval of the Owner. Provide appropriate safeguards during the use of such approved materials.

PART 2: PRODUCTS (Not Applicable)

PART 3: EXECUTION

3.01 PREPARATION

A. General: Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of areas to be demolished and adjacent facilities to remain.

1. Cease operations and notify Architect immediately if safety of structure appears to be endangered. Take precautions to support structure until determination is made for continuing operations.

2. Cover and existing materials from soilage or damage when demolition work is performed in areas where such items have not been removed.

3.02 DEMOLITION

A. General: Perform selective demolition work in a systematic manner. Use such methods as required to complete work indicated on Drawings in accordance with demolition schedule and governing regulations.

1. Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain using power-driven masonry saw or hand tools.

2. Provide for effective air and water pollution controls as required by local authorities having jurisdiction.

B. If unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure both nature and extend of the conflict. Submit report to Architect in written, accurate detail. Pending receipt of directive from Architect, rearrange selective demolition schedule as necessary to continue overall job progress without undue delay.

C. Leave all surfaces and work ready and acceptable to the next trade. Use only materials and techniques that are acceptable to subsequent trades to remove materials from surfaces to remain.

1. Patch or repair demolition in excess of that shown on drawings.

3.03 SALVAGED MATERIALS

A. Salvaged Items: Where indicated on Drawings to be salvaged or reused, carefully remove indicated items, clean and store.

1. Store salvaged items to be reused off the ground. Cover with waterproof material in a manner that permits air circulation within covering.

2. For items to be reused, inventory, label with previous location and new location.

3. Salvaged masonry and precast concrete shall have mortar carefully removed from surfaces that will receive new mortar or flashings or which will be visible after reinstallation.

3.04 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove from building site debris, rubbish, and other materials resulting from demolition operations. Transport and legally dispose of off site.

1. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution.

2. Burning of removed materials is not permitted on project site.

3.05 CLEANUP AND REPAIR

A. General: Upon completion of demolition work, remove tools, equipment, and demolished materials from site.

1. Repair demolition performed in excess of that required. Return elements of construction and surfaces to remain to condition existing prior to start operations. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

2. Remove protection when no longer required by demolition and remodeling work.

END OF SECTION 02 41 19

SECTION 03 45 00

ARCHITECTURAL PRECAST CONCRETE

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. Section includes:

1. Furnish and install new architectural precast parapet copings under unit pricing, including field verification of existing precast parapet copings for matching of new copings with existing copings.

2. Furnish anchors for installation of both new and existing parapet copings.

B. Related work specified in other sections:

1. Caulking of precast joints - Section 07 92 00.

1.03 REFERENCE STANDARDS

A. The following specifications and standards are incorporated by reference. Materials and operations shall comply with requirements the specified issue of published reference. Where provisions of these Project Specifications are at variance with those reference specifications, the maximum criteria or requirements shall govern.

1. ACI 301-99 - Specifications for Structural Concrete for Buildings

2. ACI 318-99 - Building Code Requirements for Structural Concrete.

B. The following documents, while not a part of these specifications except for sections specifically referred to herein, are recognized acceptable practices:

1. ACI 315-99 – Details and Detailing Reinforced Concrete Structures.

2. ACI 347 - Recommended Practice for Concrete Formwork.

3. PCI MNL-117 - Manual for Quality Control for Plants and Production of Architectural Precast Concrete Products.

1.04 QUALITY ASSURANCE

A. Manufacturers shall have minimum of five (5) years production experience in precast concrete work of quality and scope required on this project.

B. Employ and pay for the services of an independent testing laboratory to perform the specified Source Quality Control.

1.05 SUBMITTALS

A. Submit in accordance with Section 01 33 00.

1. Shop Drawings

    a. Erection drawings: Include member piece marks with size and shape of each member; plans/elevations showing all products furnished by supplier; sections/details showing connections and cast in items; joints and openings between members and structure; description of all loose cast-in field hardware; locations of field installed anchors, and all dead, live and other applicable design loads.

    b. Production drawings. Include elevation view of each member, sections/details to show quantity and position of reinforcing, anchors, and inserts, handling devices, dimensions and finishes, joint and connection details and methods for storage and transportation.

2. Calculations

    a. Submit calculations for connections of precast members to each other and to the primary structure.

    b. Submit calculations for individual members on request.

3. Samples: Submit samples representative of finished exposed facing showing typical range of color and texture.

    a. Adjust color and texture as directed and resubmit until acceptable to Architect.

    b. Sample size: Approximately 24 inches in length and of appropriate dimensions.

B. Test Reports: Submit test reports of specified Source Quality Control.

1.06 DESIGN CRITERIA

A. All designs shall be performed and certified by an engineer licensed in the state in which the project is constructed.

B. Design shall be in accordance with the current State Building Code and the International Building Code as amended by the current State Building Code and ACI 318. Most stringent requirements govern. Use standard design methods of the PCI Handbook whenever possible.

C. Design loadings shall include initial handling and erection conditions and all dead and live loads specified on the contract documents. Coordinate design of members and connections with structural precast and other supplier-designed portions of the structure.

D. Design deviations will be permitted only with written approval of the Architect. Any proposed deviations must include complete design calculations and drawings.

1.07 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Delivery and Handling

1. Handle and transport units in a position consistent with their shape and design in order to avoid stresses which would cause cracking or damage.

2. Lift or support units only at the points shown on the shop drawings.

3. Place nonstaining resilient spacers of even thickness between each unit.

4. Support units during shipment on non-staining shock-absorbing material.

5. Do not place units directly on ground.

B. Storage at Jobsite

1. Store and protect units to prevent contact with soil, staining, and physical damage.

2. Store units, unless otherwise specified, with nonstaining, resilient supports located in same positions as when transported.

3. Store units on firm, level and smooth surfaces.

4. Place stored units so that identification marks are discernible, and so that product can be inspected.

PART 2: PRODUCTS

2.01 MATERIALS

A. Concrete

1. Portland cement:

   a. ASTM C 150, Type 1.
   b. For exposed surfaces use same brand, type and source of supply throughout.
   c. Color mix: As required to match existing stone copings.

2. Air entraining agent: ASTM C 260.

3. Water reducing, retarding, accelerating, and high range water reducing admixtures: ASTM C494 or C1017.

4. Aggregates:

   a. Provide fine and coarse aggregates for each type of exposed finish from a single source (pit or quarry) for entire job. They shall be clean, hard, strong, durable and inert, free of staining or deleterious material.
   b. ASTM C 33 or C 330.
   c. Material and color: As required to match existing stone copings.

5. Water: Free from deleterious matter that may interfere with the color, setting or strength of the concrete.

B. Reinforcing Steel

1. Plain deformed steel, ASTM A615 grade 60, clean, free of loose rust, scale or other coatings that may reduce bond.

2. Weldable deformed steel: ASTM A706.

3. Epoxy coated reinforcing: ASTM A775.

4. Wire fabric: ASTM A185, galvanized sheets.

C. Cast-In Anchors and Loose Supports

1. Materials:

   a. Carbon steel bars: ASTM A306, grade 65.
   b. Structural steel: ASTM A36.
   c. Stainless steel: ASTM A666, Type 304.
   d. Bolts: ASTM A307 or A325.
   e. Welded headed studs: AWS D1.1, Chapter 4, Part F.

f. Deformed bar anchors: ASTM A496 or A706

2. Finish non-corrosive environments: Shop primer - FS TT-P-86, oil base paint, type 1, or SSPC-Paint 14, or manufacturer's standard.

3. Finish corrosive environments: Hot-dipped galvanized ASTM A123, or cadmium coated ASTM B766, Type II or III. Touch up for galvanized members: Materials and methods per ASTM A780.

D. Pin-Type Anchors for Precast Copings: Heckmann Building Products #276 or equivalent meeting the following:

1. Stainless Steel: ASTM A666,Type 304

2. Thickness: 1/8" or greater.

3. Pin Dimensions: ¼" x 4" long, furnish loose for field installation.

4. Field verify required length of anchor.

2.02 MIXES

A. Concrete Properties

1. Water-cement ratio: Maximum 40 lbs. of water to 100 lbs. of cement.

2. Air entrainment: Amount produced by adding dosage of air entraining agent that will provide the air content given in Table 4.1.1 of ACI 318 for severe exposure.

3. Coloring agent: Not more than 10% of cement weight.

4. 28 day compressive strength: Minimum of 5000 psi when tested by 6 x 12 or 4 x 8 in. cylinders; or minimum 6250 psi when tested on 4 in. cubes.

2.03 FABRICATION

A. Prior to fabrication field verify dimensions of existing stone copings to be matched by new work.

B. Manufacturing procedures shall be in general compliance with PCI MNL-117.

C. Finish: As required to match existing stone copings.

D. Cover

1. Provide at least 3/4 in. cover for reinforcing steel.

2. Do not use metal chairs, with or without coating, in the finished face.

3. Provide embedded anchors, inserts, plates, angles and other cast-in items with sufficient anchorage and embedment for design requirements.

E. Curing: Cure precast units until 2000 psi minimum compressive strength has developed before removing the units from the form, unless greater strength is required for stripping.

F. Acceptance: Architectural precast units that do not meet the color and texture range or dimensional tolerances may be rejected at the option of the Architect, if they cannot be satisfactorily corrected.

PART 3: EXECUTION

3.01 INSTALLATION

A. Refer to Section 04 20 00 for installation.

3.02 PATCHING

A. Mix and place patching mixture to match color and texture of surrounding concrete and to minimize shrinkage.

B. Patching of major surface defects will not be acceptable; replace units.

3.03 CLEANING

A. After installation, clean soiled precast concrete surfaces with detergent and water, using fiber brush and sponge, and rinse thoroughly with clear water.

B. Use acid solution only to clean particularly stubborn stains after more conservative methods have been tried unsuccessfully.

C. Use extreme care to prevent damage to precast concrete surfaces and to adjacent materials.

D. Rinse thoroughly with clean water immediately after using cleaner.

END OF SECTION 03 45 00

SECTION 04 01 20

UNIT MASONRY REPAIRS

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. Section includes:

1. Extract sample of existing mortar to determine composition and color.
2. Sawcutting of existing defective mortar joints.
3. Repointing of mortar joints.
4. Removal of brick as noted on drawings.
5. Removal of existing mortar from brick to be reused/reinstalled.
6. Installation of flashings.
7. Toothing in of new brick and salvaged brick.
8. Removal of debris and residue.
9. Final Cleaning.

B. Related work specified in other sections:

1. 07 62 00 – Sheet Metal Coping and Flashing
2. 07 65 00 – Flashing.

1.03 REFERENCES

A. The following specifications and standards are incorporated by reference. Materials and operations shall comply with requirement of latest issue of published reference. Where provisions of these Project Specifications are at variance with those reference specifications, the maximum criteria or requirements shall govern.

1. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar.
2. ASTM C150 - Standard Specification for Portland Cement.
3. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes.
4. ASTM C270 - Standard Specification for Mortar for Unit Masonry.
5. ASTM C780 - Standard Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry.

6. ASTM C476 – Standard Specification for Mortar and Grout for Reinforced Masonry.

B. Contract shall meet the most current standards as set forth below, unless otherwise indicated:

1. BIA Technical Notes 20 Rev, "Cleaning Brick Masonry".

2. BIA Technical Notes 8 Rev, "Portland Cement - Lime Mortar for Brick Masonry".

3. BIA Technical Notes 8B, "Mortar for Brick Masonry - Selection and Controls".

4. When applicable, BIA Technical Notes 1A Rev, "Cold Weather Masonry Construction - Construction and Protection".

5. ASTM Standard C780 for preconstruction and construction evaluation of mortars for non-reinforced masonry.

6. All applicable American Society for Testing and Materials regulations.

7. All other applicable regulations and standards where indicated by provisions of the Contract and Architect's direction.

1.04 SUBMITTALS

A. Submit in accordance with Section 01 33 00.

1. Restoration Procedure: Submit written program for each phase of restoration process including protection of all surrounding materials on building and site during operations. Describe in detail, materials, methods and equipment to be used for each phase of restoration work.

2. Product Data: Submit manufacturer’s technical data as described below. Tests and compliance certification shall have been performed and presented by an independent testing laboratory and be less than one year old from the start date for the brick replacement phase of the project.

a. Mortar sand gradation and quality per ASTM C144 for each type of sand used within the mortars.

b. Mortar Samples: Submit, for verification purposes and prior to sample panel erection, samples of all types of mortar materials, colors, chemical cleaning solvents, sealants, adhesives, anchors, etc., as outlined in the Drawings and Provisions of the General Contract and subsequent conditions and specifications for approval by the Architect.

c. Mix Design: Mix mortar in the laboratory from representative samples of materials to be used in the Work, including selected colorants. Average compressive strength at 28 days shall be 750-1100 psi. Submit mix designs for each mortar type at least seven days prior to preparation of job mortar and delivery to the site. Include copies of test reports for aggregate and mortar strengths. Do not start masonry work until Architect has reviewed test reports and accepted mix design.

1.05 QUALITY ASSURANCE

A. Contract Qualifications: Work shall be performed by a firm having not less than 5 years successful experience in comparable masonry projects and employing personnel skilled in the processes and operations indicated. Provide adequate references upon request of Architect.

B. Methods of Testing (As it applies to other related work that may be indicated.) - The Contractor shall perform and pay for the following tests as specified as source quality control and directed by the Architect:

1. Compressive Strength: Compressive strength shall be determined in accordance with ASTM Standard C109. The mortar shall be composed of materials and proportions that are to be used in the construction with mixing water to produce a flow of 110±5 percent.

2. Water Retention: Water retention shall be determined in accordance with ASTM Standard C91, except in laboratory conditions or where otherwise indicated.

3. Air Content: Air entrainment shall be determined in accordance with Specification C91 except where otherwise indicated.

C. Mortar joints shall be deemed defective and shall be replaced if they are judged by the Architect to be loose, cracked, or deteriorated, miscolored, or otherwise poorly placed.

1.06 PROJECT CONDITIONS

A. Protect persons, motor vehicles, surrounding surfaces of building whose masonry surfaces are being restored, protect building site and surrounding buildings from injury resulting from masonry restoration work.

1. Prevent damaging dust, debris, mortar and chemical cleaning solutions from coming into contact with pedestrians, motor vehicles, landscaping, buildings and other surfaces which could be injured by such contact.

2. Dispose debris and run-off from cleaning operations by legal means and in manner which prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.

3. Protect sills, ledges and projections from mortar droppings by the use of plastic coverings, masking or other means, and remove protections upon completion of work.

B. Do not lay masonry, repoint, caulk, wash down or wet surfaces when temperature may drop below 40°F within 24 hours. Follow cold weather procedures as set out in ANSI A41.1 when temperatures may drop below 40°F.

C. Prevent mortar used in repointing and repair work from staining face of surrounding masonry and other surfaces. Remove grout and mortar in contact with exposed masonry.

1.07 OWNER FURNISHES

A. The Owner shall supply the Contractor with a point of water and supply for his hook-up. The Owner shall supply water and electrical power, without cost to the Contractor. The Contractor shall be responsible for proper hook-up and maintenance of temporary electrical connections. The Contractor shall locate sufficient electrical circuits, protected by circuit breakers, to be certain that system overload shall not occur by Contractor's equipment usage. The Contractor shall use only electrical equipment that is fused or protected by circuit breakers from Owner's electrical system.

1.08 DELIVERY, STORAGE AND HANDLING OF MATERIALS

A. Deliver materials to site in manufacturer's original and unopened containers and packaging, bearing labels as to type and names of products and manufacturers.

B. Cementitious materials and aggregates shall be stored in a manner as to prevent deterioration or contaminations by foreign materials.

C. Protect grout, mortar and other materials from deterioration by moisture and temperature. Store in a dry location or in waterproof containers. Keep containers tightly closed and away from open flames. Protect liquid components from freezing. Comply with manufacturer's recommendations for minimum and maximum temperature requirements for storage.

PART 2: PRODUCTS

2.01 REQUIREMENTS

A. Provide masonry and mortar conforming to the requirements indicated in the Drawings, specifications and provisions of the Contract, and as approved by the Architect.

2.02 MATERIALS

A. Materials shall be as specified below unless otherwise indicated.

1. Facing Brick: As specified in Section 04 20 00.

2. Mortar Materials

   a. Portland Cement: ASTM C150, Type I

   b. Hydrated Lime: ASTM C207, Type S.

   c. Aggregate: ASTM C144

   d. Water: Clean, potable, free of deleterious amounts of acids, alkalies, or organic materials.

   e. Antifreeze Compounds: Not allowed in mortar to lower freezing point.

3. Mortar Colorants: As specified in Section 04 20 00

4. Mortar Admixtures:

   a. No calcium chloride or admixtures containing calcium chloride shall be used in the mortar.

   b. No air-entraining admixtures or material containing air-entraining admixtures shall be used in mortar without prior approval of the Architect.

   c. No antifreeze compounds or other substances shall be added to mortar.

   d. Water must be clean and free from deleterious amounts of acids, alkalis or organic materials.

   e. No admixtures shall be used without prior, written approval of the Architect.

5. Veneer anchors: Veneer Anchor #D/A 5801 14 gauge galvanized with 3/16" ties.

6. Brick Expansion Joint: Dur-O-Wal "Rapid" Expansion Joint, Everlastic Neo-Seal IV or equal.

7. Compression Seal: Flexible semi-closed urethane, Brock White No. 4290 Shok Pak or equal. Installed ½" thicker than joint thickness.

8. Galvanized Items: Minimum ASTM A641 Class 3.

9. Flashings: Conform to requirements of Section 07 65 00 Flashings. Color: As selected by Architect from manufacturer's standard colors.

10. Cavity Weep/Vent: Dur-O-Wall cell vent D/A 1006 in size as required for existing brick. Color as selected from manufacturer's full range of available colors.

11. Rope Wicks: ¼" cotton sash cord.

12. Mortar Net: 90% open weave, 200 denier 100% recycled polyester, dovetail/continuous bottom strip design, thickness to match cavity width x 5'-0" length as manufactured by Mortar Net USA, Ltd.

13. Bond Breaker: No. 15 building paper, red rosin, kraft paper, or 6 mil polyethylene.

14. Cavity Wall Insulation: Rigid closed-cell extruded polystyrene insulation conforming to ASTM C578-95, type IV with a compressive strength of 25-psi per ASTM D1621.

PART 3: EXECUTION

3.01 EXAMINATION

A. Verification of Condition: Examine areas and conditions under which work is to be performed. Notify the Architect, in writing, or conditions detrimental to proper and timely completion of the work. Work shall not proceed until unsatisfactory conditions have been corrected in an acceptable manner. All phases of verification and preparation shall meet Architect's approval.

3.02 PREPARATION

A. Protect elements surrounding the work from damage or disfiguration.

B. Protect roof surfaces by laying plywood over affected area.

C. Carefully remove and store fixtures, fittings, finishing hardware and accessories as required.

D. Close off, seal, mask, or board up windows and doorway areas and surfaces not receiving work as necessary to protect them from damage. Apply masking agent to comply with manufacturer's recommendations and use as directed from Architect's approval.

E. Measurements of Materials: The method of measuring materials for the mortar used in construction shall be by either volume or weight, so that proportions of the mortar materials can be controlled and accurately maintained.

F. Mixing Mortars:

1. Mix mortar as required for immediate use only and discard any mixed for a period exceeding 2-1/2 hours.

2. Accurately maintain and control the specified proportions of the mortar materials during the entire progress of the work.

3. Thoroughly mix cementitious materials and aggregates with the amount of water to produce satisfactory workability. Machine mix all mortar.

4. Proportion colorant for mortar in accordance with printed instructions by pigment manufacturer to avoid reducing mortar properties, at a rate not to exceed 10 pounds per 94 pound bag of portland cement.

3.03 EXISTING MASONRY REPAIR

A. All work shall be performed in compliance with the Drawings, specifications, and Contract conditions.

B. Existing bricks shall be removed in whole units and typically salvaged for reinstallation. Provide additional sawcutting as necessary for removal of whole units. Remove mortar from brick surfaces to allow reinstallation. In addition to salvaged brick, new brick shall be required. Architect shall review and approve locations for where new

brick is to be installed, and may require that salvaged brick be stockpiled and reinstalled at locations other than where it was originally removed from.

C. The cutting out of joints shall be done in such manner as not to loosen adjacent joints or to damage the edges or corners of the masonry units. Where the mortar is tightly bonded at one side of the joint, and if the contour permits, cutting shall be done with portable electric grinders with abrasive wheels to minimize spalling at the edges of bricks. It is the Architect's prerogative to forbid the use of tools or methods which do not produce work of the quality that is expected, and to insist on the use of methods and tools which will do the work properly.

D. Do not spall edges of masonry units or widen joints during mortar joint removal process. Contractor is responsible to replace brick units which become damaged during the joint removal process as directed by the Architect.

E. Where bricks have been removed, clear existing cavity space of existing mortar droppings and remove existing cavity insulation to provide clean and even surfaces for thru-wall flashing installation.

F. Thru-Wall Flashing:

1. Flashing Installation: Properly clean and dry backup prior to applying primer as recommended by flashing manufacturer. Lay one layer of flexible flashing on bed joint of brick. Install continuous metal flashing and adhere another layer of flexible flashing over metal and continue up vertical back-up material a minimum of 8 inches. Lap all flashing joints a minimum of 8 inches. Install flashing termination bar at top of flashing.

2. Apply a bead or trowel coat of mastic along top of termination bar, seams, cuts and penetrations.

G. Lay bricks in running bond to match existing coursing.

H. Provide rope wick type weeps at 24 inches o.c. in exterior masonry in vertical joints immediately above all flashing.

I. Install new cavity wall board insulation over new thru-wall flashing.

J. Install mortar net per manufacturer’s instructions.

K. Masonry Repair Procedures:

1. Moisten existing bricks prior to installing new bricks. Surfaces shall be damp without standing water.

2. Replace removed brick with new brick to match bonding and coursing pattern of existing brick.

3. Leveling Layer: Apply pointing mortar in not greater than 3/8" layers to form uniform base depth throughout the mortar joint. Provide concave joint profile at all exposed mortar joints.

4. Retempering shall be performed only upon approval of the Architect. Mortars that have stiffened because of evaporation of water from the mortar shall be retempered by adding water as needed to restore the required consistency. Do not retemper mortar more than once. Discard mortar that is over 2½ hours old.

5. Final tooling of mortar shall be concave profile as approved by the Architect.

L. Remove excess mortar from edge of joint by lightly brushing with natural bristle brushes.

M. Cure mortar by maintaining in a damp condition for 72 hours. Provide periodic mist spray directly to mortar joints and masonry. Take care not to wash out fresh mortar.

1. After mortar has fully hardened thoroughly clean exposed masonry surfaces of excess mortar and foreign matter using stiff nylon or bristle brushes and clean water, spray applied at low pressure. Do not use metal scrapers or brushes.

2. If stiff brushes, water do not suffice clean the surface on which no green efflorescence appears with Sure-Klean Vana-Trol as manufactured by Pro So Co., Inc.

3. Remove "problem" stains as follows with the as specified formulations of Pro So Co., Inc. or equal:

   a. Green Efforescence – "Sure-Klean No. 800 Stain Remover".

   b. Tar, Asphalt – "Sure-Klean Asphalt and Tar Remover".

4. Do not use acid solutions for cleaning masonry units unless specifically approved by Architect.

3.04 AGING OF NEW MORTAR TO BLEND IN WITH APPEARANCE OF ADJACENT WORK

A. Rug in or dust mortar joints, new brick masonry and stone work where deemed necessary by the Architect to match as closely as possible, after cleaning, adjacent original work.

B. Use carbon black or other approved materials in small amounts, rubbing in well with burlap rags or medium bristle brush.

C. After each application dust off surplus and wash down with medium pressure hose. Allow to dry thoroughly before proceeding with succeeding applications.

D. Continue process until acceptance of visual appearance by Architect is obtained.

3.05 FINAL CLEANING

A. The Contractor shall remove and dispose of all debris generated as a result of his work on a daily basis. No accumulation is allowed in the sidewalk, ramp, etc. Debris shall be disposed of in a manner complying with municipal, state and any other applicable regulatory requirements.

END OF SECTION 04 01 20

SECTION 04 20 00

NON-BEARING UNIT MASONRY

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. Section includes:

1. Furnish and install concrete masonry units and brick where shown on the drawings.
2. Furnish and install mortar, cavity insulation, masonry accessories, masonry reinforcing and other items embedded in masonry construction.
3. Install/Reinstall precast concrete copings.
4. Prior to applying cleaning agent to masonry, apply to sample materials for Architect's review.
5. Prior to installation of finished materials, all flexible flashings shall be observed by the Architect. The Architect shall be given a minimum of 72 hours notice prior to the desired observation time. Any finish materials (i.e., brick, insulation, metal, etc.) installed without observation by the Architect shall be removed and replaced at the Contractor's expense.

B. Related work specified in other sections:

1. Unit Masonry Repairs – Section 04 01 20.
2. Reinforced Unit Masonry – Section 04 27 31.
3. Flashings – Section 07 65 00/13.

1.03 REFERENCES

A. The following specifications and standards are incorporated by reference. Where provisions of these Project Specifications are at variance with those reference specifications, the maximum criteria or requirements shall govern.

1. ACI 530/ASCE 5/TMS 402 - Building Code Requirements for Masonry Structures; American Concrete Institute International; 2005
2. ACI 530.1/ASCE 6/TMS 602 – "Specifications for Masonry Structures"; American Concrete Institute International 2005.
3. ASTM A82/A 82M, "Steel Wire, Plain, for Concrete Reinforcement"; 2005a.
4. ASTM A153/A 153M, "Zinc Coating (Hot-Dip) on Iron and Steel Hardware"; 2005.
5. ASTM A615/A 615M, "Deformed and Plain Billet-Steel Bars for Concrete Reinforcement"; 2007.
6. ASTM C55 – "Concrete Building Brick"; 2006.
7. ASTM C67 – "Sampling and Testing Brick and Structural Clay Tile"; 2007.
8. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar; 2004.
9. ASTM C150 - Standard Specification for Portland Cement; 2005.
10. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2006.
11. ASTM C216 – "Facing Brick (Solid Masonry Units Made From Clay or Shale)"; 2007.
12. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2007.
13. ASTM C387, "Packaged, Dry, Combined Materials for Mortar and Concrete"; 2006.
14. ASTM C780 - Standard Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry; 2006a.
15. ASTM C1072 – "Measurement of Masonry Flexural Bond Strength"; 2006.

16. ASTM C1314 – "Compressive Strength of Masonry Prisms"; 2003b. AN
17. International Building Code (IBC) Edition enforced by local jurisdiction.

1.04 QUALITY ASSURANCE

A. Employ and pay for the services of an independent testing laboratory acceptable to the Owner and Architect to perform the specified Source Quality Control.

1.05 SUBMITTALS

A. Submit in accordance with Section 01 33 00.

1. Mix Design: Submit mix designs for each mortar type at least seven days prior to preparation of job mortar and delivery to the site. Include copies of test reports for aggregate and mortar strength.

2. Mortar Samples: Submit samples of manufacturer's standard colors for preliminary selection. If requested, prepare and submit custom-mixed samples to match materials or colors as directed by the Architect. Prepare custom color samples using specified mix design; make 3/8" wide, tool concave smooth. Up to two different custom mortar colors may be selected for brick, in addition to standard gray mortar and colored pointing mortar.

3. Mortar Mixes: Test mortar for consistency, compressive strength and water retentively in accordance with ASTM C780 recommendations for preconstruction testing.

    a. Preconstruction tests will be used to establish optimum mortar proportion and establish control values for construction testing. They are not required to meet the compressive strength requirements of ASTM C270.

4. Test Reports

    a. Submit reports on manufacturer's normal quality control.

    b. Provide report on modified ASTM C67 test for face brick as follows: Test to determine if the exterior face brick will meet the SW grade requirements of ASTM C216. Testing is recommended to document compressive strength, saturation coefficient, dimensions, distortion and potential for efflorescence. For this testing, a total of 15 bricks will be required. Make the samples representative of the whole lot of brick from which they are selected and include specimens representative of the complete range of colors and sizes of the brick in the shipment. Upon completion of testing, cut several of the brick samples and observe the cross section for the presence of stratification.

5. Submit samples of all specified masonry accessories for Architect's review.

6. Provide exterior elevation drawings showing all proposed brick expansion joints and floor plans with proposed block control joint location.

B. Masonry Samples

1. Manufacturer's samples: Preliminary selection of brick type and color has been based upon manufacturer's samples supplied to the Architect prior to bidding. Brick supplied to the site which, in the judgment of the Architect, varies significantly from these samples in color, color range or finish will be rejected.

2. Sample panels: At the site at a location determined by Architect, erect a 2'-8" square panel of each brick type, incorporating the preliminary mortar selection(s) and the full range of brick color to be expected. After review by the Architect, construct additional sample panels to adjust brick range and mortar color. Do not begin final production and/or delivery of materials until acceptance of preliminary sample panel.

1.07 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Handle, transport and store at the job site in a manner that will avoid damage.

B. Protect masonry units from water. Deliver the units to the job cubed on pallets.

C. Store materials under cover in dry place; in manner to prevent damage, intrusion of foreign material. During freezing weather protect all masonry units with tarpaulins or other suitable material. Store concrete masonry under covers that will permit circulation of air, prevent excessive moisture absorption; protect against wetting prior to use.

PART 2: PRODUCTS

2.01 MORTAR MATERIALS

A. Portland Cement: ASTM C150, Type I. Use of masonry cement is not permitted.

B. Hydrated Lime: ASTM C207, Type S.

C. Aggregates: ASTM C144.

D. Water: Clean, potable, free of deleterious amounts of acids, alkalies or organic materials.

E. Pre-Mixed Mortar: ASTM C387. Specific property and material requirements of this Section shall govern.

F. Antifreeze Compounds: Not allowed in mortar to lower freezing point.

G. Mortar Colorant: Inert, sunfast, weather resistant, alkali resistant, water insoluble, free of deleterious fillers and extenders. By Solomon Grind-Chem Service, Inc., Euclid, Twin City Concrete Co., Tamms Industries Co. or Prism Pigments

1. Colors: The following colors shall be used on the initial samples. Architect reserves the right to make adjustments to colors based on results of intended match with existing construction. Contractor shall provide additional samples as required to achieve a match with existing mortar considered acceptable to Architect.

   a. At Brick No. 1 (Maroon): Solomon Grind-Chem #45H “Maroon”

   b. At Brick No. 2 (Grey/Buff): Solomon Grind-Chem #10H “Light Buff”

   c. Nature or manufactured colored mortar aggregate selected to produce mortar color shall be used, if available and matches existing mortar.

   d. Size, texture and gradation of existing mortar must be matched.

2.02 MORTAR MEASURING AND MIXING

A. Measure and mix in accordance with ASTM C270 (Proportion Specifications) and the following:

1. Mix mortar as required for immediate use only and discard any mixed for a period exceeding 2-1/2 hours.

2. Accurately maintain and control the specified proportions of the mortar materials during the entire progress of the work.

3. Thoroughly mix cementitious materials and aggregates with the amount of water to produce satisfactory workability. Machine mix all mortar.

4. Proportion colorant for mortar in accordance with printed instructions by pigment manufacturer to avoid reducing mortar properties, at a rate not to exceed 10 pounds per 94 pound bag of portland cement.

5. Mix pointing mortar with specified admixtures strictly according to manufacturer's printed instruction.

2.03 MORTAR SOURCE QUALITY CONTROL

A. Test proposed aggregate for conformance to ASTM C144 and these specifications.

B. Test each mortar mix design for water retentivity and compressive strength in accordance with ASTM C270.

C. Mix mortar in the laboratory from representative samples of materials to be used in the Work, including selected colorants. Average compressive strength at 28 days shall be as follows:

Mortar Type	Compressive Strength Range
M	2,500 psi - 3,000 psi
S	1,800 psi - 2,200 psi
N	750 psi - 1,100 psi

D. Adjust mix design so as to achieve compatibility with brick to be supplied, considering initial rate of absorption of brick and water retentivity of mortar.

E. Do not start masonry work until Architect has reviewed test reports and accepted mix design.

F. Prepare and test new mix designs if mortar does not meet specifications or if, during the course of the Work, significant changes occur in aggregate or other materials.

G. Use field measuring methods to accurately control mortar mix proportions.

2.04 MASONRY ACCESSORIES

A. Horizontal Wall Reinforcement and Masonry Veneer Anchors: ASTM A153 - Class B2 hot dipped, galvanized, Hohmann & Barnard or equivalent products by AA Wire Products, Wire Bond, as follows:

1. Non-load bearing partitions: "Ladur #220 Ladder-Mesh" type standard weight with No. 9 side and cross rods.

2. Exterior cavity wall reinforcing: "Ladur #170 Truss Lox – All Adjustable Eye-Wire" type, No. 9 side and cross weight with 3/16" diameter adjustable brick tie.

3. Width: Approximately 2 inches less than nominal thickness of wall or wythe.

4. Corners: Furnish pre-fabricated corners and tees except where masonry control and expansion joints indicated. Use for all corners and intersections of masonry walls, including intersections of exterior walls with partitions.

5. Veneer anchors (hot dipped galvanized) for existing masonry or concrete back-up: Hohmann & Barnard: HB-200 Adjustable Veneer Anchor; Wire-Bond: RJ 711 Adjustable Veneer Anchor.

6. Dovetail Brick Tie: HB-315

7. Veneer anchors for steel studs or existing back-up: Veneer Anchor HB-213 gauge with 3/16” ties.

B. Reinforcing Steel: Sizes as indicated on Drawings. New billet stock, deformed bars, ASTM A615 Grade 60, free of mill scale, excessive rust or other coating that would prohibit proper bond with grout or mortar.

C. Rigid Steel Anchors: 1-1/2" wide by 24" long by 1/4" thick with ends turned 2". Hot-dip galvanized, ASTM A153, Class B.

D. Reinforcing Bar Positioners: Adequate to hold reinforcing bars in specified locations without displacement during grouting operations.

E. Concrete block control joint: Hohmann & Barnard Control Joint, Rubber Compound, RS Series or equivalent product by Vinylex, Everlastic, or Vulcan Metal Products.

F. Brick expansion joint filler or material: HS-NS Closed Cell Neoprene Sponges or equal. Size: thickness to match joint thickness x 3" wide. Constructed of closed cell neoprene.

G. Flashing: Conform to the requirements of Section 07 65 00 Flashings. Color: See Material Finish/Color Schedule on Architectural Drawings.

H. Cavity Wall Insulation: Rigid closed cell extruded polystyrene thermal board insulation, conforming to ASTM C578-95 type IV.

1. Thermal Resistance: Aged R-value per inch of 5 at 75° F mean temperature per ASTM C518.
2. Water Vapor Permeance: 1.5 maximum per ASTM E96.
3. Compressive strength: 25 psi per ASTM D1621.
4. Water Absorption: 0.3% by volume, maximum per ASTM C272.

I. Cavity Weep/Vent: H&B-QV Quado-Vent. Color as selected from manufacturers full range of available colors.

J. Rope Wicks: Conform to requirements of Section 07 65 00, Flashings.

K. Mortar Net: 90% open weave, 200 denier 100% recycled polyester, dovetail/continuous bottom strip design, thickness to match cavity width x 5'-0" length as manufactured by Mortar Net USA, Ltd.

L. Flashing Termination Bar and Fasteners: Conform to requirements of Section 07 65 00, Flashings.

M. Bond Breaker: No. 15 Building Paper, red rosin kraft paper or 6 mil polyethylene.

N. Pin-Type Anchors for Precast Copings: As specified under Section 03 45 00.

2.05 CONCRETE BLOCK

A. Units

1. Hollow load bearing units: ASTM C90, Grade N-1, normal weight. Type I.
2. Concrete building brick: ASTM C55, Grade N, normal weight. Type I.

B. Requirements

1. Prism strength: As shown on drawings. If not shown, provide f'm = 1,500 psi.

2. Compressive strength of individual masonry units shall be as shown for the respective prism strength

   a. f'm = 1,500 psi: required unit strength = 1,900 psi.

3. Shapes: Provide plain shapes for non-reinforced walls excluding lintel, cap, and sill block units.

4. Special Shapes: Provide non-standard blocks configured for corners, lintels, headers and control joint edges.

5. Fire-Resistant Construction: Wherever a fire-resistant classification is indicated for unit masonry construction, provide concrete block units as tested and listed for the particular construction.

6. Provide bullnose corners at all exposed outside corners in finished rooms and as detailed on drawings.

7. Where exposed in interior spaces to receive paint. Provide single vertical "V" score in center of face.

C. Fabrication: Use clean, smooth forms to eliminate voids, ridges and other blemishes visible in the finished work or which might be subject to damage during shipping and installation.

2.06 FACE BRICK

A. Brick No.1 (Maroon):

1. Manufacturer: Interstate Brick
2. Color: "Mountain Red, Smooth"
3. Size: Modular (2 ¼"x 3 5/8"x 7 5/8")
4. Contact: Bricks, Incorporated (ph#773-633-3421)

B. Brick No. 2 (Grey/Buff):

1. Manufacturer: Summit Brick & Tile Co.
2. Color: "Thistledown Smooth"
3. Size: Modular (2 ¼"x 3 5/8"x 7 5/8")
4. Contact: Bricks, Incorporated (ph#773-633-3421)

2.14 SOURCE QUALITY CONTROL

A. Perform tests of each brick type in accordance with ASTM C67 to determine compliance with ASTM C216, Grade SW. Document compressive strength, saturation coefficient, initial rate of absorption, dimensional tolerance and potential for efflorescence.

B. Perform tests of each brick/mortar combination to determine flexural bond strength in accordance with ASTM C1072.

PART 3: EXECUTION

3.01 LAYOUT

A. Unless noted on Drawings as "clear", all dimensions on Drawings are modular, from center to center of vertical joints and from bottom to bottom of horizontal joints.

B. Lay out exposed masonry to achieve joint pattern shown on Drawings. Where not shown, lay out exposed masonry to minimize cutting of units. Where possible, provide full 8" wide units at outside corners, jambs, and other openings.

3.02 MORTAR

A. Mortar proportioning and mixing as specified.

B. Tempering: The consistency of mortar may be adjusted to the satisfaction of the mason. Use mortar within two and one half (2-1/2) hours after mixing.

C. Type: Lay masonry in mortar of the type specified below, as adjusted for compatibility with masonry units.

Kind of Masonry	Mortar Type
Exterior walls, non-load bearing at or below grade.	M
Exterior walls, non-load bearing, above grade; Brick veneer.	S
Interior non-load bearing partition walls.	N

3.03 PRECAUTIONS

A. Cold Weather Requirements: Conform to requirements of Reinforced Unit Masonry Section 04 27 31

B. Hot Weather Requirements: Conform to requirements of Reinforced Unit Masonry Section 04 27 31.

3.04 LAYING MASONRY UNITS

A. Lay masonry plumb, true to lines. Unless noted on drawings as "clear", all dimensions on drawings are modular, from center to center of vertical joints and from bottom to bottom of horizontal joints.

B. Lay hollow masonry units 4 inches or less in thickness, all solid masonry units in full beds of mortar with full head joints.

C. Lay hollow masonry units exceeding 4 inches in thickness with divided bed, head joints.

D. Avoid over-plumbing, pounding of corner, jambs after setting masonry in position. Where an adjustment must be made after mortar has started to harden, remove mortar, replace with fresh mortar.

E. Lay masonry within one minute of placing mortar.

3.05 BONDING AND ANCHORAGE

A. Anchor abutting or intersecting non-load bearing walls, partitions at vertical intervals of 2 feet with corrugated ties.

B. Where indicated anchor walls, partitions abutting or facing against steel columns, beams with flexible anchors. Unless indicated otherwise, maximum spacing; 16 inches vertically at columns, 16 inches horizontally at beams.

C. Anchor exterior walls, veneer facing against concrete beams, columns, walls with dovetail anchors spaced 16 inches vertically, 16 inches horizontally.

D. Anchor exterior walls parallel to open web joists with prefabricated anchoring and reinforcing assembly with adjustable rectangular ties welded to structural steel as indicated.

E. Bond non-bearing walls, partitions of more than one wythe with wire ties; use at least one tie for each 3½ sq. ft. of wall surface; spaced maximum of 16 inches vertically, 36 inches horizontally, stagger alternate rows. Embed ties in horizontal joints.

F. Anchor veneer to backup with ties spaced 16" horizontally and vertically.

G. Bond bearing walls of more than one wythe as required for non-bearing walls. Fill all collar joints between all wythes with mortar.

3.06 BUILT-IN WORK

A. Consult other trades in advance, make provision for installation of their work in order to avoid cutting, patching. Build-in work specified under other sections as work progresses.

B. Flexible Flashing:

1. Apply where concealed wall flashing is indicated; at heads; sills of exterior masonry openings; at exterior wall damp courses; under all precast concrete copings; as otherwise indicated.

2. Flashing Installation: Properly clean and dry backup prior to applying primer as recommended by flashing manufacturer. Lay one layer of flexible flashing on bed joint of brick. Install continuous metal flashing and adhere another layer of flexible flashing over metal and continue up vertical back-up material a minimum of 8 inches. Lap all flashing joints a minimum of 8 inches. Install flashing termination bar at top of flashing.

3. At heads, sills of masonry openings; carry head flashing 6" beyond ends of steel lintels; at heads, sills turn up ends to form pans, with corners folded, not cut.

4. Fully adhere flexible flashing to steel lintels.

5. Apply a bead or trowel coat of mastic along top of termination bar, seams, cuts and penetrations.

3.07 CONCRETE MASONRY UNITS

A. Concrete masonry erection, workmanship: Conform to requirements of ACI 530.1.

B. Do not wet concrete masonry units.

C. Make necessary cuts of concrete masonry with motor driven masonry saw.

D. Units with open cells exposed in wall will not be permitted.

E. Provide reinforced cast-in-place lintels over square head openings where indicated; formed in place with special shaped load bearing bond beam or lintel units; jointing, texture to match adjacent wall units. Fill lintels solid with grout; reinforce as indicated. Provide minimum of 8 inches bearing at ends. Provide temporary support under lintels as necessary.

F. Provide continuous vertical control joints in concrete masonry walls where indicated; where joints are not indicated, locate maximum of 20 feet on center. Locate joints a minimum of 4'-0" beyond lintel bearing. Form joints as indicated. Bond beam reinforcing shall be continuous through control joints.

G. At exposed units, finish joints with metal tool to form concave joints.

H. At unexposed units or in block scheduled for tile or veneer plaster make joints uniform, approximately 3/8" wide, cut flush.

I. Lay concrete masonry in running bond unless indicated or hereinafter specified otherwise.

3.09 RIGID INSULATION

A. Install cavity wall insulation against face of concrete block with boards horizontal, tight butted joints. Fasten with adhesive or mechanical fasteners.

3.10 BRICK AND ARCHITECTURAL PRECAST CONCRETE

A. Clay Masonry Erection, Workmanship: Conform to latest recommended standard specifications for clay masonry as published by the Brick Institute of America (BIA).

B. Moisten brick with absorption rates in excess of 20g/30 sq. in./min. as determined by ASTM C67, so that rate of absorption when laid does not exceed this amount.

C. Finish face joints exposed on exterior walls with metal tool to form concave joint, close hairline cracks, crevices.

D. Remainder of Joints: Cut off flush.

E. Lay bricks to match existing bond. Provide header courses, soldier courses and corbeling as required and where shown on Drawings.

F. Provide continuous vertical 3/8" expansion joints in brick where shown on drawings.

G. Provide rope wicks as shown on drawings in exterior masonry in vertical joints immediately above all flashing, at base of cavity, veneer walls at top of all cavity walls; use weep vents where shown on drawings.

H. Keep air space within cavity walls clean, free from obstruction. Provide positive means of catching mortar droppings, or cleanouts to remove mortar from base of cavity.

I. Install mortar net so it is snug between insulation and back face of brick. Install in layers if needed to fill cavity.

3.11 POINTING AND CLEANING

A. Point up exposed masonry, fill holes, joints, remove loose mortar, cut out defective joints, repoint with mortar.

B. Thoroughly clean exposed masonry. Before applying any cleaning agent to entire wall, apply to sample wall area or sample panel of approximately 20 sq. ft. in location approved by Architect. Do not proceed with cleaning work until sample area is approved. Use approved cleaning material, method on remaining wall area.

C. If stiff brushes, water do not suffice clean the surface on which no green efflorescence appears with Sure-Klean Vana-Trol as manufactured by Pro So Co., Inc.

D. Remove "problem" stains as follows with the as specified formulations of Pro So Co., Inc., or equal:

1. Green Efflorescence - "Sure-Klean No. 800 Stain Remover".
2. Tar, Asphalt - "Sure-Klean Asphalt & Tar Remover".
3. Ferrous Stains - "Sure-Klean Ferrous Stain Remover".

F. Do not use acid solutions for cleaning masonry units unless specifically approved by Architect.

G. Clean off loose mortar, remove stains from concrete masonry units.

H. Schedule, complete cleaning work as soon as possible; in any event, before Owner's signage work is commenced.

3.13 MORTAR FIELD QUALITY CONTROL

A. The Owner will employ a testing agency to perform the following:

1. Field test mortar for consistency, water content, mortar aggregate ratio, air content (only for those mixes with entrained air), and compressive strength in accordance with ASTM C780. Make one test for each 2,500 square feet of wall area.

2. Test brick prisms for flexural bond strength in accordance with ASTM C1072. Make one test for each mortar/brick combination.

3. Provide test results to Architect for comparison with laboratory results.

END OF SECTION 04 20 00

SECTION 04 2731

REINFORCED UNIT MASONRY

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction, and General Provisions of the Contract, including General and Supplementary Conditions and Division - 1 Specification Sections, apply to this Section.

1.02 SECTION INCLUDES

A. Concrete Block.

B. Mortar and Grout.

C. Reinforcement and Anchorage.

D. Accessories.

1.03 REFERENCE STANDARDS

A. ACI 530/ASCE 5/TMS 402 - Building Code Requirements for Masonry Structures; American Concrete Institute International; 2005.

B. ACI 530.1/ASCE 6/TMS 602 - Specification For Masonry Structures; American Concrete Institute International; 2005.

C. ASTM A 82/A 82M - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement; 2007.

D. ASTM A 153/A 153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2005.

E. ASTM C 90 - Standard Specification for Loadbearing Concrete Masonry Units; 2006b.

F. ASTM C 94/C 94M - Standard Specification for Ready-Mixed Concrete; 2007.

G. ASTM C 140 - Standard Test Methods of Sampling and Testing Concrete Masonry Units and Related Units; 2007a.

H. ASTM C 144 - Standard Specification for Aggregate for Masonry Mortar; 2004.

I. ASTM C 150 - Standard Specification for Portland Cement; 2007.

J. ASTM C 207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2006.

K. ASTM C 270 - Standard Specification for Mortar for Unit Masonry; 2007a.

L. ASTM C 387 - Standard Specification for Packaged, Dry, Combined Materials for Mortar and Concrete; 2006.

M. ASTM C 404 - Standard Specification for Aggregates for Masonry Grout; 2007.

N. ASTM C 476 - Standard Specification for Grout for Masonry; 2008.

O. ASTM C 1019 - Standard Test Method for Sampling and Testing Grout; 2008.

P. ASTM C 1314 - Standard Test Method for Compressive Strength of Masonry Prisms; 2007.

Q. ASTM D 226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 2006.

R. IBC - International Building Code; International Code Council Edition as enforced by local jurisdicion.

1.05 SUBMITTALS

A. See Section 01 3300 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data for masonry units and fabricated wire reinforcement.

C. Product Data: Include mortar and grout design mix and indicate whether the Proportion or Property specification of ASTM C 270 is to be used. Also include required environmental conditions and admixture limitations. Provide mix designs not less than 14 days prior to beginning masonry work.

D. Reports: Submit reports of masonry unit strength tests prior to starting work.

E. Reports: Submit reports on mortar indicating conformance of component mortar materials to requirements of ASTM C 270.

F. Reports: Submit reports on grout indicating conformance of component grout materials to requirements of ASTM C 476 and test and evaluation reports to requirements of ASTM C 1019.

G. Shop Drawings: Indicate bar sizes, spacings, reinforcement quantities, bending and cutting schedules, reinforcement supporting and spacing devices, and accessories.

H. Shop Drawings: Provide drawing showing location of all proposed block control joints.

I. Manufacturer's Instructions: Submit packaged dry mortar manufacturer's installation instructions.

J. Manufacturer's Certificate: Certify that masonry units meet or exceed specified requirements.

1.06 QUALITY ASSURANCE

A. Comply with provisions of IBC and ACI 530/ASCE 5/TMS 402 and ACI 530.1/ASCE 6/TMS 602, except where exceeded by requirements of the contract documents.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

B. Maintain packaged materials clean, dry, and protected against dampness, freezing, and foreign matter.

1.09 FIELD CONDITIONS

A. Cold and Hot Weather Requirements: Comply with requirements of ACI 530.1/ASCE 6/TMS 602 this section or applicable building code, whichever is more stringent.

PART 2 PRODUCTS

2.01 CONCRETE MASONRY UNITS

A. Concrete Block: Comply with referenced standards and as follows:

1. Size: Standard units with nominal face dimensions of 16 x 8 inches and nominal depths as indicated on the drawings for specific locations.

2. Strength: Minimum unit strength as required by ACI 530.1 to achieve prism strengths shown on drawings.

3. Shapes: Provide double end or open core shapes for reinforced masonry walls excluding lintel, cap, and sill block units.

   a. Plain shapes may be used in non-reinforced areas.

   b. Plain shapes may be substituted for the above subject to grout demonstration panel and additional grouting requirements of this section.

4. Special Shapes: Provide non-standard blocks configured for corners, lintels, headers, control joint edges, and other locations as specified in Section 04 20 00.

5. Load-Bearing Units: ASTM C 90, normal weight.

   a. Hollow block.

   b. Exposed faces: Manufacturer's standard color and texture where indicated.

2.02 MORTAR AND GROUT MATERIALS

A. Materials Not Permitted: Masonry cement, anti-freeze, salts.

B. Packaged Dry Mortar: ASTM C 387, Type as given below for location in structure, using gray color cement.

C. Portland Cement: ASTM C 150, Type I.

D. Hydrated Lime: ASTM C 207, Type S.

E. Mortar Aggregate: ASTM C 144.

F. Grout Aggregate: ASTM C 404.

G. Water: Clean and potable.

H. Accelerating Admixture: Nonchloride type for use in cold weather. Obtain Architect's approval prior to use.

2.03 REINFORCEMENT AND ANCHORAGE

A. Reinforcing Steel: Sizes and types as indicated on drawings.

B. Single Wythe Joint Reinforcement: Ladder type; ASTM A 82/A 82M steel wire, hot dip galvanized after fabrication to ASTM A 153/A 153M, Class B; 0.1483 inch side rods with 0.1483 inch cross rods; width as required to provide not more than 1 inch and not less than 1/2 inch of mortar coverage on each exposure.

C. Adjustable Multiple Wythe Joint Reinforcement: Ladder type with adjustable ties or tabs spaced at 16 in on center ASTM A 82/A 82M steel wire, hot dip galvanized after fabrication to ASTM A 153/A 153M, Class B; 0.1875 inch side rods with 0.1483 inch cross rods and adjustable components of 0.1875 inch wire; width of components as required to provide not more than 1 inch and not less than 1/2 inch of mortar coverage from each masonry face.

   1. Vertical adjustment: Not less than 2 inches.

D. Rigid Anchors for Intersecting Bearing Walls: 1-1/2" wide by 24" long by 1/4" thick with ends turned up 2". Hot-dip galvanized, ASTM A153, Class B.

2.04 ACCESSORIES

A. Reinforcing Bar Positioners: Adequate to hold reinforcing bars in specified locations without displacement during grouting operations.

B. Post-installed anchors and reinforcing: See Section 03 1510

C. Preformed Control Joints: Polyvinyl chloride material. Provide with corner and tee accessories, fused joints. Minimum Shore Durometer hardness of 80, 5/8" thick shear section with 5/16" thick flanges, total width not less than 2-3/8".

D. Building Paper: ASTM D 226, Type I ("No. 15") asphalt felt.

E. Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials.

F. Perimeter Insulation: See Section 07 2100 - Insulation.

2.05 MORTAR MIXES

A. Mortar for Unit Masonry: ASTM C 270, using the Property Specification.

   1. Engineered masonry: Type S.

   2. Exterior, loadbearing masonry: Type S.

   3. Interior, loadbearing masonry: Type S.

2.06 MORTAR MIXING

A. Control and accurately maintain specified proportions of the mortar materials during the entire progress of the work.

B. Thoroughly mix mortar ingredients using mechanical batch mixer, in accordance with ASTM C270 and in quantities needed for immediate use.

1. Mix prepackaged dry mortar in accordance with manufacturer's written instructions.

C. Maintain sand uniformly damp immediately before the mixing process.

D. Do not use anti-freeze compounds to lower the freezing point of mortar.

E. If water is lost by evaporation, re-temper only within two hours of mixing.

2.07 GROUT MIXES

A. Bond Beams, Lintels, and Grouted Cores: 2,000 psi strength at 28 days; 8-10 inches slump; provide premixed type according to ASTM C94/C94M, or mix according to ATM C476.

1. Fine grout for spaces with smallest horizontal dimension of 2 inches or less.

2. Coarse grout for spaces with smallest horizontal dimension greater than 2 inches.

2.08 GROUT MIXING

A. Mix premixed grout in accordance with ASTM C 94/C 94M.

B. Thoroughly mix site mixed grout ingredients in quantities needed for immediate use in accordance with ASTM C 476 for fine and coarse grout.

C. Add admixtures in accordance with manufacturer's instructions; mix uniformly.

D. Do not use anti-freeze compounds to lower the freezing point of grout.

2.09 PRECONSTRUCTION TESTING

A. Testing will be conducted by an independent test agency, in accordance with provisions of Section 01 4533.

B. Concrete Masonry: Test each type, class, and grade of concrete masonry unit in accordance with ASTM C 140 for conformance to requirements of this specification.

1. Provide test for each different masonry unit width, face shell thickness, and concrete unit weight.

2. Supplier production test results may be used if tests are not more than 90 days old and supplier furnishes a certification that the units meet the requirements of this section.

C. Mortar Mixes: Test mortars for consistency, compressive strength, and water retentivity in accordance with ASTM C 780 recommendations for preconstruction testing.

1. Preconstruction tests will be used to establish optimum mortar proportions and establish quality control values for construction testing. Preconstruction tests are not required to meet the compressive strength requirements of ASTM C270.

D. Grout Mixes: Test grout batches in accordance with ASTM C 1019 procedures.

1. Test results will be used to establish optimum grout proportions and establish quality control values for construction testing.

E. Compressive Strength: Test masonry prisms in accordance with ASTM C 1314.

1. Prepare two sets of three prisms; test one set at 7 days and the other at 28 days.

2. Prepare sets for each different unit size, face shell thickness, and concrete unit weight.

3. Complete 28 day test of prisms prior to the start of masonry construction.

4. Concrete masonry prisms: Height-to-thickness ratio of not less than 1.33 and not more than 5.0; apply correction factor per ACI 530.1/ASCE 6/TMS 602 for ratio other than 2.0.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that preconstruction testing has been completed.

B. Verify that field conditions are acceptable and are ready to receive masonry. Resolve out-of-tolerance conditions prior to starting work.

C. Verify that reinforcing dowels are positioned in accordance with the drawings.

D. Verify that related items provided under other sections are properly sized and located.

E. Verify that built-in items are in proper location, and ready for roughing into masonry work.

3.02 PREPARATION

A. Direct and coordinate placement of metal anchors supplied for installation under other sections.

B. Clean reinforcement of loose rust.

C. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

D. For areas where high-lift grouting will be employed and grout pour height exceeds 5 feet, provide cleanout openings as follows:

1. Hollow Masonry: Not less than 8 inches high at the bottom of each cell to be grouted, formed by cutting out face shell of masonry unit.

3.03 COURSING

A. Establish lines, levels, and coursing indicated. Protect from displacement.

B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

C. Concrete Masonry Units:

1. Bond: Running.

2. Coursing: One unit and one mortar joint to equal 8 inches.

3.04 PLACING AND BONDING

A. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.

B. Lay hollow masonry units with face shell bedding on head and bed joints. Provide full mortar bed at footings, grouted cores, foundations, and slabs.

C. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.

D. Remove excess mortar as work progresses.

E. Interlock intersections and external corners.

F. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.

G. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.

H. Cut mortar joints flush where wall tile is scheduled.

I. Build all chases and recesses as shown on the Drawings or required by all trades. Cut all masonry units to fit neatly around conduit or piping, outlet boxes, etc. Set grilles and other equipment furnished by others as required in masonry.

J. Provide cleanouts in the bottom course of each grout pour at each grouted core when the grout pour height exceeds 5 feet.

K. Do not enclose mechanical, electrical or work specified in other sections until such work has been inspected and approved by the proper local code authority and by the Engineer if required.

L. Install loose lintels, anchors, bolts, dowels, grounds, angles, plates, grilles, or similar items required for anchorage of other work. Refer to Drawings for specific bearing conditions.

M. Discard all mortar that has begun to stiffen or is not used within 2-1/2 hours of initial mixing. Maintain workability of mortar within the 2-1/2 hour period by retempering or remixing.

3.05 REINFORCEMENT AND ANCHORAGE

A. Reinforcement Bars: Secure at locations indicated and to avoid displacement during grouting. Minimum spacing between bars or to masonry surfaces shall be one bar diameter.

1. Place reinforcing bar positioners at top course and bottom course of grout lift and not more than 200 bar diameters on center.

B. Joint Reinforcement: Install horizontal joint reinforcement 16 inches on center.

1. Place masonry joint reinforcing in first joint above bottom of wall.

2. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches each side of opening.

3. Place continuous joint reinforcement in first and second joint below top of walls.

4. Lap joint reinforcement ends minimum 6 inches.

5. Provide prefabricated corner or tee sections at intersecting walls.

C. Anchors: Reinforce intersections between interior and exterior walls with rigid wall anchors 16 inches on center.

D. Anchors: Fasten anchors to structural framing and embed in masonry joints as masonry is laid. Unless otherwise indicated on drawings or closer spacing is indicated under specific wall type, space anchors at maximum of 16 inches horizontally and 16 inches vertically.

E. Wall Ties: Install wall ties at locations indicated, spaced at not more than 16 inches on center horizontally and 16 inches on center vertically, unless otherwise indicated on drawings.

F. Reinforced Hollow Unit Masonry: Keep vertical cores to be grouted clear of mortar, including bed area of first course.

1. Grouted Cores: Construct masonry walls to provide continuous vertical cores with a clear area not less than 3"x4" and sufficient to provide a minimum 8" long solid section.

2. Plain Block at Grouted Core Locations: Place block to provide a continuous vertical section of grouted wall, minimum 8" and maximum 12" long.

G. Concrete Block Lintels and Bond Beams

1. Provide reinforced concrete block lintels and bond beams as indicated on the Drawings or specified herein. Use reinforced concrete block lintels at all openings in concrete block walls, including openings for mechanical and electrical work not specifically indicated to have other types of lintels. Do not use concrete block bond beams with breakout webs as lintel beams at masonry wall openings.

2. Support and tie reinforcing in place with a minimum clearance of 3/4" between reinforcing and block shells. Build in anchors and other accessories.

3.06 MASONRY FLASHINGS

A. Whether or not specifically indicated, install masonry flashing to divert water to exterior at all locations where downward flow of water will be interrupted.

3.07 GROUTING

A. Definitions

1. Grout Pour: The total height of masonry to be grouted prior to the construction of additional masonry. A grout pour consists of one or more grout lifts. If the grout is to be placed only to a partial height of the constructed masonry, the grout pour is the full height of the constructed masonry.

2. Grout Lift: An increment of grout height within a total grout pour.

B. Use either high-lift or low-lift grouting techniques, at Contractor's option, subject to other limitations of contract documents.

C. If plain block are used at grouted wall locations, fill cores with grout to provide a vertically continuous section of solid masonry wall a minimum of 8" and a maximum of 12" long.

D. Consolidate grout by mechanical vibration.

E. Low-Lift Grouting:

1. Limit height of lifts to 16 inches.

2. Limit height of masonry to 16 inches above each pour.

3. Limit grout pours to maximum 5 feet.

4. Pour grout only after vertical reinforcing is in place; place horizontal reinforcing as grout is poured. Prevent displacement of bars as grout is poured.

5. Place grout for each pour continuously and consolidate immediately; do not interrupt pours for more than 1-1/2 hours.

F. High-Lift Grouting:

1. Verify that horizontal and vertical reinforcement is in proper position and adequately secured before beginning pours.

2. Clean out masonry cells and other cavities to be grouted by high pressure water spray or compressed air. Remove debris, allow to dry, and inspect before sealing cleanout openings.

3. Hollow Masonry: Limit lifts to maximum 5 feet and pours to maximum height of 24 feet.

4. If plain masonry unit shapes are used at grouted locations, limit pour heights to 4 feet.

5. Place grout for spanning elements in single, continuous pour.

G. Concrete Block Lintels and Bond Beams: Fill block lintels and bond beams with grout and consolidate.

1. Fill lintels and bond beams more than one course high in a single continuous pour.

3.08 COLD WEATHER CONSTRUCTION

A. These procedures apply when the ambient temperature falls below 40° F, or the temperature of masonry units is below 40° F.

B. Construction

1. Minimum masonry unit temperature of 20° F when laid in the wall. Remove visible ice on masonry units before the unit is laid in the masonry.

2. Heat mortar sand or mixing water to produce mortar temperatures between 40° F and 120° F at the time of mixing. Maintain mortar above freezing until installed.

3. When ambient temperatures are between 25° F and 20° F, use heat sources on both sides of the masonry under construction and install windbreaks when wind velocity exceeds 15 mph.

4. When ambient temperatures are below 20° F, provide an enclosure for the masonry under construction and use heat sources to maintain temperatures above 32° F within the enclosure.

C. Protection

1. When mean daily temperatures are between 40° F and 32° F protect completed masonry from rain or snow by covering with a weather resistive membrane for 24 hours after construction.

2. When mean daily temperatures are between 32° F, and 25° F completely cover completed masonry with a weather resistive membrane for 24 hours after construction.

3. When mean daily temperatures are between 25° F and 20° F, completely cover completed masonry with insulating blankets or equal protection for 48 hours after construction. Protection time may be reduced to 24 hours for ungrouted masonry.

4. When mean daily temperatures are below 20° F, maintain masonry temperature above 32° F for 48 hours after construction by enclosure with supplementary heat, by electric heating blankets, by infrared heat lamps, or by other acceptable methods. Protection time may be reduced to 24 hours for ungrouted masonry.

3.09 HOT WEATHER CONSTRUCTION

A. Employ the requirements of this section when the ambient temperature exceeds 100°F or exceeds 90°F with a wind velocity greater than 8 mph.

B. Construction

1. Maintain the temperature of mortar and grout below 120°F.

2. Flush mixers, mortar transport containers and mortar boards with cool water before they come into contact with mortar ingredients or mortar.

3. Maintain mortar consistency by retempering with cool water.

4. Use mortar within 2 hours of initial mixing.

C. Protection: Fog spray newly constructed masonry until damp at least three times a day until the masonry is three days old.

3.10 CONTROL JOINTS

A. Provide control joints as indicated on drawings, but not to exceed 24 feet on center.

B. Do not continue horizontal joint reinforcement through control joints.

C. Top of wall bond beam reinforcement extends through control joints.

D. Install preformed control joint device in continuous lengths. Seal butt and corner joints in accordance with manufacturer's instructions.

E. Keep expansion joint voids clear of mortar.

3.11 BUILT-IN WORK

A. As work progresses, install built-in anchor bolts and plates and other items to be built into the work and furnished under other sections.

B. Install built-in items plumb, level, and true to line.

D. Do not build into masonry construction organic materials that are subject to deterioration.

3.13 TOLERANCES

A. Erection tolerances for masonry work shall be as specified in ACI 530.1.

3.14 CUTTING AND FITTING

A. Coordinate with other sections of work to provide correct size, shape, and location.

B. Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

3.16 MORTAR ACCEPTANCE CRITERIA

A. Mortar aggregate ratio tests shall show component proportions within 10% of the design mix proportions where mortar mix proportions are determined by ASTM C270 property specification.

3.17 CLEANING

A. Remove excess mortar and mortar smears as work progresses.

B. At completion clean all exposed masonry surfaces. Remove all excess mortar, mortar stains, efflorescence, etc., to provide a uniform appearance. Materials and methods of cleaning shall be as recommended by masonry material manufacturer. Cut out and repoint defective joints. Protect other work to prevent staining and damage.

C. Clean soiled surfaces with cleaning solution.

D. Use non-metallic tools in cleaning operations.

3.18 PROTECTION

A. Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

B. Adequately brace all work to prevent damage of any kind. Mask, barricade or similarly protect work as required from damage during building operations. Protect installed material as necessary to prevent staining or damage from the elements.

C. During erection, keep all walls dry by covering the top with a strong, waterproof membrane at each shutdown and the end of each day. Cover partially completed walls at all times when work is not in progress. Extend cover a minimum of 2 feet down both sides, and securely hold in place.

END OF SECTION

SECTION 05 50 00

METAL FABRICATIONS

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. Section includes: All labor, material necessary to complete all items of miscellaneous metal as listed on the schedule in Part 2 and shown on the Drawings.

1. The design, fabrication, transportation to the project site, and associated operations required to complete miscellaneous metals, including all the various metal items manufactured to more or less standard details in sizes conforming to specific requirements of the project.

1.03 REFERENCE STANDARDS

A. The following specifications and standards are incorporated by reference. Materials and operations shall comply with requirements of the specified issue of published reference. Where provisions of these Project Specifications are at variance with those reference specifications, the maximum criteria or requirements shall govern.

1. ASTM A36-03a, "Carbon Structural Steel"
2. ASTM A53-02, "Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless"
3. ASTM A123-02, "Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products"
4. ASTM A307-02, "Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength"
5. ASTM A325-02, "Structural Bolts, Steel, Heat Treated, 120/105 KSI Minimum Tensile Strength"
6. ASTM A500-03, "Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes"
7. ASTM A563-00, "Carbon and Alloy Steel Nuts"
8. ASTM A666-00, "Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar"
9. ASTM A992-02, "Steel for Structural Shapes for Use in Building Framing"
10. ASTM F1554-99, "Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength"
11. AWS D1.1-2002, "Structural Steel Welding Code"

1.04 SUBMITTALS

A. Submit in accordance with Section 01 33 00.

1. Shop drawings required for all items. Show all work to be fabricated with all construction details shown in appropriate scale, methods of attachment to other materials, finished dimensions, shop welds and grinding of welds, field assembly joints, etc. Indicate welded connections, including net weld lengths, using standard AWS welding symbols.

2. Calculations: Accompany shop drawings with a complete structural design and analysis prepared and certified by a Professional Engineer (P.E.) licensed in the State in which the project is located. The design and analysis shall show all design loads, reactions, forces or stresses, and structural characteristics of members and connections for the items listed in section 2.01.B. Include a certified letter stating that shop drawings as submitted conform to the requirements on the design calculations.

3. Coordinate work with other suppliers and subcontractors; obtain their approved shop drawing where necessary, or obtain any necessary additional detail information regarding mounting conditions or other aspects of related work.

1.06 PRODUCT PROTECTION

A. Package, handle, deliver and store at the job site in a manner that will avoid damage or deformation. Damaged material will be rejected.

B. Furnish items to be built into concrete, masonry, carpentry, etc. as the work progresses.

1.07 JOB CONDITIONS

A. Verify dimensions in field, as required, for pre-cut or prefabricated items.

B. Examine job conditions and adjoining construction which may affect the acceptability of the work.

PART 2: PRODUCTS

2.01 DESIGN

A. All materials shall be free from defects impairing strength, durability, appearance, and shall be of the best commercial quality for the purposes indicated. Structural properties shall be such to withstand safely all strains and stresses to which they will be normally subjected.

B. Metal railings, ladders, and other items specified in this section shall be designed to resist self-weight and the more stringent of:

1. Superimposed Dead and Live Loads indicated on the Contract Documents, and

2. Loads set forth by the governing Building Code.

C. The maximum Live Load deflection shall be L/360. Deflection determined based on structural section(s) alone.

2.02 MATERIALS

A. Structural Steel: ASTM A36 or A992.

B. Fastenings: Bolts, welds, rivets or other fastenings as required.

C. Anchor Bolts, Nuts: ASTM F1554, Grade 36.

D. Steel Pipe: ASTM A53, Grade B.

E. Steel Tubing: ASTM A500 Grade B.

F. Shop Paint Primer: Manufacturer's standard rust inhibiting primer.

G. Galvanizing: ASTM A123.

H. Expansion and Adhesive Anchors.

1. Wedge Anchors: Hilti "Kwik Bolt II" or Ramset/Redhead "Trubolt" or equal.

2. Heavy Duty Sleeve Anchors: Hilti "HSL" or equal.

3. Adhesive Anchors: Hilti "HVA" or "HIT", Ramset/Redhead "EPCON" or equal.

I. Galvanizing Repair Compound: Galvilite as manufactured by ZRC Worldwide.

2.03 GENERAL REQUIREMENTS FOR FABRICATION

A. Weld permanent connections wherever possible; use continuous welds where exposed and grind smooth, straighten members after welding.

B. Perform welding in accordance with AWS D1.1.

C. Perform shop cutting, drilling, fitting and assembly wherever possible. Take field measurements before fabrication when required.

D. Provide all supporting members, fasteners, framing, hangers, bracing, brackets, straps, bolts, angles, etc. required to set, connect the work rigidly and properly to other construction.

E. Install welded end caps at all handrail terminations.

2.04 SHOP COATS PROTECTIVE TREATMENT

A. Clean free of all mill scale, rust and foreign matter by wire brushing, scraping, sandblasting or flame cleaning. Remove grease, oil with solvent. Dust, dirt: Remove with air blast or brush.

B. Apply one shop coat of specified primer to all ferrous metal products, except galvanized. Provide primer for field touch up. Be responsible for quality and adhesion of shop prime finish.

C. Hot-dip galvanize all ferrous metal items exposed to weather in the finish work and shop prime with primer recommended for use on galvanized metal.

2.05 SCHEDULE OF MISCELLANEOUS METAL ITEMS

A. Items listed in this Section are intended only as a guide, but do not relieve responsibility for verifying quantities and inclusion of all similar items. Thoroughly examine all Drawings for items of miscellaneous metal fabrications.

1. Roof access ladders.
2. Other miscellaneous metal items shown on Drawings.

PART 3: EXECUTION

3.01 INSTALLATION GENERAL REQUIREMENTS

A. Anchor to concrete and masonry with expansion or adhesive anchors where built-in anchorage is not provided; do not fasten to wood plugs set in masonry.

B. Vertical members set into concrete or masonry: As shown.

C. Bolts, screws, etc., for field connections: Same material, finish as base material.

3.02 FIELD SPLICES, WELDS

A. Perform field welding in accordance with AWS D1.1.

B. Welders shall be certified by AWS.

C. Continuously weld field splices and grind smooth where exposed to view.

D. Fill exposed splice joints with body filler and sand smooth.

E. Touch-up joints, welds with specified primer.

F. Touch-up damaged hot dipped galvanizing with Galvanizing Repair Compound per manufacturer's requirements.

END OF SECTION 05 50 00

SECTION 06 10 53

CARPENTRY

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. Section includes:

1. Curbs and blocking at roof. Wood blocking under coping.

1.03 QUALITY ASSURANCE

A. Lumber Grades: Western Wood Products Association "Product Use Manual".

1.04 SUBMITTALS

A. Submit in accordance with Section 01 33 00.

1. Furnish certificates for preservative treated lumber.

2. Submit roofing material manufacturer's current printed instructions for installation of nailers.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Immediately upon delivery to job site, place materials in area protected from weather.

B. Store materials a minimum of 6 in. above ground on framework or blocking and cover with protective waterproof covering providing for adequate air circulation or ventilation.

C. Do not store seasoned material in wet or damp portions of building.

D. While unloading, protect sheet materials from corners breaking and damaging surfaces.

1.06 COORDINATION

A. Coordinate blocking for roof applications with Divisions 7.

B. Obtain product data, sizes and anchorage requirements prior to installation of blocking.

PART 2: PRODUCTS

2.01 ROUGH HARDWARE

A. Nails, spikes, screws, bolts and similar items of size and types to rigidly secure members in place or as otherwise indicated.

B. Non-corrosive type fasteners such as stainless steel or double dipped galvanized for roofing applications.

2.02 LUMBER

A. Framing, blocking lumber: No. 2 or better, S4S, Douglas Fir-Larch, Hem-Fir or Southern Pine, moisture content not to exceed 19%.

1. Preservative-treated lumber is not required for roof blocking.

2.03 PLYWOOD

A. Meet APA C-D exterior, thickness as shown on Drawings.

1. Preservative-treated lumber is not required for roof blocking.

B. Medium Density Overlay (MDO) Plywood: Phenolic Resin finished surface on plugged “B” grade ply over “C” grade inner plys.

PART 3: EXECUTION

3.01 ROUGH CARPENTRY

A. Provide wood nailers of size, shape where indicated, required.

B. Fasten securely to substrate with appropriate fasteners. Use expansion-type anchors at masonry or concrete, self-tapping screws at steel. Use corrosive resistant fasteners for roofing applications or where otherwise exposed to moisture.

C. Install work that is component of the roofing system according to roofing material manufacturer's current printed instructions.

D. Install blocking for finish materials, such as sheet metal fascias, with minimum number of joints, plumb, level, true and straight with no distortions. Discard materials which are unsound, warped, bowed, twisted, or not adequately seasoned.

END OF SECTION 06 10 53

SECTION 07 01 50

ROOFING REMOVAL

PART 1: GENERAL

1.01 SUMMARY

A. Section includes removal of the following:

1. Roofing membrane, and stone ballasts as occur.
2. Insulation materials.
3. Membrane flashing and edge materials, including cants, and tapered edges.
4. Metal flashings/counterflashing indicated to be removed or required to be removed to perform new work.
5. Parapet wall copings indicated to be removed.
6. Removal of wood curbing as required for new work.
7. Removal of wood curbing found to be damaged during demolition process.
8. Remove abandoned equipment indicated on Drawings:

    a. Mechanical equipment.
    b. Pipes and pipe supports.
    c. Curbs.

9. Debris on roof.

B. This Section also includes removal and reinstallation of the following:

1. Existing mechanical equipment indicated to be removed and reinstalled.
2. Parapet wall copings indicated to be removed and reinstalled.
3. Roof drain strainers required to be removed and reinstalled.

1.02 DEFINITIONS

A. Remove: Remove and legally dispose of items except those indicated to be reinstalled, salvaged, or to remain the Owner's property.

B. Remove and Salvage: Items indicated to be removed and salvaged remain the Owner's property. Remove, clean, and pack or crate items to protect against damage. Identify contents of containers and deliver to Owner's designated storage area.

C. Remove and Reinstall: Remove items indicated; clean, service, and otherwise prepare them for reuse; store and protect against damage. Reinstall items in the same locations or in locations indicated.

D. Existing to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by the Architect, items may be removed to a suitable, protected storage location during selective demolition and then cleaned and reinstalled in their original locations.

1.03 EXISTING MATERIALS

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

1.04 SUBMITTALS

A. Landfill records indicated receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.05 QUALITY ASSURANCE

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

B. Conference: Approximately 2 weeks prior to scheduled start of roofing removal, meet at Project site with Architect, Owner's Representative, and other representatives directly concerned with performance of the work.

1. Tour representative areas of roofing and discuss known conditions of substrate.
2. Review drawings, specifications, and other contract documents.
3. Review and finalize schedule related to roofing removal and verify personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including possibility of temporary roofing, if it is not a mandatory requirement.
5. Record discussions of conference, including decisions and agreements reached, and furnish a copy for each attendee. If substantial disagreements exist at the conclusion of the conference, determine how disagreements will be resolved and set a date for reconvening the conference.

1.06 PROJECT CONDITIONS

A. Owner will occupy the building. Conduct selective roofing demolition so that Owner's operations will not be disrupted. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.

B. Visit the site to become familiar with the building and conditions under which the work must be conducted and compare to Contract Documents.

C. Pictorially record the conditions of the streets, curbs, walks, paving, landscaping and building prior to start of work. Pictorially record existing conditions of structure surfaces, equipment, and adjacent improvements that might be misconstrued as damage related to removal operations. File with Owner's Representative prior to start of work.

1.07 SCHEDULING

A. Coordinate and schedule roof demolition work with new roofing application in such a manner as to keep the new insulation and roofing materials, building, and building interior clean, dry and watertight.

PART 2: PRODUCTS (Not Used)

PART 3: EXECUTION

3.01 EXAMINATION

A. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

B. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.

C. When unanticipated mechanical, electrical, or structural elements that conflict with the Contract Documents are encountered, investigate and measure the nature and extent of the conflict. Submit a written report to the Architect.

D. Perform surveys as the Work progresses to detect hazard resulting from selective demolition activities.

3.02 ROOF TEAR-OFF

A. Completely tear-off, remove from the site and legally dispose of all roof materials indicated, including flashing.

B. Roofing debris shall be removed from the roof by enclosed chute(s) provided by Contractor.

C. At existing ballasted EPDM roofs where salvage and reinstallation of existing stone ballast materials is required:

1. Prior to removal of ballast stone, Contractor shall perform thorough field inspection of existing ballast and remove miscellaneous debris from ballast prior to ballast removal.

2. When ballast stone is of different sizes, remove the materials separately and segregate the different size stone for reinstallation in areas indicated.

D. Remove materials such that an area can be inspected, repaired if necessary, and completely re-roofed that same day.

1. If for any reason a torn-off area cannot be re-roofed the same day, provide temporary roof.

E. Protect existing construction and materials to remain including roof deck. Exercise care to avoid overloading the structure.

F. Where counterflashing is not to be replaced, exercise care to avoid damage.

G. Provide temporary supports and protections for equipment and other roof appurtenances during work.

3.03 PREPARATION

A. Conduct demolition operations and remove debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.

B. Conduct demolition operations to prevent injury to people and damage to adjacent buildings and facilities to remain. Ensure safe passage of people around selective demolition area.

1. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.
2. Protect existing site improvements, appurtenances, and landscaping to remain.
3. Provide temporary weather protection, during interval between demolition and removal of existing roofing to ensure that no water leakage or damage occurs to structure or interior areas.

3.04 POLLUTION CONTROLS

A. Limit the spread of dust and dirt. Comply with governing environmental protection regulations.

1. Do not use water when it may damage existing construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.

B. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

1. Remove debris from building roof by chute, hoist, or other device that will convey debris to grade level.

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

3.05 SELECTIVE DEMOLITION

A. Demolish and remove existing construction to the extent required by new work and as indicated. Use methods required to complete Work within limitations of governing regulations and as follows:

1. Locate selective demolition equipment throughout the structure and remove debris and materials so as not to impose excessive loads on supporting structure.

B. Remove no more existing roofing than can be covered in one day by new roofing.

3.06 DISPOSAL OF DEMOLISHED MATERIALS

A. Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.

B. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

END OF SECTION 07 01 50

SECTION 07 53 23

BALLASTED EPDM ROOFING

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. Section includes:

1. Ballasted EPDM roofing system
2. Roof insulation, ballast, membrane flashing, splicing cement, lap sealant and all accessories and labor necessary for a complete weathertight installation.
3. Thermal barrier, as required.
4. Raising of mechanical equipment and curbs. Adjusting heights of roof drains, if required. Extension of plumbing vents through roof, if required. Removal and re-hook up of mechanical equipment as necessary.
5. Clean-up and re-sodding of any damaged lawns.
6. Retrofit Roof Drains

B. Related sections:

1. Carpentry – Section 06 10 53.
2. Roofing Removal – Section 07 10 50
3. Sheet Metal Coping and Flashing – Section 07 62 00.
4. Flashing – Section 07 65 00.
5. Fully Adhered EPDM Roofing – Section 07 53 25.
6. Fully Adhered TPO Roofing – Section 07 54 23

1.03 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D 1079 for definition of terms related to roofing work not otherwise defined in this Section.

1.03 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced installer to perform work of this Section who has specialized in installing roofing similar to that required for this Project and who is approved and trained, authorized, or licensed by the roofing system manufacturer's to install manufacturer's product.

1. Provide in writing that installer is currently approved by manufacturer of system prior to awarding of roofing contract.

B. Fire-Test-Response Characteristics: Provide roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method indicated below by UL, FM, or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

1. Exterior Fire-Test Exposure: Class B; ASTM E 108, for application and slopes indicated.

1.04 PRE-ROOFING CONFERENCE

A. Hold roofing pre-construction conference at project site not more than one week prior to beginning roofing. Contractor shall initiate and schedule this meeting at a time acceptable to all parties required to attend.

B. Attendance is mandatory for roofing contractor, roofing foreman, roofing manufacturer's representative, Architect's representative, Owner's representative, sheet metal subcontractor, and anyone else responsible for items penetrating or in contact with the roof.

C. Agenda:

1. Review in detail Architect's specifications, roof plans and all roof and flashing details.

2. If a manufacturer's specification is used, review and resolve all deviations or differences from Architect's specifications.

3. If Factory Mutual or Underwriters Laboratories requirements are part of specification, review and understand these requirements, and resolve all conflicts between the FM or UL specifications and Architect's/manufacturer's specifications.

4. Review roof plans; for slope, deck type, drainage, expansion joints flashing and details. Resolve all conflicts between what is considered good roofing practice and specifications.

5. Review proposed roofing system and recommended work practices for its installation.

6. Study all plans to determine whether different roof areas have different requirements.

7. Designate which areas on site will be available for use as storage and working areas.

8. Review procedure to be followed to provide proper protection of roof system during and after construction of roof.

9. Review means and methods to be utilized to maintain structure weathertight during reroofing.

1.05 SUBMITTALS

A. Submit in accordance with Section 01 33 00.

1. Installer certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install specified roofing system.

2. Manufacturer's recommended methods of installation and data to demonstrate compliance with specified requirements.

3. Shop Drawings:

a. Document the following information on plans through coordination with other trades and field verification:

1. Camber of roof structure.
2. Roof structure slope and elevations of deck.
3. Location of roof and overflow drains.
4. Elevations of overflow scuppers relative to roof deck.
5. Indicate potential drainage problem areas due to insulation layout, camber, slope of deck and roof/overflow drain locations.
6. Test reports indicating need for thermal barrier: UL 1256 or FM 4450.

b. Plans indicating roof size, location and type of penetrations, roof insulation make-up and layout indicating slopes and crickets and coordination/field verification information.

c. Base flashings and membrane terminations.

d. Penetration details

e. If deviations or modifications to indicated details are necessary or desired, clearly indicate for architects review.

4. Samples: Submit 12”x12” samples of insulation(s) and roofing membrane insulation. If insulation is by manufactured by company other than membrane manufacturer submit manufacturer’s written acceptance, which must indicate required roofing manufacturer’s warranty will fully cover insulation manufactured by others. Submit one gallon bucket of ballast material.

B. After installation is complete provide roofing manufacturer’s representative inspection report.

C. At Substantial Completion, submit final warranty and letter from manufacturer stating warranty has been activated.

D. Maintenance Data: Submit in accordance with Section 01 78 23.

1.07 PRODUCT HANDLING, STORAGE AND DELIVERY

A. Deliver material including insulation, in manufacturer's protective containers, and comply with manufacturer's instructions for storage and handling.

B. Deliver materials requiring fire resistance classification and/or flame spread rating with labels intact.

C. All materials must be protected from damage during transit, handling, storage and installation.

D. Store all materials on clean raised platforms with weather protective covering. Store membrane rolls flat on pallets.

E. Adhesives and curable materials shall be stored at temperatures above 50°F, but not exceeding 80°F.

F. All flammable materials shall be stored in a cool, dry area away from sparks and open flames. Follow precautions outlined in the MSDS published by the manufacturer.

G. Do not store concentrated loads on roof deck.

H. All materials delivered to job site and subsequently determined to have been damaged shall be replaced with new material.

1.08 JOB CONDITIONS

A. Examine substrate and conditions under which elastic sheet roofing work is to be performed. Do not proceed with work until all unsatisfactory conditions have been corrected.

B. Contractor shall schedule and perform all work in such manner that existing insulation material is not damaged due to demolition work or reinstallation work.
C. Contractor shall work with Owner's Representative and Architect to identify areas of existing insulation that is damaged due to water or other causes and which require replacement.

D Weather conditions: Proceed with elastic sheet roofing work only when weather conditions comply with manufacturer's recommendations, and will permit materials to be applied and cured in accordance with those recommendations. Do not exceed temperature limitations recommended by roofing materials manufacturer.

1. Cold Weather Installation:

a. The following are guidelines for EPDM installation when temperatures fall below 40 degrees Fahrenheit. Consult roofing manufacturer for more specific requirements.

1) Store all adhesives, tapes and sealants at room temperatures (60 to 80 degrees F) prior to application.
2) Stir adhesives thoroughly before and during application.
3) Be conscious of changes in adhesive, such as thickening and return to heated environment.
4) Use roofing sheet sizes with the least amount of factory folds.
5) Do not apply adhesive when combinations of temperatures and humidity cause water condensation on the adhesive during the drying process.
6) Prevent adhesive, tapes and sealant materials from freezing at all times.

E. Only as much new roofing as can be made weather tight shall be installed each day. This includes all flashing work.

F. Any substrate to receive new insulation, membrane or flashing shall be thoroughly dry. Existing wet materials must be removed prior to the application of the new membrane system. Should surface moisture occur on the decking, the contractor shall provide adequate equipment to dry the substrate.

G. Prior to and during application, the contractor shall ensure that all dirt, debris, and dust be removed from surfaces to be roofed.

H. On all reroof jobs and all lightweight deck systems, pullout tests shall be performed by the roofing contractor prior to shop drawing submittal to verify the condition of the deck or substrate and to confirm system pullout values for those areas which will have mechanical attachment of any roofing system component. A minimum of 10 pullout tests for areas up to 500 squares and 2 tests per 100 squares thereafter, is considered sufficient. Approximately 60% of the tests should be taken in perimeter areas and the remainder from the field areas. A written report of pullout test results shall be submitted to the manufacturer for review.

I. Precautions shall be taken to prevent wind blow-off or wind damage during the course of the roofing application. This may necessitate additional securement of temporary construction.

J. The contractor shall verify and ensure that all roof drain lines are unblocked before starting work. If any drain blockages are found, they shall be reported in writing to the Architect.

K. Temporary waterstops shall be installed at the end of each work day or if inclement weather conditions dictate. These temporary waterstops shall be removed at the start of the next work day and disposed of properly.

L. Do not install the roofing membrane in direct contact with any product containing asphalt, coal tar pitch, creosote or other harmful materials. Consult the manufacturer for special installation requirements.

M. Do not allow waste products containing petroleum, grease, acid, solvents, vegetable or mineral oil, animal oil, animal fat, coal tar pitch, etc. or direct steam venting to come into direct contact with the roofing membrane. Contact the manufacturer for recommendations if such conditions exist.

N. All work shall be scheduled and executed without exposing interior building areas to the effects of inclement weather. The existing building and its contents shall be protected against all reasonable risks. Arrange work sequences to avoid use of newly constructed roofing for storage, walking surfaces and equipment movement. Contractor shall provide all necessary protection and barriers to segregate the work areas and prevent damage to adjacent areas. If excessive foot traffic over newly installed membrane is necessary, the Contractor shall provide plywood to prevent damage.

O. Any unusual or concealed conditions discovered during the course of the work should be immediately reported in writing to the Architect.

P. When a system is specified to meet an Underwriter's Laboratory (UL) or an FM Global (FM) rating, all materials used in the system must be properly labeled and/or approved for the particular rating/system.

Q. Adhesives, calking materials, primer wash and sealants contain ingredients which can be toxic and very flammable. Use these products only in fully ventilated areas. Avoid breathing vapor and do not use near heat, sparks, or open flames. Do not smoke while using these materials or when in areas near them.

1.09 WARRANTY

A. Manufacturer's warranty includes materials and workmanship to maintain roof in watertight condition.

B. Provide single source, single responsibility warranty including membrane, insulation, bituminous flashing, walkways, expansion joint covers.

C. It is understood that existing materials to remain, such as insulation, will not be covered under the warranty to be provided.

D. Provide 20 year No Dollar Limit roofing system Warranty for all new materials provided by contractor, from manufacturer; warranty to run from date of substantial completion. On phased projects, all roofing system warranties shall be by single manufacturer. Warranty for each phase shall start upon substantial completion of each phase.

E. Submit in accordance to Section 01 78 23.

1.10 SITE CONDITIONS

A. Building space directly under roof area covered by this specification will be utilized by on-going operations.

E. Do not interrupt Owner operations.

F. Access to roof from exterior only.

PART 2: PRODUCTS

2.01 MANUFACTURER

A. System by Johns Manville, www.jm.com, is specified. All components are to be supplied or approved by roofing manufacturer to maintain warranty.

B. Equivalent products by the following manufacturers are acceptable:

1. Carlise SynTec, www.carlise-syntec.com
2. Firestone Building Products, www.firestonebpe.com.
3. Versico Roofing Systems, www.versico.com

2.02 ROOFING SYSTEM

A. Johns Manville # SE6B-(T) Single Ply, Fully Adhered, 60 mil EPDM membrane.

B. Related Materials:

1. Provide products for use with specified roofing system including, but not limited to tape primer/wash, bonding cement, lap cement, seam tape, peel and stick tape, flashing, lap caulk, sealing mastic, pourable sealer, prefabricated flashing, termination bar, fasteners/anchors, and pipe boots.

2.03 VAPOR BARRIER

A. Roof insulation (installed in two layers) with a perm rating of less than one (per layer) ***shall*** be substituted for the vapor barrier. A separate vapor barrier is not required.

2.04 THERMAL BARRIER

A. Provide ½" USG Securock Glass-Mat Roof Board or G.P. DensDeck thermal barrier immediately beneath roof insulation at areas of metal roof decks. This thermal barrier may be omitted if UL 1256 or FM 4450 assembly test reports indicate it is not required (based on the specific insulation to be provided by the Contractor).

2.05 INSULATION

A. Base and Tapered Insulation: Polyisocyanurate with Long-Term Thermal Resistance Value of 5.7 per inch and a Moisture Vapor Permeance of less than (1) Perm. Manufacturer is to be as acceptable to roofing manufacturer to maintain warranty.

B. Gypsum Roof Board/Protection Board/Cover Board: USG Securock Gypsum-Fiber Roof Board or G.P. DensDeck Prime.

B. Receive roofing manufacturer's written approval of proposed insulation materials.

C. Limit insulation board size to not exceed recommendations of manufacturer when using adhesive to adhere insulation board to roof decks.

D. At areas of metal roof deck provide insulation tested per UL 1256 or FM 4450 if Contractor elects to omit thermal barrier.

E. At areas of metal roof deck where only damaged insulation is to be replaced the Contractor shall provide insulation tested per UL 1256 or FM 4450 when replacing damaged insulation.

2.06 MISCELLANEOUS

A. Pipe and Conduit Supports: Base of UV resistant rubber or EPDM with 14 gauge galvanized steel strut channel attached to top. Size as required to support pipes/conduits. Provide galvanized strut clamps to anchor pipes/conduits.

B. Walkway Pads: 30" x 30" x 3/8" EPDM, factory-formed, non-porous, heavy-duty, slip resisting surface-textured walkway pads sourced from membrane roofing system manufacturer. Field coordinate exact locations of walkway pads with Owners Representative.

C. Expansion Joint Backer: Neoprene Sponge Tubing.

D. Insulation adhesive: Manufacturer's standard two component polyurethane adhesive formulated to adhere insulation to substrate. Roof deck types are as noted on the Drawings. Provide adhesive grade suitable for cold weather installation if required. See also cold weather requirements as specified in Part 1.

E. Stone Ballast

1. Washed, rounded and smooth stone ranging in size from 3/4" to 1-1/2" in diameter, acceptable to membrane manufacturer and Architect.

F. Protective Mat: Nominal 6.0 oz/sq. yard UV-resistant polypropylene, needle-punched fabric installed between membrane and ballast stone.

2.07 RETROFIT ROOF DRAINS

A. Provide "Hercules Retrodrain" as manufactured by OMG, Inc. or prior approved equal.

B. Provide retrofit roof drain as follows:

1. Size: Field verify existing drain size and provide compatible size which does not restrict existing flow.

2. Drain Body:

a. Material: 1-piece, 11-gauge spun aluminum.
b. Flange: 17½" diameter with (6) 2½" long aluminum studs.
c. Drain Stem Length: 12"
d. Sump Area: Depressed.

3. Strainer Dome:

a. Material: Cast Aluminum
b. Height: 7¼"
c. Outside Diameter: 9¾"

4. Clamping Ring:

a. Material: Cast Aluminum
b. Gravel Stop Height: 1.2"
c. Drainage Slots: (18) V-shaped.
d. Bosses: (6) to accept studs on flange.

5. Backflow Seal:

a. Compression Seal: Watertight, "U-Flow" mechanical seal.
b. Material: Polyamide and EPDM rubber.
c. Required for Activation: "U-Flow" screwdriver.

6. Hardware:

a. Locknuts: (6) stainless steel, for studs.
b. Screws: (3) stainless steel, to attach strainer to clamping ring.

7. Accessories:

a. Screwdriver: "U-Flow"
b. Overflow: 4" aluminum, attached to existing overflow roof drains. Field verify locations.

PART 3: EXECUTION

3.01 SUBSTRATE PREPARATION

A. Comply with sheet membrane manufacturer's instructions for preparation of substrate to receive elastomeric sheet roofing. Clean substrate of dust, debris and other substances detrimental to roofing work.

B. Do not begin the Work of this Section until all existing conditions have been accepted. Report unsatisfactory conditions to Architect in writing.

C. Conform to cold weather requirements as specified in Part 1 when conditions warrant.

D. When removing an existing roof during reroofing, remove only that amount of insulation, roofing and flashing that can be made watertight with new roofing system in a one-day period or prior to the onset of inclement weather.

F. Be responsible for verification of proper elevations of roof drains, drain clamps, and back-up overflow systems.

3.02 THERMAL BARRIER

A. Install thermal barrier as required by manufacturer to meet UL or FM tests.

3.03 ROOF INSULATION

A. Loosely lay each layer of roof insulation with end joints staggered. Stagger joints between layers. Insulation joints shall be 1/4" or less in width. Neatly cut and fit insulation around roof penetrations, projections and electrical conduit.

B. Minimum thickness of first insulation layer shall be 1".

C. Overlay base layer of insulation with prefabricated tapered insulation.

F. Provide saddles between drains and crickets, as needed, to insure no ponded water.

G. At areas of roof where damaged insulation is to be replaced:

1. Contractor shall verify thickness of damaged insulation and replace with insulation of same thickness.

2. Remove damaged insulation boards in their entirety and replace with whole boards, unless directed otherwise by the Owner’s Representative.

3. Provide staggered joints between layers of insulation by removing and reinstalling undamaged insulation board as necessary to achieve staggered joints.

3.04 MEMBRANE INSTALLATION

A. General:

1. All installation shall be in accordance with the approved shop drawing and manufacturer’s details and printed instructions.

2. The membrane shall only be applied over compatible, clean, dry and smooth surfaces. If required by manufacturer place approved slip sheet over insulation to separate membrane.

3. Loosely lay sheet membrane over roof insulation and allow the membrane to relax before fastening or splicing. Apply adjoining sheets by lapping the edges and splicing. Mechanically fasten the membrane and around penetrations using continuous nailer strip and recommended fasteners.

4. The application shall begin at the highest elevation and continue to the lowest elevation of each individual roof. The seams shall be overlapped in the direction of the slope of the roof. Except where no other alternative exists, good roofing practice dictates that the sheets should be laid shingle fashion, against the slope, in order to avoid back-water laps.

5. Place manufacturer approved protection sheet over membrane to underlay walkway pads.

6. Membrane lap splicing, membrane securement in accordance with manufacturer's requirements.

B. Membrane Flashings

1. Install flashings at curbs, vent pipes, scuppers, inside/outside corners and membrane terminations with materials and adhesive as recommended by manufacturer.

3.04 BALLAST

A. Apply uniform course of stone ballast as recommended by membrane manufacturer with not less than 10 lbs. per square foot average over the gross area of the roof.

B. Exercise care not to damage membrane.

C. Keep ballast away from area to receive walkway system.

D. When existing stone ballast is called to be removed and reinstalled:

1. Reapply existing stone ballast over Protective Mat material specified elsewhere.

2. Existing 2 ½" stone ballast shall be reapplied to areas of roof within 10' of building perimeters at areas in which it existed prior to stockpiling.

3. Reapply stone ballasts to provide coverages as recommended by roofing system manufacturer.

4. If salvage of existing materials is not sufficient to provide coverages as recommended by roofing system manufacturer, Contractor shall supply additional stone ballasts acceptable to manufacturer and Architect as required.

3.05 MISCELLANEOUS

A. Install walkway pads in continuous rows with seam tape or lap sealant as recommended by manufacturer.

B. Concrete pavers/splashblocks shall be installed over an additional layer of protection sheet or uncured EPDM or as recommended by manufacturer.

C. Install metal flashings, including copings and fascias per manufacturer's recommendation to meet wind design standards.

3.06 RETROFIT ROOF DRAINS

A. Install retrofit roof drains in accordance with manufacturer's instructions at locations indicated on the Drawings.

B. Install retrofit roof drains into existing drain leaders in accordance with manufacturer's instructions.

C. Install flashing in accordance with membrane roofing manufacturer's instructions.

D. Install retrofit roof drains to provide watertight connection to existing plumbing membrane.

E. Install overflow extensions as required on existing overflow roof drains.

3.07 WATERSTOPS

A. Install temporary cutoffs around incomplete edges of roofing assembly at the end of each work day and when work must be postponed due to inclement weather. Straighten the insulation line using loosely laid pieces of insulation. Seal the EPDM membrane to the deck or existing membrane by performing the following procedure: Fold the edge of the roofing membrane back a minimum of 12". Clean the surface of the folded-back membrane with Tape Primer/Wash or other approved cleaning method. Apply a ¼" bead of Lap Caulk or Pourable Sealer on the cleaned area of the sheet. If the roofing membrane installation is to be delayed for 14 days or more, or if the substrate surface is rough, apply two ¼" beads of sealant. Remove the temporary seals completely when work resumes, cutting out the contaminated membrane. Remove all sealant, contaminated membrane, insulation fillers, etc. from the work area and properly dispose off-site.

3.08 CLEANING AND CLEANUP

A. Remove handprints, footprints and general soil from membrane using detergent and water. Rinse thoroughly.

B. Remove bonding adhesive or splicing cement residue as recommended by the manufacturer.

C. During course of work, inspect surrounding areas for debris and trash generated by the Work, including adjacent properties. Remove at the end of each day's work.

D. Leave roof areas and site clean of debris and trash.

3.09 INSPECTIONS AND FINAL INSPECTION

A. Authorized representative of manufacturer supplying roofing system shall perform the following inspections:

1. Two (2) in-progress inspections.

2. One (1) final inspection. Warranty shall be issued after this inspection. If in the judgement of the authorized representative the Warranty cannot be issued immediately following this inspection the Contractor shall arrange for additional inspection(s) by the authorized representative until such time as the Warranty can be issued.

3. One (1) inspection one year after substantial completion.

B. Contractor shall notify Architect and Owner's Representative at least 72 hours prior to the inspection, and the Architect and/or Owners Representative may attend the inspections.

C. Written reports for all inspections shall be provided to the Architect and Owner's Representative.

D. Contractor shall promptly make corrections as noted in inspection reports. During subsequent inspections the Authorized manufacturer's representative shall check issues noted in previous inspection reports to verify satisfactory remedial work has been performed by the Contractor.

END OF SECTION 07 53 23

SECTION 07 53 25

FULLY ADHERED EPDM ROOFING

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. Section includes:

1. Fully adhered EPDM roofing system.

2. Roof insulation, membrane flashing, splicing cement, lap sealant and all accessories and labor necessary for a complete, weathertight installation.

3. Thermal barrier, as required.

4. Raising of mechanical equipment and curbs. Adjusting heights of roof drains, if required. Extension of plumbing vents through roof, if required. Removal and re-hook of mechanical equipment (including electrical) as necessary.

5. Clean-up and re-sodding of any damaged lawns.

6. Retrofit Roof Drains

B. Related sections:

1. Carpentry – Section 06 10 53.

2. Roofing Removal – Section 07 01 50

3. Sheet Metal Coping and Flashing – Section 07 62 00.

4. Flashing – Section 07 65 00.

5. Ballasted EPDM Roofing – Section 07 53 23.

6. Fully Adhered TPO Roofing – Section 07 54 23

1.03 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D 1079 for definition of terms related to roofing work not otherwise defined in this Section.

1.03 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced installer to perform work of this Section who has specialized in installing roofing similar to that required for this Project and who is approved and trained, authorized, or licensed by the roofing system manufacturer's to install manufacturer's product.

1. Provide in writing that installer is currently approved by manufacturer of system prior to awarding of roofing contract.

B. Fire-Test-Response Characteristics: Provide roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method indicated below by UL, FM, or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

1. Exterior Fire-Test Exposure: Class B; ASTM E 108, for application and slopes indicated.

1.04 PRE-ROOFING CONFERENCE

A. Hold roofing pre-construction conference at project site not more than one week prior to beginning roofing. Contractor shall initiate and schedule this meeting at a time acceptable to all parties required to attend.

B. Attendance is mandatory for roofing contractor, roofing foreman, roofing manufacturer's representative, Architect's representative, Owner's representative, sheet metal subcontractor, and anyone else responsible for items penetrating or in contact with the roof.

C. Agenda:

1. Review in detail Architect's specifications, roof plans and all roof and flashing details.

2. If a manufacturer's specification is used, review and resolve all deviations or differences from Architect's specifications.

3. If Factory Mutual or Underwriters Laboratories requirements are part of specification, review and understand these requirements, and resolve all conflicts between the FM or UL specifications and Architect's/manufacturer's specifications.

4. Review roof plans; for slope, deck type, drainage, membrane attachment, expansion joints flashing and details. Resolve all conflicts between what is considered good roofing practice and specifications.

5. Review proposed roofing system and recommended work practices for its installation.

6. Study all plans to determine whether different roof areas have different requirements.

7. Designate which areas on site will be available for use as storage and working areas.

8. Review procedure to be followed to provide proper protection of roof system during and after construction of roof.

9. Review means and methods to be utilized to maintain structure weathertight during reroofing.

1.05 SUBMITTALS

A. Submit in accordance with Section 01 33 00.

1. Installer certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install specified roofing system.

2. Manufacturer's recommended methods of installation and data to demonstrate compliance with specified requirements.

3. Shop Drawings:

a. Document the following information on plans through coordination with other trades and field verification:

1. Camber/slope of roof structure.
2. Elevations of decks.
3. Location of roof and overflow drains.
4. Elevations of overflow scuppers relative to roof deck.
5. Indicate potential drainage problem areas due to insulation layout, camber, slope of deck and roof/overflow drain locations.
6. Test reports indicating need for thermal barrier: UL 1256 or FM 4450.

b. Plans indicating roof size, location and type of penetrations, roof insulation make-up and layout indicating slopes and crickets and coordination/field verification information.

c. Base flashings and membrane terminations.

d. Penetration details

e. If deviations or modifications to indicated details are necessary or desired, clearly indicate for architects review.

4. Samples: Submit 12”x12” samples of insulation(s) and roofing membrane insulation. If insulation is by manufactured by company other than membrane manufacturer submit manufacturer’s written acceptance, which must indicate required roofing manufacturer’s warranty will fully cover insulation manufactured by others.

5. Provide Architect with roofing manufacturers representative’s inspection report after installation.

B. After installation is complete provide roofing manufacturer’s representative inspection report.

C. At Substantial Completion, submit final warranty and letter from manufacturer stating warranty has been activated.

D. Maintenance Data: Submit in accordance with Section 01 78 23.

1.07 PRODUCT HANDLING, STORAGE AND DELIVERY

A. Deliver materials to Project site, including insulation, in manufacturer's original protective containers with seals unbroken and labeled with manufacturer’s name, product brand name and type, date of manufacture, and directions for storing and mixing with other components.

B. Comply with manufacturer's instructions for storage and handling.

C. Deliver materials requiring fire resistance classification and/or flame spread rating with labels intact.

D. All materials must be protected from damage during transit, handling, storage and installation.

E. Store all materials on clean raised platforms with weather protective covering. Store membrane rolls flat on pallets.

F. Adhesives and curable materials shall be stored at temperatures above 50°F, but not exceeding 80°F.

G. All flammable materials shall be stored in a cool, dry area away from sparks and open flames. Follow precautions outlined in the MSDS published by the manufacturer.

H. Do not store concentrated loads on roof deck. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

I. All materials determined to have been damaged shall be replaced with new material.

1.08 PROJECT CONDITIONS

A. Examine substrates and conditions under which roofing work is to be performed. Do not proceed with work until all unsatisfactory conditions have been corrected.

B. If rain occurs during roof membrane application, cease operations and protect deck, insulation, penetrations and membrane from water damage and intrusion.

C. Remove and replace all material that has been subject to moisture.

D. Weather conditions: Proceed with elastic sheet roofing work only when weather conditions comply with manufacturer's recommendations, and will permit materials to be applied and cured in accordance with those recommendations. Do not exceed temperature limitations recommended by roofing materials manufacturer.

1. Cold Weather Installation:

a. The following are guidelines for EPDM installation when temperatures fall below 40 degrees Fahrenheit. Consult roofing manufacturer for more specific requirements.

1) Store all adhesives, tapes and sealants at room temperatures (60 to 80 degrees F) prior to application.
2) Stir adhesives thoroughly before and during application.
3) Be conscious of changes in adhesive, such as thickening and return to heated environment.
4) Use roofing sheet sizes with the least amount of factory folds.
5) Do not apply adhesive when combinations of temperatures and humidity cause water condensation on the adhesive during the drying process.
6) Prevent adhesive, tapes and sealant materials from freezing at all times.

E. Only as much new roofing as can be made weather tight shall be installed each day. This includes all flashing work.

F. Any substrate to receive new insulation, membrane or flashing shall be thoroughly dry. Existing wet materials must be removed prior to the application of the new membrane system. Should surface moisture occur on the decking, the contractor shall provide adequate equipment to dry the substrate.

G. Prior to and during application, the contractor shall ensure that all dirt, debris, and dust be removed from surfaces to be roofed.

H. On all reroof jobs and all lightweight deck systems, pullout tests shall be performed by the roofing contractor prior to shop drawing submittal to verify the condition of the deck or substrate and to confirm system pullout values for those areas which will have mechanical attachment of any roofing system component. A minimum of 10 pullout tests for areas up to 500 squares and 2 tests per 100 squares thereafter, is considered sufficient. Approximately 60% of the tests should be taken in perimeter areas and the remainder from the field areas. A written report of pullout test results shall be submitted to the manufacturer for review.

I. Precautions shall be taken to prevent wind blow-off or wind damage during the course of the roofing application. This may necessitate additional securement of temporary construction.

J. The contractor shall verify and ensure that all roof drain lines are unblocked before starting work. If any drain blockages are found, they shall be reported in writing to the Architect.

K. Temporary waterstops shall be installed at the end of each work day or if inclement weather conditions dictate. These temporary waterstops shall be removed at the start of the next work day and disposed of properly.

L. Do not install the roofing membrane in direct contact with any product containing asphalt, coal tar pitch, creosote or other harmful materials. Consult the manufacturer for special installation requirements.

M. Do not allow waste products containing petroleum, grease, acid, solvents, vegetable or mineral oil, animal oil, animal fat, coal tar pitch, etc. or direct steam venting to come into direct contact with the roofing membrane. Contact the manufacturer for recommendations if such conditions exist.

N. All work shall be scheduled and executed without exposing interior building areas to the effects of inclement weather. The existing building and its contents shall be protected against all reasonable risks. Arrange work sequences to avoid use of newly constructed roofing for storage, walking surfaces and equipment movement. Contractor shall provide all necessary protection and barriers to segregate the work areas and prevent damage to adjacent areas. If excessive foot traffic over newly installed membrane is necessary, the Contractor shall provide plywood to prevent damage.

O. Any unusual or concealed conditions discovered during the course of the work should be immediately reported in writing to the Architect.

P. When a system is specified to meet an Underwriter's Laboratory (UL) or an FM Global (FM) rating, all materials used in the system must be properly labeled and/or approved for the particular rating/system.

Q. Adhesives, calking materials, primer wash and sealants contain ingredients which can be toxic and very flammable. Use these products only in fully ventilated areas. Avoid breathing vapor and do not use near heat, sparks, or open flames. Do not smoke while using these materials or when in areas near them.

1.09 WARRANTY

A. Manufacturer's warranty includes materials and workmanship to maintain roof in watertight condition.

B. Provide single source, single responsibility warranty including membrane, insulation, bituminous flashing, walkways, expansion joint covers, and coping/fascia.

C. Provide 20 year No Dollar Limit total roofing system Warranty, from manufacturer; warranty to run from date of substantial completion. On phased projects, all roofing system warranties shall be by single manufacturer. Warranty for each phase shall start upon substantial completion of each phase.

D. Submit in accordance to Section 01 78 23.

1.10 SITE CONDITIONS

A. Building space directly under roof area covered by this specification will be utilized by on-going operations.

B. Do not interrupt Owner operations.

C. Access to roof from exterior only.

PART 2: PRODUCTS

2.01 MANUFACTURER

A. System by Johns Manville, www.jm.com, is specified. All components are to be supplied or approved by roofing manufacturer to maintain warranty.

B. Equivalent products by the following manufacturers are acceptable:

1. Carlise SynTec, www.carlise-syntec.com.
2. Firestone Building Products, www.firestonebpe.com.
3. Versico Roofing Systems, www.versico.com

2.02 ROOFING SYSTEM

A. Johns Manville # SE6A-(T) Single Ply, Fully Adhered, 60 mil EPDM membrane.

B. Related Materials:

1. Provide products for use with specified roofing system including, but not limited to tape primer/wash, bonding cement, lap cement, seam tape, peel and stick tape, flashing, lap caulk, sealing mastic, pourable sealer, prefabricated flashing, termination bars, fasteners/anchors, and pipe boots.

2.03 VAPOR BARRIER

A. Roof insulation (installed in two layers) with a perm rating of less than one (per layer) shall be substituted for the vapor barrier. A separate vapor barrier is not required.

2.04 THERMAL BARRIER

A. Provide ½" USG Securock Glass-Mat Roof Board or G.P. DensDeck thermal barrier immediately beneath roof insulation at areas of metal roof decks. This thermal barrier may be omitted if UL 1256 or FM 4450 assembly test reports indicate it is not required (based on the specific insulation to be provided by the Contractor).

2.05 INSULATION

A. Base and Tapered Insulation: Polyisocyanurate with Long-Term Thermal Resistance Value of 5.7 per inch and a Moisture Vapor Permeance of less than one (1.0) Perm. Manufacturer as acceptable to roofing manufacturer to maintain warranty.

B. Gypsum Roof Board/Protection Board/Cover Board: USG Securock Gypsum-Fiber Roof Board or G.P. DensDeck Prime.

C. Receive roofing manufacturer's written approval of proposed insulation materials.

D. Limit insulation board size to not exceed recommendations of manufacturer when using adhesive to adhere insulation board to roof decks.

E. At areas of metal roof deck provide insulation tested per UL 1256 or FM 4450 if Contractor elects to omit thermal barrier.

2.06 MISCELLANEOUS

A. Pipe and Conduit Supports: Base of UV resistant rubber or EPDM with 14 gauge galvanized steel strut channel attached to top. Size as required to support pipes/conduits. Provide galvanized strut clamps to anchor pipes/conduits.

B. Walkway Pads: 30" x 30" x 3/8" EPDM, factory-formed, non-porous, heavy-duty, slip resisting surface-textured walkway pads sourced from membrane roofing system manufacturer. Field coordinate exact locations of walkway pads with Owners representative.

C. Expansion Joint Backer: Neoprene Sponge Tubing.

D. Insulation adhesive: Manufacturer's standard two component polyurethane adhesive formulated to adhere insulation to substrate. Roof deck types are as noted on the Drawings. Provide adhesive grade suitable for cold weather installation if required. See also cold weather requirements as specified in Part 1.

2.07 RETROFIT ROOF DRAINS

A. Provide "Hercules Retrodrain" as manufactured by OMG, Inc. or prior approved equal.

B. Provide retrofit roof drain as follows:

1. Size: Field verify existing drain size and provide compatible size which does not restrict existing flow.

2. Drain Body:

   a. Material: 1-piece, 11-gauge spun aluminum.
   b. Flange: 17½" diameter with (6) 2½" long aluminum studs.
   c. Drain Stem Length: 12"
   d. Sump Area: Depressed.

3. Strainer Dome:

   a. Material: Cast Aluminum
   b. Height: 7¼"
   c. Outside Diameter: 9¾"

4. Clamping Ring:

   a. Material: Cast Aluminum
   b. Gravel Stop Height: 1.2"
   c. Drainage Slots: (18) V-shaped.
   d. Bosses: (6) to accept studs on flange.

5. Backflow Seal:

   a. Compression Seal: Watertight, "U-Flow" mechanical seal.
   b. Material: Polyamide and EPDM rubber.
   c. Required for Activation: "U-Flow" screwdriver.

6. Hardware:

   a. Locknuts: (6) stainless steel, for studs.
   b. Screws: (3) stainless steel, to attach strainer to clamping ring.

7. Accessories:

   a. Screwdriver: "U-Flow"
   b. Overflow: 4" aluminum, attached to existing overflow roof drains. Field verify locations.

PART 3: EXECUTION

3.01 SUBSTRATE PREPARATION

A. Comply with sheet membrane manufacturer's instructions for preparation of substrate to receive elastomeric sheet roofing. Clean substrate of dust, debris and other substances detrimental to roofing work.

B. Do not begin the Work of this Section until all existing conditions have been accepted. Report unsatisfactory conditions to Architect in writing.

C. Conform to cold weather requirements as specified in Part 1 when conditions warrant.

D. When removing an existing roof during reroofing, remove only that amount of insulation, roofing and flashing that can be made watertight with new roofing system in a one-day period or prior to the onset of inclement weather.

E Be responsible for verification of proper elevations of roof drains, drain clamps, and back-up overflow systems.

3.02 THERMAL BARRIER

A. Install thermal barrier as required by manufacturer to meet UL or FM tests.

3.03 ROOF INSULATION

A. Install base roof insulation in two layers in accordance with roofing manufacturer's standard specifications, using manufacturer's recommended fasteners. Offset insulation joints between layers.

B. Loosely lay each layer of roof insulation with end joints staggered. Insulation joints shall be 1/4" or less in width. Open joints shall be repaired with like insulate material. Neatly cut and fit insulation around roof penetrations and projections. Install coverboard over roof insulation. Install only dry insulation and only as much insulation as can be covered same day with membrane.

C. Provide saddles between drains and crickets, as needed, to insure no ponded water.

D. All insulation must be secured to the structural deck with adhesive acceptable to manufacturer at rates published by the insulation manufacturer and recommendations published by FM Global for adhered applications as a minimum standard. Additional insulation securement may be required to provide an acceptable substrate depending upon actual project conditions.

3.04 MEMBRANE INSTALLATION

A. General:

1. All installation shall be in accordance with the approved shop drawing and manufacturer’s details and printed instructions.

2. The membrane shall only be applied over compatible, clean, dry and smooth surfaces.

3. The application shall begin at the highest elevation and continue to the lowest elevation of each individual roof. The seams shall be overlapped in the direction of the slope of the roof. Except where no other alternative exists, good roofing practice dictates that the sheets should be laid shingle fashion, against the slope, in order to avoid back-water laps.

4. Adhering membrane, membrane lap splicing, membrane securement in accordance with manufacturer’s requirements.

B. Membrane Flashings

1. Install flashings at curbs, vent pipes, scuppers, inside/outside corners and membrane terminations with materials and adhesive as recommended by manufacturer.

3.05 MISCELLANEOUS

A. Install walkway pads in continuous rows with seam tape or lap sealant as recommended by manufacturer.

B. Concrete pavers/splashblocks shall be installed over an additional layer of protection sheet or uncured EPDM or as recommended by manufacturer.

C. Install metal flashings, including copings and fascias per manufacturer’s recommendation to meet wind design standards.

3.06 RETROFIT ROOF DRAINS

A. Install retrofit roof drains in accordance with manufacturer's instructions at locations indicated on the Drawings.

B. Install retrofit roof drains into existing drain leaders in accordance with manufacturer's instructions.

C. Install flashing in accordance with membrane roofing manufacturer's instructions.

D. Install retrofit roof drains to provide watertight connection to existing plumbing membrane.

E. Install overflow extensions as required on existing overflow roof drains.

3.07 WATERSTOPS

A. Install temporary cutoffs around incomplete edges of roofing assembly at the end of each work day and when work must be postponed due to inclement weather. Straighten the insulation line using loosely laid pieces of insulation. Seal the EPDM membrane to the deck or existing membrane by performing the following procedure: Fold the edge of the roofing membrane back a minimum of 12". Clean the surface of the folded-back membrane with Tape Primer/Wash or other approved cleaning method. Apply a ¼" bead of Lap Caulk or Pourable Sealer on the cleaned area of the sheet. If the roofing membrane installation is to be delayed for 14 days or more, or if the substrate surface is rough, apply two ¼" beads of sealant. Remove the temporary seals completely when work resumes, cutting out the contaminated membrane. Remove all sealant, contaminated membrane, insulation fillers, etc. from the work area and properly dispose off-site.

3.08 CLEANING AND CLEANUP

A. Remove handprints, footprints and general soil from membrane using detergent and water. Rinse thoroughly.

B. Remove bonding adhesive or splicing cement residue as recommended by the manufacturer.

C. During course of work, inspect surrounding areas for debris and trash generated by the Work, including adjacent properties. Remove at the end of each day's work.

D. Leave roof areas and site clean of debris and trash.

3.09 INSPECTIONS AND FINAL INSPECTION

A. Authorized representative of manufacturer supplying roofing system shall perform the following inspections:

1. Two (2) in-progress inspections.
2. One (1) final inspection. Warranty shall be issued after this inspection. If in the judgement of the authorized representative the Warranty cannot be issued immediately following this inspection the Contractor shall arrange for additional inspection(s) by the authorized representative until such time as the Warranty can be issued.
3. One (1) inspection one year after substantial completion.

B. Contractor shall notify Architect and Owner's Representative at least 72 hours prior to the inspection, and the Architect and/or Owners Representative may attend the inspections.

C. Written reports for all inspections shall be provided to the Architect and Owner's Representative.

D. Contractor shall promptly make corrections as noted in inspection reports. During subsequent inspections the Authorized manufacturer's representative shall check issues noted in previous inspection reports to verify satisfactory remedial work has been performed by the Contractor.

END OF SECTION 07 53 25

SECTION 07 54 23

FULLY ADHERED TPO ROOFING

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 DESCRIPTION

A. Section includes:

1. Fully adhered singly-ply thermoplastic-polyolefin (TPO) sheet roofing system.

2. Roof insulation, TPO flashing, adhesive, premolded corners and boots, metal copings and fascias, sealant and all accessories and labor necessary for a complete, weathertight installation.

3. Thermal barrier, as required.

4. Raising of mechanical equipment and curbs. Adjusting heights of roof drains, if required. Extension of plumbing vents through roof if required. Removal and hook-up of mechanical (including electrical) equipment as necessary.

5. Clean-up and re-sodding of any damaged lawns.

6. Retrofit Roof Drains

B. Related sections:

1. Carpentry – Section 06 10 53.

2. Roofing Removal – Section 07 01 50

3. Sheet Metal Coping and Flashing – Section 07 62 00.

4. Flashing – Section 07 65 00.

5. Ballasted EPDM Roofing – Section 07 53 23.

6. Fully Adhered EPDM Roofing – Section 07 53 25

1.03 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D 1079 for definition of terms related to roofing work not otherwise defined in this Section.

1.03 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced installer to perform work of this Section who has specialized in installing roofing similar to that required for this Project and who is approved and trained, authorized, or licensed by the roofing system manufacturer's to install manufacturer's product.

1. Provide in writing that installer is currently approved by manufacturer of system prior to awarding of roofing contract.

B. Fire-Test-Response Characteristics: Provide roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method indicated below by UL, FM, or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

1. Exterior Fire-Test Exposure: Class A; ASTM E 108, for application and slopes indicated.

C. Conform to requirements of ASTM specification D6878 "Specification for Thermoplastic Polyolefin Based Sheet Roofing."

1.06 PRE-ROOFING CONFERENCE

A. Refer to Section 07 53 25 for requirements.

1.07 SUBMITTALS

A. Refer to Section 07 53 25 for requirements.

1.08 PRODUCT HANDLING, STORAGE AND DELIVERY

A. Deliver materials to Project site, including insulation, in manufacturer's original protective containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storing and mixing with other components.

B. Comply with manufacturer's instructions for storage and handling.

C. Deliver materials requiring fire resistance classification and/or flame spread rating with labels intact.

D. All materials must be protected from damage during transit, handling, storage and installation.

E. Store all materials on clean raised platforms with weather protective covering.

F. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid materials from direct sunlight.

1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

G. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacture's written instructions for handling, storing, and protection during installation.

H. Do not store concentrated loads on roof deck. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.04 PERFORMANCE REQUIREMENTS

A. General: Install sheet membrane roofing and base flashing that are watertight; will not permit the passage of liquid water; and will withstand wind loads, thermally induced movement, and exposure to weather without failure.

B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing system manufacturer based on testing and field experience.

C. FM Listing: Provide sheet membrane, base flashings, and component materials that meet requirements of FM 4450 and FM 4470 as part of a roofing system and that are listed in FM's 'Approval Guide' for Class 1 or noncombustible construction, as applicable. Identify materials with FM markings.

1. Roofing system shall comply with the following:

    a. Fire/Windstorm Classification: Class lA-90.

D. Roofing System Design: Provide a single-ply roofing system that complies with roofing system manufacturer's written design instructions and with The following:

1. SPRI's "Wind Design Guide for Mechanically Fastened Roofing Systems."

    a. Exposure Category: Exposure B.
    b. System Design: System 1.

1.09 PROJECT CONDITIONS

A. Examine substrates and conditions under which roofing work is to be performed. Do not proceed with work until all unsatisfactory conditions have been corrected.

B. If rain occurs during roof membrane application, cease operations and protect deck, insulation, penetrations and membrane from water damage and intrusion.

C. Remove and replace all material that has been subject to moisture.

D. Weather conditions: Proceed with TPO sheet roofing work only when weather conditions comply with manufacturer's recommendations, and will permit materials to be applied and cured in accordance with those recommendations. Do not exceed temperature limitations recommended by roofing materials manufacturer.

1. Cold Weather Installation:

    a. The following are guidelines for TPO installation when temperatures fall below 40 degrees Fahrenheit. Consult roofing manufacturer for more specific requirements.

        1. Store all adhesives, tapes and sealants at room temperature (60 to 80 degrees F) prior to application.
        2. Stir adhesives thoroughly before and during application
        3. Be conscious of changes in adhesive, such as thickening and return to heated environment.
        4. Use roofing sheets sizes with the least amount of factory folds.
        5. Do not apply adhesive when combinations of temperatures and humidity cause water condensation on the adhesive during the drying process.
        6. Prevent adhesive, tapes and sealant materials from freezing at all times.

E. Protect finished surfaces of building from damage by installation of roofing system.

F. Protect completed roofing and flashing from damage by subsequent roofing installation and construction traffic.

G. Comply with all applicable code, fire and safety regulations.

H. Flame-heated equipment:

1. Locate and use flame heated equipment so as not to endanger structure or other materials on site or adjacent property.

2. Do not place flame heating equipment on roof.

3. Provide and maintain fire extinguishers.

I. Do not interrupt Owner operations.

J. Access to roof from exterior only.

1.11 WARRANTY

A. Manufacturer's warranty includes materials and workmanship to maintain roof in watertight condition.

B. Provide single source, single responsibility warranty including membrane, insulation, flashing, walkways, and expansion joint covers.

C. Provide 20 Year No Dollar Limit Warranty, from manufacturer; warranty to run from date of substantial completion. On phased projects, all roofing system warranties shall be by single manufacturer. Warranty for each phase shall start upon substantial completion of each phase.

D. Submit in accordance to Section 01 78 23.

1.10 SITE CONDITIONS

A. Building space directly under roof area covered by this specification will be utilized by on-going operations.

B. Do not interrupt Owner operations.

C. Access to roof from exterior only.

PART 2: PRODUCTS

2.01 MANUFACTURER

A. System by Johns Manville, www.jm.com, is specified. All components are to be supplied or approved by roofing manufacturer to maintain warranty.

B. Equivalent products by the following manufacturers are acceptable:

1. Carlise SynTec, www.carlise-syntec.com.
2. Firestone Building Products, www.firestonebpe.com.
3. Versico Roofing Systems, www.versico.com

2.02 ROOFING SYSTEM

A. Johns Manville “ST6RA” Single Ply, Fully Adhered 60 mil TPO membrane.

1. Physical Properties: Provide fabric reinforced uniform, flexible thermoplastic polyolefin, internally fabric or scrim reinforced sheet with the properties as determined per ASTM test method D6878.

2. Exposed Face Color: White.

2.03 VAPOR BARRIER

A. Roof insulation (installed in two layers) with a perm rating of less than one (per layer) shall be substituted for the vapor barrier. A separate vapor barrier is not required.

2.04 THERMAL BARRIER

A. Provide ½” USG Securock Glass-Mat Roof Board or G.P. DensDeck thermal barrier immediately beneath roof insulation at areas of metal roof decks. This thermal barrier may be omitted if UL 1256 or FM 4450 assembly test reports indicate it is not required (based on the specific insulation to be provided by the Contractor).

2.02 AUXILIARY MATERIALS

A. General: Furnish auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing material.

1. Furnish liquid-type auxiliary materials that meet VOC limits of authorities having jurisdiction.
2. Furnish liquid-type auxiliary materials classified as No. VOC.

B. Sheet Flashing: Manufacturer's standard sheet flashing of same material, type, thickness, and color as sheet membrane.

C. Bonding Adhesive: Manufacturer's standard bonding adhesive. Use recommended cleaners and primers.

D. Metal Termination Bars: Manufacturer's standard aluminum bars, approximately 1 inch wide, roll formed and prepunched.

E. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions of FM 4470, designed for fastening sheet to substrate, and acceptable to roofing system manufacturer.

F. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings. Performed inside and outside corner sheet flashings, T-joint covers, seam calk, termination reglets, and other accessories recommended by roofing system manufacturer for intended use.

G. Walkway Pad: Factory-formed, nonporous, heavy-duty, slip-resisting, surface-textured walkway pads sourced from membrane roofing system manufacturer. Pad shall be a minimum of 30" in width.

H. Gypsum Roof Board/Protection Board: USG Securock Gypsum-Fiber Roof Board or G.P. DensDeck Prime.

I. Substrate Board: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, thickness as required to meet FM or UL requirements.

2.03 ROOF INSULATION

A. Base and Tapered Insulation: Polyisocyanurate Board Insulation with Long-Term Thermal Resistance Value of 5.7 per inch (R-Value of 5.9 at 4" thickness). Manufacturer as acceptable to roof manufacturer to maintain warranty. Provide protection board if required by roofing manufacturer for Manufacturer's Warranty.

1. Provide ½" USG Securock Glass-Mat Roof Board or G-P DensDeck thermal barrier if required by manufacture to meet FM or UL requirements.

B. Insulation Accessories

1. General: Furnish roof insulation accessories recommended by insulation manufacturer for intended use and compatible with sheet roofing material.

2. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions of FM 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.

C. Provide factory preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

D. Adhesive:

1. Cold Fluid-Applied, Manufacturer's No VOC, two-component cold fluid-applied adhesive formulated to adhere roof insulation to substrate.
2. Urethane, Manufacturer's two component urethane adhesive formulated to adhere insulation to substrate.

2.04 RETROFIT ROOF DRAINS

A. Provide “Hercules Retrodrain” as manufactured by OMG, Inc. or prior approved equal.

B. Provide retrofit roof drain as follows:

1. Size: Field verify existing drain size and provide compatible size which does not restrict existing flow.

2. Drain Body:

   a. Material: 1-piece, 11-gauge spun aluminum.
   b. Flange: 17½” diameter with (6) 2½” long aluminum studs.
   c. Drain Stem Length: 12”
   d. Sump Area: Depressed.

3. Strainer Dome:

   a. Material: Cast Aluminum
   b. Height: 7¼”
   c. Outside Diameter: 9¾”

4. Clamping Ring:

   a. Material: Cast Aluminum
   b. Gravel Stop Height: 1.2”
   c. Drainage Slots: (18) V-shaped.
   d. Bosses: (6) to accept studs on flange.

5. Backflow Seal:

   a. Compression Seal: Watertight, “U-Flow” mechanical seal.
   b. Material: Polyamide and EPDM rubber.
   c. Required for Activation: “U-Flow” screwdriver.

6. Hardware:

   a. Locknuts: (6) stainless steel, for studs.
   b. Screws: (3) stainless steel, to attach strainer to clamping ring.

7. Accessories:

   a. Screwdriver: “U-Flow”
   b. Overflow: 4” aluminum, attached to existing overflow roof drains. Field verify locations.

PART 3: EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas, and conditions, with installer present, for compliance with the following requirements and other conditions affecting performance of roofing system.

1. Verify that roof openings and penetrations are in place and set and braced and that roof drains are securely clamped in placed.
2. Verify that cants, blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
3. Verify that surface plane flatness and fastening of steel roof deck complies with requirements in Division 05 Section “Steel Decking”.

B. Proceed with installation only after unsatisfactory conditions have been corrected. Start of work means installer accepts existing substrate.

3.02 PREPARATION

A. Clean substrate of dust, debris, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.

B. Prevent materials form entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

3.03 PROTECTION BOARD INSTALLATION

A. Coordinate installing membrane roofing system components so protection board is not exposed to precipitation or left exposed at the end of the workday.

B. Comply with membrane roofing system manufacturer's written instruction for installing roof protection board.

C. Install protection board with long joints of cover board in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding ¼ inch with protection board.

1. Cut and fit protection board within ¼ inch of nailers, projections, and penetrations.

D. Trim surface of protection board where necessary at roof drains so completed surface is flush and does not restrict flow of water.

1. Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.

E. Attachment of protection board is to be by mechanical fasteners.

1. Mechanically Fastened Protection Board: Install each layer of protection board and secure to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof protection board to deck type.

    a. Fasten according to requirements in FMG's "Approval Guide" for specified Windstorm Resistance Classification.
    b. Fasten to resist uplift pressure at corners, perimeter, and field of roof.

3.04 ADHERED ROOFING MEMBRANE INSTALLATION

A. Install roofing membrane over area to receive roofing according to membrane roofing system manufacturer's written instructions. Unroll roofing membrane and allow to relax before installing.

B. Start installation of roofing membrane in presence of membrane roofing system manufacturer's technical personnel.

C. Accurately align roofing membrane and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

D. Bonding adhesive at contractor's option.

1. Apply solvent-based bonding adhesive to substrate and underside of roofing membrane at rate required by manufacturer and allow to partially dry before installing roofing membrane. Do not apply bonding adhesive to splice area of roofing membrane.

2. Apply water-based bonding adhesive to substrate at rate required by manufacturer and immediately install roofing membrane. Do not apply bonding adhesive to splice are of roofing membrane.

E. Mechanically fasten roofing membrane securely at terminations, penetrations, and perimeter of roofing.

F. Apply roofing membrane with side laps shingled with slope of roof deck where possible.

G. Seams: Clean seam areas, overlap roofing membrane, and hot-air weld side and end laps of roofing membrane according to manufacturer's written instructions to ensure a watertight seam installation.

1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of roofing membrane.

2. Verify field strength of seams a minimum of twice daily and repair seam sample area.

a. Remove and repair any unsatisfactory sections before proceeding with Work.

3. Repair tears, voids, and lapped seams in roofing membrane that do not meet requirements.

H. Spread sealant or mastic bed over deck drain flange at deck drains and securely seal roofing membrane in place with clamping ring.

I. Install roofing membrane and auxiliary materials to tie in to existing roofing.

J. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of the roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

3.05 FLASHING INSTALLATION

A. Install sheet flashings and preformed flashing accessories and adhere to substrate according to roofing system manufacturer's written instructions.

B. Apply solvent-based bonding adhesive to substrate and underside of flashing sheet at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners with sheet flashing as recommended by manufacturer.

D. Clean seam areas overlap sheets, and firmly roll flashings into the adhesive. Weld side and end laps to ensure a watertight seam installation.

E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

3.06 MISCELLANEOUS

A. Flexible Walkways: Install walkway products in locations indicated. Heat weld to substrate or adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

3.07 RETROFIT ROOF DRAINS

A. Install retrofit roof drains in accordance with manufacturer's instructions at locations indicated on the Drawings.

B. Install retrofit roof drains into existing drain leaders in accordance with manufacturer's instructions.

C. Install flashing in accordance with membrane roofing manufacturer's instructions.

D. Install retrofit roof drains to provide watertight connection to existing plumbing membrane.

E. Install overflow extensions as required on existing overflow roof drains.

3.08 FIELD QUALITY CONTROL

A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Architect.

1. Notify Architect or Owner 48 hours in advanced of the date and time of inspection.

B. Repair or remove and replace components of membrane roofing system where test results or inspection s indicate that they do not comply with specified requirements.

3.09 PROTECTION AND CLEANING

A. Protect sheet membrane roofing from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.

B. Correct deficiencies in or remove roofing that does not comply with requirements, repair substrates, reinstall roofing, and repair sheet flashing to a condition free of damage and deterioration at the time of Substantial Completion and according to warranty requirements.

C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 07 54 23

SECTION 07 62 00

SHEET METAL COPING AND FLASHING

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. Section includes:

1. Sheet metal coping, flashing, counterflashing and drip edges as shown on Drawings.

2. Approved ANSI/SPRI ES-1 contractor fabricated coping.

3. Prior to installation of finished materials, all flexible flashings shall be observed by the Architect. The Architect shall be given a minimum of 72 hours notice prior to the desired observation time. Any finish materials (i.e., brick, insulation, metal, etc.) installed without observation by the Architect shall be removed and replaced at the Contractor's expense.

B. Related work specified elsewhere:

1. Flexible flashing – Section 07 65 00.

2. Wood blocking, nailers – Section 06 10 53.

3. "Roofing" – Division 7

1.03 QUALITY ASSURANCE

A. Referenced Standards: Recommended practices as set forth by the Sheet Metal and Air Conditioning Contractors Association, Inc. (SMACNA) in the "Architectural Sheet Metal Manual" are by reference made a part of this work.

B. Perform Work in a manner that will maintain warranties on associated work specified in other sections.

1.04 SUBMITTALS

A. Submit in accordance with Section 01 33 00.

1. Shop Drawings: Indicating joint treatment, fastening methods, thickness and finish of materials.

2. Samples: Actual metal samples of each color indicated.

3. Warranty on fluorocarbon coating.

PART 2: PRODUCTS

2.01 GENERAL

A. Provide all accessories, other items essential to completeness of installation, though not indicated, specified. All such items, unless otherwise indicated, specified: Of same kind of material as item to which applied. Nails, screws, bolts: Of types best suited for purpose intended, of composition that is compatible with metal to which it will contact.

B. Type, locations of various kinds, gauges, thickness, finish of Sheet Metal to be used is specified hereinafter, however, where sheet metal is indicated and kind, type of metal is not definitely specified, noted, provide 24 ga. prefinished galvanized steel.

2.02 MATERIALS

A. Sheet Metal (Exposed)

1. Materials manufactured by Firestone Building Products – UNA-CLAD are specified. Other manufacturers meeting specified requirements are acceptable, subject to approval of color and warranty.

2. Minimum 24 ga. G-90 galvanized steel prefinished with Kynar 500 or Hylar 5000 fluorocarbon coating.

3. Colors: See notes on Architectural Drawings.

4. Special Warranty on Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within 20 year warranty period.

   a. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:

      1) Color fading more than 5 Hunter units when tested according to ASTM D 2244.
      2) Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
      3) Cracking, checking, peeling, or failure of paint to adhere to bare metal.

5. Provide factory applied protective film. Do not remove until after fabrication and installation is complete.

B. Sheet Metal (concealed): Minimum 22 ga. G-90 hot dipped galvanized steel, unless being used as through-wall flashing.

C. Sheet Metal (concealed, used as through-wall flashing): Minimum 24 ga. Type 304 or 316 stainless steel.

D. Drip Edges: Minimum 26 ga. Type 304 or 316 stainless steel with 3/8", 45 degree factory formed closed and hemmed edge.

E. Flexible Flashings/Underlayment: WR Grace "Ice and Watershield" or equal.

1. 40 mil rubberized asphalt adhesive backed by high density cross laminated polyethylene.

   a. Tensile Strength: 250 psi per ASTM D412 (Die C Modified).
   b. Elongation: 250% per ASTM D412 (Die C Modified).

F. Copings:

1. Contractor shall demonstrate that fabricated copings/fascias meet the requirements of ANSI/SPRI ES-1.

a. Meet ANSI / SPRI ES-1 wind design standards for conformance to requirements of International Building Code.

b. Materials

1) Coping cover shall be 24 gauge galvanized with Kynar 500 finish.
2) Accessories to include stainless steel anchor clips, concealed splice plates, coping cleats, and corrosion resistant fasteners / neoprene washers. Factory fabricated corners, end caps, frees, scuppers and sups with "quick lock" or welded seams.
3) Provide factory fabricates special sizes, shapes, as required / detailed.

G. Pre-Fabricated Fascia:

1. Contractor shall demonstrate that fabricated openings/fascias meet the requirements of ANSI/SPRI ES-1, pre-fabricated copings are not required.

3. Meet ANSI/SPRI ES-1 wind design standards for conformance to requirements of International Building Code.

4. Materials

a. Fascia cover shall be 24 gauge galvanized with Kynar 500 finish.

b. Accessories to include extruded aluminum anchor bar, anchor bar splice plates, closed cell compression gaskets, and corrosion resistant fasteners.

5. Sizes as detailed and field coordinated to provide proper coverage.

2.03 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and recommended by manufacturer of primary sheet metal unless otherwise indicated.

B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal.

1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.

a. Exposed Fasteners: Heads matching color of sheet metal with factory-applied coating.

b. Blind Fasteners: Stainless-steel rivets suitable for metal being fastened.

2. Fasteners for Zinc-Coated (Galvanized) Steel Sheet: Hot-dip galvanized steel according to ASTM A 153/A 153M or ASTM F 2329 or Series 300 stainless steel.

C. Solder:

1. For Zinc-Coated (Galvanized) Steel: ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead or Grade Sn60, 60 percent tin and 40 percent lead.

2. For Zinc: ASTM B 32, 40 percent tin and 60 percent lead with low antimony, as recommended by the manufacturer.

D. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.

E. Elastomeric Sealant: ASTM C 920, elastomeric silicone polymer sealant; low modulus; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

2.04 FABRICATION

A. Accurately form work with brakes straight, true and sharp. Make plain surfaces free from waves and buckles. Match profiles exactly at connections. Bead or return exposed edges for strength and appearance. Provide ribs, cleats and reinforcement necessary to make the sections rigid and substantial. Allow for expansion and contraction.

B. Overlap seams in the direction of flow. Finished width of lock seams and soldered lap seams: Not less than 1". Finished width of unsoldered lap seams: Not less than 3".

C. Locate joints of sheet metal work exposed to view with respect to column centers, mullions, control joints or other architectural features as indicated on the Drawings or as directed by the Architect. Use concealed cover plates. Where appearance is not a factor, sheet metal work may be fabricated in 8 or 10-foot lengths.

D. Generally, joints shall be single locked and soldered or double locked and sealed. Field joints shall be designed to permit expansion. Shop form corner pieces. Internal corners shall be lapped, riveted and sealed. External corners shall be lapped, riveted and sealed where exposed to view and locked and soldered where appearance is not a factor. Locate field joints not less than 12" nor more than 3 feet from actual corner.

E. Fabricate sheet metal to be installed using concealed clips or other concealed fasteners where possible. Form joints and hem edges to conceal uncoated edges of metal. Handle prefinished sheet metal with care to prevent scratching or damaging surface.

F. Fabricate radius copings and flashings as required.

PART 3: EXECUTION

3.01 WORKMANSHIP

A. Examine surfaces to be covered by sheet metal. Report any improper defective surfaces to Contractor, Architect in writing. Beginning of Sheet Metal Work over surfaces: Presumed as acceptance of surfaces as satisfactory by Sheet Metal Sub-contractor.

B. Verify field dimensions prior to fabrication.

C. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.

1. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.

2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

3. Space cleats not more than 12 inches apart. Anchor each cleat with two fasteners. Bend tabs over fasteners.

4. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.

5. Install sealant tape where indicated.

6. Torch cutting of sheet metal flashing and trim is not permitted.

7. Do not use graphite pencils to mark metal surfaces.

D. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by SMACNA.

E. Insure that all work is precisely done, true to line, and free from over bending, burning, deforming, stretching, distortion, waves and buckles.

F. Seal under and around all fasteners which penetrate elastomeric roofing or flashing.

3.02 REPAIR

A. Repair or replace all damaged or defective work.

3.03 CLEANING

A. Clean exposed sheet metal of roofing materials, mortar, hand marks, other foreign materials.

B. Remove protective covering from sheet metal.

C. Touch up minor scratches in finish with matching paint, compatible with specified finish.

END OF SECTION 07 62 00

SECTION 07 65 00

FLASHING

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. Section includes product specification of the following:

1. Flexible and metal flashing used in masonry, exterior finish materials and exterior openings.

B. Installation of flashings installed in other sections:

1. Unit Masonry Repairs – Section 04 01 20.
2. Sheet Metal Coping and Flashing – Section 07 62 00.

1.03 SUBMITTALS

A. Submit in accordance with Section 01 33 00.

1. Product data indicating proposed material conforms to specification.
2. Submit samples of all specified materials for review.

PART 2: PRODUCTS

2.01 MATERIALS

A. Products by WR Grace are specified unless noted otherwise. Equivalent products by Carlisle Coatings and Waterproofing, Miradri, Polyken, WR Meadows are acceptable.

B. Flexible Flashing: Perm-A-Barrier Wall Flashing manufactured of 32 mils of self-adhesive rubberized asphalt integrally bonded to 8 mil of cross-laminated, high-density polyethylene film to provide a min. 40 mil thick membrane. Membrane shall be interleaved with disposable silicone-coated release paper until installed, conforming with the following:

1. Water Vapor Transmission: ASTM E96, Method B: 2.9 ng/m2sPa (0.05 perms) max.
2. Water Absorption: ASTM D570: max. 0.1% by weight
3. Puncture Resistance: ASTM E154: 356 N (80 lbs.) min.
4. Tear Resistance

    a. Initiation ASTM D1004: min. 58 N (13.0 lbs.) M.D.
    b. Propagation ASTM D1938: min. 40 N (9.0 lbs.) M.D.

5. Lap Adhesion at -4ºC (25ºF): ASTM D1876: 880 N/m (5.0 lbs./in.) of width
6. Low Temperature Flexibility ASTM D1970: Unaffected to -43ºC (-45ºF)
7. Tensile Strength: ASTM D412, Die C Modified: min. 5.5 MPa (800 psi)
8. Elongation, Ultimate Failure of Rubberized Asphalt: ASTM D412, Die C: min. 200%.

9. Wall Flashing Accessories:

   a. Surface Conditioner:

      1) Perm-A-Barrier Surface Conditioner: Water based latex liquid for substrate preparation conforming with the following:

         (1.) Flash Point: No flash to boiling point
         (2.) Solvent Type: Water
         (3.) VOC Content: Not to exceed 125 g/L
         (4.) Application Temperature: -4°C (25°F) and above
         (5.) Freeze/Thaw Stability: 5 cycles min.
         (6.) Freezing point (as packaged): -10°C (14°F)

   b. Termination Mastic:

      1) Bituthene® Mastic: Rubberized asphalt-based mastic with 20 g/L max. VOC Content.

   c. Optional Primers:

      1) Bituthene Primer WP-3000: Water-based latex primer with 110 g/L max. VOC Content.

      2) Bituthene Primer B2: Rubber-based primer in solvent with 440 g/L max. VOC Content.

C. Miscellaneous Accessories

   1. Metal Flashing: 24 ga. G-90 hot dipped galvanized steel, prefinished with Kynar 500 or Hylar 5000 fluorocarbon coating.

      a. Color: See various technical sections for colors.

      b. Provide 20 year warranty covering color fade, chalking and film integrity.

      c. Provide factory applied protective film. Do not remove until after fabrication and installation is complete.

   2. Rope Wicks: 1/4" cotton sash cord.

   3. Flashing Termination Bar and Fasteners.

      a. Termination bar: TB-100 termination bar with sealant ledge, .100” thick x 1” wide extruded aluminum with ¼” x 3/8” slotted holes at 8”o.c. as manufactured by Tru-Fast Corp. (800-443-9602) or equal.

      b. Fasteners to be #14 x 1 ¼”stainless steel Crete Flex SS4, hex head with silver stalgard finish as manufactured by ELCO Fastening Systems or equal.

PART 3: EXECUTION

3.01 INSTALLATION OF ACCESSORIES

A. See various technical sections listed in paragraph 1.02.B for installation of flashings.

END OF SECTION 07 65 00

SECTION 07 92 00

SEALANTS AND CAULKING

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. Exterior colored sealants:

1. Joints around hollow metal.
2. Miscellaneous joints where "sealant" or "caulk/caulking" is indicated on drawings.
3. Joints around mechanical, electrical and architectural penetrations of exterior masonry skin.

B. Sealant replacement:

1. Removal of existing sealants and prepping of joints prior to placement of new sealants.

C. Related work specified in other sections:

1. Sealant for sheet metal joints – Section 07 62 00.

1.03 REFERENCES

A. ASTM C 920 – Specification for Elastomeric Joint Sealants.

B. ASTM C 1193 – Standard Guide for Use of Joint Sealants.

1.04 SUBMITTALS

A. Submit in accordance with Section 01 33 00.

B. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods including joint design, surface preparation, and application instructions.
4. Submit manufacturer's test reports indicating test results of adhesion and/or compatibility testing of samples of substrates which either come in contact with or are in close proximity to sealants.

C. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors or samples of custom color matches for Architect's acceptance.

D. Samples of Warranty.

E. Manufactures approval of installer.

1.06 QUALITY ASSURANCE

A. Applicator Qualifications

1. Company specializing in performing work of this section with minimum three years documented experience, minimum three successfully completed projects of similar scope and complexity, and approved by manufacturer.
2. Designate one individual as project foreman who shall be on site at all times during installation.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Accept materials on site in manufacturers unopened original packaging. Inspect for damage.

B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1. Store materials in a clean, dry area indoors in accordance with manufacturer's instructions.
2. Store sealants within temperature range in accordance with manufacturer's instructions.
3. Keep containers sealed until ready for use.
4. Do not use materials after manufacturer's use-before date.

1.08 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.

1. Do not apply sealants to surfaces that are wet, damp, or contain frost.
2. Do not apply sealants when air or surface temperature is below 40 degrees F.
3. Use caution when applying sealants when air or surface temperature is above 120 degrees F.

1.09 WARRANTY

A. Special Installer's Warranty: Installer's standard form in which Installer agrees 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.

B. Special Manufacturer's Warranty for Exterior Sealants: Manufacturer's standard form in which elastomeric sealant manufacturer agrees to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Ten years from date of Substantial Completion.

PART 2: PRODUCTS

2.01 EXTERIOR SEALANTS

A. Hybrid Polymer Sealant: BASF, MasterSeal NP 150 Tint Base conforming to ASTM C 920, Type M, Grade NS, Class 50. Maximum VOC: 2 g/L.

1. Colors: Custom colors to match material or finish sealant occurs in.

2.02 INTERIOR SEALANTS

A. Polyurethane Sealant: Multi-component, high-performance polyurethane sealant conforming to ASTM C 920, Type M, Grade NS, Class 25. Maximum VOC: 25 g/L.

1. Manufacturers/product:

    a. Pecora, Dynatrol II
    b. SIKA, SIKAFLEX 2-C
    c. BASF MaterSeal NP2
    d. Tremco, Dymeric 240/240FC

2. Colors: Custom colors to match material or finish sealant occurs in.

2.03 ACCESSORIES

A. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

B. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

C. Joint Backing: Round foam rod compatible with sealant; oversized 25 to 50 percent larger than joint width; recommended by sealant manufacturer to suit application.

D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

E. Masking Tape: Non-staining, non-absorbent tape product compatible with joint sealants and adjacent joint surfaces.

PART 3: EXECUTION

3.01 EXAMINATION

A. Inspect joints for compliance with requirements for joint configuration, installation tolerance, and other conditions affecting joint sealant performance. Correct unsatisfactory conditions before proceeding.

3.02 PREPARATION

A. Prepare joints in accordance with ASTM C 1193 and manufacturer’s instructions.

B. Clean out joints immediately before installing joint sealants (within 1 to 2 hours of sealant application), in accordance with joint sealant manufacturer's recommendations and the following requirements:

1. Remove from joint substrates foreign material which could interfere with adhesion of joint sealant, including paints other than permanent protective coating tested and approved for sealant adhesion and compatibility by sealant manufacturer, oil, grease, waterproofing, water repellants, water dirt, and frost.

2. Clean porous joint substrates using approved methods such as brushing, grinding, blast cleaning, mechanical abrading, and acid washing as appropriate, or a combination of these methods, to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from 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 and other nonporous substrates by using chemical cleaners or other means that neither are harmful to substrates nor leave residues capable of interfering with adhesion of joint sealants.

C. Joint Priming: Prime joint substrates where indicated or where recommended by joint sealant manufacturer. Apply primer to comply with joint sealant manufacturer's recommendations. Confine primers to area of joint sealer bond; do not allow spillage or migration onto adjoining surfaces. Allow primer to dry before applying sealant.

D. Masking Tape: Use masking tape where required to prevent contamination of adjacent surfaces; remove tape immediately after tooling and before sealants begin to cure without disturbing seal.

3.03 EXISTING WORK

A. Mechanically remove existing sealants.

B. Clean joint surfaces of residual sealant and other contaminates capable of affecting sealant bond to joint surface by mechanical means.

C. Allow joint surfaces to dry before installing new sealant.

3.04 SEALANT INSTALLATION

D. Comply with joint sealant manufacturer's printed installation instructions.

E. Installation of Sealant Backings:

1. Install joint filler to provide support of sealant during application and at position required to produce the cross-sectional shape and depth of installed sealant relative to joint width that allows optimum sealant movement capability.

    a. Do not leave gaps between ends of joint fillers.

    b. Do not stretch, twist, puncture, or tear joint fillers.

    c. Remove fillers which have become wet prior to sealant application and replace with dry materials.

2. Install bond breaker tape when joint depth is to shallow to allow backer rod.

F. Installation of Sealant:

1. Install sealants by proven techniques that result in direct contact with and full wetting of joint substrates by joint sealant, completely filling recesses provided and providing uniform cross-sectional shapes and depths relative to joint widths. Sealant depth to be ½ the width of the joint and 1/3 the width at the center, creating an hourglass shape. Maximum depth of caulk at center to be 3/8". Air pockets or voids are not acceptable.

2. Immediately after sealant application and prior to the 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 sealant from surfaces adjacent to joint. Do not use tooling agents which discolor sealants or adjacent surfaces or which are not approved by sealant manufacturer.

3.05 PROTECTION AND CLEANING

A. Protect joint sealers, during and after curing, from contamination or damage. Cut out and remove damaged or deteriorated sealers and replace with new materials.

B. Clean excess sealants or sealant smears adjacent to joints as work progresses.

3.06 FIELD QUALITY CONTROL

A. Perform adhesion tests on exterior sealant in accordance with manufacturer's instructions and ASTM C1193, Method A, Field-Applied Sealant Joint Hand-Pull Tab.

1. Perform 5 tests for first 1,000 linear feet of applied exterior sealant and 1 test for each 1,000 feet of seal thereafter. If there is less than 1,000 feet, perform 1 test per floor per building elevation minimum.
2. For sealant applied between dissimilar materials, test both sides of joint.

B. Sealants failing adhesion test shall be removed, substrates cleaned, sealants re-installed, and re-testing performed.

C. Maintain test log and submit report to Architect indicating tests, locations, dates, results, and remedial actions.

END OF SECTION 07 92 00

SECTION 08 10 00

STEEL DOORS AND FRAMES

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. Section includes:

1. All hollow metal doors and doorframes.

B. Related work specified in other sections:

1. Painting – Section 09 91 00.

1.03 QUALITY ASSURANCE

A. Provide doors and frames complying with the SDI Standard 100-"Recommended Specifications Standard Steel Doors and Frames" and as herein specified.

B. Obtain hardware templates from hardware supplier (Section 08 71 00) and obtain necessary hardware for factory application.

C. Where noted on Door Schedule, provide nationally recognized testing agency label of proper classification. Label requirements take precedence over conflicting details. Advise the Architect of any conflict before fabricating work on that item is started.

1.04 SUBMITTALS

A. Submit in accordance with Section 01 33 00.

1. Coordinate with any special conditions of anchorage. Submit door/opening schedule on shop drawings indicating relationship of door, number of room, number and function of door, such as Corridor A-13 to Lavatory A-14.

2. Shop Drawings: Include the following:

a. Elevations of each door design.
b. Details of doors, including vertical and horizontal edge details and metal thicknesses.
c. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
d. Locations of reinforcement and preparations for hardware.
e. Details of each different wall opening condition.
f. Details of anchorages, joints, field splices, and connections.
g. Details of accessories.
h. Details of molding, removable stops, and glazing.
i. Detail of conduit and preparations for power, signal, and control systems.
j. Rating of doors and frames as noted on door/opening schedule and/or Code Plan.

3. Provide factory certification that all components in scheduled stainless steel door and frame systems meet the grades and standards specified herein.

1.06 PRODUCT PROTECTION

A. Deliver doors and frames in suitable crating or packaging to prevent damage in transit and storage.

B. Storage at jobsite:

1. Store frames on plywood and block at least 4" above plywood, under waterproof cover.
2. Store doors under cover in a dry area with doors set upright with ¼ inch spacers between doors. Keep doors at least 4" above ground.
3. Do not store HM material in a manner that traps excess humidity.
4. Materials that are rusted prior to installation may be rejected.

PART 2: PRODUCTS

2.01 MANUFACTURERS

A. Approved Manufacturer(s): Steelcraft, Pioneer, Ceco, Curries

B. Accompany any request for acceptance of alternative manufacturers by descriptive details or brochures demonstrating compliance with specifications, and sample frame corner.

2.02 MATERIALS

A. Steel: Commercial quality, level, cold rolled steel conforming to ASTM A366, free of scale and surface defects. Commercial quality hot rolled and pickled steel conforming to ASTM A569 may be used at contractor's option for interior frames. Where noted, form frames of galvanized steel conforming to ASTM A526 or A527, A60 zinc coating. Gauges are as follows unless otherwise noted:

1. Exterior Frames: 14 gauge, galvanized.

2. Flush Doors: 16 gauge galvanized (exterior).

3. Rough Bucks and Stiffeners: 12 gauge.

4. Miscellaneous Trim: 16 gauge.

B. Rust-Inhibitive Primer

1. Manufacturer's standard rust inhibitive baked-on primer. Provide additional primer for touch-up.

2. Pretreat galvanized metal in accordance with paint manufacturer's recommendations.

2.03 FABRICATION

A. Make hardware mortises and reinforcements according to templates. Provide hinge, lock, door holder and closer hardware reinforcements. Mortise, drill tap for hardware; fabricate grooves, rabbets as necessary for weatherstripping, soundstripping.

B. Fabricate doors to a maximum tolerance of 1/16 inch from a straight edge when laid on face of door in any direction, including diagonal.

C. Clearances: Edge clearances shall be provided as follows:

1. Between doors and frame - 1/8"

2.04 METAL FRAMES

A. Provide custom metal frames of the types and styles indicated on the drawings or schedules and complying with SDI 100 for materials and construction requirements.

B. Provide metal frames for openings as shown on the drawings. Provide thermally broken frames at exterior wall.

C. Miter corners on face of all frames, internally weld face and grind smooth exterior.

D. Provide closed metal covers over all hardware cutouts to protect against mortar.

E. Provide integral channel frames, subframes and stiffeners to structure where indicated or required for fastening and stiffening frames.

F. Provide dimpled frames with pipe sleeves suitable for anchorage into existing masonry rough openings.

G. Provide three factory installed silencers on single door frames at strike jamb.

H. Hinge reinforcements to have 10 gauge straps welded directly above and below each hinge pocket.

2.05 FLUSH HOLLOW METAL DOOR

A. Provide custom metal doors for the types and styles indicated on the Drawings or schedules and complying with SDI 100 for materials and construction requirements. Fully insulate exterior doors.

B. Close top and bottom edges of all doors with a continuous recessed steel channel not less than 16 ga., full width spot welded to both faces. Provide an additional flush closing channel at top edge for exterior doors. Provide openings to bottom closure of exterior door to permit escape of moisture.

C. Edge profiles to be 1/8" bevel in 2".

D. All doors to have minimum 16-gauge lock reinforcement and either continuous 14-gauge hinge rail or minimum 8-gauge plate hinge reinforcement.

E. All faced edge seams to be continuously wire welded, finished smooth.

2.06 HARDWARE LOCATION

A. Prepare for hardware at mounting heights and locations as recommended by the Builder's Hardware Manufacturing Association.

2.07 SHOP PAINTING

A. Completely clean all frames by degreasing process, followed by one coat rust inhibitive primer equal to a salt spray test (5% solution) of 70 hours. Thoroughly prime all surfaces without runs, smears, or bare spots, and under and inside all removable stops.

B. Completely clean all doors of impurities and pressure sand to a smooth surface and correct all irregularities with metallic putty sanded smooth. Provide one (1) spray coat of primer, baked on. Thoroughly paint unexposed inside surfaces of exterior doors, fire doors, and other doors occurring in excessive moisture area.

C. Provide vinyl wash pre-treatment of galvanized steel as recommended by shop primer manufacturer.

D. Provide primer for field touch up of rusted areas, splices, connections, welds and abrasions.

PART 3: EXECUTION

3.01 INSTALLATION

A. Prime-Coat Touchup: Prior to erection sand smooth rusted, damaged, connection points and welded areas of prime coat and apply touchup primer.

B. Securely fasten Work in place, without twists, warps, bulges or other unsatisfactory defacing of workmanship. Set plumb, level square to proper elevation true to line and eye. Set clips and other anchors with piston driven fasteners equal to Ramset or drilled-in anchors as approved. Fasten units and trim together with neat, uniform and tight joints.

C. Where field installed hardware is required, provide wood or other suitable filler to avoid drilling and tapping into mortar inside frames.

D. All field splices to be welded and filled with body putty and ground smooth, no exposed screw heads will be accepted. Locate splices where shown on final reviewed shop drawings.

3.02 PROTECTION

A. Protect installed hollow metal work against damage from other construction.

B. Repair or replace all damaged work at no extra cost to Owner.

END OF SECTION 08 10 00

SECTION 08 71 00

FINISH HARDWARE

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. This Section includes the furnishing and installing of all finish hardware material specified herein, listed in the hardware schedule, or required by the Drawings.

B. Cylinders for:

C. Items of hardware include:

1. Finish hardware

2. Thresholds and weatherstrip

1.03 RELATED WORK SPECIFIED ELSEWHERE

A. Section 08 10 00 - Steel Doors and Frames.

1.04 REFERENCES

A. Builders' Hardware Manufacturers Assoc., Inc. (BHMA), 60 E. 42nd St., New York, NY 10017.

1. Recommended locations for builders' hardware.

B. American National Standards Institute, Inc. (ANSI), 1430 Broadway, New York, NY 10018.

1. A115.2 - Specifications for standard steel door and frame preparations for bored cylindrical locks for 1-3/8" and 1-3/4" doors.

C. National Fire Protection Association, Inc. (NFPA), Battery March Park, Quincy, MA 02269.

1. NFPA 80 - Standard for fire doors and windows.

2. NFPA 101 - Code for safety to life from fire in buildings and structures.

D. Underwriters Laboratories, Inc. (UL), 333 Pfingsten Road, Northbrook, IL 60062.

1. Building Materials Directory.

E. Builders' Hardware Manufacturers Assoc., Inc. (BHMA), 60 E. 42nd Street, New York, NY 10017.

1. Recommended locations for builders' hardware.

F. Building Codes: International Building Code, Adopted Edition.

1. Include State amendments modifying model codes in jurisdiction where project is constructed.

1.05 QUALITY ASSURANCE

A. Except where specified in the hardware schedule, furnish products of only one manufacturer for each type of hardware.

B. Supplier: Company specializing in the builders' hardware industry.

C. Provide hardware for fire-rated openings conforming to UBC Standard 7-2.

D. Provide hardware for fire-rated openings conforming in compliance with NFPA 80 1995 Edition.

1.06 REGULATORY REQUIREMENTS

A. Furnish hardware listed by UL testing agency for all rated openings in conformance with requirements for the class of opening scheduled.

B. Rating requirements have precedence over this specification where conflict exists.

C. Furnish and install hardware that is in compliance with American with Disabilities Act of 1990 (ADA) technical standards, and current State Building Code.

1.07 SUBMITTALS

A. Submit in accordance with Section 01 33 00.

1. Schedules

a. Immediately after award of the hardware contract, submit a detailed, vertical type hardware schedule and cut sheets for each type of hardware for approval. On existing buildings field verify existing swings and functions prior to submitting schedule.

b. Itemize hardware in the sequence and format established by this specification.

1. List and describe each opening separately; include door number, room designations, degree of swing, and hand.

2. List related details; include dimensions, door and frame material, and other conditions affecting hardware.

3. List all hardware items; include manufacturer's name, quantity, product name, catalog number, size, finish, attachments, and related details where applicable.

c. Submit manufactures cut sheets on each type of hardware proposed.

d. Resubmit the corrected schedule when required.

e. Determine keying requirements by meeting with the Owner coordinated through the Architect, and submit a detailed keying schedule for review; resubmit the corrected schedule when required.

3. Samples: Submit samples of hardware items as may be required by the Architect; identify each sample and indicate the location of subsequent installation in the project.

4. Templates: Furnish a copy of the approved hardware schedule and all pertinent templates or template information to each fabricator of material factory-prepared for the installation of hardware.

5. Include documentation for UL 10C or other approved testing agency stating hardware has passed UBC Standard 7-2.

1.08 DELIVERY, STORAGE AND HANDLING

A. Deliver hardware to the job site in the manufacturer's original containers that have been marked to correspond with the approved hardware schedule for installation location.

B. Store hardware in dry surroundings and protect against loss and damage.

PART 2: PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS/MATERIALS

A. Hinges

1. Continuous hinges manufacturers and respective catalog numbers:

Markar	Stanley	Ives	McKinney
300 Series	600 Series	700 Series	MCK-300 Series

a. Continuous hinges shall be full height pin and barrel type hinge providing full height door support up to 600 pounds. Edge mount (unless noted otherwise).

b. Hinges shall be constructed of heavy-duty 14-gauge material. The stainless internal pin shall have a diameter of .25 and the exterior barrel diameter of .438.

c. Hinge shall be non-handed with symmetrical templated hole pattern and factory drilled. Hinge must accept a minimum of 21 fasteners on the door and 21 fasteners on the frame.

d. Each knuckle to be 2", including split nylon bearing at each separation for quiet, smooth, self-lubricating operation.

e. Hinge to be able to carry Warnock Hersey Int. or UL for fire rated doors and frames up to three hours. Note: Fire label for doors and frames should be placed on the header and top rail of rated doors and frames.

f. Provide adjusting screws equal to Markar's "AdjustaScrew" for continuous hinges specified as HG-305. Adjustment to be able to correct frame fit problems up to 3/8".

2. When hinges are specified on the hardware schedule, furnish:

a. Exterior hollow metal or stainless steel openings: One (1) continuous hinge per leaf.

B. Locks

1. Manufacturer and respective catalog number:

Schlage
L9000-03A

2. Furnish lock types and functions specified in the hardware schedule, with the following provisions:

a. Provide interchangeable cores at all locations.

b. Strikes:

1) Wrought box type for the inactive leaf of pairs of wood doors, or wood frames.
2) Lip length sufficient to protect trim, frame or inactive leaf.

4. Lever handles must be cast brass, bronze or stainless steel construction and conform to ASNI A117.1.

C. Cylinders: Schlage. Match keyway of existing building.

D. Kick Plates: Where kick plates are specified in the hardware schedule, furnish 16 gauge, .050" plates, with the following dimensions:

1. Width: 2" less than door width.

2. Height: 8" (unless noted different on door schedule.)

3. All kick plates shall be beveled 4 sides and counter sunk.

E. Overhead Stops

1. Manufacturers and respective catalog numbers:

	Glynn-Johnson	Rixson-Firemark
a.	GJ450	10
b.	GJ90	9
c.	GJ100	1

2. Furnish a GJ90 series overhead stop for all doors equipped with regular arm surface type closers that swing more than 140 degrees before striking a wall and for all doors that open against equipment, casework, sidelights, or other objects that would make wall bumpers inappropriate.

3. Furnish a GJ90 or GJ100 series overhead holder where listed in the Hardware Schedule.

F. Thresholds, Weatherstrips and Jamb Gaskets

1. Manufacturers and respective catalog numbers:

		Reese	Pemko	National Guard
a.	Weatherstrip	755A	2891APK	700NA
b.	Sweep	964C	18061CP	B606A

2. Where specified in the hardware groups, furnish the above products unless otherwise detailed in groups.

2.03 ACCESSORIES AND ATTACHMENTS

A. Furnish all necessary hardware accessories such as wood or machine screws, bolts, nuts, anchors, toggle bolts, and other fasteners, each of the type, size, material and finish for its intended purpose and each according to the material to which the hardware is being applied.

2.04 FINISH AND BASE METALS

A. Finish and Base Metal:

Locks & Exit Devices	“Oiled Bronze” Finish to match existing
Closers	Sprayed AL on cast iron or aluminum
Protective Plates	US32D on stainless Steel
Overhead Stops	US32D on stainless steel
Thresholds	Mill aluminum
Weatherships and Sweep Strips	Clear anodized aluminum
Miscellaneous	US26D on brass or bronze

2.05 KEYING

A. Masterkey all lock cylinders as directed by the Architect.

B. Stamp keys with file key number and "Do Not Copy."

C. Permanent cylinder cores shall be installed by the contractor under the supervision of an owner’s representative.

PART 3: EXECUTION

3.01 INSTALLATION

A. Install hardware in accordance with manufacturer's recommendations / instructions, and the adopted Building Code.

B. Install hardware on UL labeled openings in accordance with manufacturer's requirements, so as to maintain the label.

C. Install hardware mountable weatherstipping continuous throughout opening prior to installation of other hardware.

D. Mortise and cut to close tolerance and conceal evidence of cutting in the finished work.

E. Remove, cover or protect hardware after fitting until paint or other finish is applied; permanently install hardware after finishing operations are complete.

F. Mounting heights:

1. Install hardware at mounting heights conforming to the recommended mounting locations of the Builders' Hardware Manufacturing Association, and the adopted Building Code.

G. Deliver to the Owner one complete set of installation and adjustment instructions, and tools as furnished with the hardware.

H. Install per door and/or frame manufacturer's supplemental "S" label instructions on fire rated openings.

3.02 ADJUSTING AND CLEANING

A. At final completion, adjust and test all hardware for function, performance, building code compliance and leave in good operating condition. Panic Hardware device manufacturer’s representative to inspect panic hardware installation and provide a report to contractor and architect on items that need correction.

B. Clean all hardware to restore the original finish.

3.03 PROTECTION

A. Protect the finished installation until acceptance of the project.

B. Provide final adjustment or cleaning where necessary.

3.04 DEMONSTRATION

A. Engage a factory-authorized service representative(s) to train Owner's maintenance personnel to adjust, operate, and maintain door hardware and door hardware finishes. At a minimum, provide the following training:

1.	Miscellaneous hardware	1 hour
2.	Locks	1 hour

Refer to Section 01 79 00 Demonstration and Training.

3.05 HARDWARE GROUPS

HARDWARE GROUP #1
At each single door leaf provide:
(1) Continuous Hinge
(1) Overhead Door Stop
(1) Classroom Security Lock
(2) Cylinders
(1) Kickplate
(2) Weatherstripping (all sides of frame)

END OF SECTION 08 71 00

SECTION 08 91 00

LOUVERS

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. Section includes:

1. Pre-finished aluminum exterior wall louvers.

2. Prior to installation of finished materials, all flexible flashings shall be observed by the Architect. The Architect shall be given a minimum of 72 hours notice prior to the desired observation time. Any finish materials (i.e., brick, insulation, metal, etc.) installed without observation by the Architect shall be removed and replaced at the Contractor's expense.

B. Related work specified in other sections:

1. Metal coping – Section 07 62 00.

2. Flashings – Section 07 65 00.

3. Caulking and sealants – Section 07 92 00.

1.03 SUBMITTALS

A. Submit in accordance with Section 01 33 00.

1. Product Data: Submit product data sheet for specified products.

   a. Performance Certificates: Submit performance certification, if not include in product data.

2. Shop Drawings: Submit shop drawings showing layout, profiles and product components, including anchorage, flexible flashings, accessories, finish colors, patterns and textures.

   a. Include information necessary for fabrication and installation of louvers. Indicate materials, sizes, thickness, fastening and profiles.

3. Quality Assurance Submittals: Submit the following:

   a. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.

      1) Submit certified test results from an approved testing laboratory showing that the louvers proposed meet the criteria specified herein.

   b. Certificates: Product certificate signed by manufacturer certifying materials comply with specified performance characteristics and criteria, and physical requirements.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Package, handle, deliver and store at the job site in a manner which will avoid damage or deformation. Damaged louvers including nicks, scratches and blemishes will be rejected.

1.06 PROJECT CONDITIONS

A. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings.

PART 2: PRODUCTS

2.01 LOUVERS

A. Manufacturer: Products by Industrial Louvers, Inc., www.industriallouvers.com, 763-972-2981 are specified. Other manufacturers noted subject to conformance with specification are acceptable: Airline Products The Airolite Co., Co., All-Lite Architectural Products, American Warming and Ventilating, Arrow United Industries, Cesco Products, Commercial Air Products, Construction Specialties, Inc., Ruskin Manufacturing Co., Safe-air/Dowco.

2.02 WALL LOUVERS

A. Model: 458XP

1. Frame:

    a. Frame Depth: 4 inches.
    b. Material: Extruded aluminum, 6063-T6
    c. Wall Thickness: 0.081 inch, nominal

2. Blades:

    a. Style: Drainable
    b. Material: Extruded aluminum, 6063-T6
    c. Wall Thickness: 0.081 inch, nominal
    d. Angle: 35/45 degrees
    e. Centers: 3.875 inches, nominal

3. Performance Data:

    a. Performance Ratings: Product must be licensed to bear the AMCA Certified Ratings Seal for Water and Air Performance.
        1) Based on testing 48 inches by 48 inches size unit in accordance with AMCA 500-L.
    b. Free Area: 53.4% (8.54 sq.ft)
    c. Water Penetration: Maximum of .01 ounces at an air flow of 1062.8 FPM
    d. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 854 FPM free area velocity.

4. Louver Accessories:

    a. Exterior Aluminum Sill: Provide sill flashing of same material and finish as louvers where indicated on the drawings.

    b. Louver Screens: Provide framed removable, re-wire-able screens for exterior louvers.

        1) Bird Screen:

a) Aluminum, 1/2 inch by 0.063 inch expanded, flattened.

2.03 MATERIALS

A. Aluminum Sheet: ASTM B209 Alloy 3003 or 5005 with temper as required for forming, or as otherwise recommended by metal producer to provide required finish.

B. Aluminum Extrusions: ASTM B221, Alloy 6063.

C. Fastenings: Provide stainless steel screws and fasteners for aluminum louvers and zinc-coated or stainless steel screws and fasteners for steel louvers. Provide other accessories as required for complete and proper installation.

2.04 FABRICATION

A. Fabrication Requirements:

1. Performance: Fabricate as required for optimum performance with respect to water penetration, strength, durability and uniform appearance.

2. Size:
   a. Fabricate louvers to outside dimensions indicated, with allowance of 3/8" on each side for sealant joints.

3. Field Measurements: Verify size, location and placement of louver units prior to fabrication.

4. Shop Assembly:
   a. Fabricate to minimize field adjustments, splicing, mechanical joints and field assembly of units.
   b. Preassemble units in shop to greatest possible and disassemble as necessary for shipping and handling.
   c. Clearly mark units for reassembly and coordinated installation.

5. Accessories: Include supports, anchorages and accessories required for complete assembly.

6. Vertical Mullions: Provide vertical mullions of type and spacing indicated but not further apart than recommended by the manufacturer.

7. Horizontal Mullions: Provide horizontal mullions at horizontal joints between louver units except where continuous vertical assemblies are indicated.

8. Connections: Join frame and blade members to one another by welding, except where field bolted connections between frame members are made necessary by size of louvers.

9. Spacing: Maintain equal blade spacing to produce uniform appearance.

2.05 FACTORY FINISHES

A. Finish/Colors: Architect to select from full range of manufacturers available colors.

PART 3: EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

A. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions, and product carton instructions for installation.

3.02 EXAMINATION

A. Site Verification of Conditions: Verify substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.

3.03 INSTALLATION

A. Louver Installation:

1. Louvers shall be installed in accordance with manufacturers approved shop drawings and as shown. Provide all necessary fastenings and anchors required to complete installation.

2. Form tight joints within work of this Section. Fit exposed connections accurately.

3. Protect metal surfaces from corrosion or galvanic action by application of a heavy coating of bituminous paint on surfaces, which shall be in contact with concrete, masonry or dissimilar metals.

3.04 PROTECTION AND CLEANING

A. Protect louvers and finish from damage by other trades.

B. Repair damaged louvers or replace.

END OF SECTION 08 91 00

SECTION 09 91 00

PAINTING

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. Section includes:

1. Field finish all materials scheduled and/or specified for paint. Including but not limited to:

    a. Steel
    b. Galvanized metal
    c. Aluminum
    d. Metal roof deck (see Unit Prices. Finishing of metal roof deck is not required under the Base Bid.)

B. Related work specified in other sections:

1. Shop finishing - Applicable Sections

2. Colored sealants – Section 07 92 00

1.03 SUBMITTALS

A. Provide three (3) copies of a schedule detailing each substrate in the same order as the schedules used in Part 2 of this section. Include the following:

1. The specific products to be used for each coat.

2. Documentation that the manufacturer has reviewed and approved each painting system.

3. Data pages for all products listed, highlight the following:

    a. Type of resin.
    b. Dry Film Thickness.
    c. Volume Solids.
    d. Units of Sheen.
    e. VOC content and chemical components.
    f. Other performance or descriptive data required by Part 2 of this section.
    g. If this information is not on the data page provide the information in a letter of certification from the manufacturer. Attach the letter to the appropriate data page.

4. Submit three (3) drawdowns of each product and color combination. Drawdowns shall be applied using a 4 mil WFT drawdown bar on Leneta form WD plain white coated cards size 3-7/8” x 6”. Label each card with the following:

    a. Job name.
    b. Date.
    c. Product name.

d. Product number.
e. Color number as stated in the material finish/color schedule.
f. Name, address, and phone number of the supplying facility.
g. Surface material product is to be applied onto.

B. Do not deliver material to site until having received written approval of submitted information and samples.

C. Complete sample area on project as selected by Architect on each type surface and with each type of paint system specified. Do not proceed further with application until receiving acceptance of each sample area by Architect. Accepted areas will serve as standard of quality for entire project.

1.04 EXAMINATION OF DOCUMENTS

A. Examine the specifications for the work of other trade contractors and to become familiar with their work. All surfaces that are left unfinished by the requirements of other specifications to be finished by this section.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Store materials not is use, in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg. F.

1. Maintain containers in clean condition, free for foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.06 PROJECT CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 degrees F. Unless other requirements are specified by specific systems.

B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 degrees F above the dew point; or to damp or wet surfaces.

C. Do not apply coatings during cold, rainy or frosty weather.

D. Do not apply to surfaces, which are exposed to hot sun.

1.07 QUALITY ASSURANCE

A. MPI Standards:

1. Products: Complying with MPI standards indicated and listed in “MPI Approved Products List.”

2. Preparation and Workmanship: Comply with requirements in “MPI Architectural Painting Specification Manual” for products and paint systems indicated.

3. Previously Painted Surface Preparation and Workmanship: Comply with requirements in “MPI Maintenance and Repainting Manual” for products and paint system indicated.

PART 2: PRODUCTS

2.01 PAINTING SYSTEMS

A. Painting systems for normal applications are specified using the products of Sherwin-Williams Co. (S-W), PPG Paints [Glidden Professional: (GP); DEVOE COATINGS: (DC); (Sika)] (PPG) and Benjamin Moore & Co.: (BM) to establish standards of quality, except as noted.

1. Other manufacturers can submit for approval through the pre-bid process defined in Section 01 25 00 Substitutions and Product options.

    a. For approval, submit data sheets for each paint type with volume solids and VOC's highlighted to indicate they meet or exceed products specified in Part 2.

B. Use the materials of the same manufacturer for each system.

C. VOC Content of Field-Applied Interior Paints and Coatings: Provide products that comply with the following limits for VOC content, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24); these requirements do not apply to paints and coatings that are applied in a fabrication or finishing shop:

1. Flat Paints, Coatings, and Primers VOC content of not more than 50 g/L.
2. Non-flat Paints, Coatings and Primers: VOC content of not more than 150 g/L.
3. Anti-Corrosive and Anti-Rust Paints Applied to Ferrous Metals: VOC not more than 250 g/L.

D. For color selection see Architectural Drawings.

2.02 PRIMERS (INTERIOR AND EXTERIOR)

A. Rust-inhibitive Waterborne Acrylic Primer:

1. Minimum Volume Solids: 37%.
2. Maximum VOC: 250 g/L
    a. S-W DTM Acrylic Primer/Finish B66W1.
    b. DC Devflex 4020PF Direct to Metal Primer and Flat Finish.
    c. PPG Pitt-Tech Int/Ext Primer DTM, 90-712.
    d. BM Corotech Waterborne DTM Metal Primer/Finish V110.

2.03 EXTERIOR FINISH PAINTS

A. 100% Acrylic Exterior Satin Coating:
1. Minimum Volume Solids: 29%.
2. Maximum VOC: 150 g/L
3. Sheen: 10-20 units at 60 degrees.
    a. S-W A-100 Exterior Latex Satin A82 series.
    b. GP Ultra-Hide 150 Exterior Satin Paint 2412V series.
    c. PPG Sun-Proof Exterior 100% Acrylic Satin Finish, 76-45.
    d. BM Ultra Spec Exterior Satin N448.

B. Non-blocking, 100% Acrylic Exterior Gloss Coating:

1. Minimum Volume Solids: 34%.
2. Maximum VOC: 150 g/L
3. Sheen: 70-90 units at 60 degrees.
    a. S-W Super Paint Exterior High Gloss Latex Enamel A85 Series.
    b. GP Ultra-Hide Interior/Exterior Gloss Paint 3028N.
    c. PPG Manor Hall Interior/Exterior Gloss Acrylic Latex, 52-110.
    d. BM Ultra Spec Exterior Gloss N449.

2.04 EXTRA STOCK

A. Provide left over paint with Owner for touch-up purposes. At completion of project, provide one complete set of drawdowns in each maintenance manual with a schedule noting the locations each paint color was used. Refer to Section 01 78 39.

2.05 METAL ROOF DECK

A. Epoxy Mastic System

1. Minimum Volume Solids (catalyzed): 78% (standard-cure), 67% (fast-cure).
2. Maximum VOC: 340 g/L
3. Mix base and activator per manufacturers mixing ratio requirements.
4. Provide with fast-cure activator if required.
   a. Rustoleum 9100 DTM Epoxy Mastic System with activator

PART 3: EXECUTION

3.01 PREPARATION OF SURFACES

A. General

1. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.

2. Do not start work until preparation specified in surface Section is completed.

3. Ensure surfaces are dry and adequately protected from dampness.

4. Thoroughly clean surfaces free of loose, rough and foreign substances which will affect adhesion or appearance of applied coats.

5. Remove mildew and neutralize surface.

6. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface applied protection before surface preparation and painting.

   a. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
   b. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.

7. Complete repainting or refinishing will be required if coats are applied over improperly prepared surfaces.

B. Ferrous or Galvanized Metal

1. Remove dirt and grease with mineral spirits or solvent recommended by paint manufacturer and clean cloths.

2. If prime coat is not smooth, sand to bare metal, reprime. Touch up scratched or abraided primer.

3. Previously painted metal must be dry, clean and free of contaminants. Hard and glossy surfaces are to be sanded lightly or dulled with deglosser/cleaner. Remove peeling, loose, chipped, and blistered paint and rust by scraping and sanding. Prime all sanded areas and areas devoid of paint with an all-purpose metal primer.

C. Aluminum:

1. Remove dirt and grease with mineral spirits or solvent recommended by paint manufacturer and clean cloths.

2. All chipped, peeling or blistered paint must be removed by hand or power tool cleaning. Remove all oil, grease, dirt or other foreign materials. Remove excessive chalking or sanding. Remove any mildew present by scrubbing with detergent and bleach. Thoroughly clean surface with water prior to repainting.

3.02 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.

B. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

C. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.

1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

D. Conditions

1. Do no work when surface, coating product, air temperature, humidity or dewpoint does not meet requirements of PROJECT CONDITIONS in Part 1 of this specification.

2. Do no interior work until building is properly enclosed.

3. Do work under adequate illumination and dust-free conditions.

3.03 APPLICATION

A. Methods: Paint may be applied by brush, roller or spray methods except where particular method will produce unsatisfactory results. Where spray method is used on concrete block, follow with roller to work paint into voids.

B. Materials: Do not open containers until required for use. Stir materials thoroughly and keep at uniform consistency during application.

C. Coats

1. Number specified is minimum. Provide sufficient number of coats to provide even, consistent, opaque coverage of substrate.

2. Touch up suction spots between coats.

3. Refinish surfaces affected by refitting work.

4. Tint prime and under coats of paint approximately 1/2 to 3/4 depth of final color.

5. Touch up suction and "hot" spots in plaster and concrete after application or first coat and before second coat.

6. Do not apply next coat until previous is thoroughly dry.

7. Provide final coat which is solid and even in color; free from runs, laps, sags, brush marks, air bubbles and excessive roller stipple and worked into crevices, joint and similar areas.

8. Do not paint sealant / sealant joints.

D. Epoxy Mastic application to metal roof deck

1. Apply epoxy mastic system at air temperatures only between 50-120 degrees Fahrenheit and when surface temperature is at least 5 degrees Fahrenheit above dewpoint.

2. Application by brush, roller or spray is acceptable, subject to manufacturer's recommendations and achievement of minimum DFT.

3. Follow manufacturers mixing requirements for base and activator. Do not apply epoxy mastic system which has exceeded manufacturers recommended pot-life.

4. Schedule roofing work such that epoxy mastic system has adequate dry time prior to installation of roofing system. (Typically 5 hours with fast-cure activator at 70 degrees Fahrenheit.)

3.04 SCHEDULE OF EXTERIOR WORK

A. General: Do not paint brick, stucco, precast concrete, prefinished aluminum, sealant (unless scheduled to receive paint).

1. New Work: Paint or finish all other new, unfinished, primed and factory painted surfaces, including all miscellaneous metals, and prefinished metal copings (color to match brick) occurring in brick as detailed.

2. Existing Work: Prepare and paint all surfaces as noted on the drawings.

B. Zinc-coated Metal – Flashing, Decking, and Exposed Mechanical Including Rooftop Mechanical:

1. Touch-up: Rust-inhibitive Waterborne Acrylic Primer.
   a. DFT: 2.5-5.0 mils.

2. 2nd and 3rd Coat: 100% Acrylic Exterior Satin Coating.
   a. Minimum DFT: 1.3 mils per coat.

C. Zinc-coated Metal – Doors, Frames and Handrails:

1. Touch-up: Rust-inhibitive Waterborne Acrylic Primer.
   a. DFT: 2.5-5.0 mils.

2. 2nd and 3rd Coat: Non-blocking, 100% Acrylic Exterior Gloss Coating.
   a. Minimum DFT: 1.3 mils per coat.

D. Aluminum – Mill Finish (scheduled to be painted):

1. 1st Coat: Rust-inhibitive Waterborne Acrylic Primer.
   a. DFT: 2.5-5.0 mils.

2. 2nd and 3rd Coat: Non-blocking, 100% Acrylic Exterior Gloss Coating.
   a. Minimum DFT: 1.3 mils per coat.

E. Metal roof deck

1. 1st Coat: Epoxy Mastic System (primer is not required)
   a. DFT: 5.0-8.0 mils.

2. 2nd Coat: Epoxy Mastic System
   a. DFT: 5.0-8.0 mils.

3.05 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.06 FIELD QUALITY CONTROL

A. Testing and Painting Application: Owner reserves the right to test DFT of painted surfaces.

1. If testing discovers that DFT of installed paint does not meet specification, the Contractor will pay for initial and final testing and recoat surfaces until testing agency confirms specification is met.

END OF SECTION 09 91 00

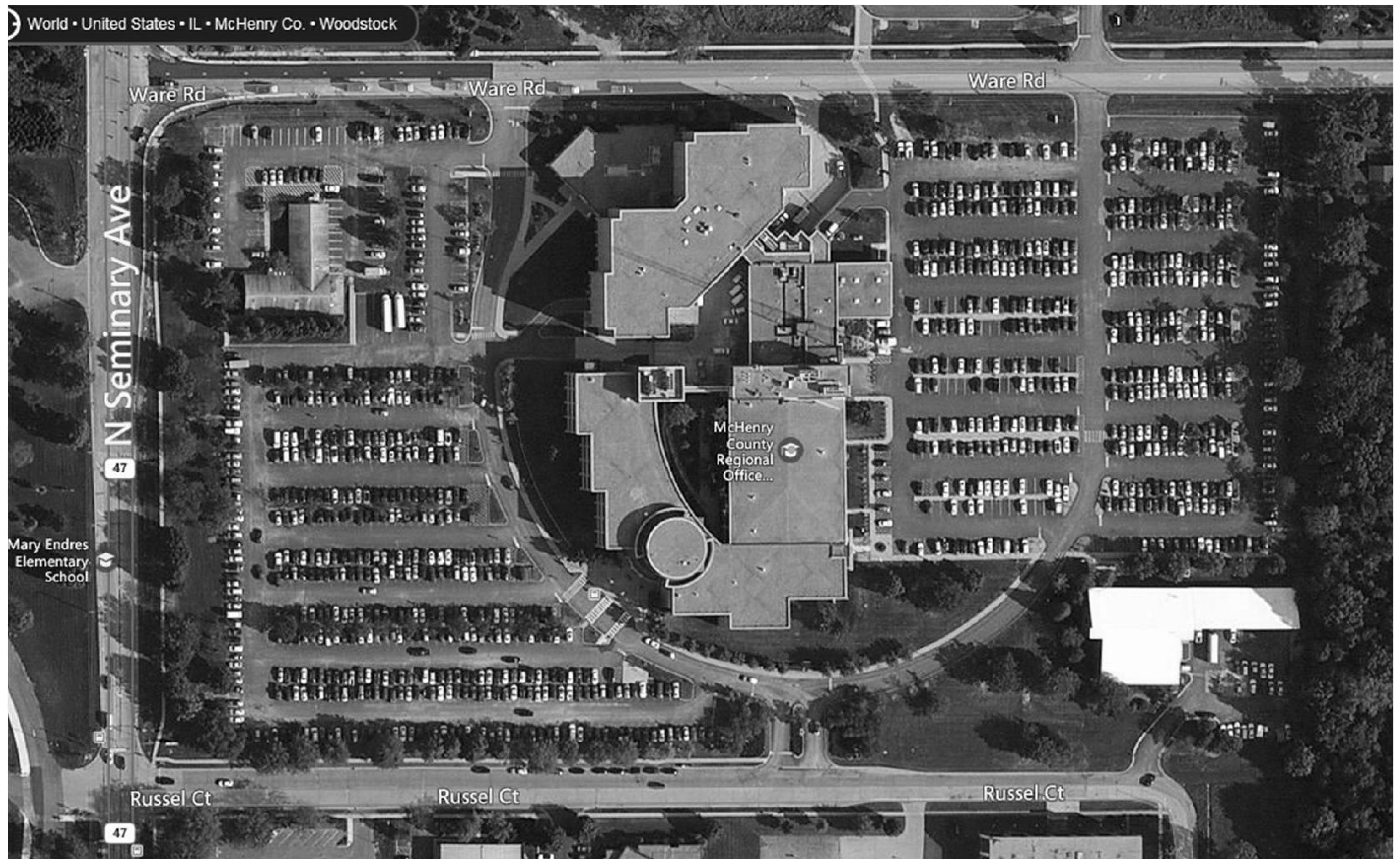
IL

McHenry County Government Center Roof Replacement

McHenry County

2200 N. Seminary Avenue Woodstock, IL 60098

Project Number: 153021



ARCHITECTURAL

A1.01	ROOF TYPE KEY PLAN AND SCHEDULE
A1.51	ROOF PLAN- BASE BID & ALTERNATE #1
A1.52	ROOF PLAN- ALTERNATE #2 & ALTERNATE #3
A1.53	ENLARGED PARTIAL ROOF PLANS
A2.21	ROOF DETAILS
A2.22	ROOF DETAILS
A2.23	ROOF DETAILS
A2.24	ROOF DETAILS
A2.25	ROOF DETAILS
A2.26	ROOF DETAILS
A2.27	ROOF DETAILS
A3.51	ROOF PLAN- ALTERNATE #4, ALTERNATE #5, ALTERNATE #6, ALTERNATE #7,& ALTERNATE #8
A4.21	ROOF DETAILS- ALTERNATE #4, ALTERNATE #5, & ALTERNATE #8
A4.22	1990 PENTHOUSE ELEVATIONS- ALTERNATE #6
A4.23	1971 PENTHOUSE ELEVATIONS- ALTERNATE #7

McHenry County Government Center Roof Replacement

2200 N Seminary Ave, Woodstock, IL 60098

Project Number: 153021

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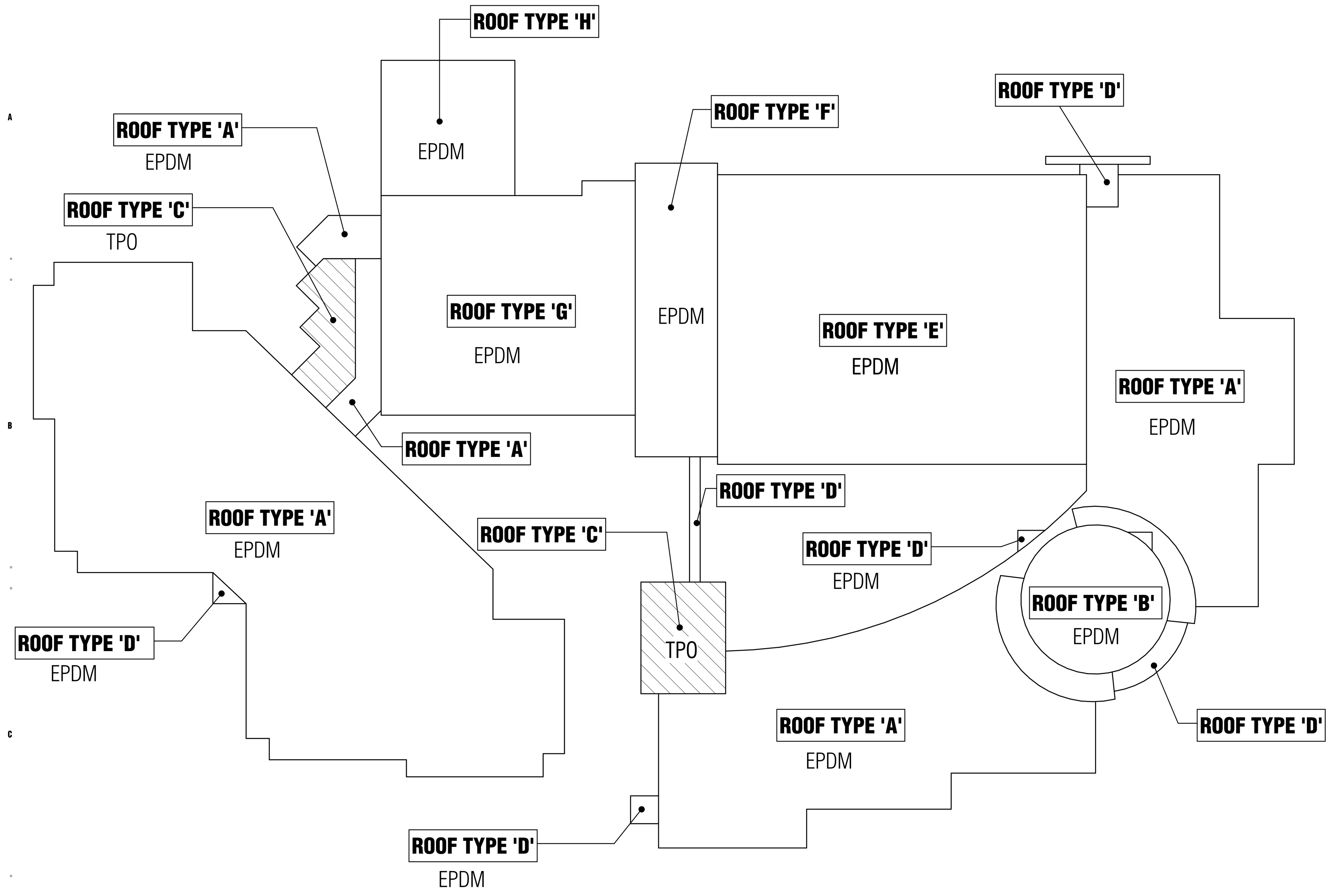
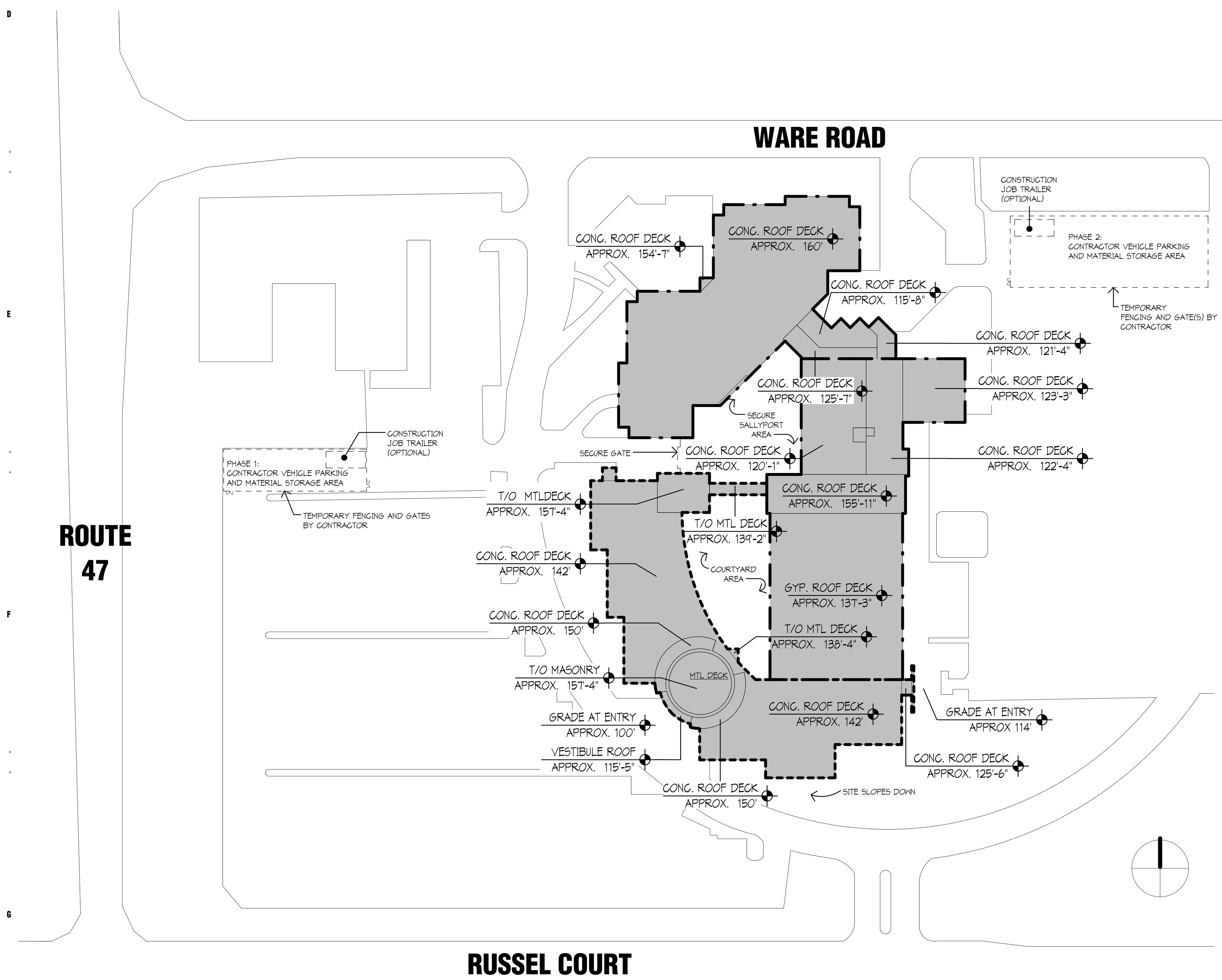
LICENSED ARCHITECT

Set No:
Comm No: 153021



1 KEY PLAN OF ROOF TYPES

= THE WORK SCOPE IS NOT AFFECTED BY ALTERNATES #1 - #3



2 STAGING PLAN
1" = 80' - 0"
0' 40' 80'

STAGING GENERAL NOTES:

1. REFER TO SECTION 01 50 00 "TEMPORARY FACILITIES" FOR FURTHER REQUIREMENTS.
2. REFER TO SECTION 01 11 00 "SUMMARY OF WORK" FOR FURTHER REQUIREMENTS, INCLUDING NOISE RELATED SCHEDULE REQUIREMENTS.
3. CONTRACTOR IS RESPONSIBLE FOR RESTORATION OF PAVED AREAS (CONCRETE AND ASPHALT), TURF GRASS, AND LANDSCAPE AREAS DISTURBED OR DAMAGED BY CONSTRUCTION ACTIVITIES.
4. ALL BUILDING ENTRANCES SHALL REMAIN UNOBSTRUCTED DURING NORMAL BUSINESS HOURS. ANY WORK IN THESE AREAS REQUIRING A BUILDING ENTRANCE TO BE OBSTRUCTED TO PROPERLY PERFORM NEW WORK SHALL OCCUR ON NIGHTS/WEEKENDS.
5. ALL CONSTRUCTION ACTIVITIES ARE PROHIBITED WITHIN THE SECURE SALLYPORT AND COURTYARD AREAS.
6. CONTRACTOR VEHICLE PARKING WILL NOT BE ALLOWED OUTSIDE OF DESIGNATED AREAS.
7. PROVIDE PORTABLE TOILET FACILITIES FOR CONTRACTOR USE, LOCATE WITHIN THE MATERIAL STORAGE AREA. CONTRACTORS WILL NOT BE PERMITTED TO ACCESS THE BUILDING.

SCHEDULE OF ROOF TYPES

	ROOF TYPE	EXISTING ROOF DECK	EXISTING ROOFING ASSEMBLY	BASE BID ROOFING ASSEMBLY NOTES (1) (3)	GENERAL DESCRIPTION OF WORK UNDER ALTERNATES: ALTERNATE #1 (2) (3)	ALTERNATE #2 (3)	ALTERNATE #3 (3)
ORIGINAL CONSTRUCTION - 1990	A	CAST-IN-PLACE CONCRETE, NO STRUCTURAL SLOPE	1. RIVER ROCK BALLAST 2. 45 MIL EPDM, LOOSE-LAID 3. TAPERED POLYISO ROOF INSULATION (W/STARTING THICKNESS OF 3", TYP.) LOOSE-LAID	1. REMOVE AND DISPOSE OF BALLAST. TEAR OFF OF EXISTING EPDM MEMBRANE. 2. NEW RIVER ROCK BALLAST 3. NEW 60 MIL EPDM MEMBRANE, LOOSE LAID 4. NEW LAYER OF 1.5" POLYISO 5. EXISTING INSULATION TO TYPICALLY REMAIN	1. SAME AS BASE BID, BUT EXISTING BALLAST IS TO BE STOCKPILED, SALVAGED, AND REINSTALLED (IN LIEU OF DISPOSED OF) 2. EXISTING BALLAST SHALL BE INSTALLED OVER POLYPROPYLENE PROTECTIVE MAT (AS SPECIFIED).	1. COMPLETE REMOVAL/TEAR-OFF OF ENTIRE EXISTING ROOFING ASSEMBLY DOWN TO EXISTING ROOF DECK. 2. NEW INSULATION AS SHOWN ON DRAWINGS FOR ALT #2 3. NEW 1/2" ROOF COVER BOARD 4. NEW FULLY ADHERED 60 MIL BLACK EPDM MEMBRANE	1. SAME AS ALTERNATE #2, BUT PROVIDE WHITE EPDM (IN LIEU OF BLACK EPDM)
	B	CORRUGATED STEEL ROOF DECK W/STRUCTURAL SLOPE	1. RIVER ROCK BALLAST 2. 45 MIL EPDM, LOOSE-LAID 3. TWO (2) LAYERS OF 1" POLYISO INSULATION	1. REMOVE AND DISPOSE OF BALLAST. TEAR OFF EXISTING EPDM MEMBRANE 2. NEW RIVER ROCK BALLAST 3. NEW 60 MIL EPDM MEMBRANE, LOOSE LAID 4. NEW LAYER OF 2" POLYISO 5. EXISTING INSULATION TO TYPICALLY REMAIN	1. SAME AS BASE BID, BUT EXISTING BALLAST IS TO BE STOCKPILED, SALVAGED, AND REINSTALLED (IN LIEU OF DISPOSED OF) 2. EXISTING BALLAST SHALL BE INSTALLED OVER POLYPROPYLENE PROTECTIVE MAT (AS SPECIFIED).	1. COMPLETE REMOVAL/TEAR-OFF OF ENTIRE EXISTING ROOFING ASSEMBLY DOWN TO EXISTING ROOF DECK. 2. NEW INSULATION AS SHOWN ON DRAWINGS FOR ALT #2 3. NEW 1/2" ROOF COVER BOARD 4. NEW FULLY ADHERED 60 MIL BLACK EPDM MEMBRANE	1. SAME AS ALTERNATE #2, BUT PROVIDE WHITE EPDM (IN LIEU OF BLACK EPDM)
	C	CORRUGATED STEEL ROOF DECK (NO STRUCTURAL SLOPE)	1. CAST IN PLACE CONCRETE WEAR SLAB 2. BUTYL RUBBER WATER-PROOFING MEMBRANE 3. TAPERED POLYISO ROOF INSULATION (W/STARTING THICKNESS OF 3", TYP), LOOSE-LAID.	1. NEW 60 MIL REINFORCED TPO ROOF MEMBRANE, FULLY ADHERED 2. NEW LAYER 1/2" ROOF COVER BOARD ADHERED TO EXISTING CONC. WEAR SLAB. 3. EXISTING CONC. WEAR SLAB, WATERPROOFING MEMBRANE AND INSULATION TO REMAIN	1. NO REVISIONS TO WORK AS DESCRIBED UNDER BASE BID.	1. NO REVISIONS TO WORK AS DESCRIBED UNDER BASE BID.	1. NO REVISIONS TO WORK AS DESCRIBED UNDER BASE BID.
	D	CORRUGATED STEEL ROOF DECK (NO STRUCTURAL SLOPE)	1. RIVER ROCK BALLAST 2. 45 MIL EPDM MEMBRANE, LOOSE LAID 3. TAPERED POLYISO ROOF INSULATION (W/STARTING THICKNESS OF 3", TYP), LOOSE-LAID	1. REMOVE AND DISPOSE OF BALLAST. TEAR OFF OF EXISTING EPDM MEMBRANE. 2. NEW RIVER ROCK BALLAST 3. NEW 60 MIL EPDM MEMBRANE, LOOSE-LAID 4. NEW LAYER OF 1.5" POLYISO 5. EXISTING INSULATION TO TYPICALLY REMAIN	1. SAME AS BASE BID, BUT EXISTING BALLAST IS TO BE STOCKPILED, SALVAGED, AND REINSTALLED (IN LIEU OF DISPOSED OF) 2. EXISTING BALLAST SHALL BE INSTALLED OVER POLYPROPYLENE PROTECTIVE MAT (AS SPECIFIED).	1. COMPLETE REMOVAL/TEAR-OFF OF ENTIRE EXISTING ROOFING ASSEMBLY DOWN TO EXISTING ROOF DECK. 2. NEW INSULATION AS SHOWN ON DRAWINGS FOR ALT #2 3. NEW 1/2" ROOF COVER BOARD 4. NEW FULLY ADHERED 60 MIL BLACK EPDM MEMBRANE	1. SAME AS ALTERNATE #2, BUT PROVIDE WHITE EPDM (IN LIEU OF BLACK EPDM)
ORIGINAL CONSTRUCTION - 1971	E	GYPSUM DECK W/FORM BOARD AND STEEL BULB TEES, W/STRUCTURAL SLOPE	1. RIVER ROCK BALLAST 2. 45 MIL EPDM MEMBRANE, LOOSE-LAID 3. 1.5" POLYISO ROOF INSULATION, LOOSE-LAID 4. 3" PHENOLIC FOAM INSULATION 5. MODIFIED BITUMEN ROOF MEMBRANE, TORCH APPLIED	1. REMOVE AND DISPOSE OF EXISTING ROOFING ASSEMBLY IN ITS ENTIRETY (DOWN TO GYPSUM DECK). 2. NEW 60 MIL WHITE EPDM MEMBRANE, FULLY ADHERED. 3. NEW LAYER OF 1/2" ROOF COVER BOARD ADHERED TO NEW INSULATION 4. TWO (2) NEW LAYERS OF 2.3" POLYISO ROOF INSULATION ADHERED TO BASE SHEET 5. NEW 1/2" BASE SHEET MECHANICALLY FASTENED TO FORM BOARD (THROUGH GYPSUM)	1. NO REVISIONS TO WORK AS DESCRIBED UNDER BASE BID.	1. SAME AS BASE BID, BUT PROVIDE BLACK EPDM (IN LIEU OF WHITE EPDM).	1. NO REVISIONS TO WORK AS DESCRIBED UNDER BASE BID.
	F	LIGHTWEIGHT CONCRETE WITH SLOPED TOP SURFACE (4"-10" THICKNESS ESTIMATED) OVER CAST-IN-PLACE CONCRETE, NO STRUCTURAL SLOPE	1. RIVER ROCK BALLAST 2. 45 MIL EPDM, LOOSE-LAID 3. 1.5" EXTRUDED POLYSTYRENE, LOOSE-LAID 4. 3" EXPANDED POLYSTYRENE, LOOSE-LAID 5. MODIFIED BITUMEN ROOF MEMBRANE, TORCH APPLIED	1. REMOVE AND DISPOSE OF BALLAST. TEAR OFF OF EXISTING EPDM MEMBRANE 2. NEW RIVER ROCK BALLAST 3. NEW 60 MIL EPDM MEMBRANE, LOOSE-LAID 4. ONE (1) NEW LAYER OF 1.5" POLYISO, LOOSE-LAID 5. EXISTING INSULATION TO TYPICALLY REMAIN	1. SAME AS BASE BID, BUT EXISTING BALLAST IS TO BE STOCKPILED, SALVAGED, AND REINSTALLED (IN LIEU OF DISPOSED OF) 2. EXISTING BALLAST SHALL BE INSTALLED OVER POLYPROPYLENE PROTECTIVE MAT (AS SPECIFIED).	1. COMPLETE REMOVAL/TEAR-OFF OF ENTIRE EXISTING ROOFING ASSEMBLY DOWN TO EXISTING ROOF DECK. 2. NEW INSULATION AS SHOWN ON DRAWINGS FOR ALT #2 3. NEW 1/2" ROOF COVER BOARD 4. NEW FULLY ADHERED 60 MIL BLACK EPDM MEMBRANE	1. SAME AS ALTERNATE #2, BUT PROVIDE WHITE EPDM (IN LIEU OF BLACK EPDM)
	G	CAST-IN-PLACE CONCRETE, NO STRUCTURAL SLOPE	1. RIVER ROCK BALLAST 2. 45 MIL EPDM, LOOSE-LAID 3. TAPERED #1 EXPANDED POLYSTYRENE (W/STARTING THICKNESS OF 2", TYP) 4. TWO (2) PLIES OF FIBERGLASS FELT SET IN ASPHALT	1. REMOVE AND DISPOSE OF BALLAST. TEAR OFF OF EXISTING EPDM MEMBRANE 2. NEW RIVER ROCK BALLAST 3. NEW 60 MIL EPDM MEMBRANE, LOOSE-LAID 4. TWO (2) NEW LAYERS OF 1.5" POLYISO, LOOSE-LAID 5. EXISTING INSULATION TO TYPICALLY REMAIN	1. SAME AS BASE BID, BUT EXISTING BALLAST IS TO BE STOCKPILED, SALVAGED, AND REINSTALLED (IN LIEU OF DISPOSED OF) 2. EXISTING BALLAST SHALL BE INSTALLED OVER POLYPROPYLENE PROTECTIVE MAT (AS SPECIFIED).	1. COMPLETE REMOVAL/TEAR-OFF OF ENTIRE EXISTING ROOFING ASSEMBLY DOWN TO EXISTING ROOF DECK. 2. NEW INSULATION AS SHOWN ON DRAWINGS FOR ALT #2 3. NEW 1/2" ROOF COVER BOARD 4. NEW FULLY ADHERED 60 MIL BLACK EPDM MEMBRANE	1. SAME AS ALTERNATE #2, BUT PROVIDE WHITE EPDM (IN LIEU OF BLACK EPDM)
ORIGINAL CONSTRUCTION - 1989	H	PRECAST CONCRETE PLANK, NO STRUCTURAL SLOPE	1. RIVER ROCK BALLAST 2. 45 MIL EPDM, LOOSE-LAID 3. TAPERED POLYISO ROOF INSULATION (W/STARTING THICKNESS OF 3", TYP.)	1. REMOVE AND DISPOSE OF BALLAST. TEAR OFF OF EXISTING EPDM MEMBRANE 2. NEW RIVER ROCK BALLAST 3. NEW 60 MIL EPDM MEMBRANE, LOOSE-LAID 4. ONE (1) NEW LAYER OF 1.5" POLYISO, LOOSE-LAID 5. EXISTING INSULATION TO TYPICALLY REMAIN	1. SAME AS BASE BID, BUT EXISTING BALLAST IS TO BE STOCKPILED, SALVAGED, AND REINSTALLED (IN LIEU OF DISPOSED OF) 2. EXISTING BALLAST SHALL BE INSTALLED OVER POLYPROPYLENE PROTECTIVE MAT (AS SPECIFIED).	1. COMPLETE REMOVAL/TEAR-OFF OF ENTIRE EXISTING ROOFING ASSEMBLY DOWN TO EXISTING ROOF DECK. 2. NEW INSULATION AS SHOWN ON DRAWINGS FOR ALT #2 3. NEW 1/2" ROOF COVER BOARD 4. NEW FULLY ADHERED 60 MIL BLACK EPDM MEMBRANE	1. SAME AS ALTERNATE #2, BUT PROVIDE WHITE EPDM (IN LIEU OF BLACK EPDM)

SCHEDULE NOTES

(1) WHERE EXISTING INSULATION IS NOTED TO TYPICALLY REMAIN THE CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER AND OWNER'S REPRESENTATIVE OF WET/DAMAGED INSULATION UNCOVERED. AREAS OF WET/DAMAGED INSULATION WILL BE REPLACED USING UNIT PRICING.

(2) WHERE BALLAST IS TO BE REUSED, STOCKPILING ON THE ROOF IS PROHIBITED.

(3) DETAILS TYPICALLY INDICATE "ROOFING SYSTEM" (IN LIEU OF SHOWING COMPONENTS DESCRIBED HEREIN). CONTRACTOR IS TO PROVIDE MATERIALS AS DESCRIBED ON THIS SCHEDULE.

GENERAL NOTES

1. SEE SHEET A3.51 FOR LOCATIONS OF THE FOLLOWING ALTERNATES:
   A) ALTERNATE #4 - REMOVE EXISTING WINDOW WASH DAVITS AND TIE-BACKS
   B) ALTERNATE #5 - STONE COPING REHABILITATION
   C) ALTERNATE #6 - STRUCTURAL AND MASONRY REPAIRS AT CORNERS OF 1990 ADDITION
   D) ALTERNATE #7 - STRUCTURAL AND MASONRY REPAIRS AT CORNERS OF 1971 ADDITION
   E) ALTERNATE #8 - REPLACE THROUGH-WALL FLASHINGS

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STATE OF ILLINOIS — ROGER JOSEPH SCHROEPFER 001-017074 — LICENSED ARCHITECT

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed ARCHITECT under the laws of the State of ILLINOIS

ROGER J. SCHROEPFER
Registration Number 001-017074 Date 1/04/2016

Revisions		
Description	Date	Num

Comm: 153021
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Drawn: ES, RF
Check: TS

ROOF TYPE KEY PLAN AND SCHEDULE

Scale: As indicated

A1.01

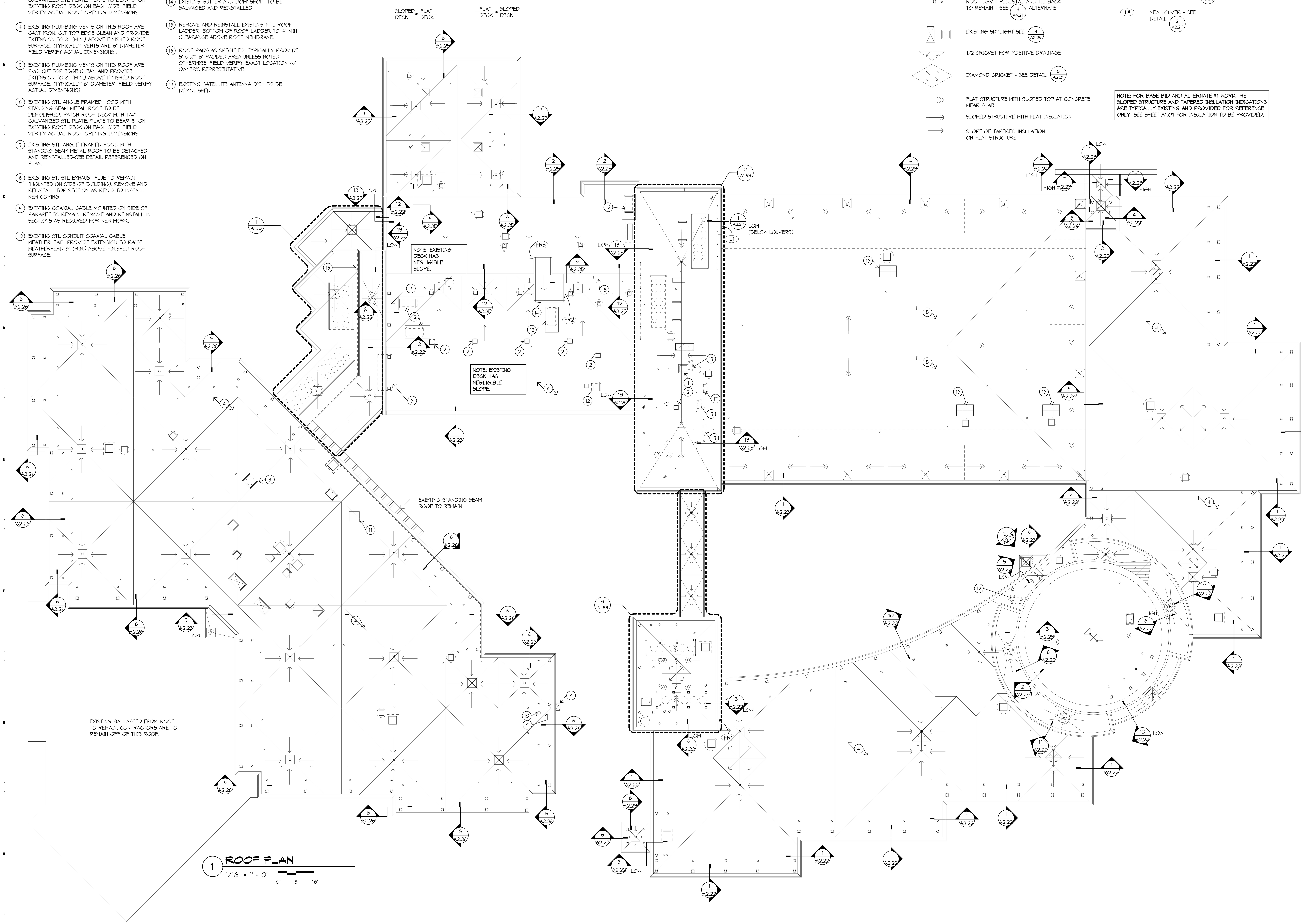
ROOF PLAN KEY NOTES

1. DEMOLISH EXISTING 4'x4'x5' HIGH (APPROX.) MASONRY CHIMNEY DOWN TO STRUCTURAL ROOF DECK. PATCH ROOF DECK WITH 1/4" GALVANIZED STL PLATE. PLATE TO BEAR 8" ON EXISTING ROOF DECK ON EACH SIDE. FIELD VERIFY ACTUAL ROOF OPENING DIMENSIONS.
2. DEMOLISH EXISTING ST. STL COVER AND CURB AT EXISTING ROOF OPENING DOWN TO STRUCTURAL ROOF DECK. PATCH ROOF DECK WITH 1/4" GALVANIZED STL PLATE. PLATE TO BEAR 8" ON EXISTING ROOF DECK ON EACH SIDE. FIELD VERIFY ACTUAL ROOF OPENING DIMENSIONS.
3. EXISTING GALV. MTL ROOF VENT STACK AND CURB TO BE DEMOLISHED DOWN TO STRUCTURAL ROOF DECK. PATCH ROOF DECK WITH 1/4" GALVANIZED STL PLATE. PLATE TO BEAR 8" ON EXISTING ROOF DECK ON EACH SIDE. FIELD VERIFY ACTUAL ROOF OPENING DIMENSIONS.
4. EXISTING PLUMBING VENTS ON THIS ROOF ARE CAST IRON. CUT TOP EDGE CLEAN AND PROVIDE EXTENSION TO 8" (MIN.) ABOVE FINISHED ROOF SURFACE. (TYPICALLY VENTS ARE 6" DIAMETER. FIELD VERIFY ACTUAL DIMENSIONS.)
5. EXISTING PLUMBING VENTS ON THIS ROOF ARE PVC. CUT TOP EDGE CLEAN AND PROVIDE EXTENSION TO 8" (MIN.) ABOVE FINISHED ROOF SURFACE. (TYPICALLY 6" DIAMETER. FIELD VERIFY ACTUAL DIMENSIONS).
6. EXISTING STL ANGLE FRAMED HOOD WITH STANDING SEAM METAL ROOF TO BE DEMOLISHED. PATCH ROOF DECK WITH 1/4" GALVANIZED STL PLATE. PLATE TO BEAR 8" ON EXISTING ROOF DECK ON EACH SIDE. FIELD VERIFY ACTUAL ROOF OPENING DIMENSIONS.
7. EXISTING STL ANGLE FRAMED HOOD WITH STANDING SEAM METAL ROOF TO BE DETACHED AND REINSTALLED-SEE DETAIL REFERENCED ON PLAN.
8. EXISTING ST. STL EXHAUST FLUE TO REMAIN (MOUNTED ON SIDE OF BUILDING). REMOVE AND REINSTALL TOP SECTION AS REQ'D TO INSTALL NEW COPING.
9. EXISTING COAXIAL CABLE MOUNTED ON SIDE OF PARAPET TO REMAIN. REMOVE AND REINSTALL IN SECTIONS AS REQUIRED FOR NEW WORK.
10. EXISTING STL CONDUIT COAXIAL CABLE WEATHERHEAD. PROVIDE EXTENSION TO RAISE WEATHERHEAD 8" (MIN.) ABOVE FINISHED ROOF SURFACE.
11. EXISTING ANTENNA ON WEIGHTED BASE. RELOCATE AS REQUIRED FOR NEW WORK AND REPLACE IN ORIGINAL POSITION WHEN COMPLETE.
12. EXISTING ROOF MOUNTED CONDENSING UNIT TO BE REMOVED AND REINSTALLED AS REQ'D FOR NEW WORK. RECLAIM REFRIGERANT, DISCONNECT PIPING AND CONTROL AND POWER WIRING. REINSTALL PIPING, RECHARGE REFRIGERANT, RECONNECT POWER AND CONTROL WIRING, AND RESTART UNIT. PATCH/REPAIR PIPING INSULATION TO MATCH EXISTING.
13. NOT USED.
14. EXISTING GUTTER AND DOWNSPOUT TO BE SALVAGED AND REINSTALLED.
15. REMOVE AND REINSTALL EXISTING MTL ROOF LADDER. BOTTOM OF ROOF LADDER TO 4" MIN. CLEARANCE ABOVE ROOF MEMBRANE.
16. ROOF PADS AS SPECIFIED. TYPICALLY PROVIDE 5'-0"x7'-6" PADDED AREA UNLESS NOTED OTHERWISE. FIELD VERIFY EXACT LOCATION W/ OWNER'S REPRESENTATIVE.
17. EXISTING SATELLITE ANTENNA DISH TO BE DEMOLISHED.

ROOF LEGEND

- EXISTING ROOF DRAIN (R.D.)- SEE 3/A2.21
- EXISTING MECH HOOD
- MECHANICAL EQUIPMENT ON NEW CURBS - SEE DETAIL 4/A2.21
- HVAC UNIT
- EXISTING ROOF EXHAUST FAN W/ PENETRATION CURB - SEE DETAIL 9/A2.24
- VENT STACK, PIPE OR CONDUIT
- COMBUSTION STACK
- ROOF DAVIT PEDESTAL AND TIE BACK TO REMAIN - SEE 4/A4.21 ALTERNATE
- EXISTING SKYLIGHT SEE 3/A2.25
- 1/2 CRICKET FOR POSITIVE DRAINAGE
- DIAMOND CRICKET - SEE DETAIL 5/A2.21
- FLAT STRUCTURE WITH SLOPED TOP AT CONCRETE WEAR SLAB
- SLOPED STRUCTURE WITH FLAT INSULATION
- SLOPE OF TAPERED INSULATION ON FLAT STRUCTURE
- EXISTING ROOF SCUTTLE - SEE DETAIL 9/A2.24 U.N.O.
- FR# NEW HOLLOW METAL DOOR AND FRAME - SEE DETAIL 1/A2.24
- NEW ROOF WALKWAY PADS
- MECHANICAL EQUIPMENT ON STAINLESS STL CURB COVER- SEE DETAIL 5/A2.27
- L# NEW LOUVER - SEE DETAIL 2/A2.27

NOTE: FOR BASE BID AND ALTERNATE #1 WORK THE SLOPED STRUCTURE AND TAPERED INSULATION INDICATIONS ARE TYPICALLY EXISTING AND PROVIDED FOR REFERENCE ONLY. SEE SHEET A1.01 FOR INSULATION TO BE PROVIDED.



1 ROOF PLAN
1/16" = 1' - 0"

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STATE OF ILLINOIS
ROGER JOSEPH SCHROEPFER
001-017074
LICENSED ARCHITECT

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North

ROOF PLAN-
BASE BID &
ALTERNATE #1

Scale: As indicated

A1.51

ROOF PLAN KEY NOTES
(SEE SHEET A1.51)

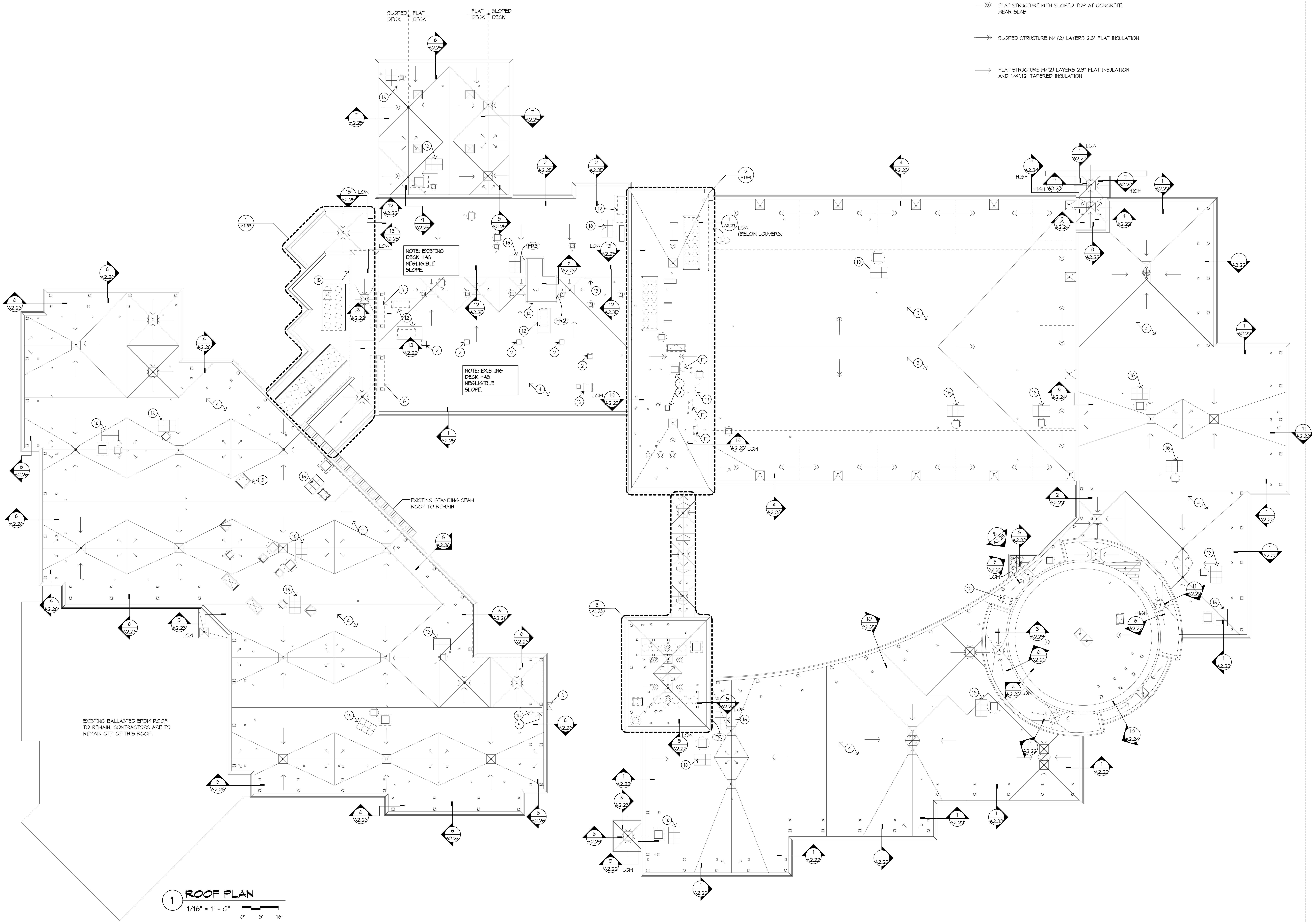
ROOF LEGEND

NOTE: ALL OTHER SYMBOLS AS SHOWN ON SHEET A1.51 APPLY

FLAT STRUCTURE WITH SLOPED TOP AT CONCRETE WEAR SLAB

SLOPED STRUCTURE W/ (2) LAYERS 2.3" FLAT INSULATION

FLAT STRUCTURE W/(2) LAYERS 2.3" FLAT INSULATION AND 1/4":12" TAPERED INSULATION



1 ROOF PLAN
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ROOF PLAN-ALTERNATE #2 & ALTERNATE #3

Scale: 1/16" = 1'-0"

A1.52

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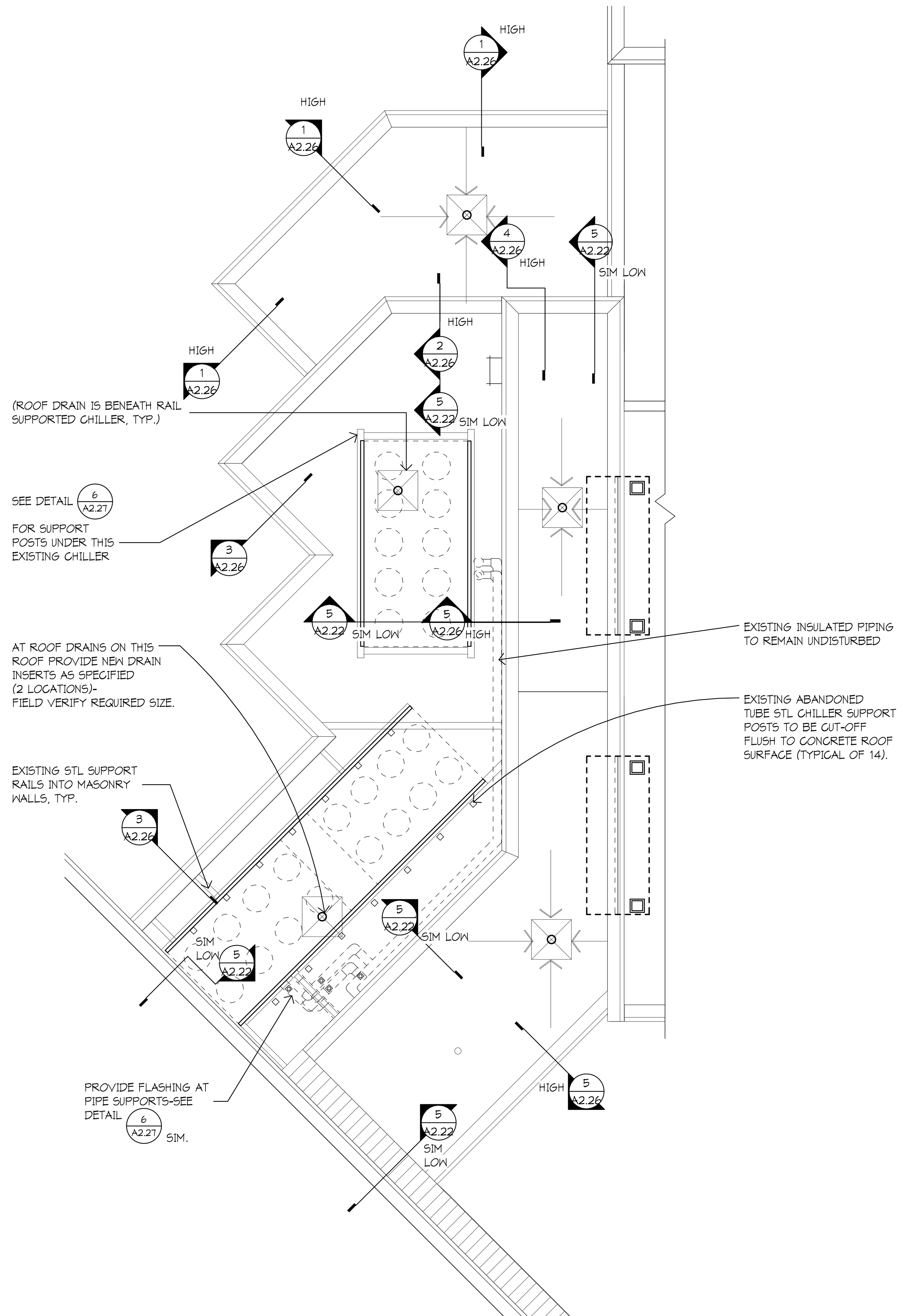
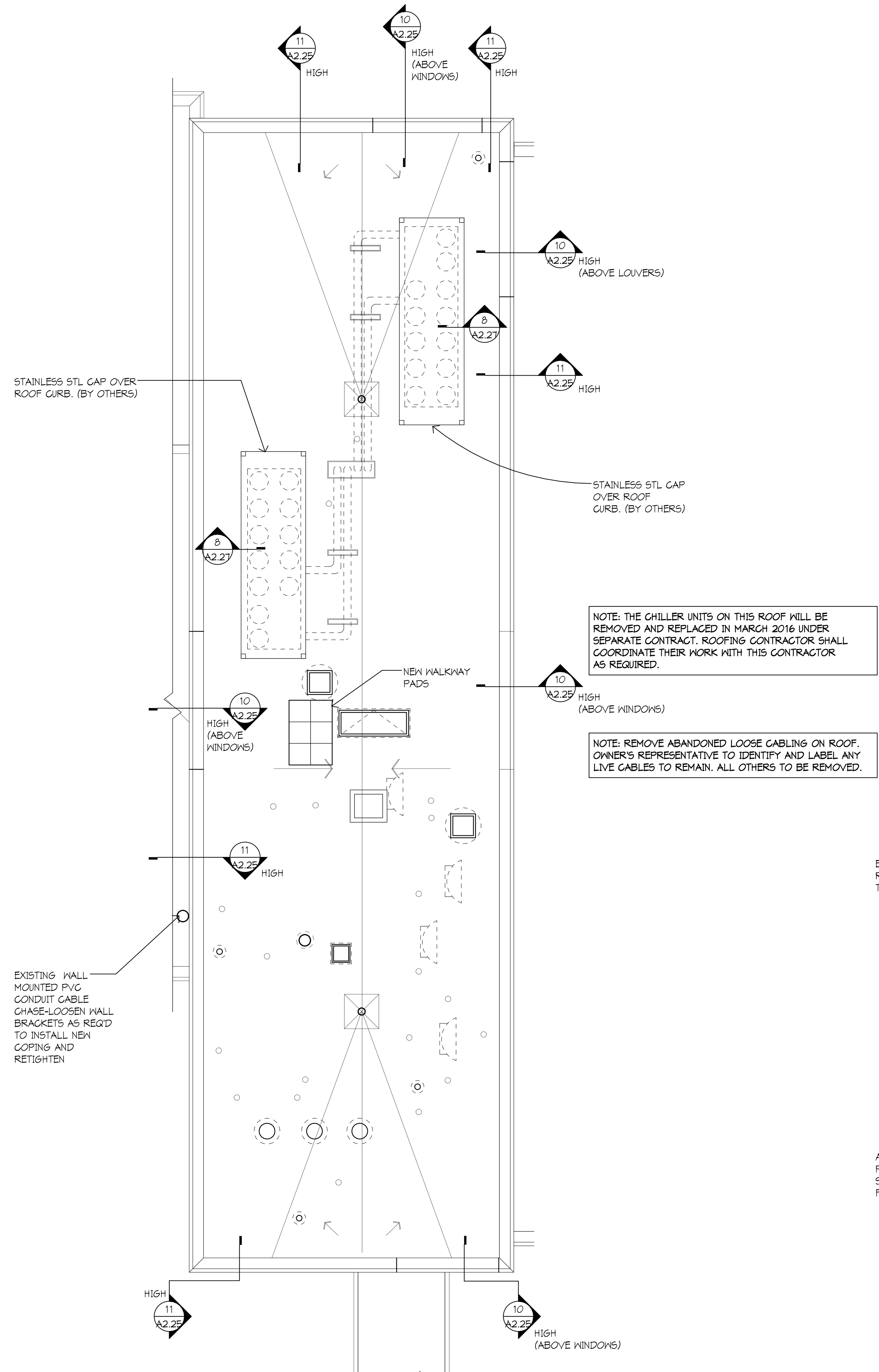


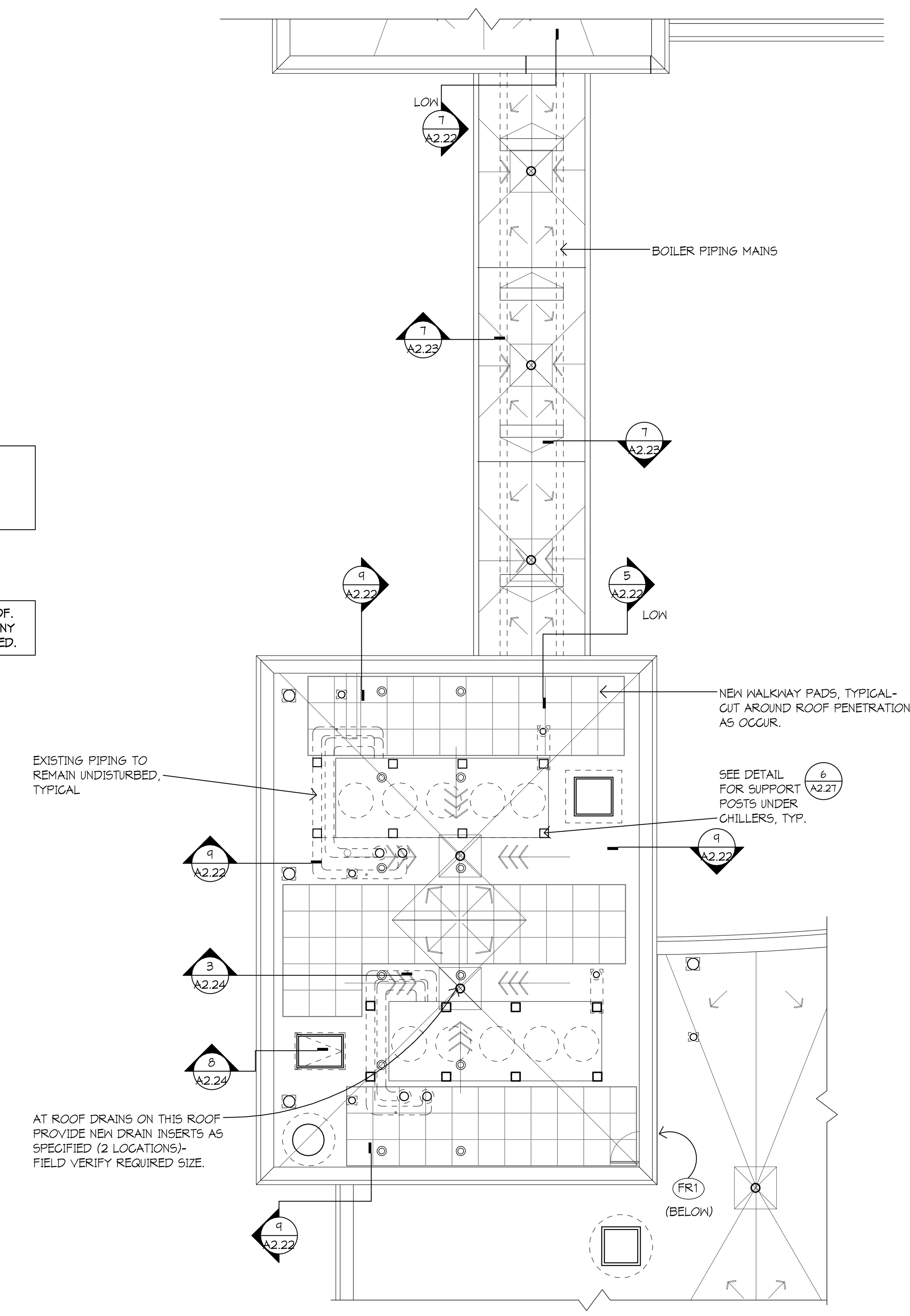
1 ENLARGED PARTIAL ROOF PLAN
1/8" = 1'-0"



NOTE: THE CHILLER UNITS ON THIS ROOF WILL BE REMOVED AND REPLACED IN MARCH 2016 UNDER SEPARATE CONTRACT. ROOFING CONTRACTOR SHALL COORDINATE THEIR WORK WITH THIS CONTRACTOR AS REQUIRED.

NOTE: REMOVE ABANDONED LOOSE CABLING ON ROOF. OWNER'S REPRESENTATIVE TO IDENTIFY AND LABEL ANY LIVE CABLES TO REMAIN. ALL OTHERS TO BE REMOVED.

2 ENLARGED PARTIAL ROOF PLAN
1/8" = 1'-0"



3 ENLARGED PARTIAL ROOF PLAN
1/8" = 1'-0"

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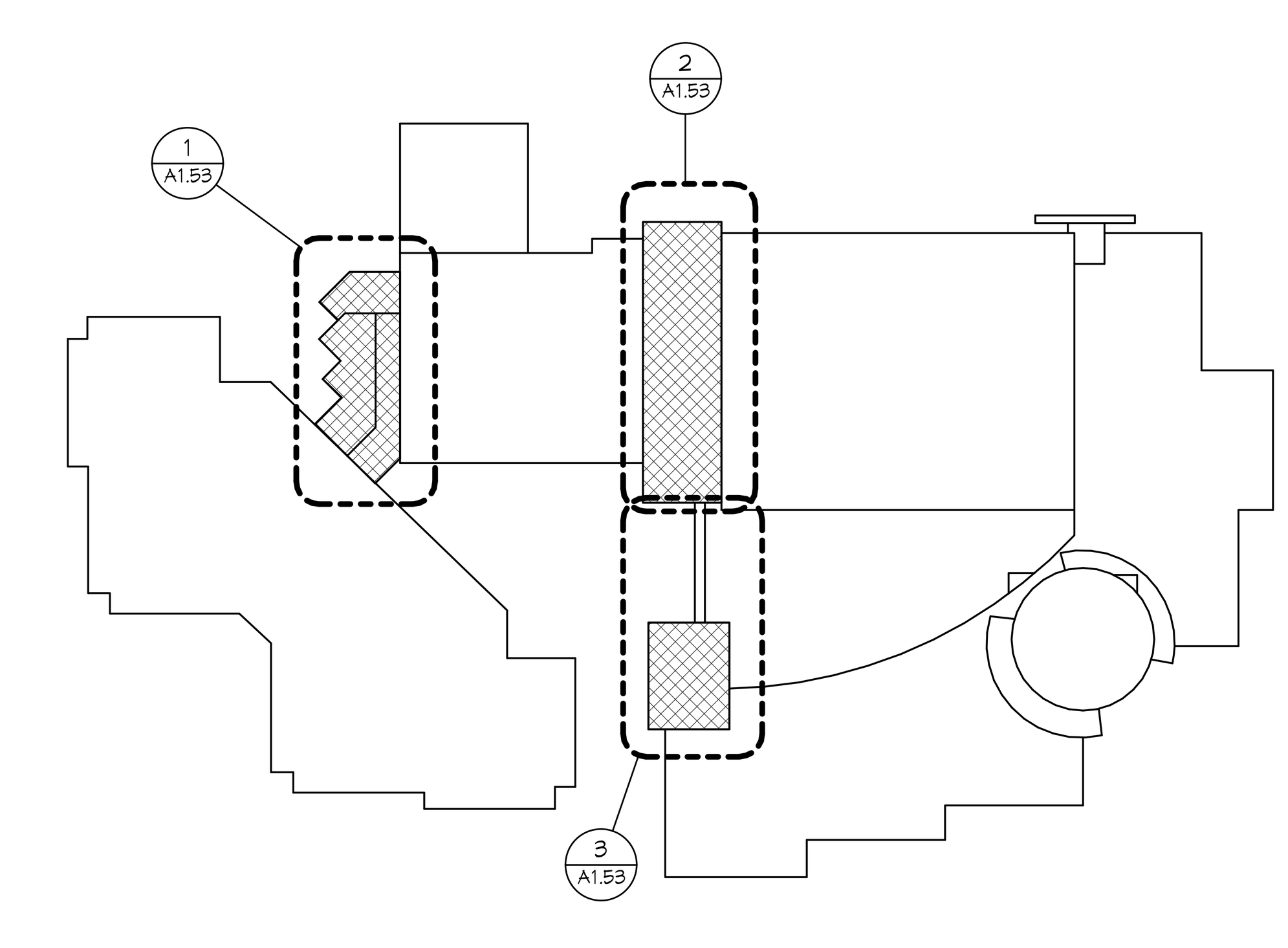
KEY PLAN



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North

ENLARGED PARTIAL ROOF PLANS

Scale: As indicated

A1.53

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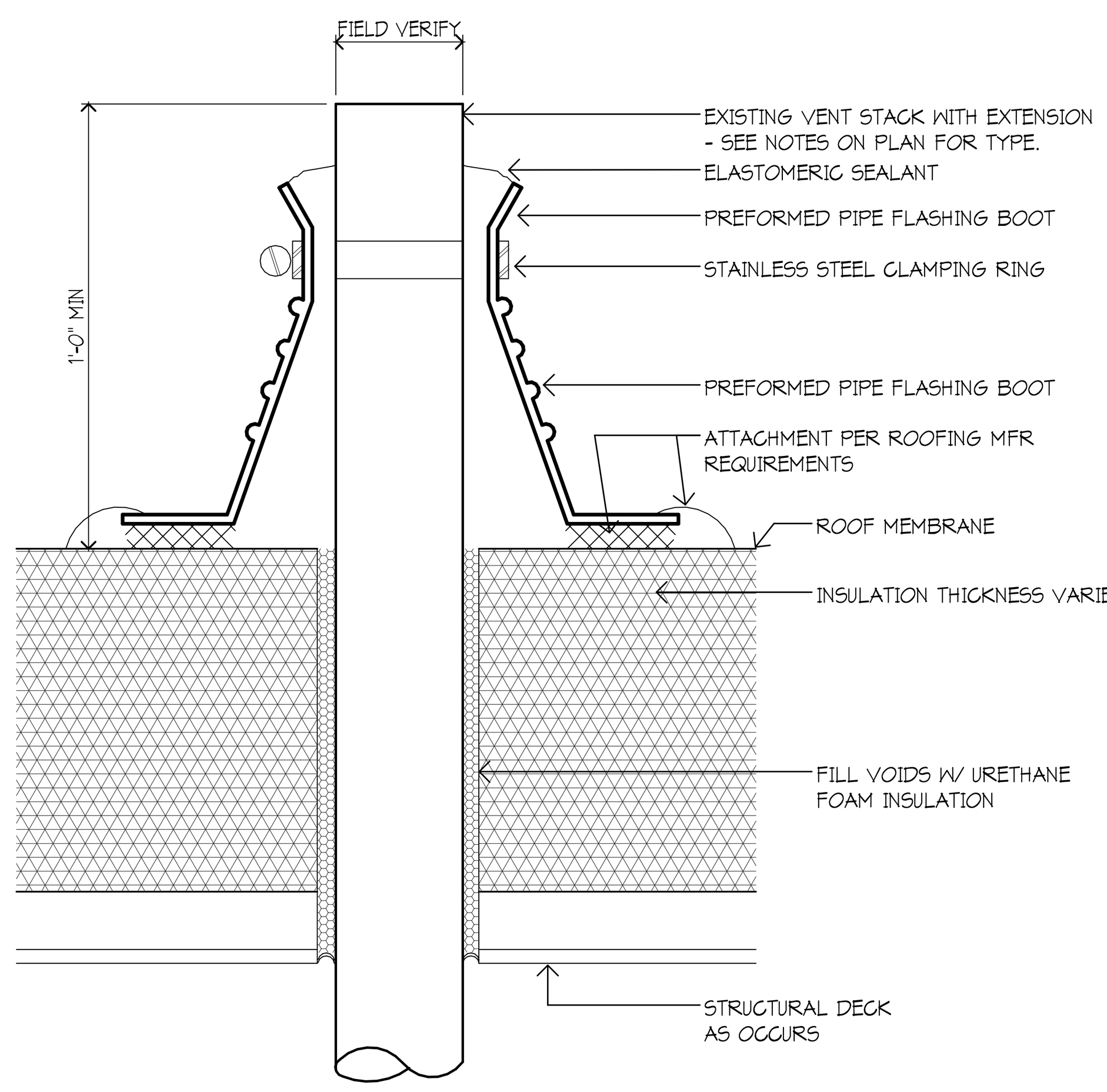
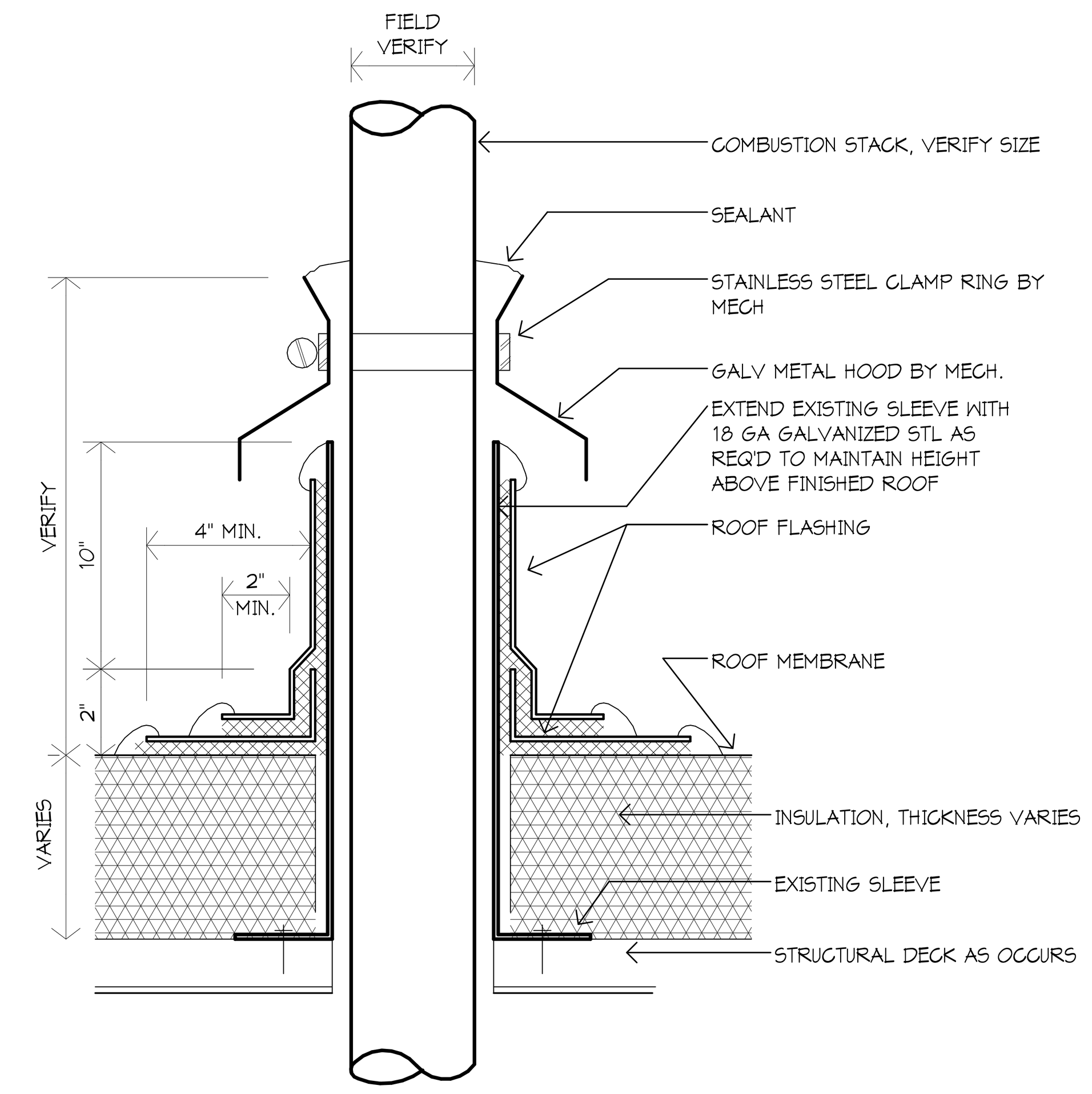
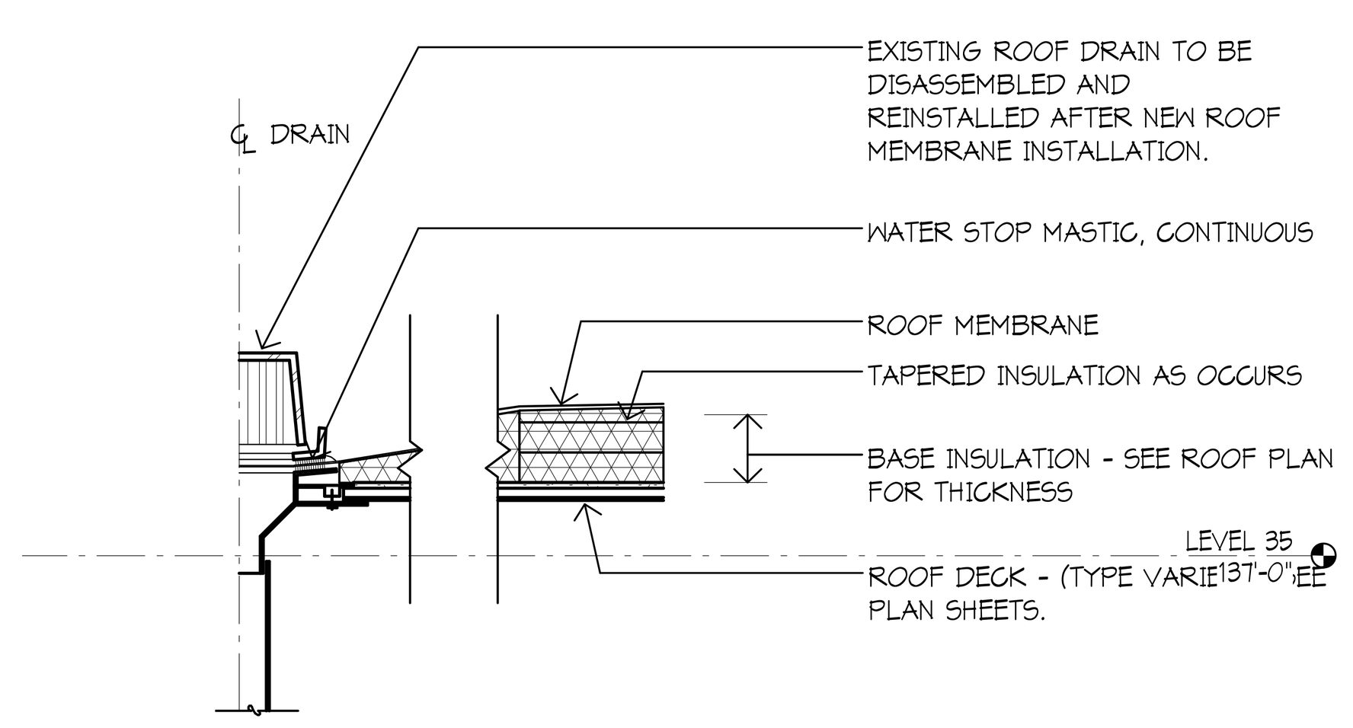


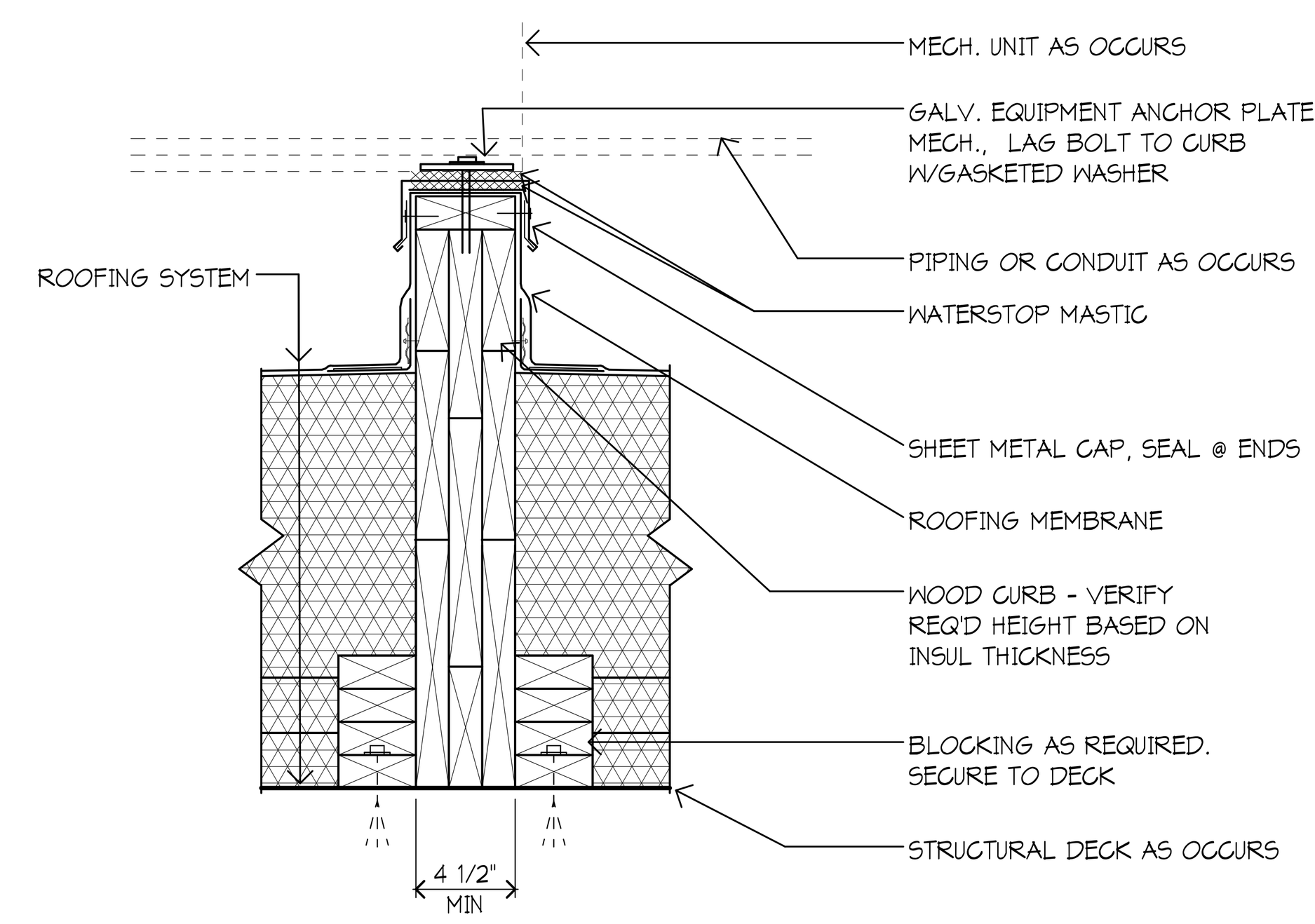
1 TYPICAL ROOF VENT
3" = 1'-0"



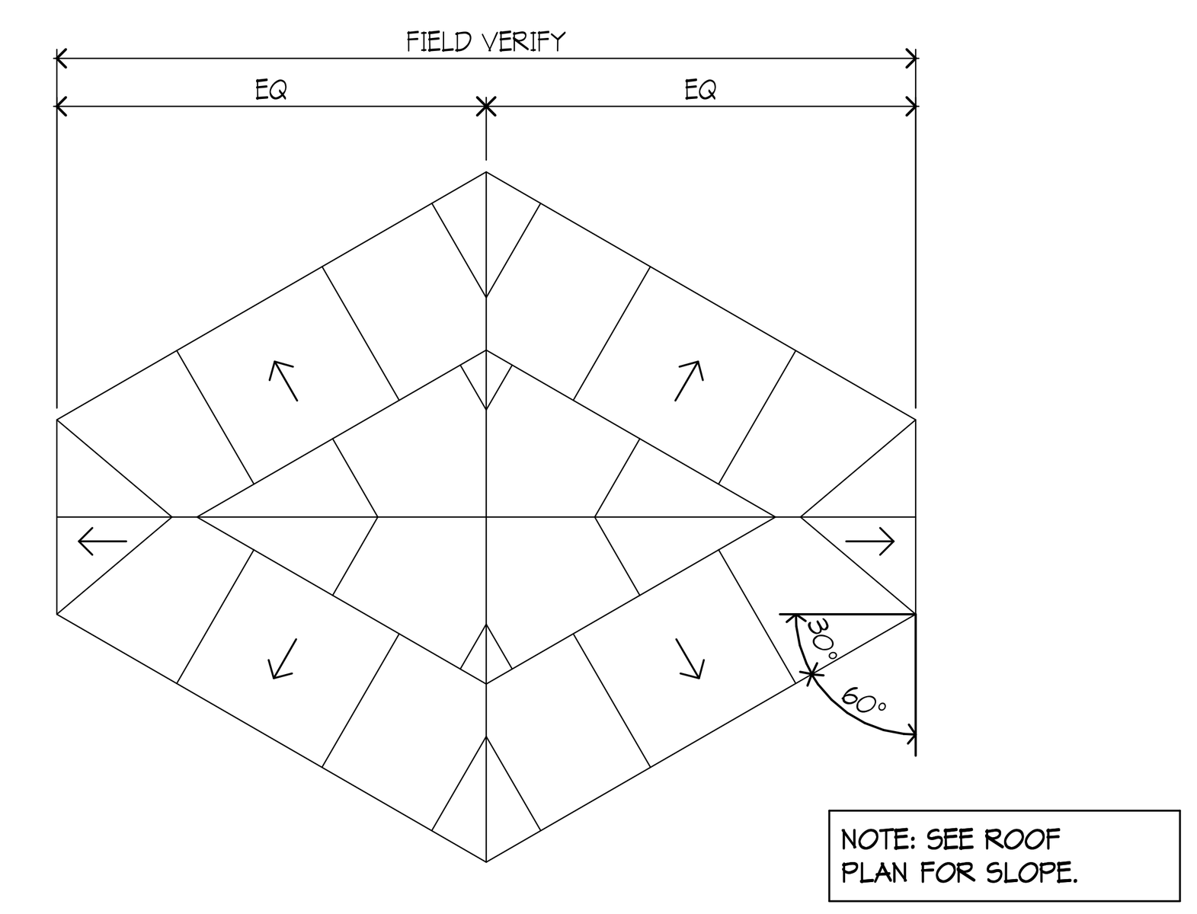
2 TYPICAL ROOF COMBUSTION STACK
3" = 1'-0"



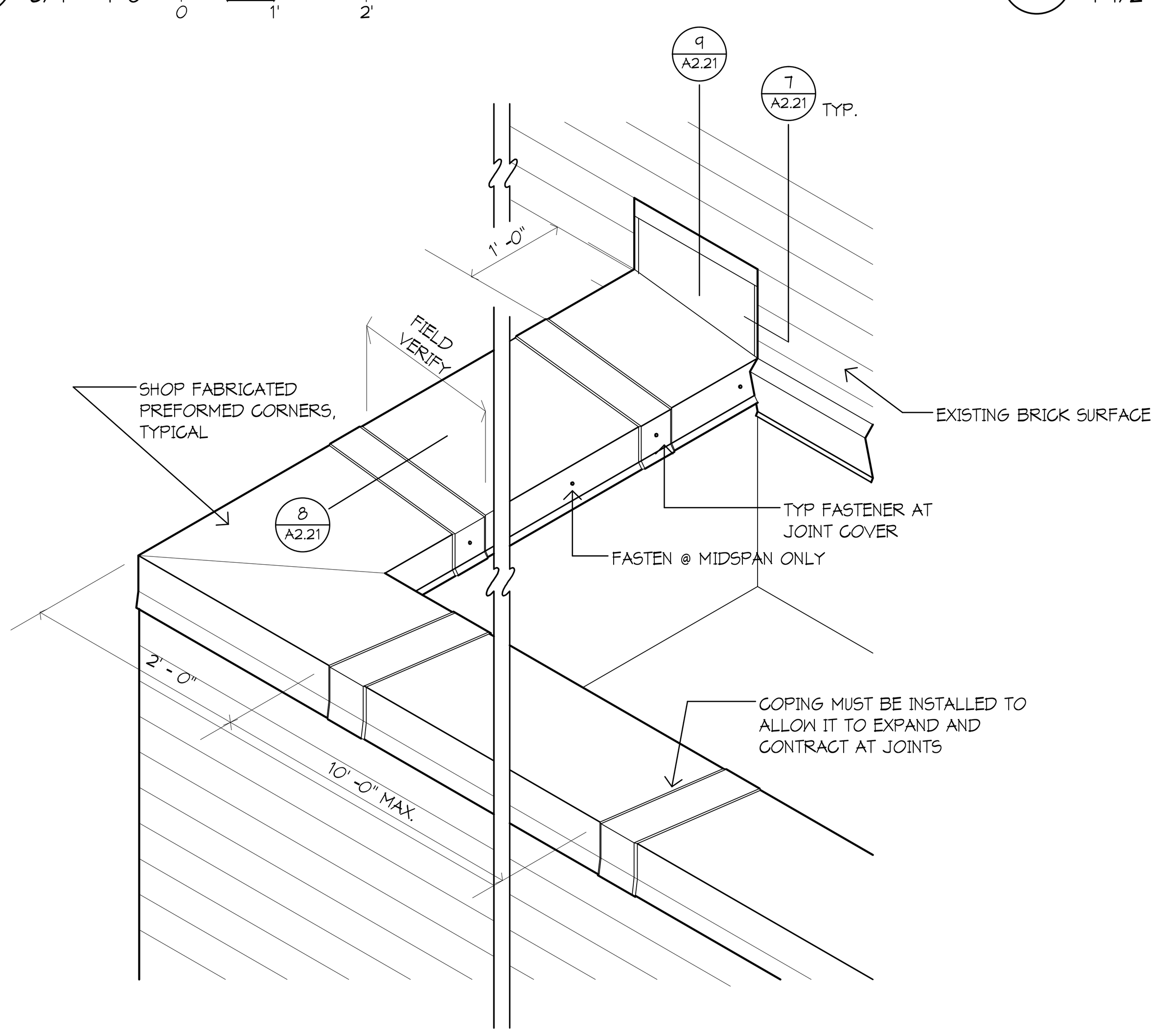
3 TYPICAL ROOF DRAIN DETAIL
3/4" = 1'-0"



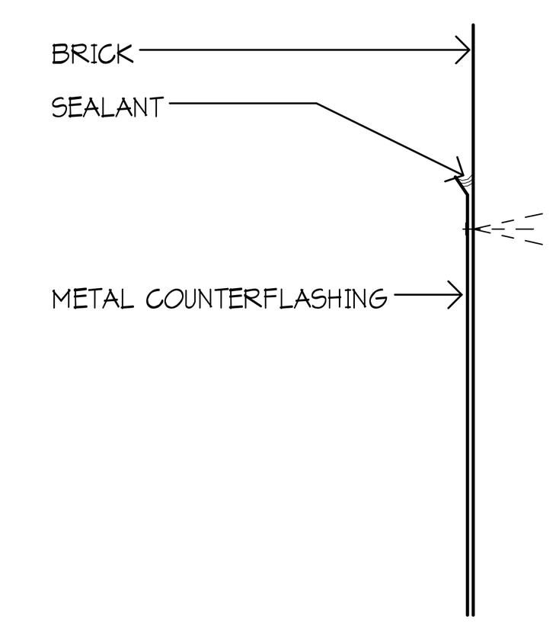
4 TYPICAL EQUIPMENT CURB
1 1/2" = 1'-0"



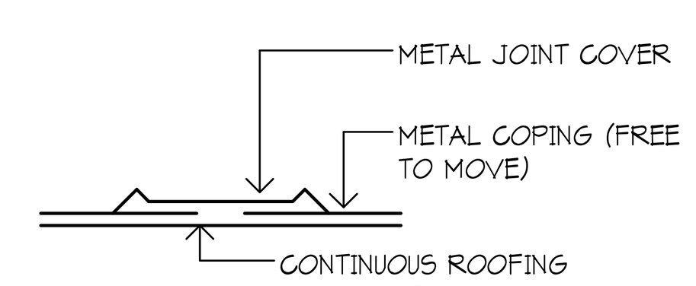
5 TYPICAL ROOF CRICKET PLAN VIEW
1 1/2" = 1'-0"



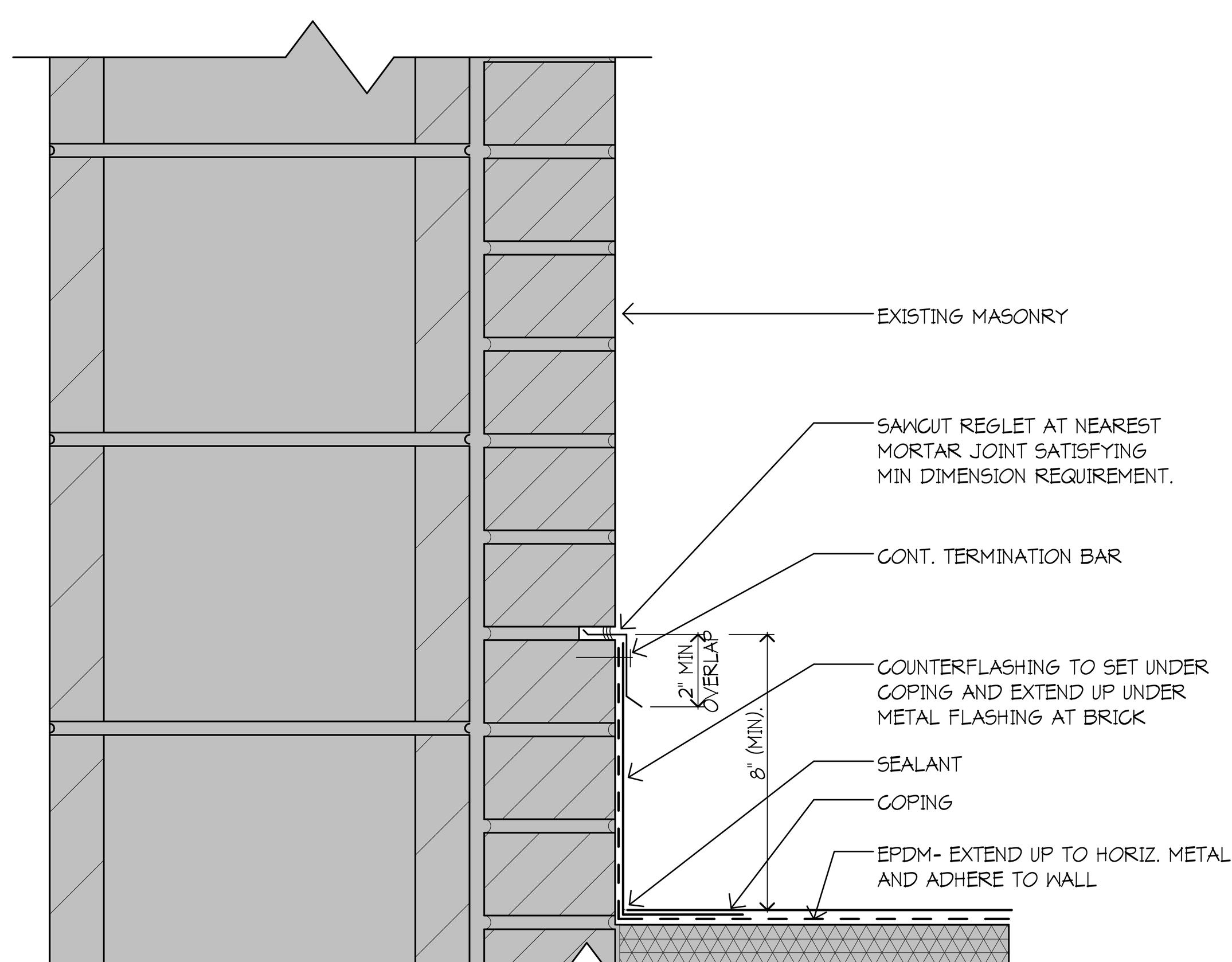
6 COPING DETAILS
3/4" = 1'-0"



7 COUNTERFLASHING EDGE
1 1/2" = 1'-0"



8 TYPICAL JOINT COVER
3/4" = 1'-0"



9 COPING AT WALL SECTION
3" = 1'-0"

A

McHenry County Government Center Roof Replacement

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McHenry County
Woodstock, IL

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STATE OF ILLINOIS — ROGER JOSEPH SCHROEPFER 001-017074 — LICENSED ARCHITECT

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ROGER J. SCHROEPFER
Registration Number 001-017074 Date 1/04/2016

Revisions

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Comm: 153021
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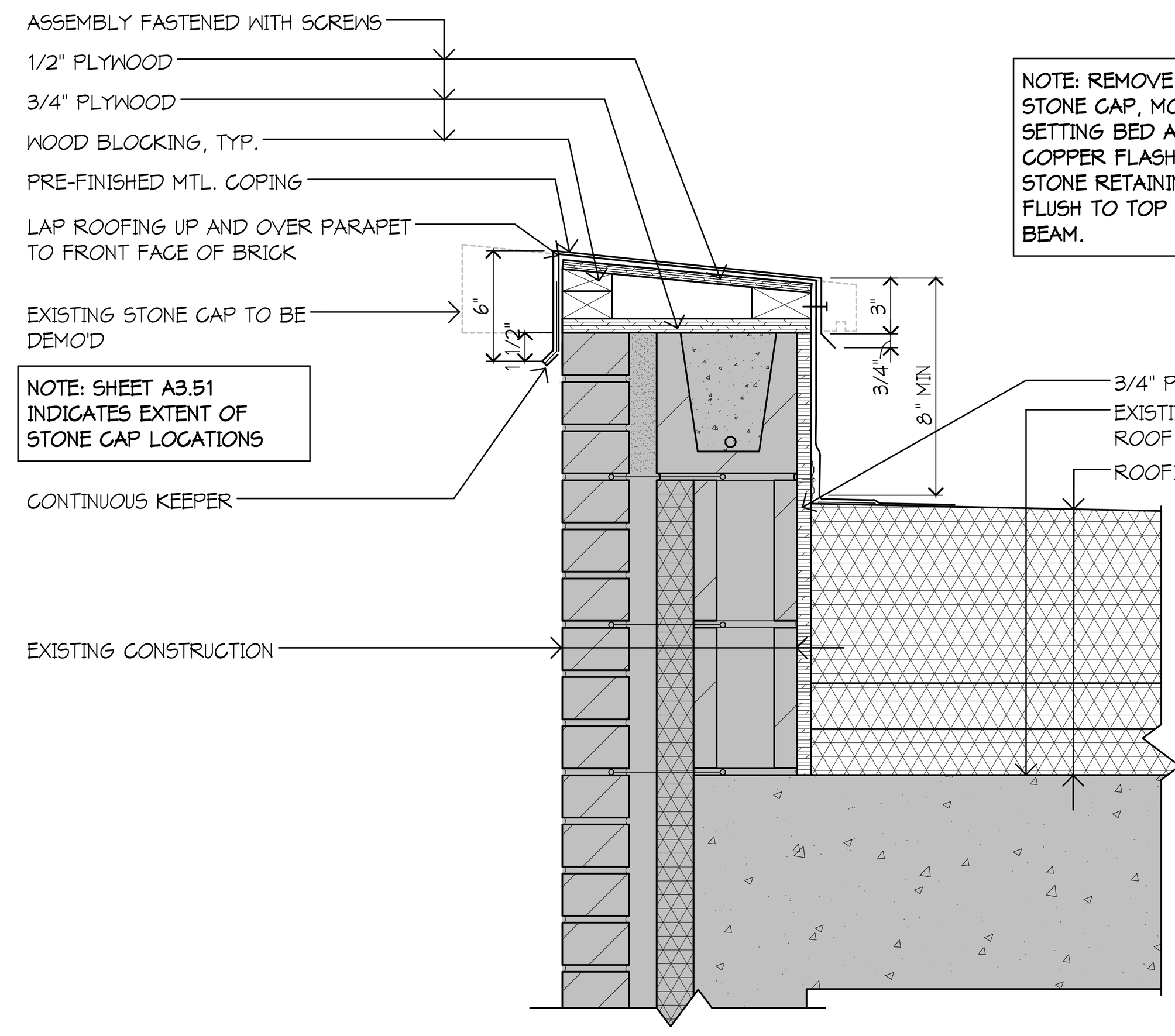
Check: TS

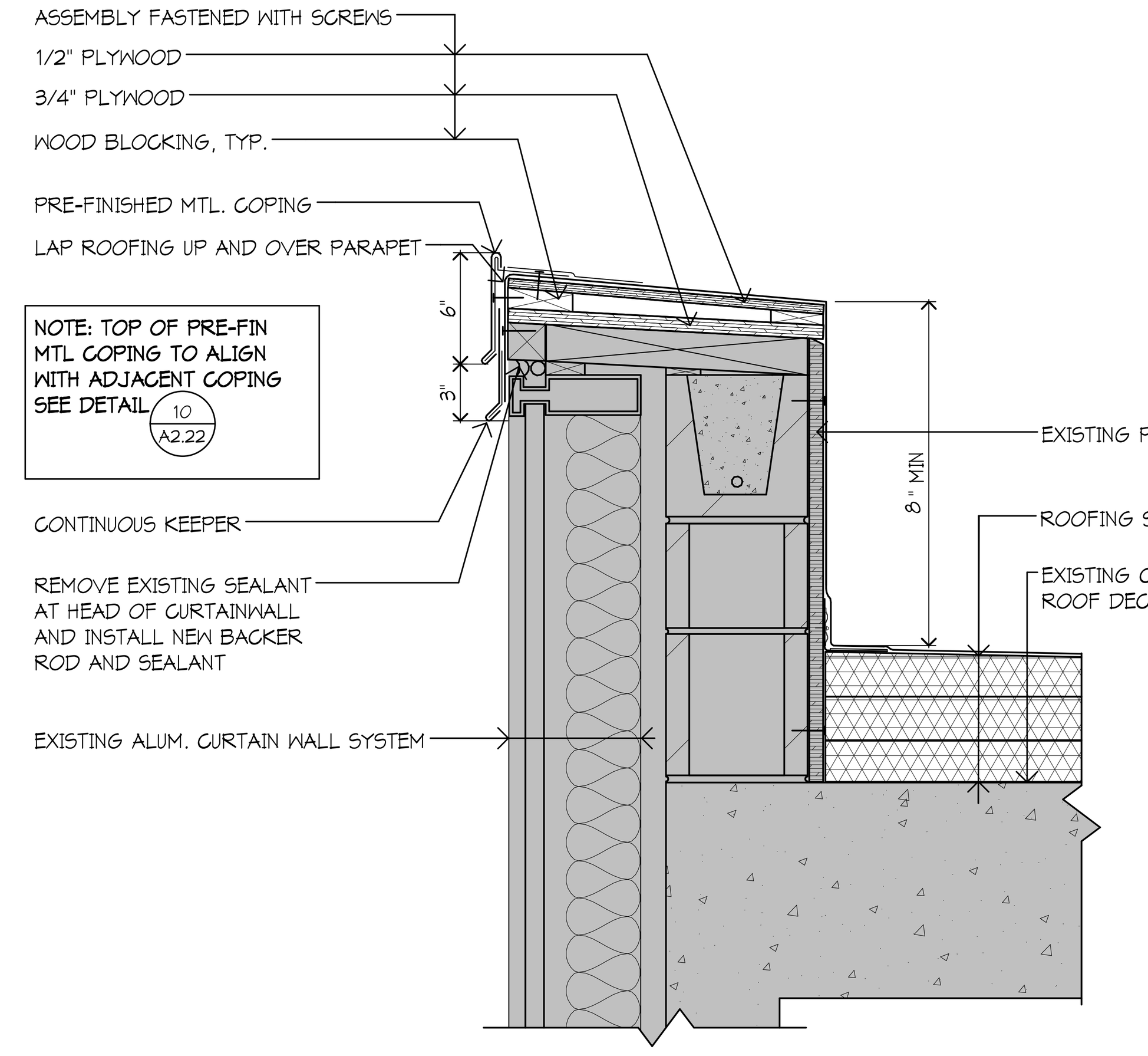
ROOF DETAILS

Scale: As indicated

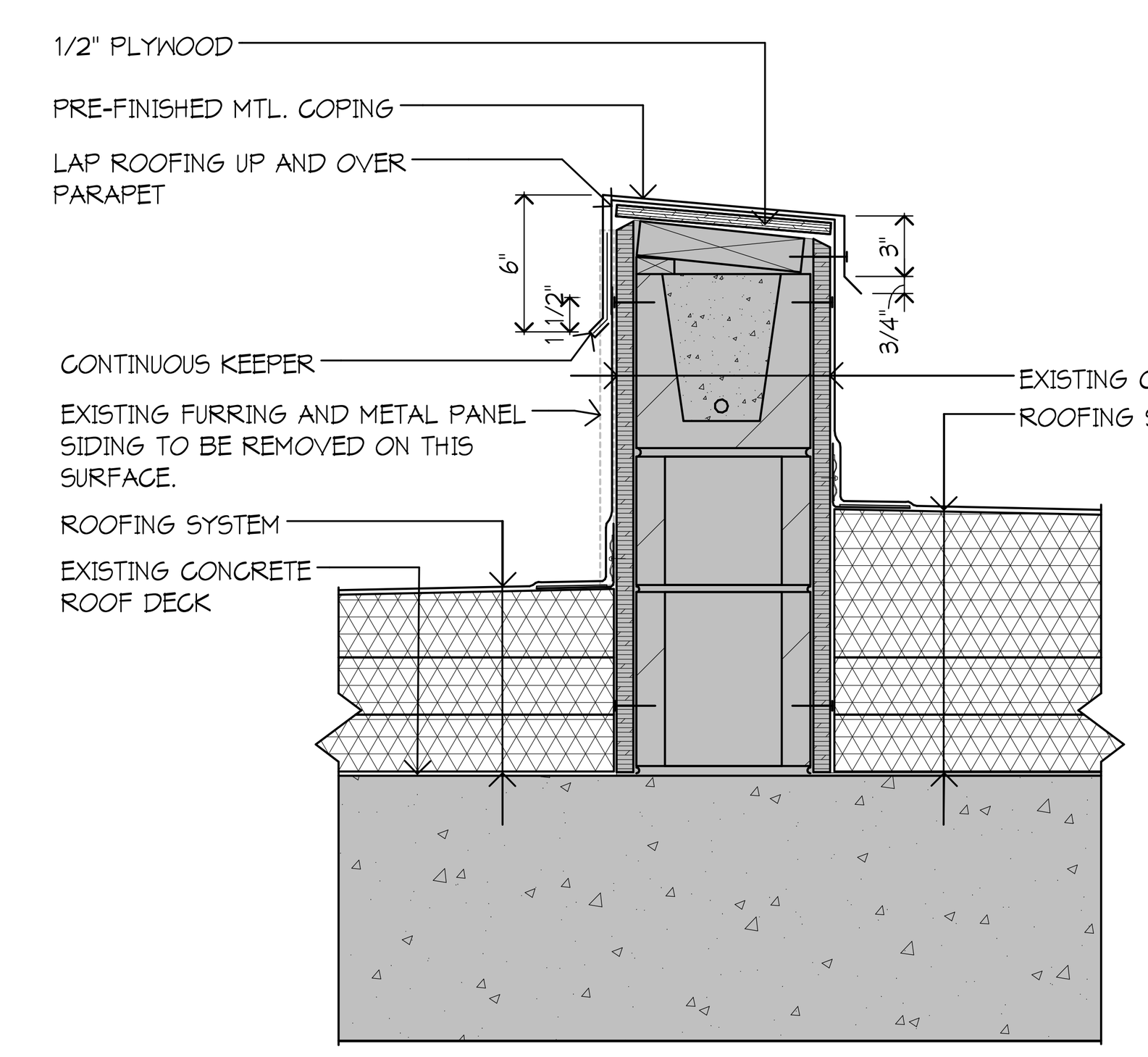
A2.21



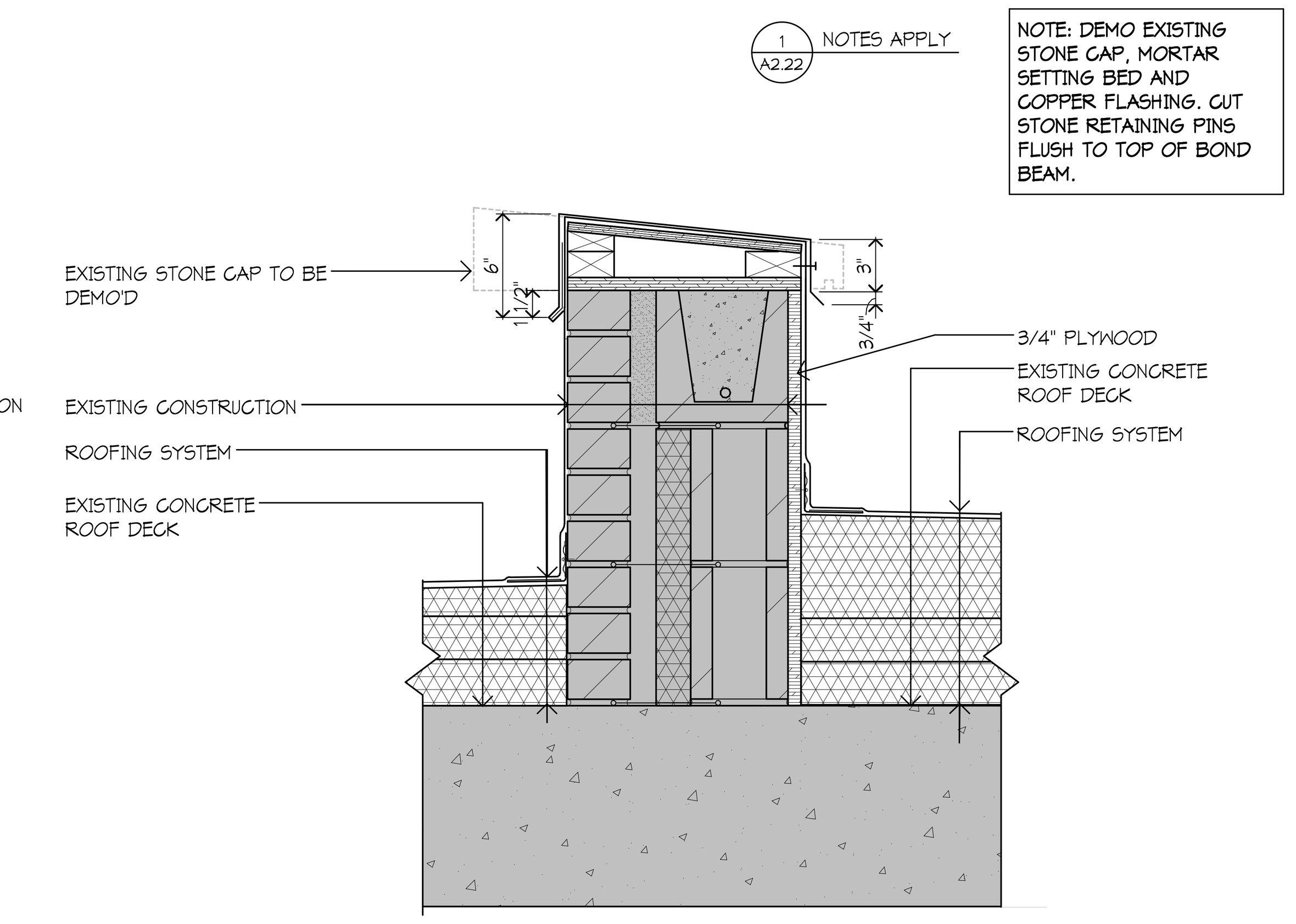
1 ROOF DETAIL
1 1/2" = 1'-0"



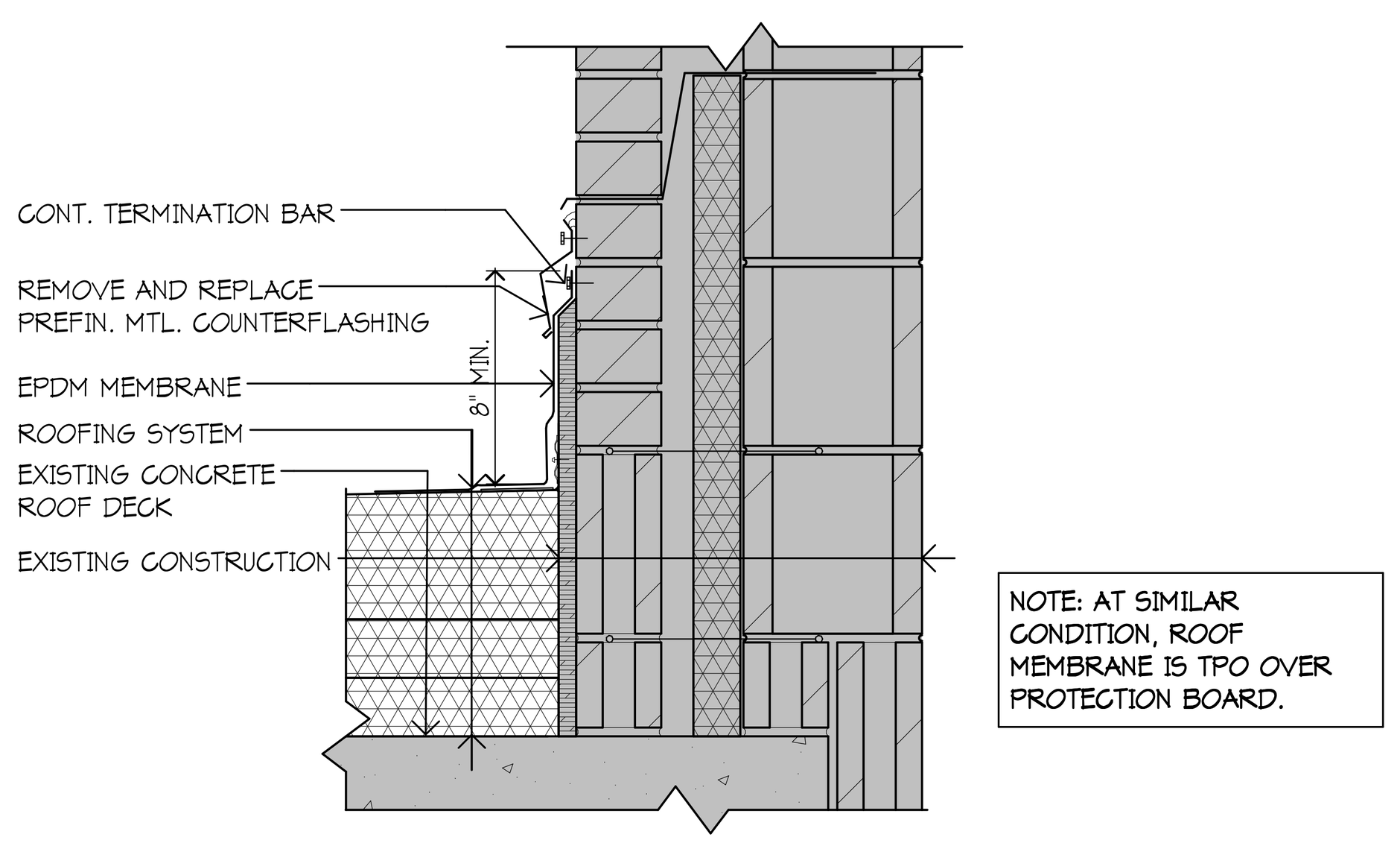
2 ROOF DETAIL
1 1/2" = 1'-0"



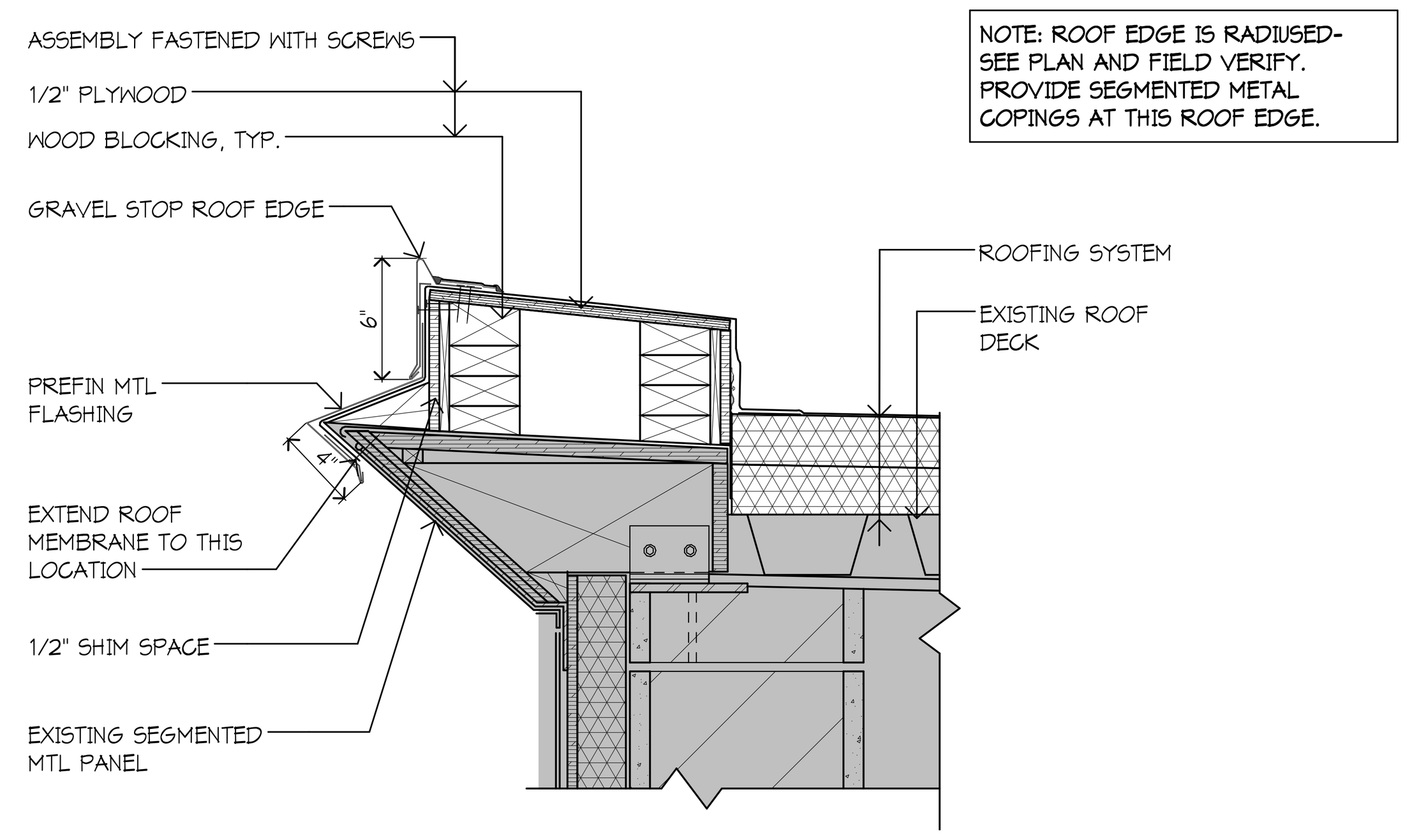
3 ROOF DETAIL
1 1/2" = 1'-0"



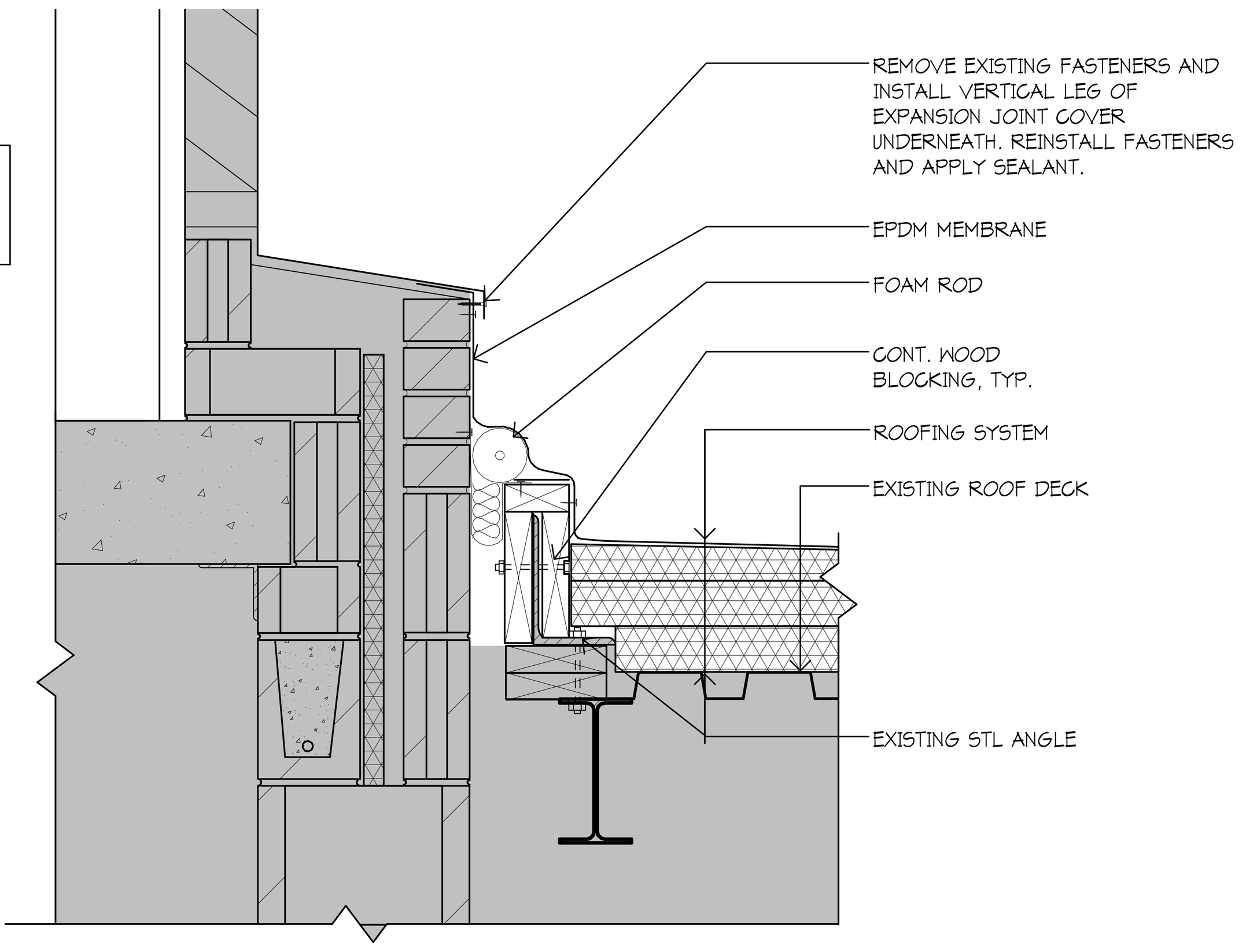
4 ROOF DETAIL
1 1/2" = 1'-0"



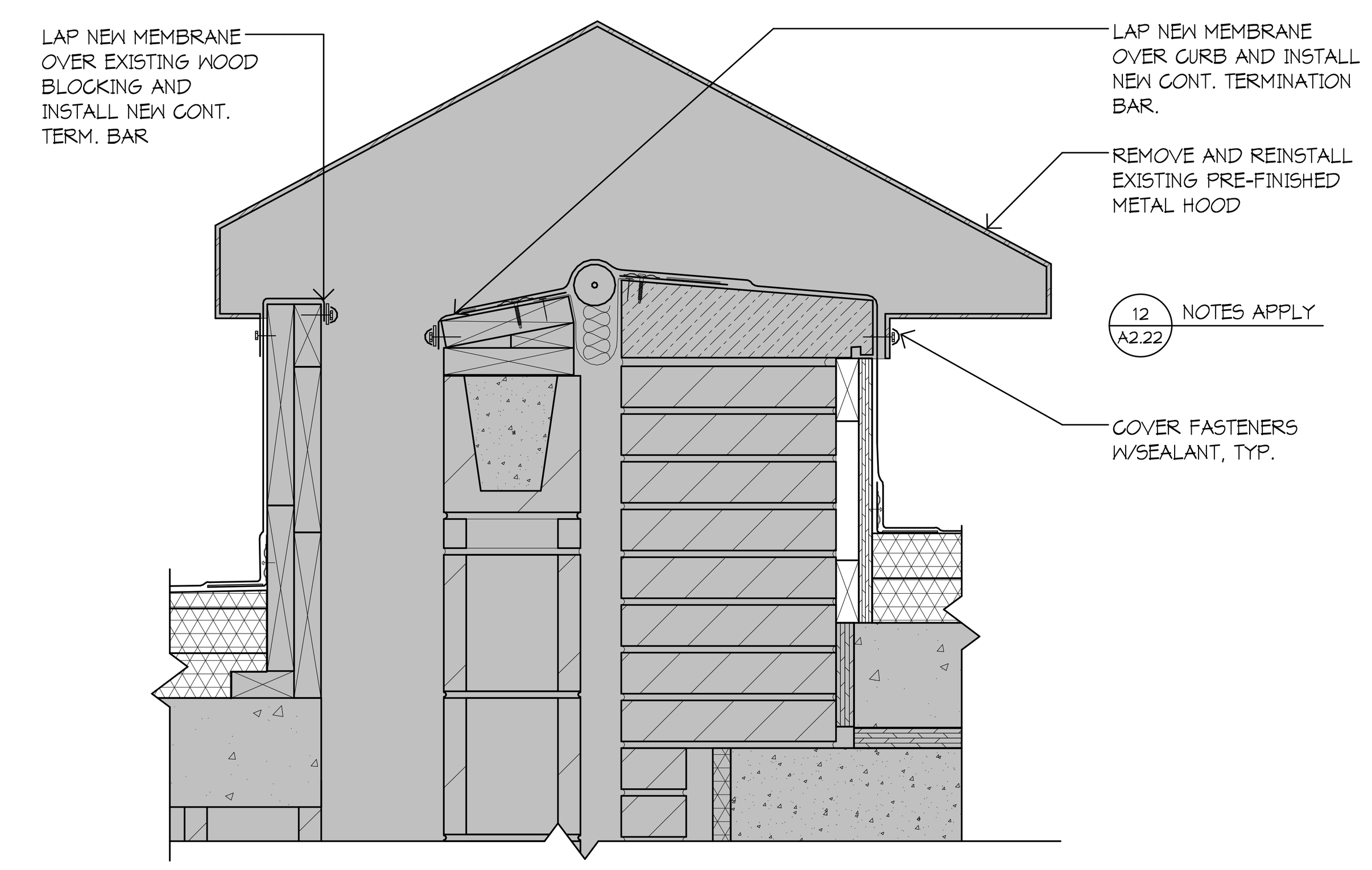
5 ROOF DETAIL
1 1/2" = 1'-0"



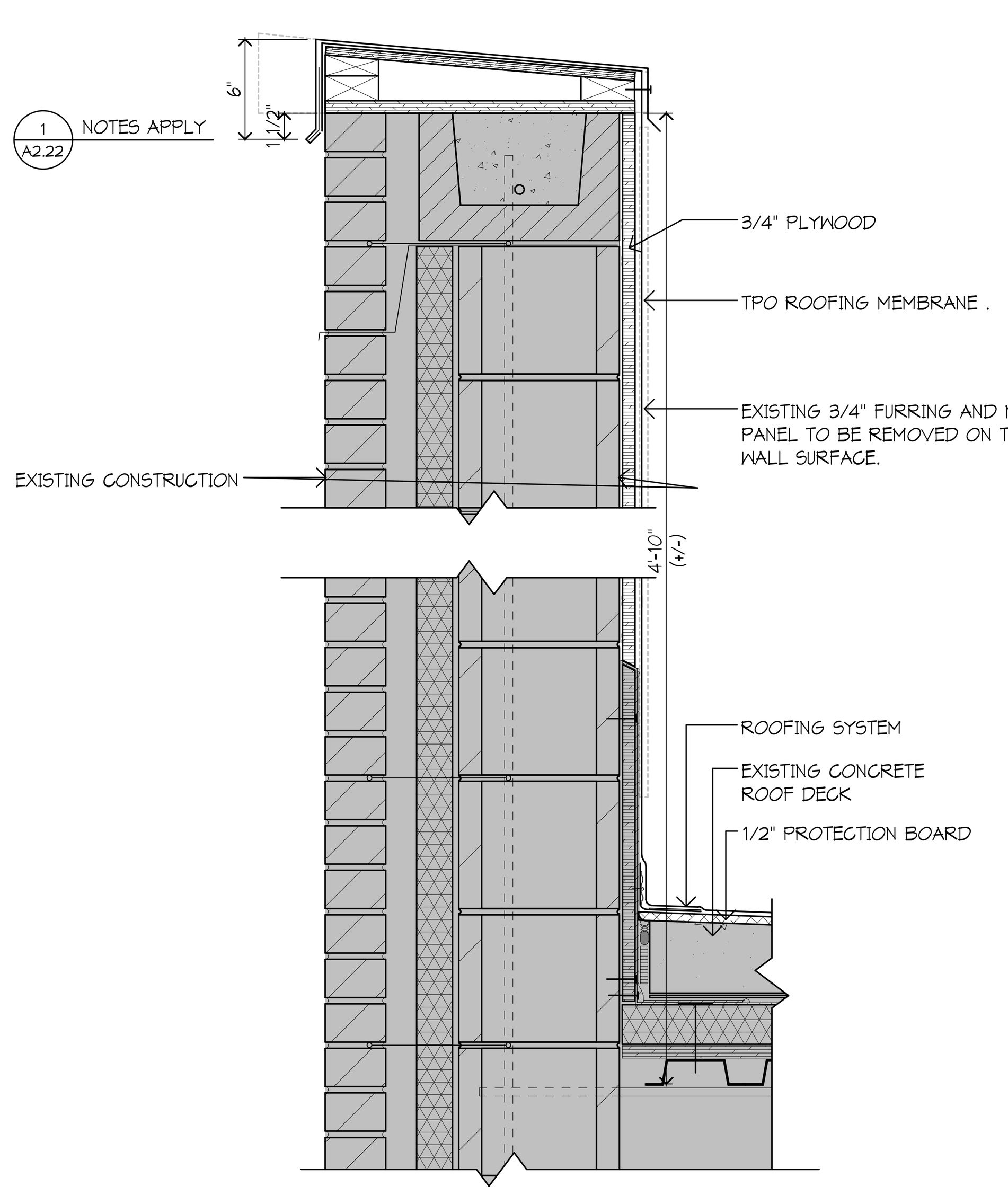
6 PENTHOUSE ROOF EDGE DETAIL
1 1/2" = 1'-0"



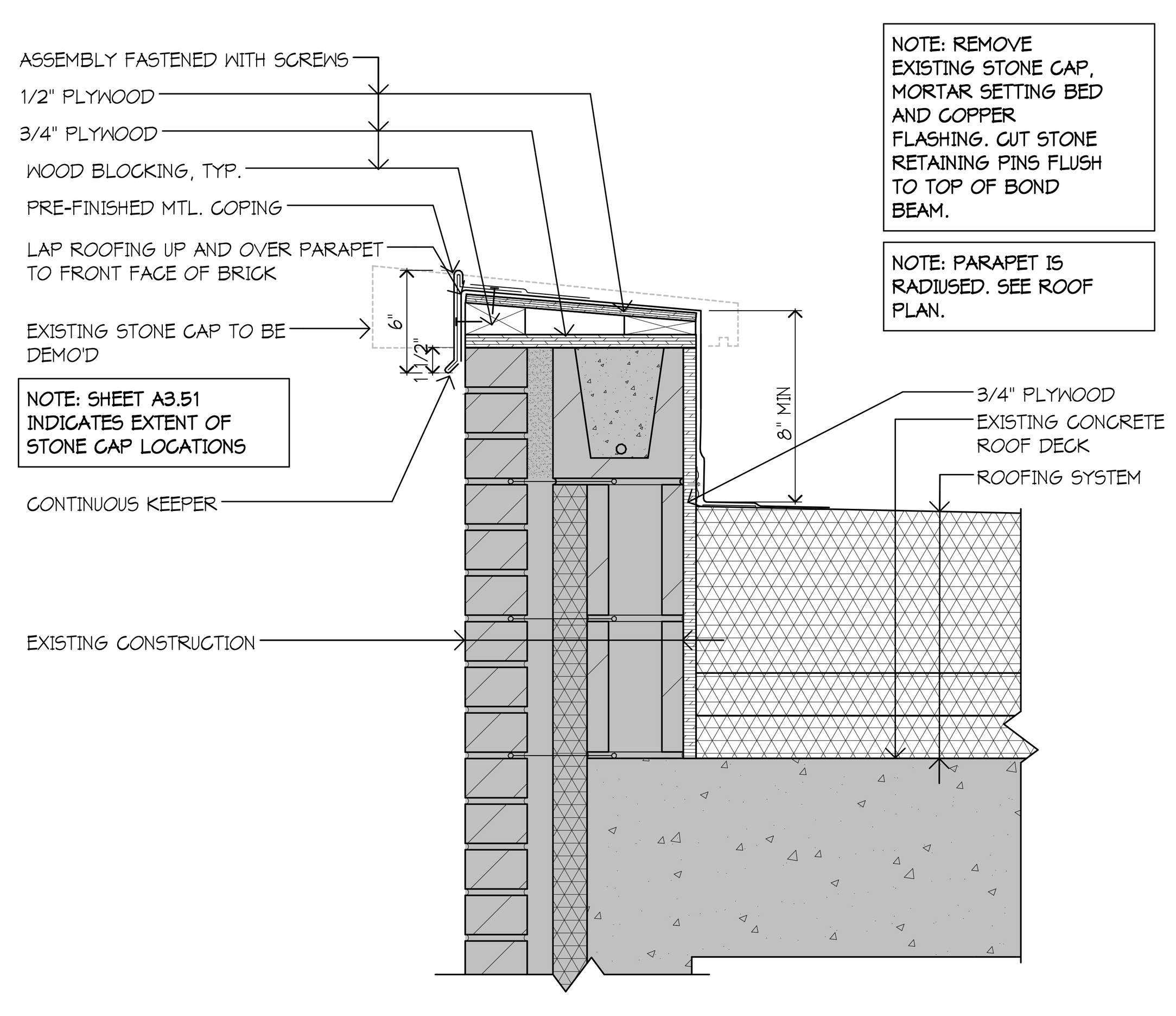
7 EXPANSION JOINT DETAIL
1 1/2" = 1'-0"



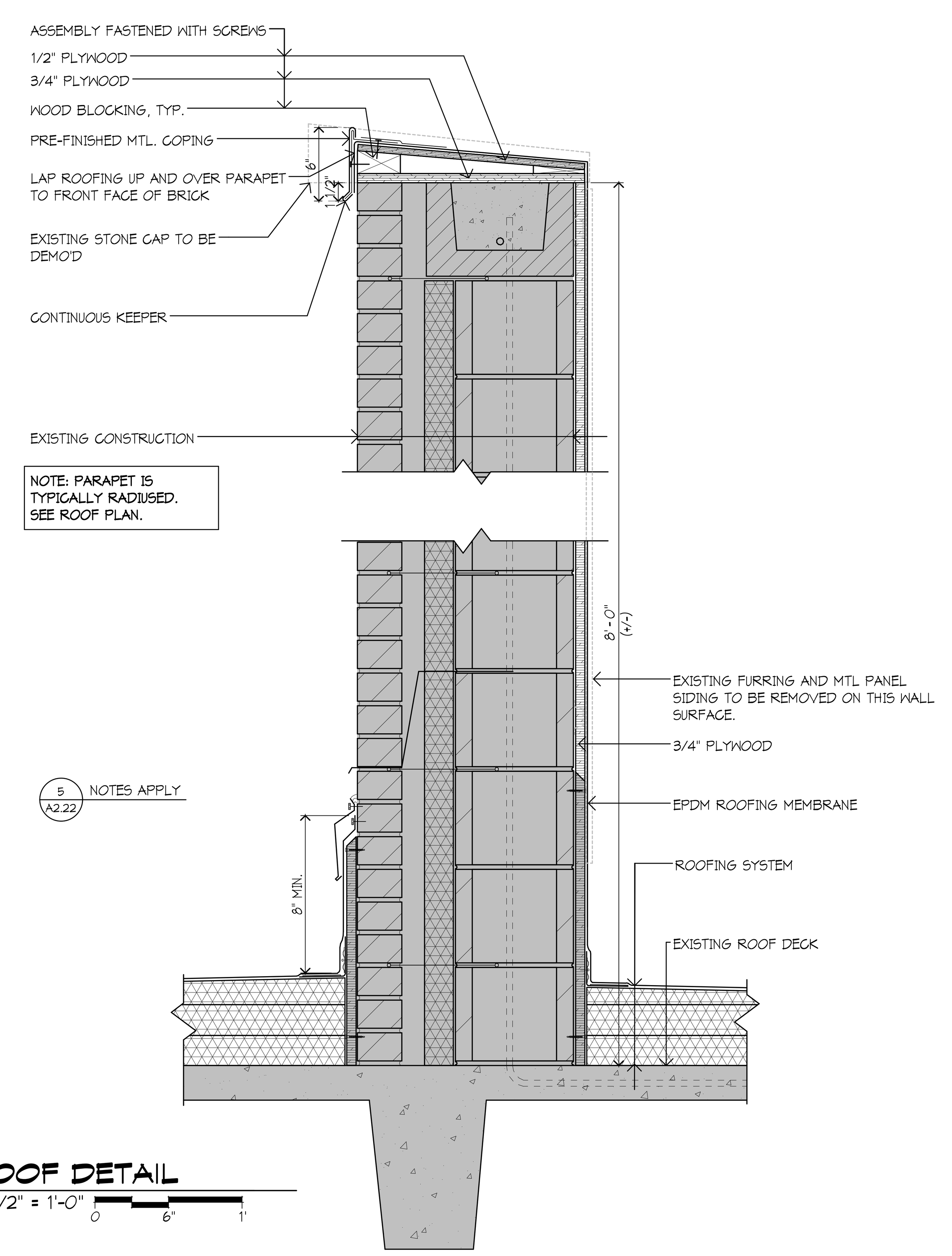
8 ROOF DETAIL
1 1/2" = 1'-0"



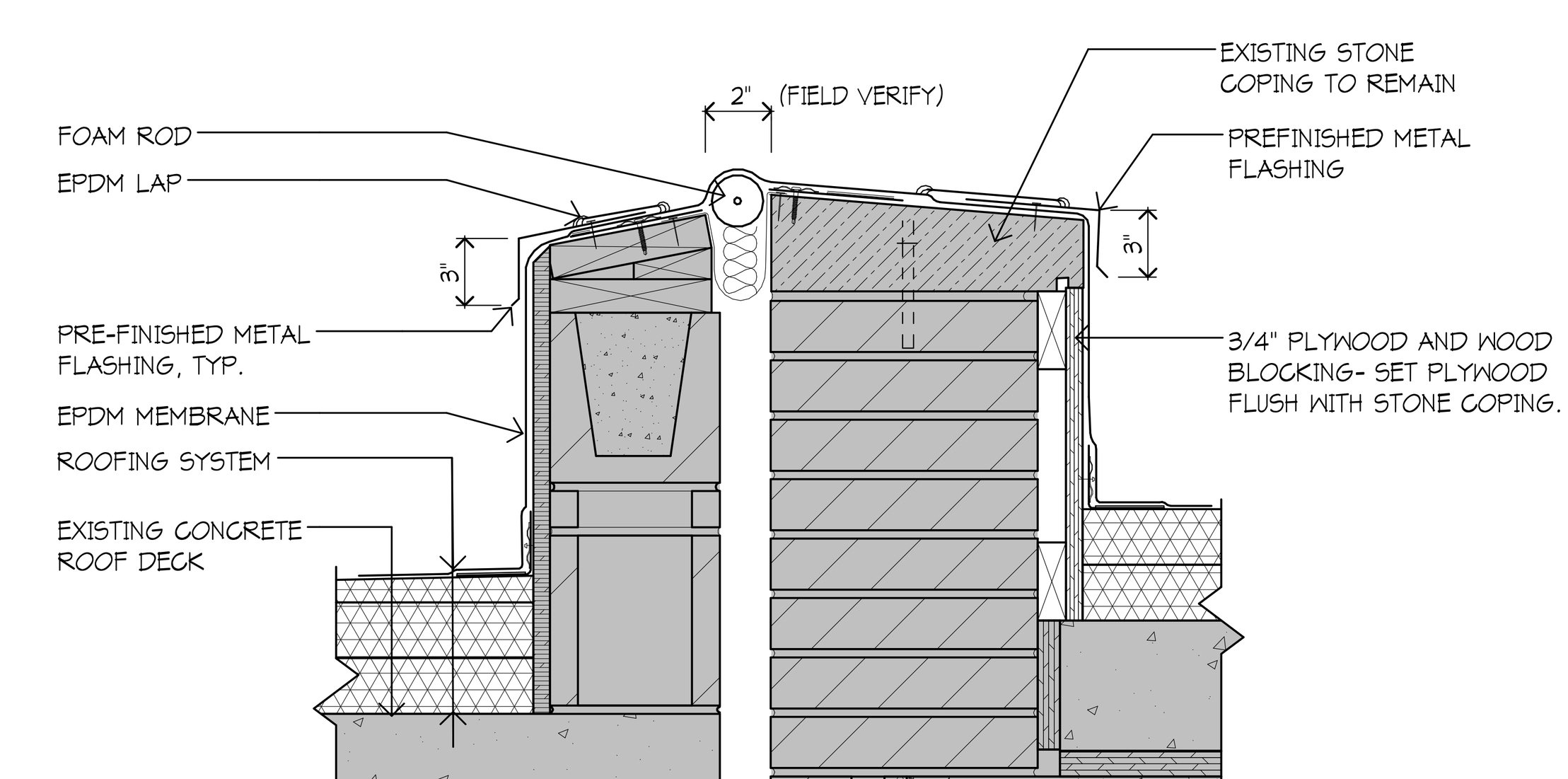
9 ROOF DETAIL
1 1/2" = 1'-0"



10 ROOF DETAIL
1 1/2" = 1'-0"



11 ROOF DETAIL
1 1/2" = 1'-0"



12 ROOF DETAIL
1 1/2" = 1'-0"

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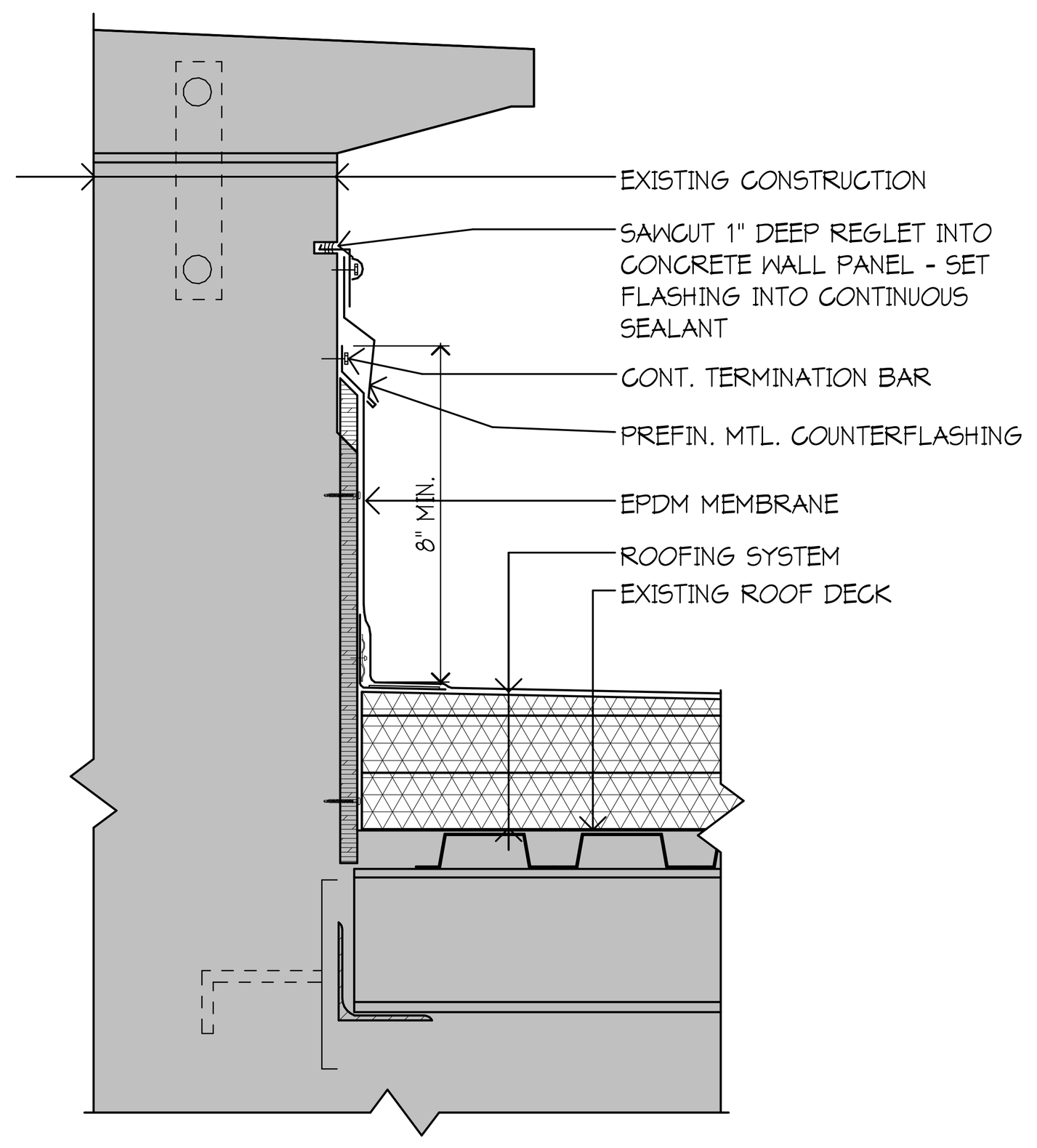
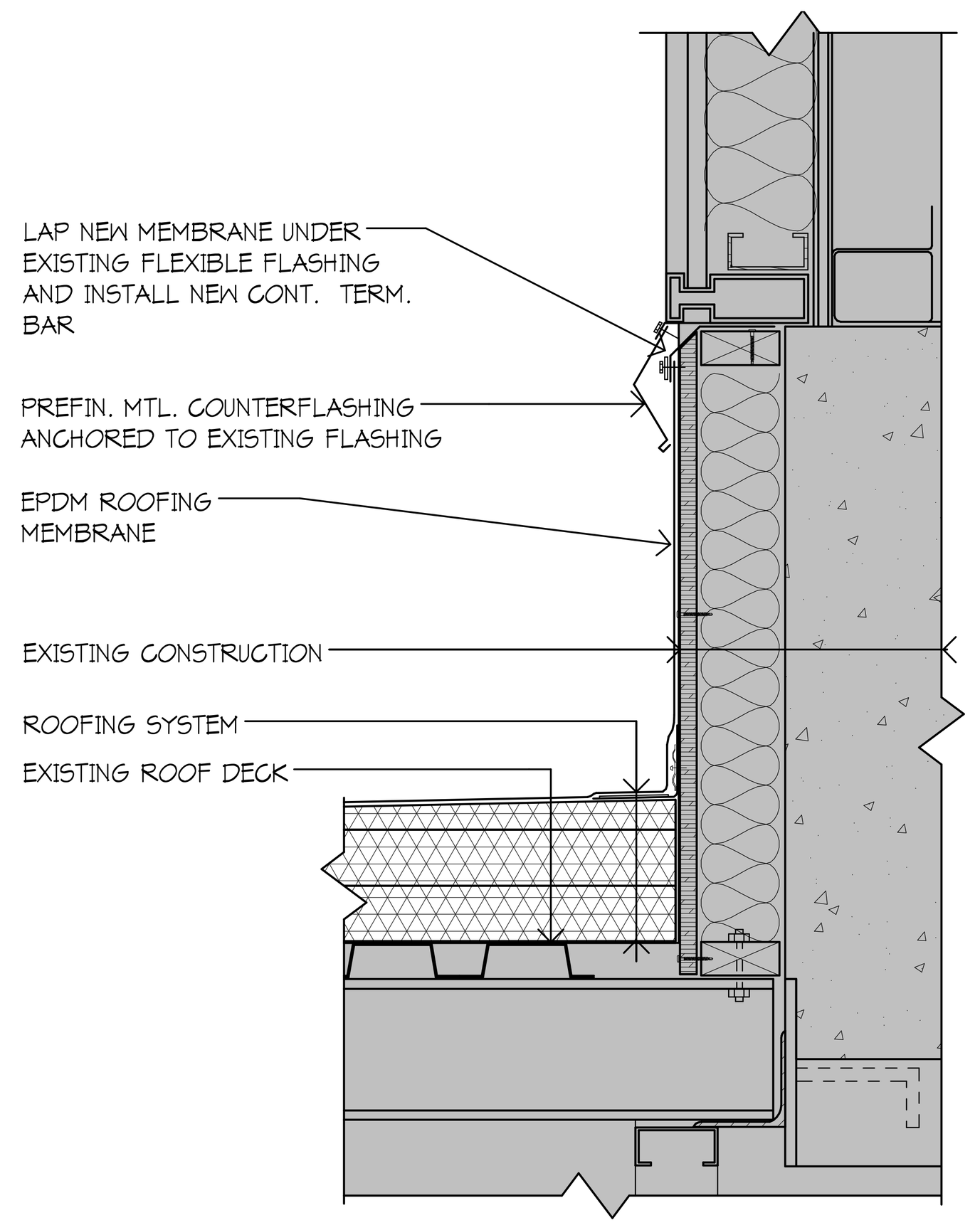
ROOF DETAILS

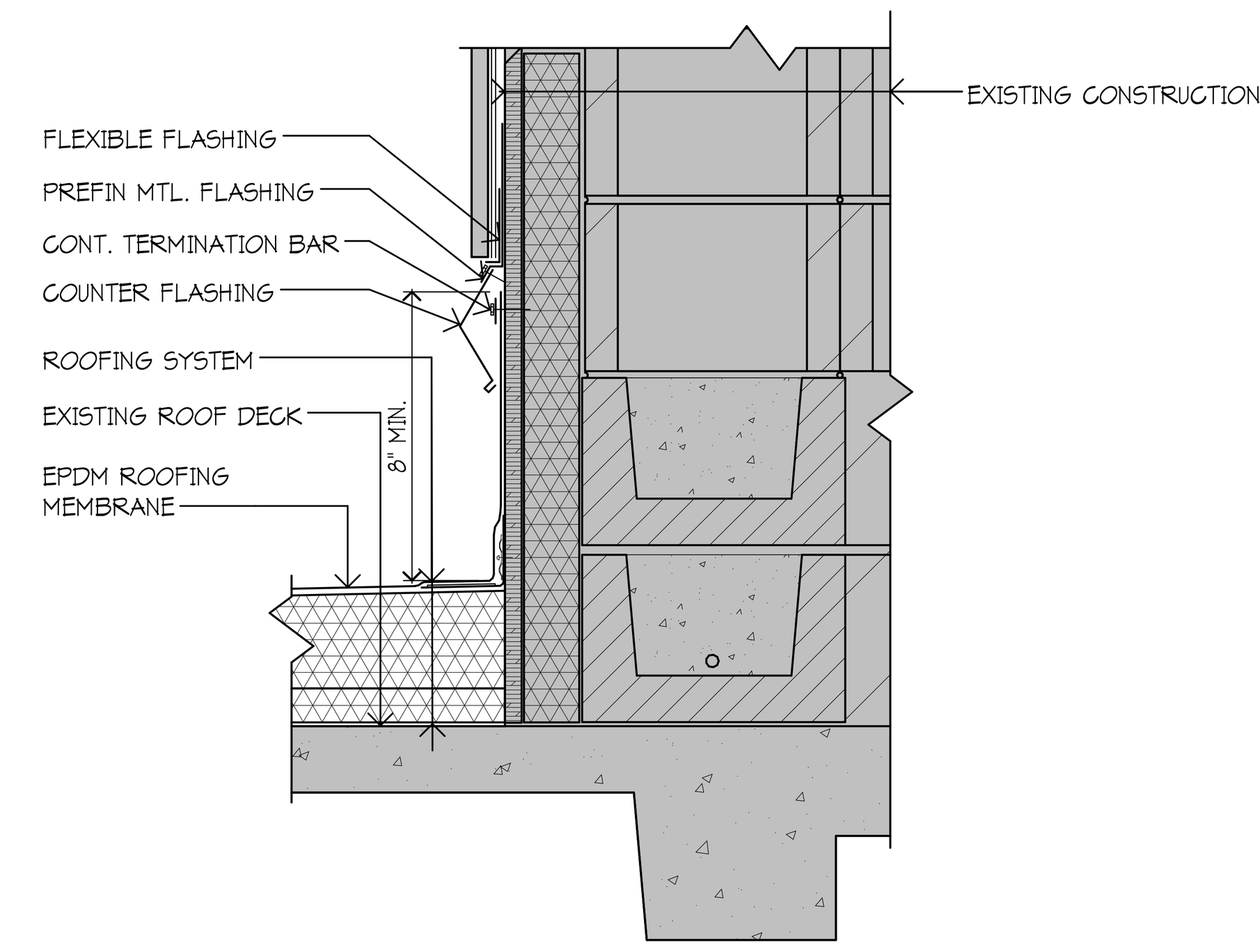
Scale: 1 1/2" = 1'-0"

A2.22

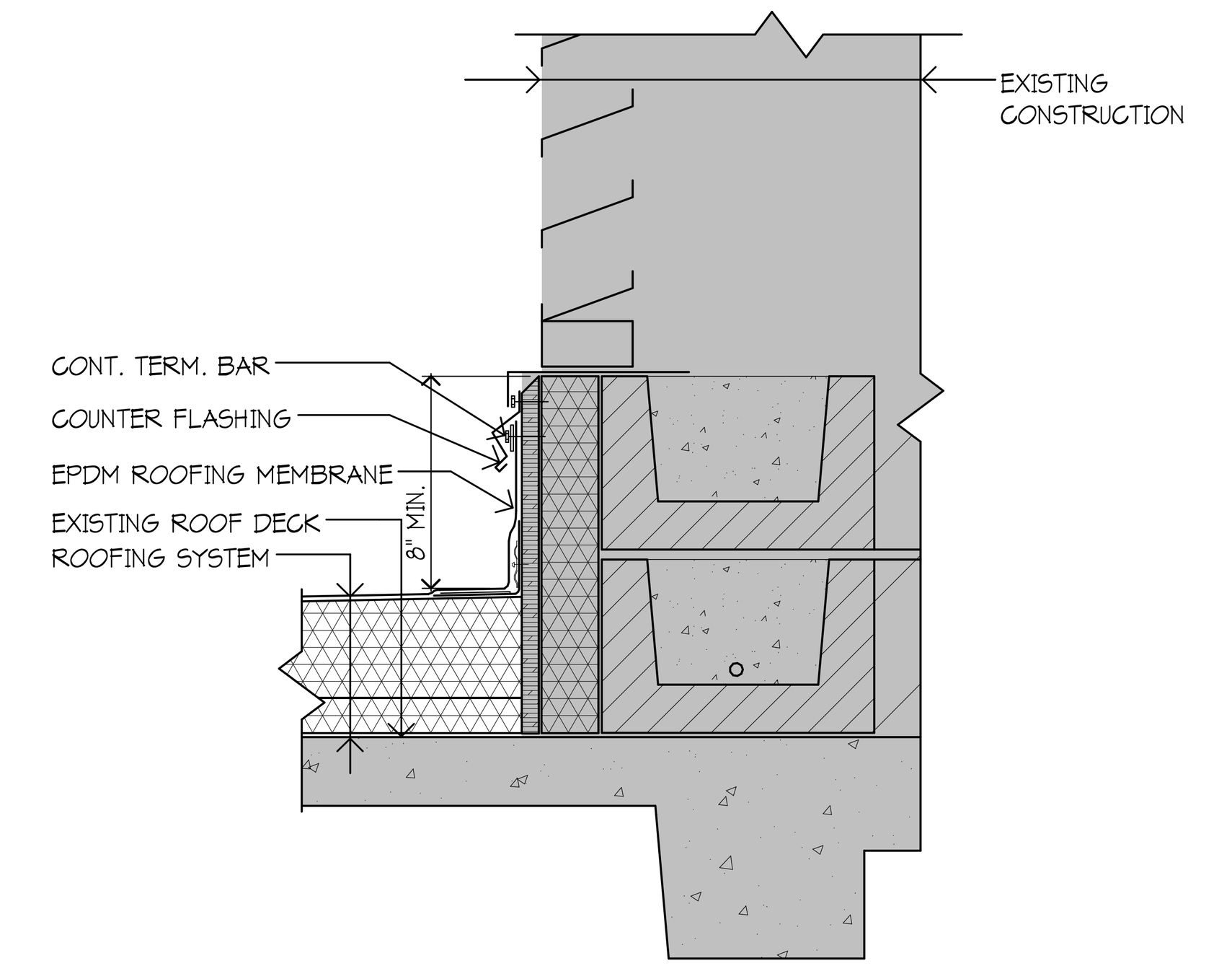




1 ROOF DETAIL
1 1/2" = 1'-0" 0 6" 1'

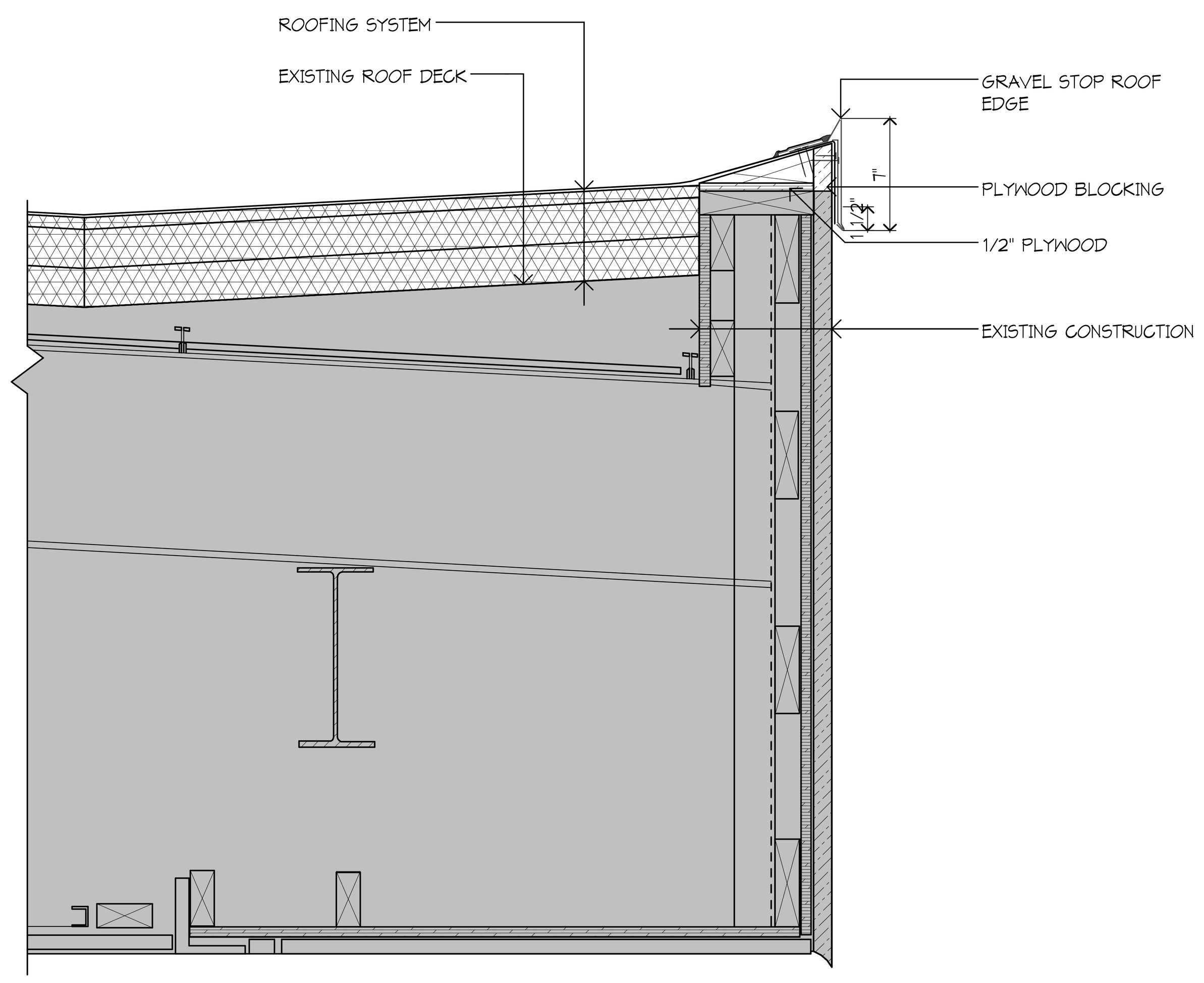


2 ROOF DETAIL
1 1/2" = 1'-0" 0 6" 1'

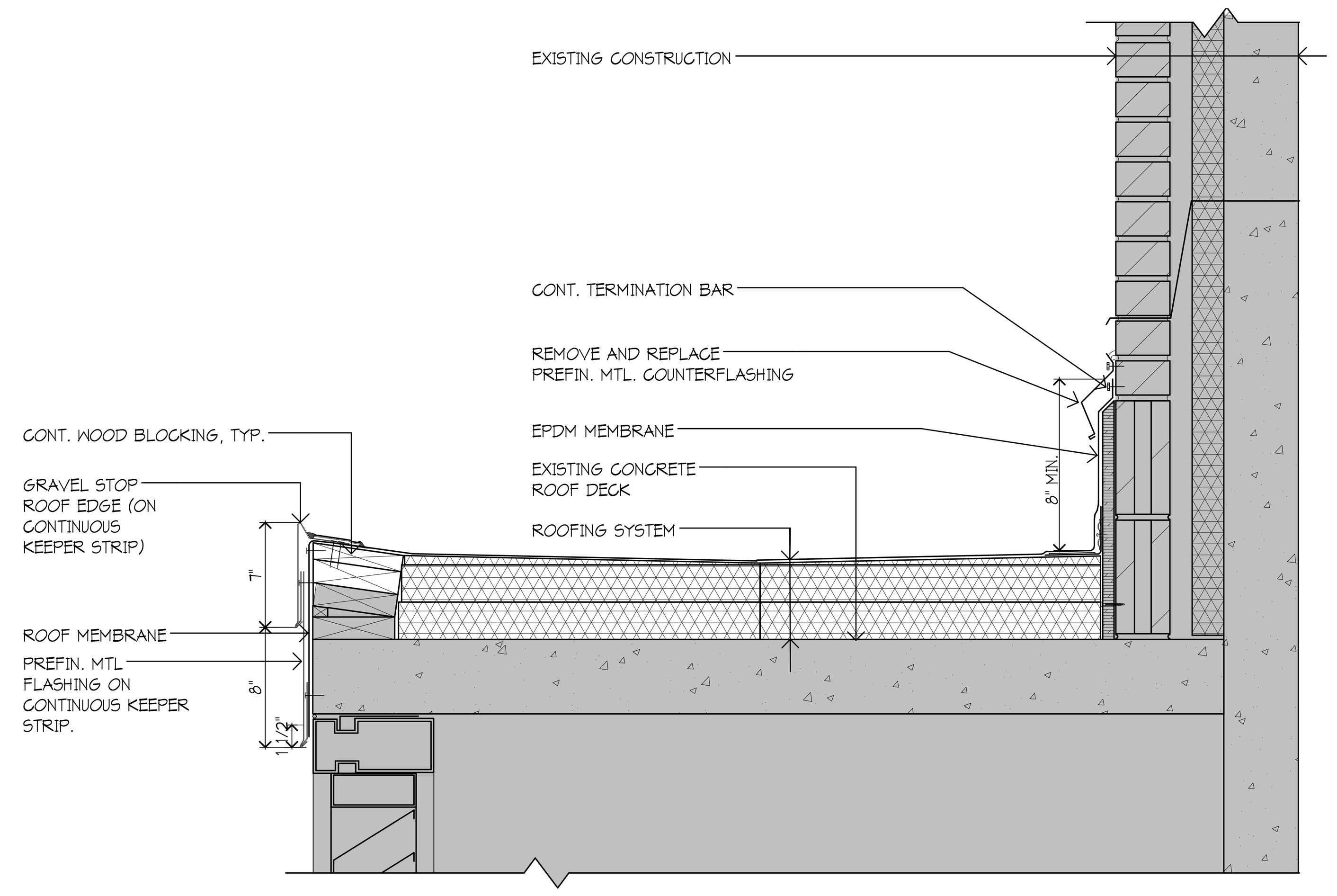


3 ROOF DETAIL
1 1/2" = 1'-0" 0 6" 1'

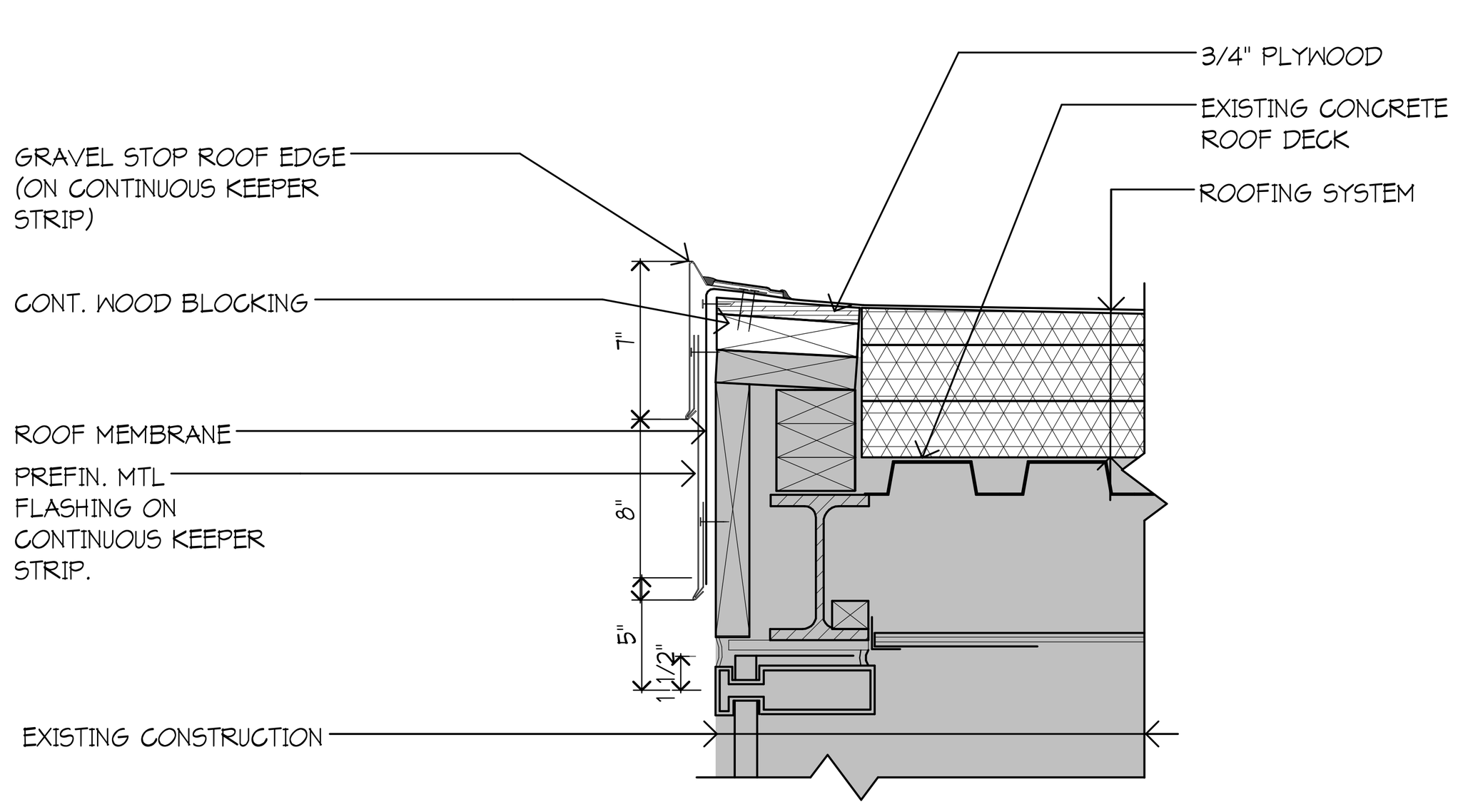
IL



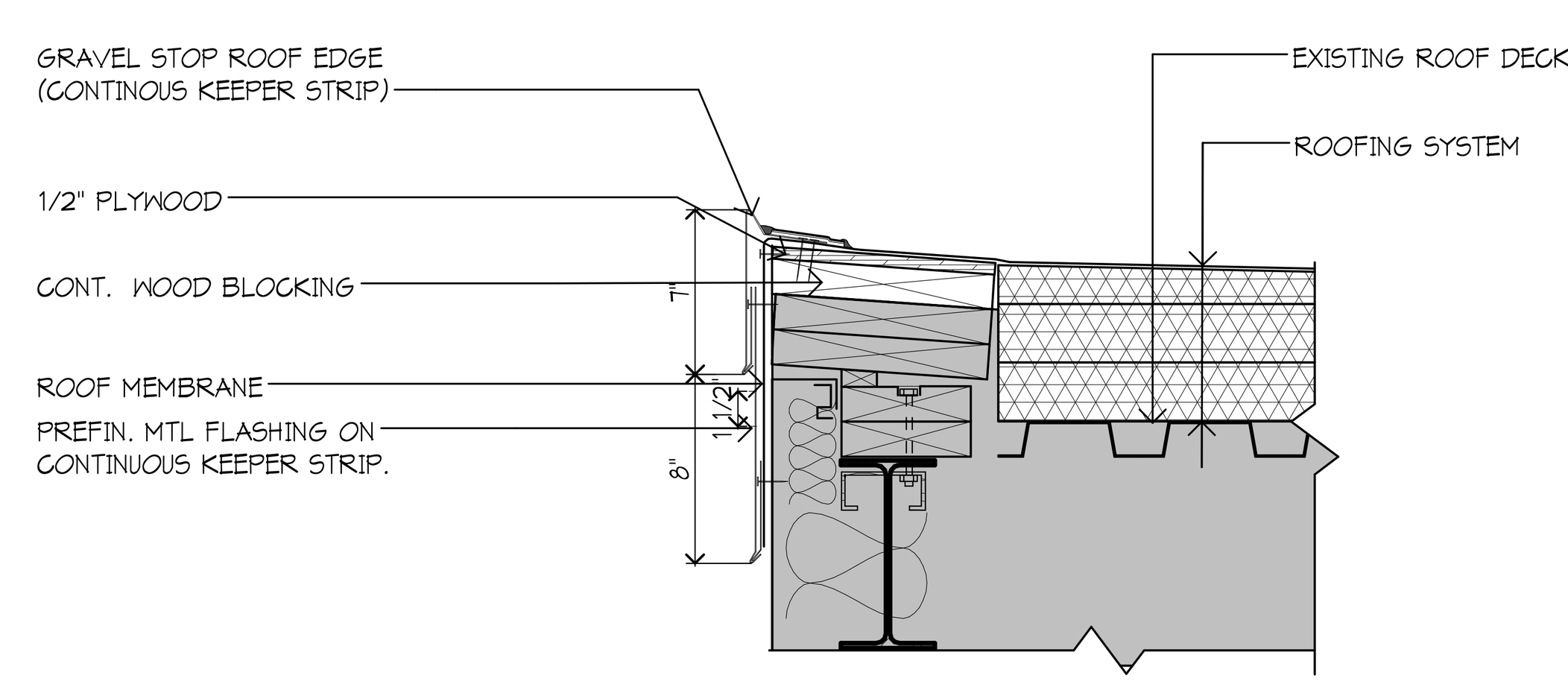
4 ROOF DETAIL
1 1/2" = 1'-0" 0 6" 1'



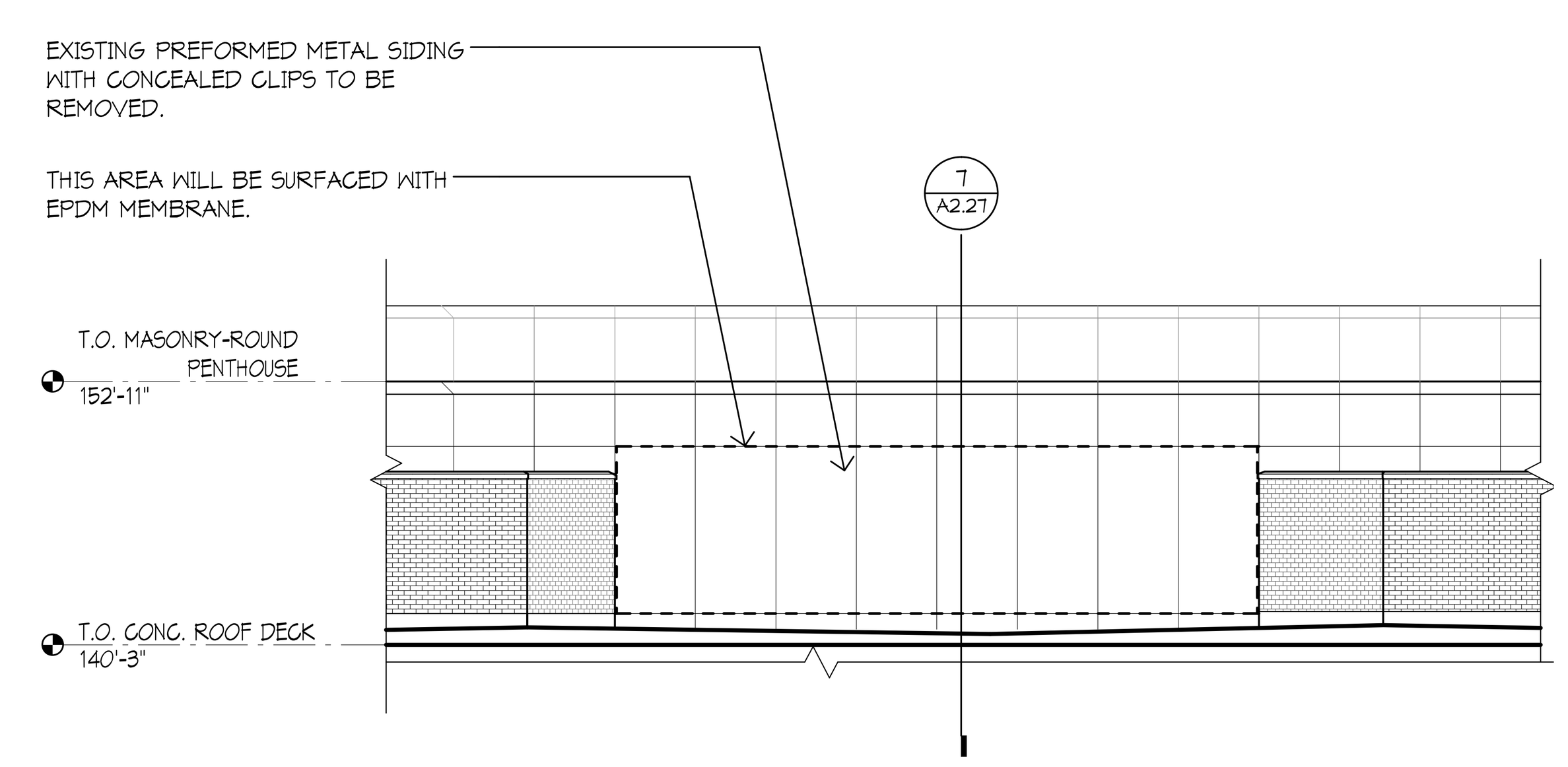
5 ROOF EDGE/COUNTER FLASHING DETAIL
1 1/2" = 1'-0" 0 6" 1'



6 ROOF EDGE DETAIL
1 1/2" = 1'-0" 0 6" 1'



7 ROOF EDGE DETAIL
1 1/2" = 1'-0" 0 6" 1'



8 ROUND PENTHOUSE ELEVATION
1/8" = 1'-0" 0' 8' 16'

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ROOF DETAILS

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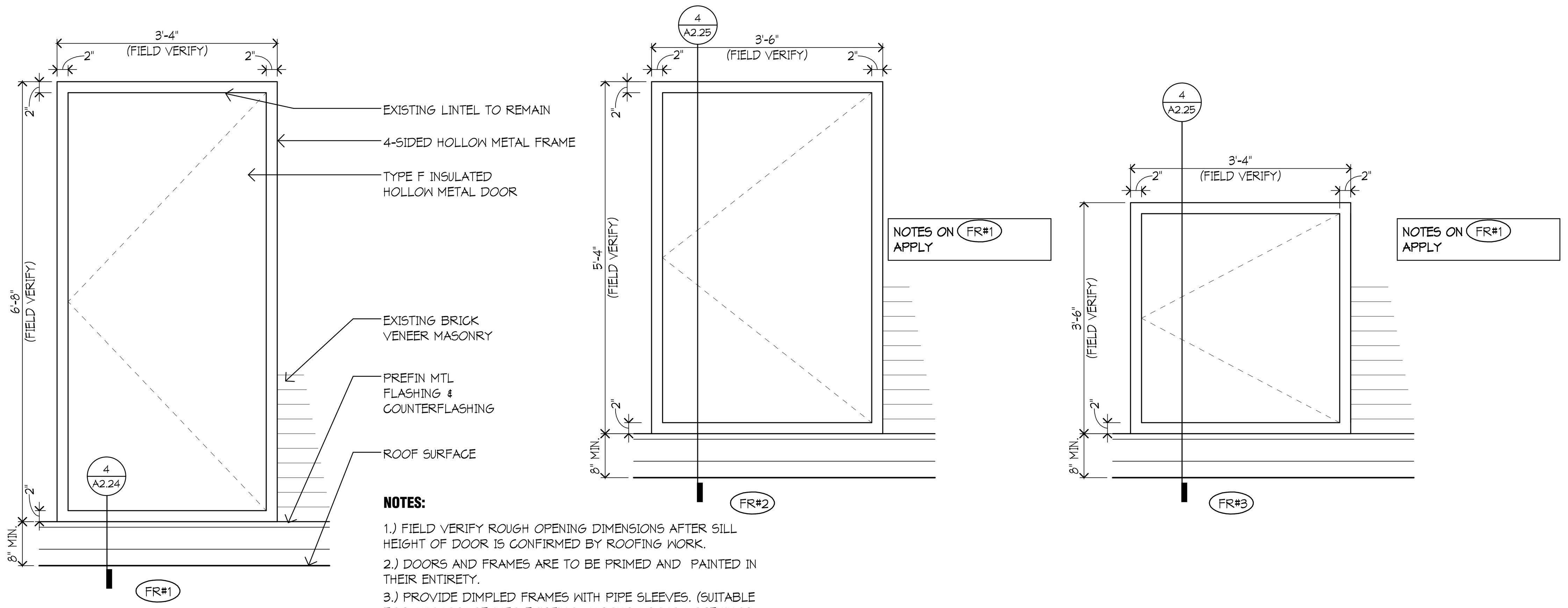
A2.23

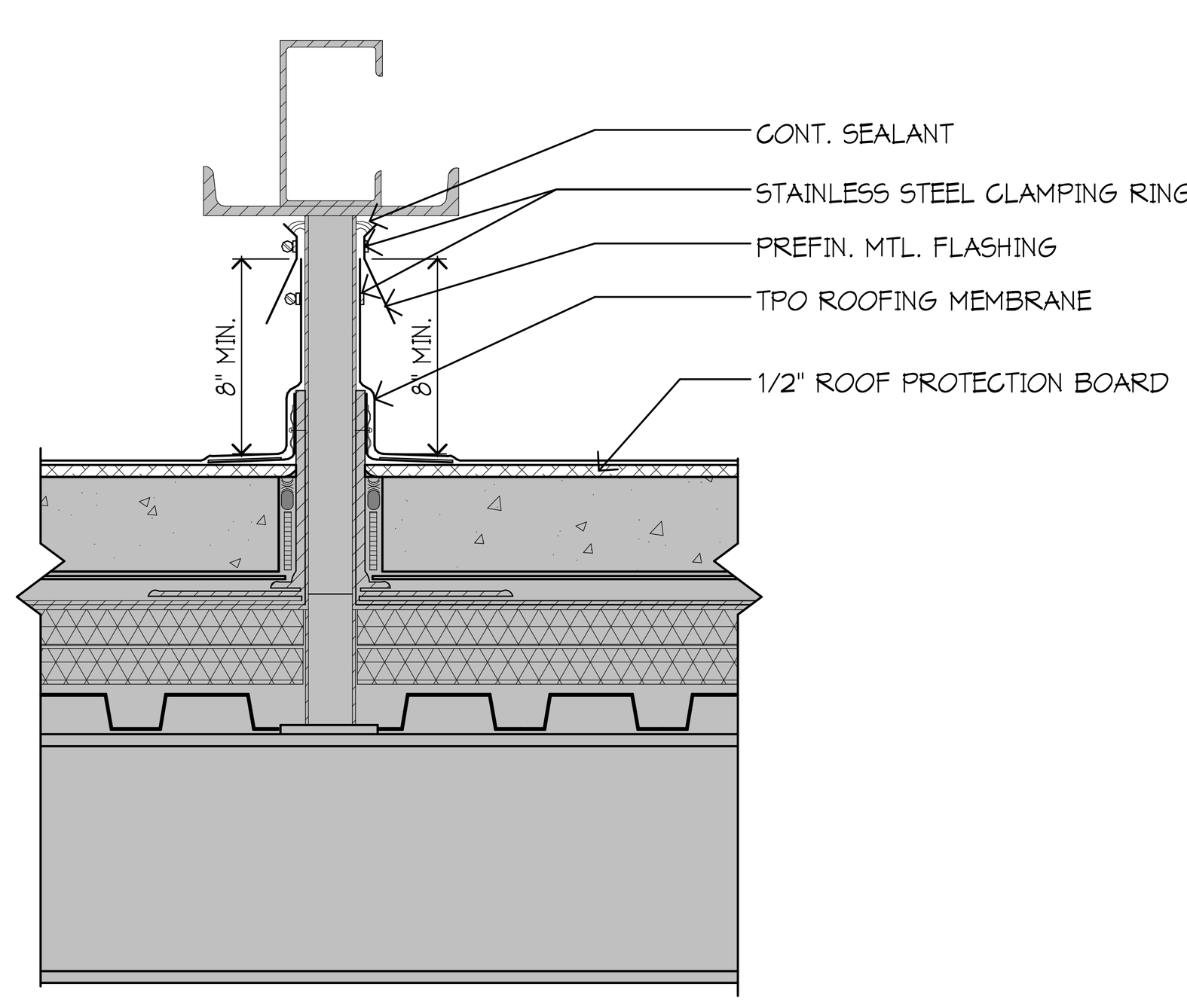
IL



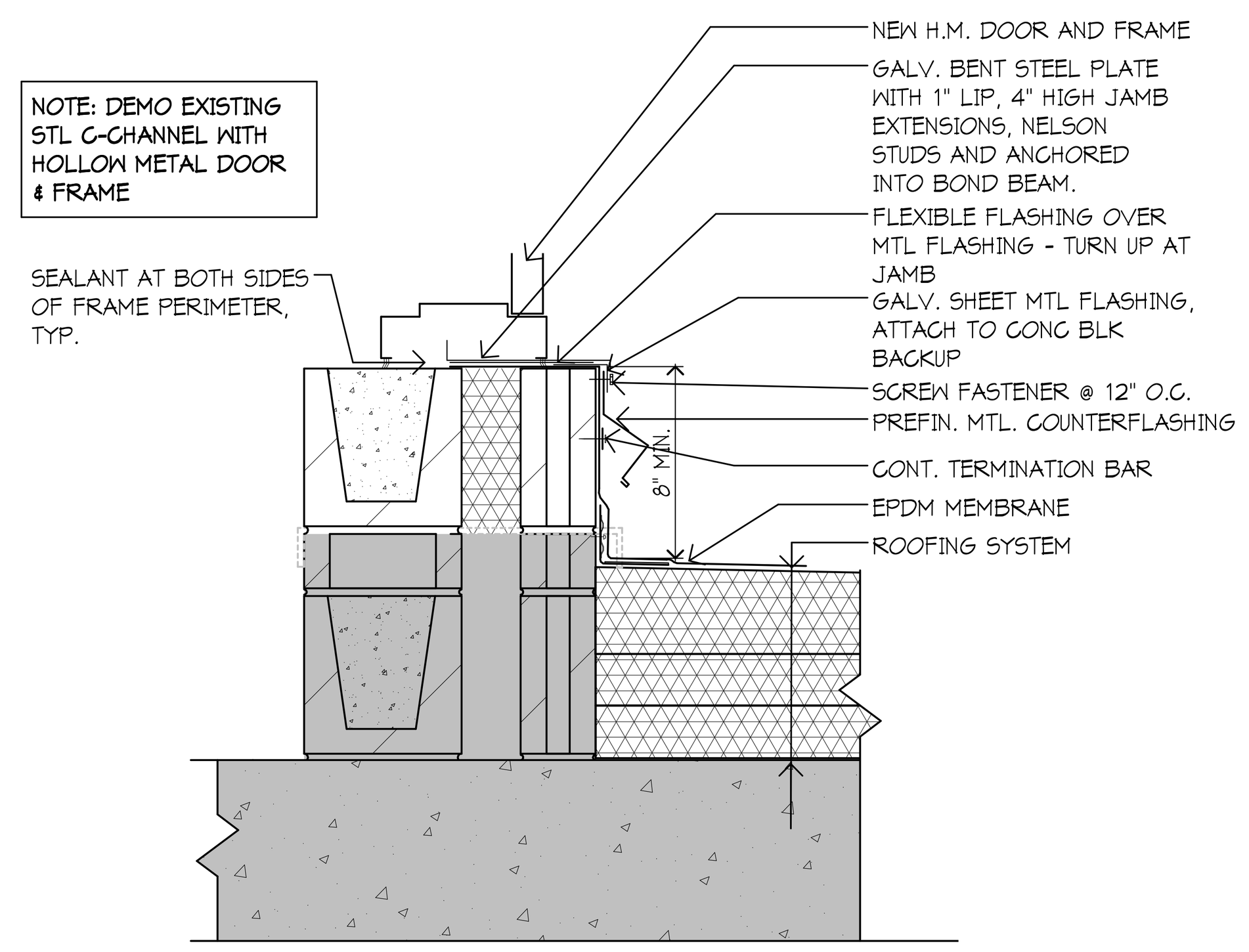
NOTES:

1.) FIELD VERIFY ROUGH OPENING DIMENSIONS AFTER SILL HEIGHT OF DOOR IS CONFIRMED BY ROOFING WORK.
2.) DOORS AND FRAMES ARE TO BE PRIMED AND PAINTED IN THEIR ENTIRETY.
3.) PROVIDE DIMPLED FRAMES WITH PIPE SLEEVES. (SUITABLE FOR ANCHORAGE INTO EXISTING MASONRY ROUGH OPENINGS - MINIMUM (3) ANCHORS PER JAMB).
4.) AT EACH NEW DOOR PROVIDE HARDWARE GROUP #1. SEE SECTION 08 71 00.

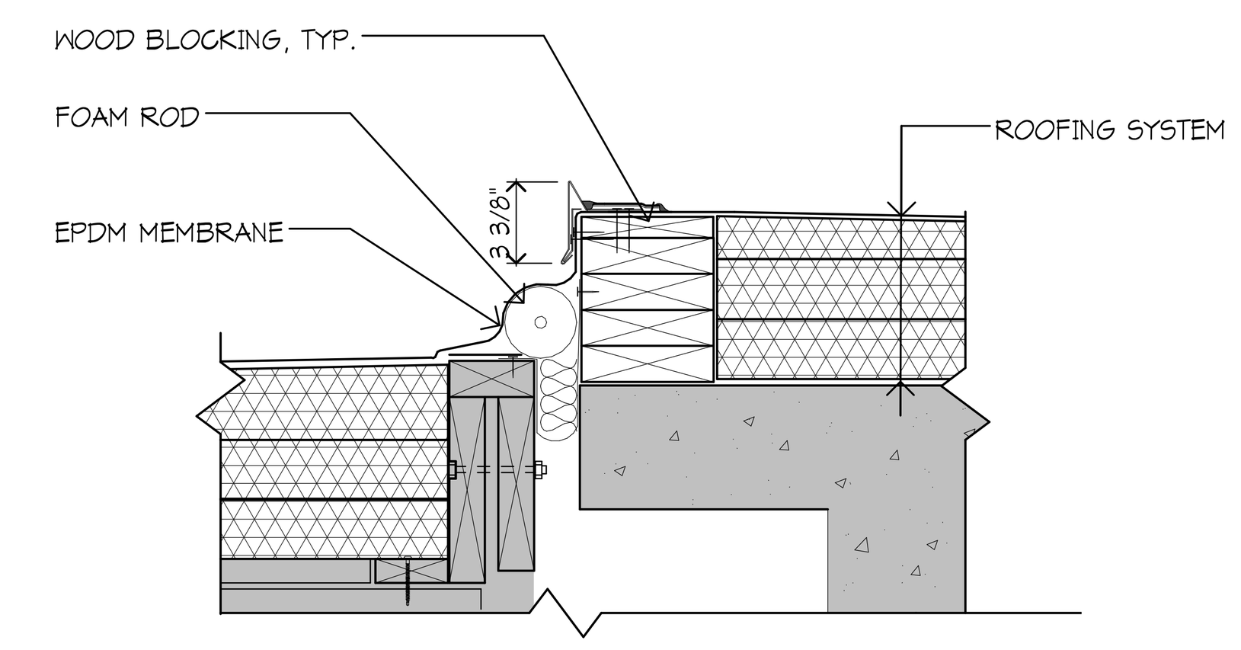
1 HOLLOW METAL DOORS AND FRAMES
3/4" = 1'-0"



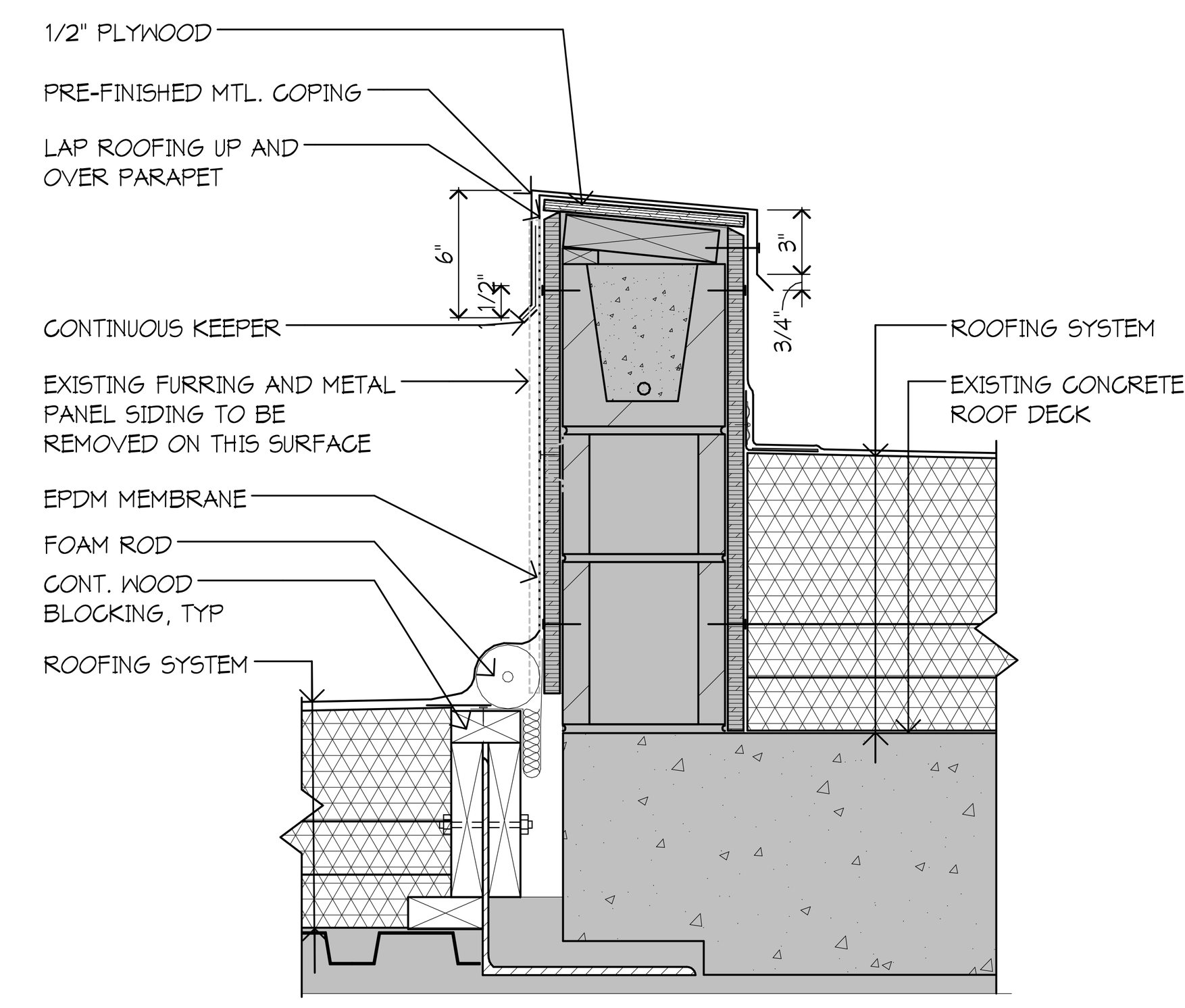
3 PIPE SUPPORT @ COURTHOUSE PENTHOUSE
1 1/2" = 1'-0"



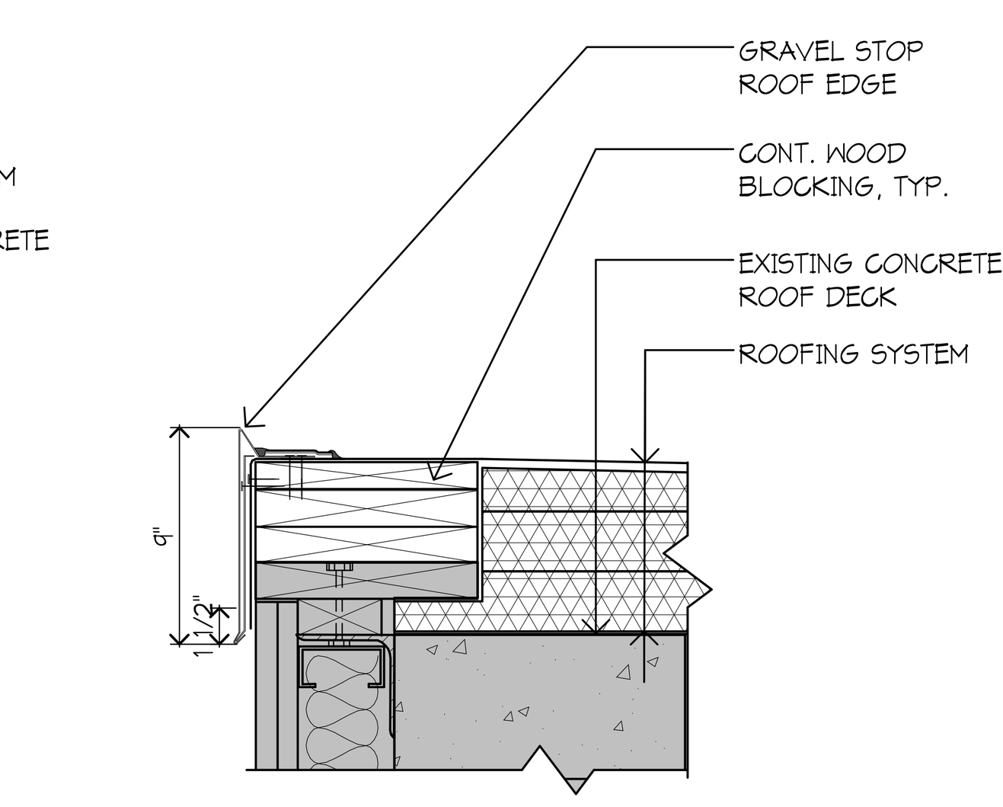
4 ACCESS DOOR DETAIL
1 1/2" = 1'-0"



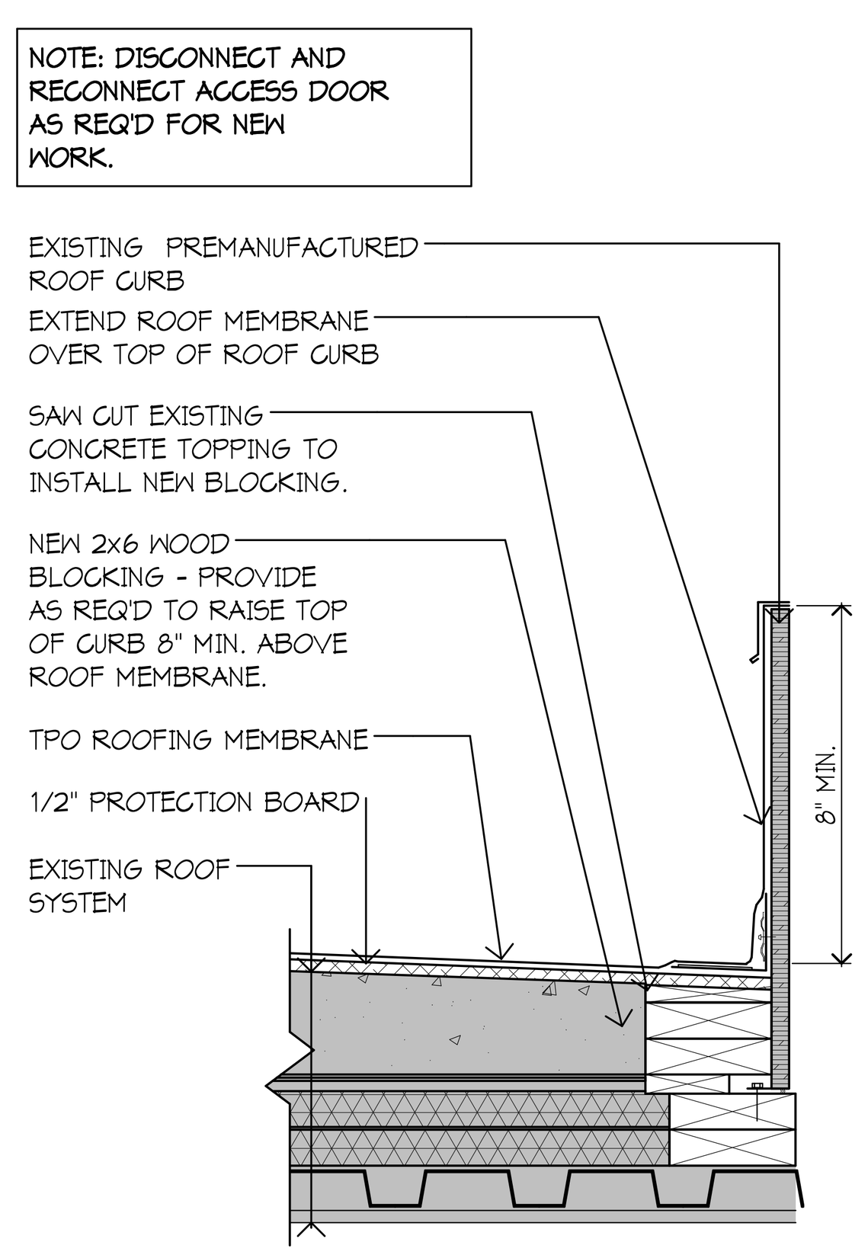
5 BUILDING EXPANSION JOINT SECTION
1 1/2" = 1'-0"



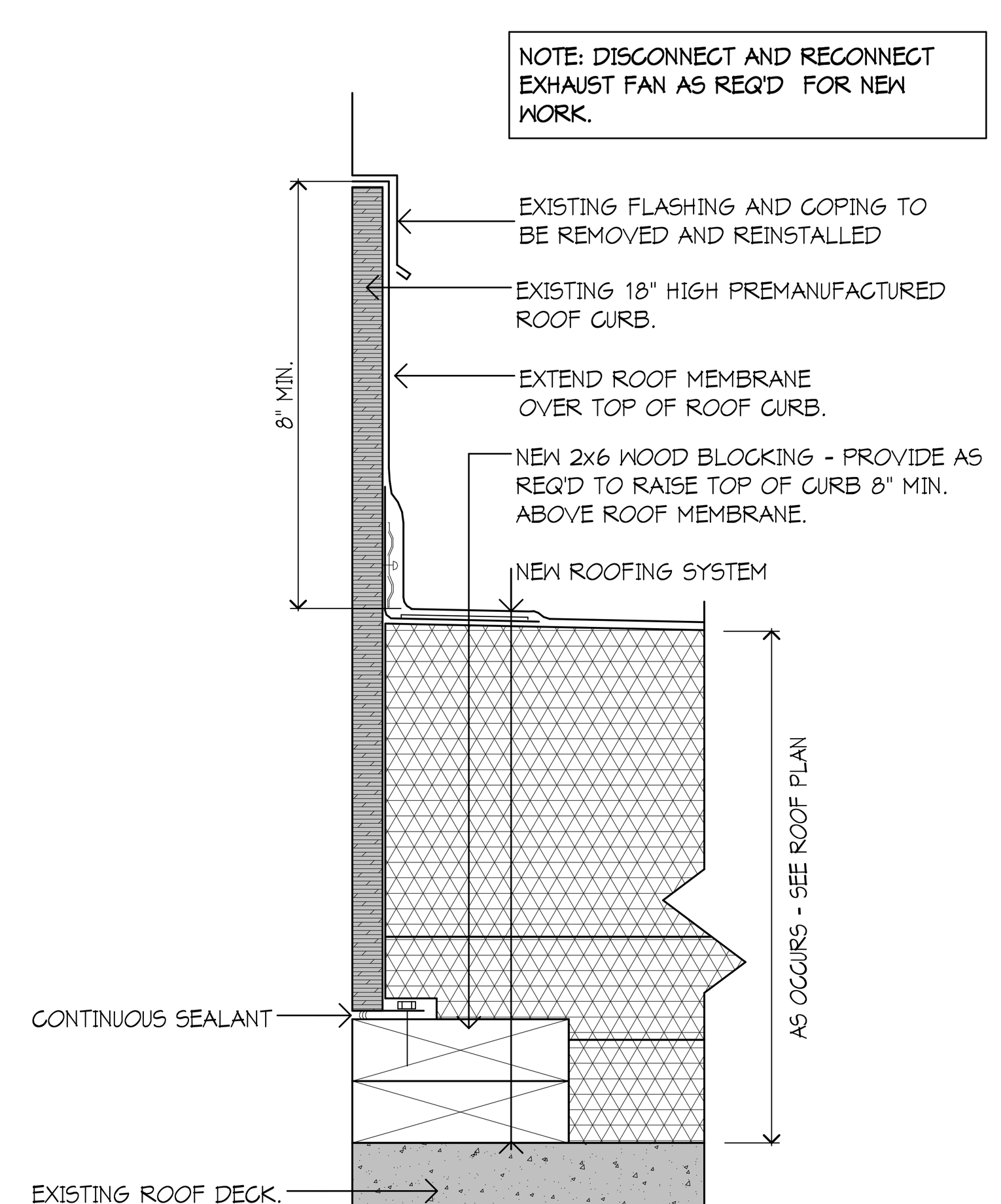
6 EXPANSION JOINT DETAIL
1 1/2" = 1'-0"



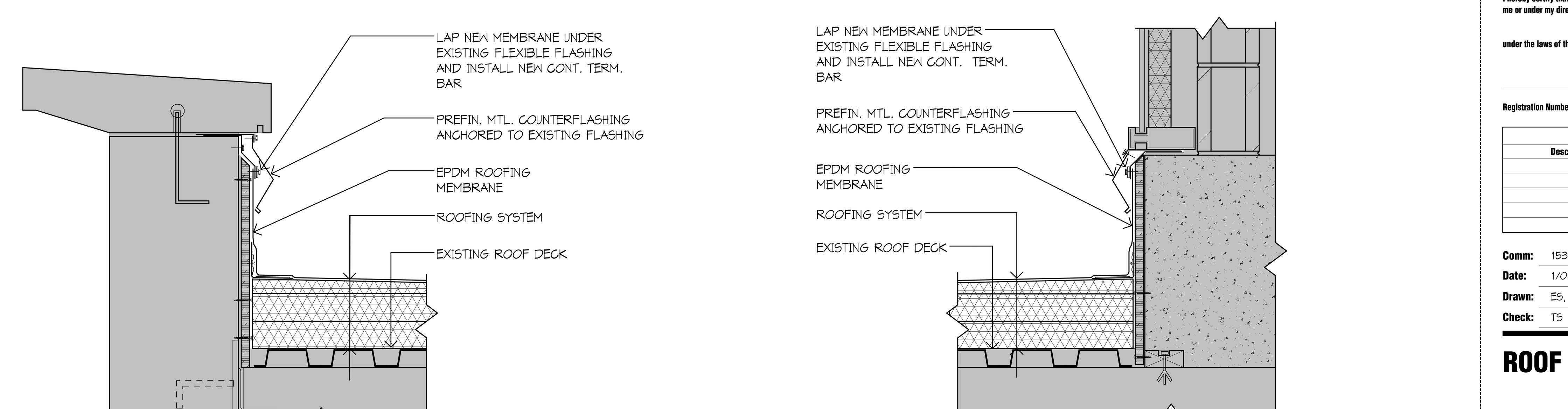
7 ROOF EDGE DETAIL
1 1/2" = 1'-0"



8 ROOF SCUTTLE CURB DETAIL @ PENTHOUSE
1 1/2" = 1'-0"



9 TYP SCUTTLE AND HVAC UNIT CURB DETAIL
3" = 1'-0"



10 ROOF DETAIL
1 1/2" = 1'-0"

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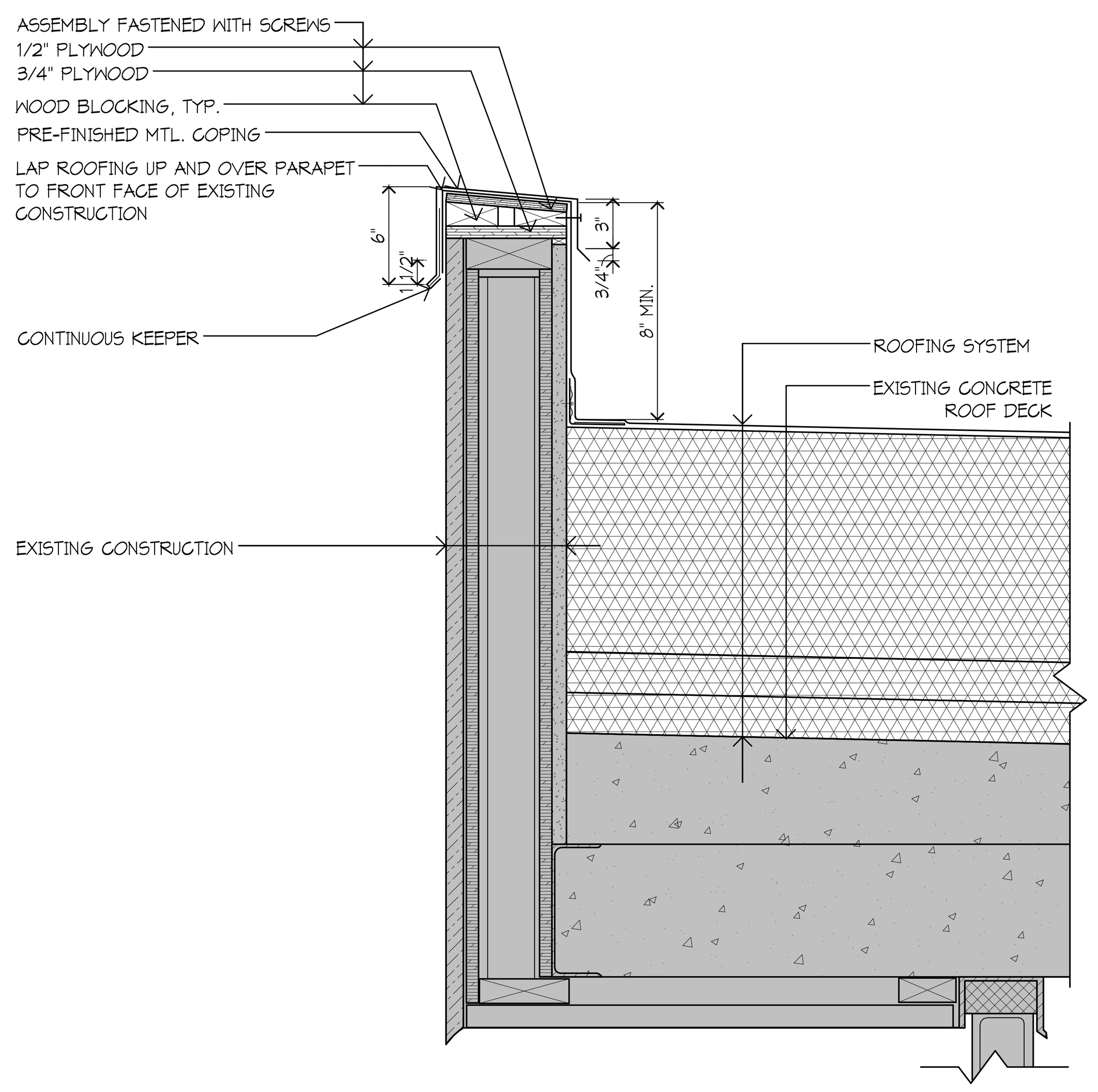

1 ROOF DETAIL
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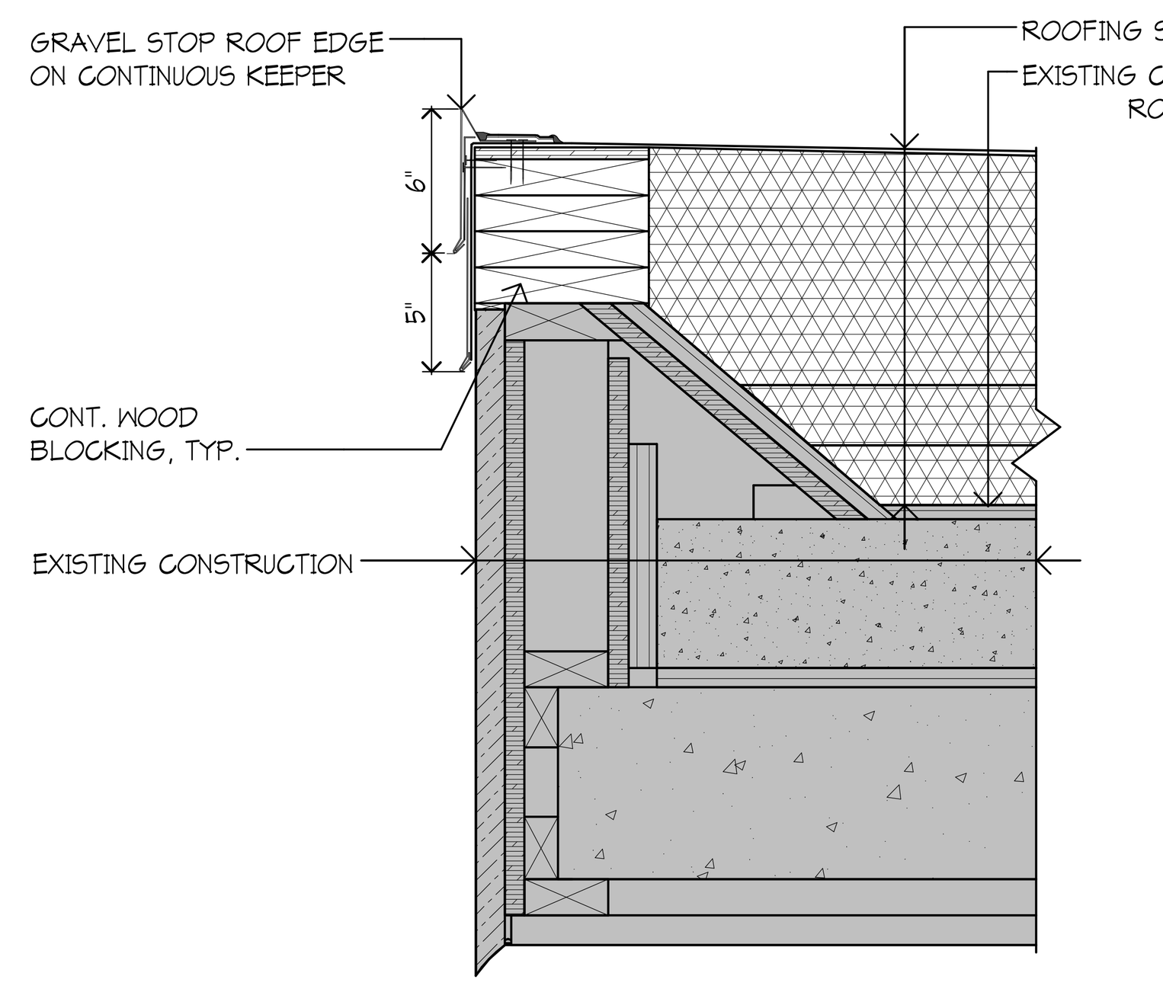
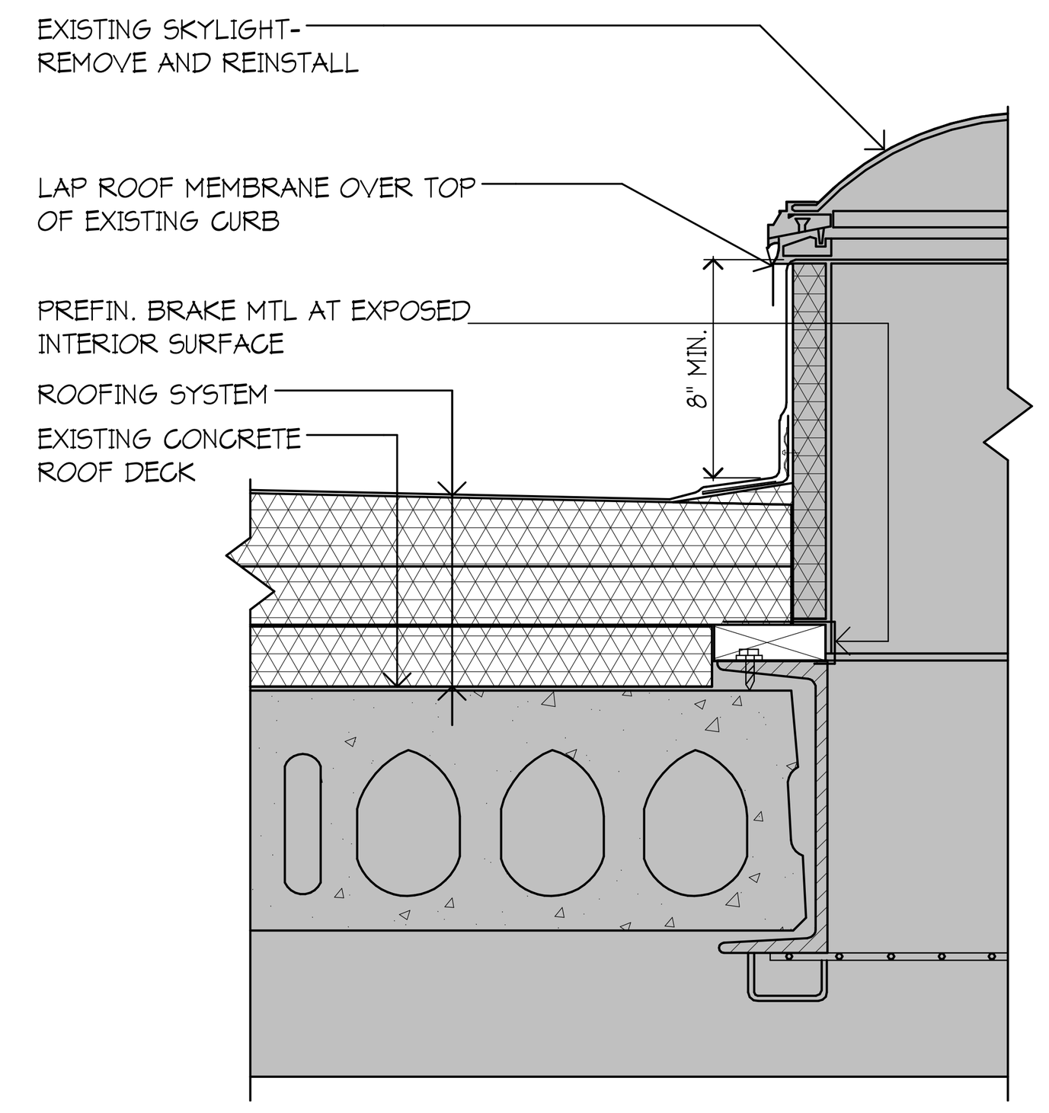
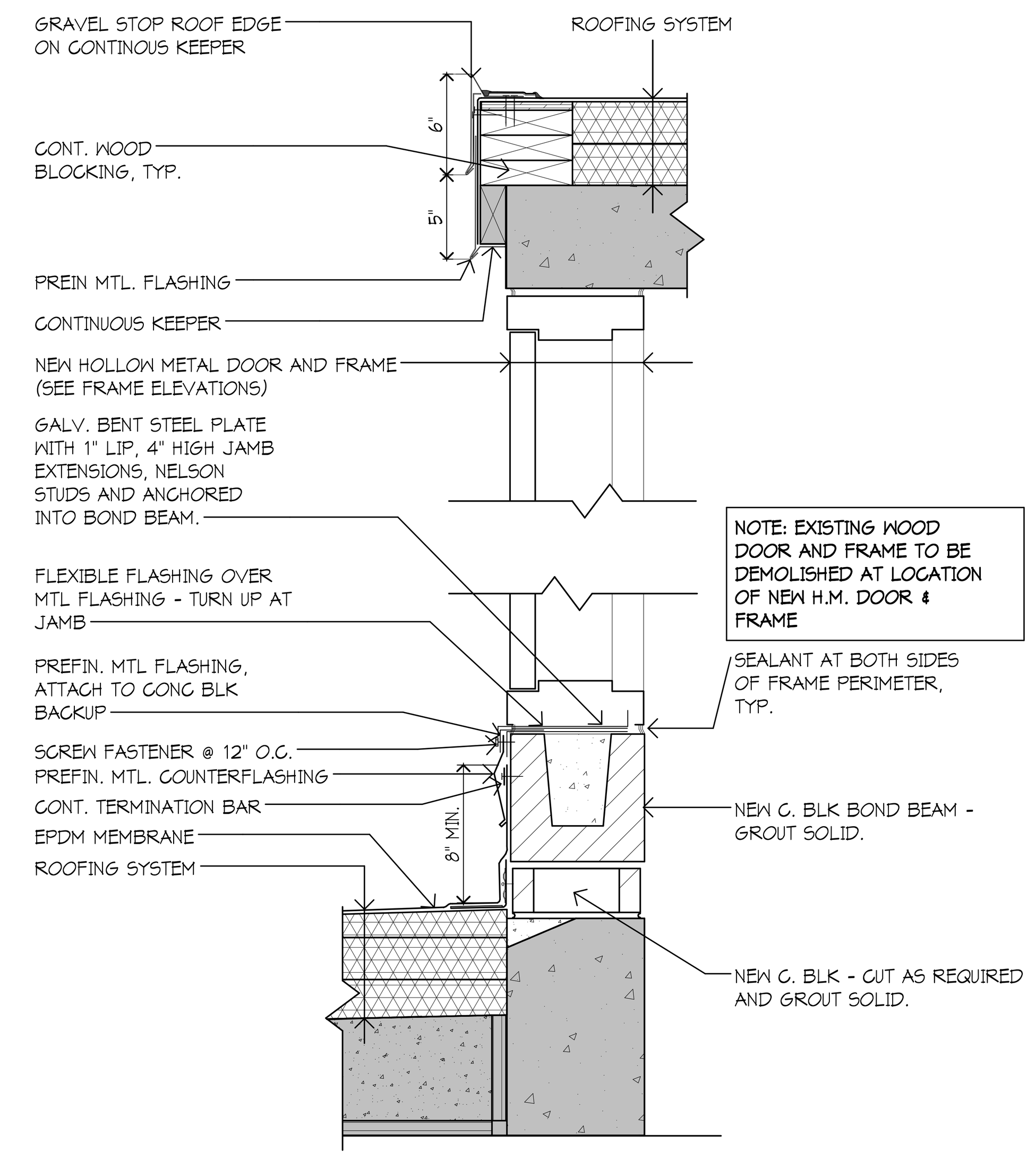


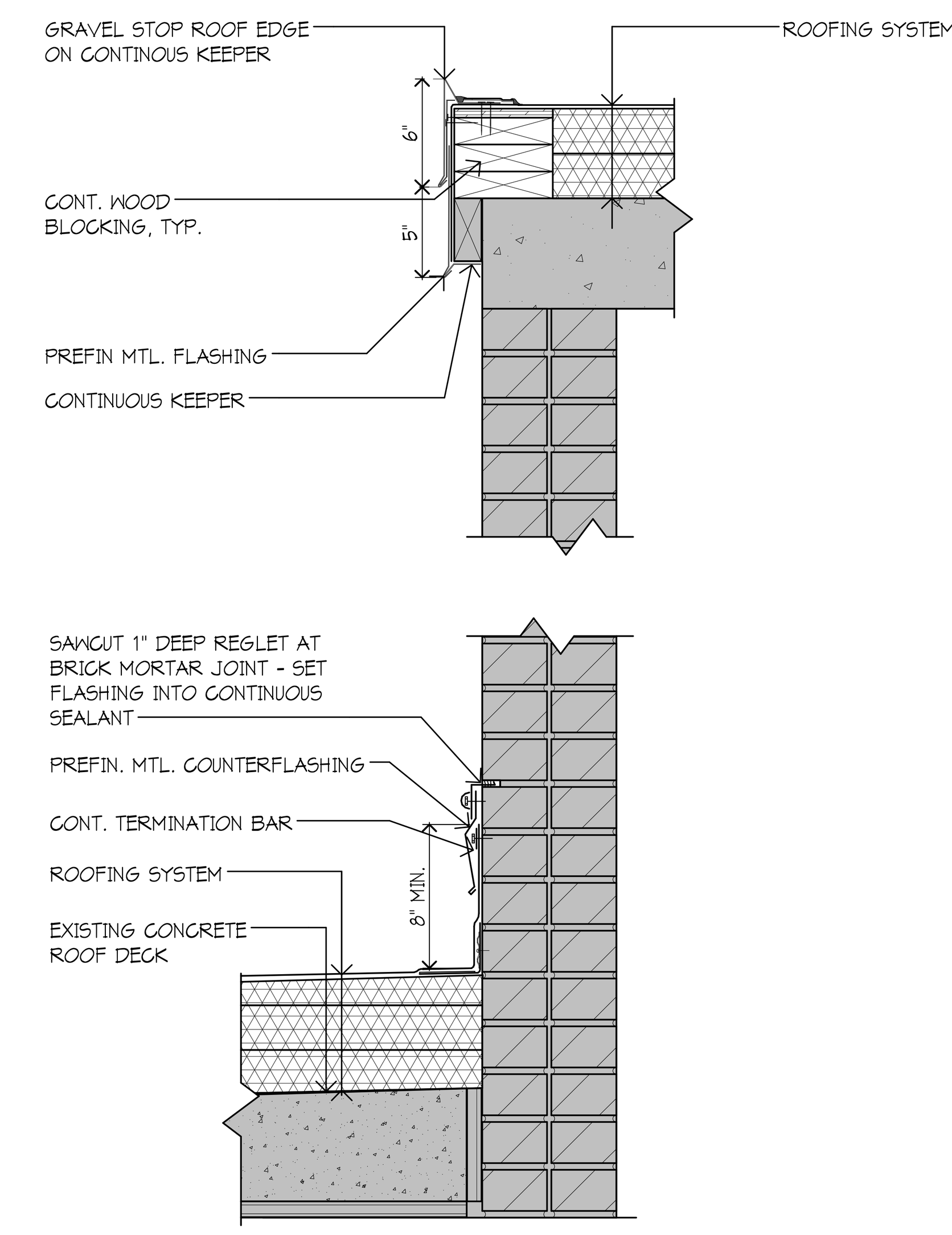
2 ROOF DETAIL
1 1/2" = 1'-0"



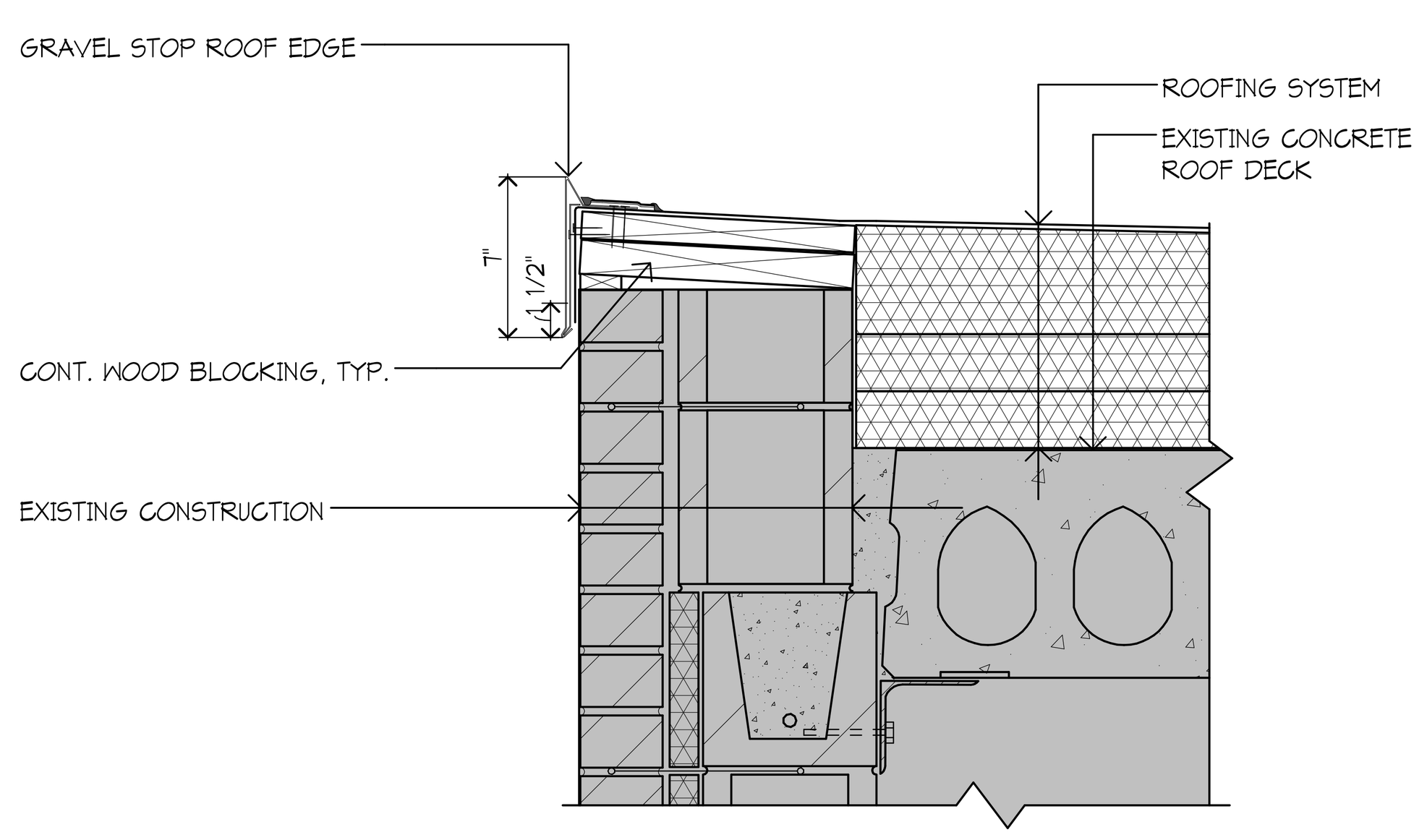
3 ROOF DETAIL
1 1/2" = 1'-0"



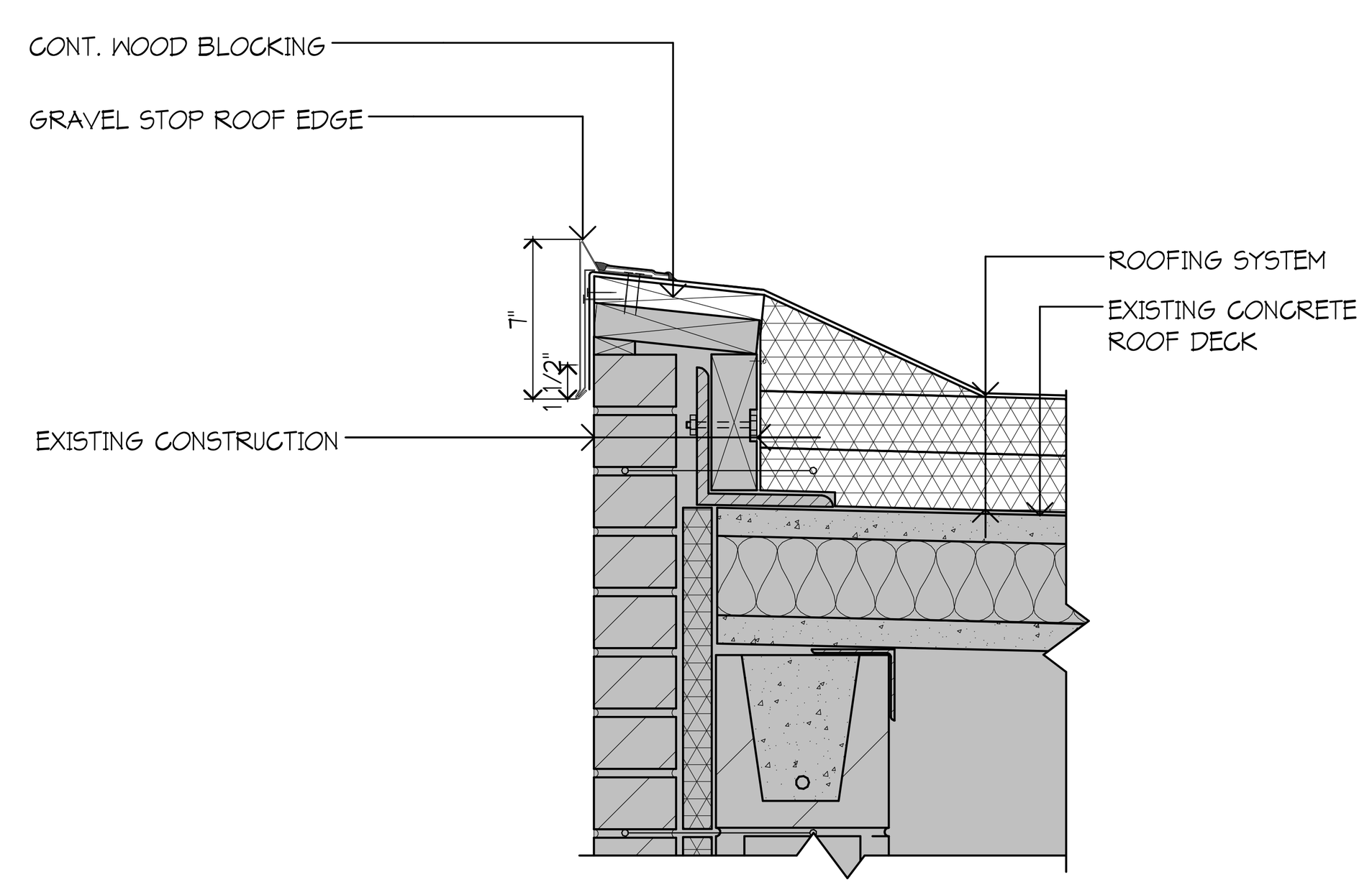
4 ROOF DETAIL
1 1/2" = 1'-0"



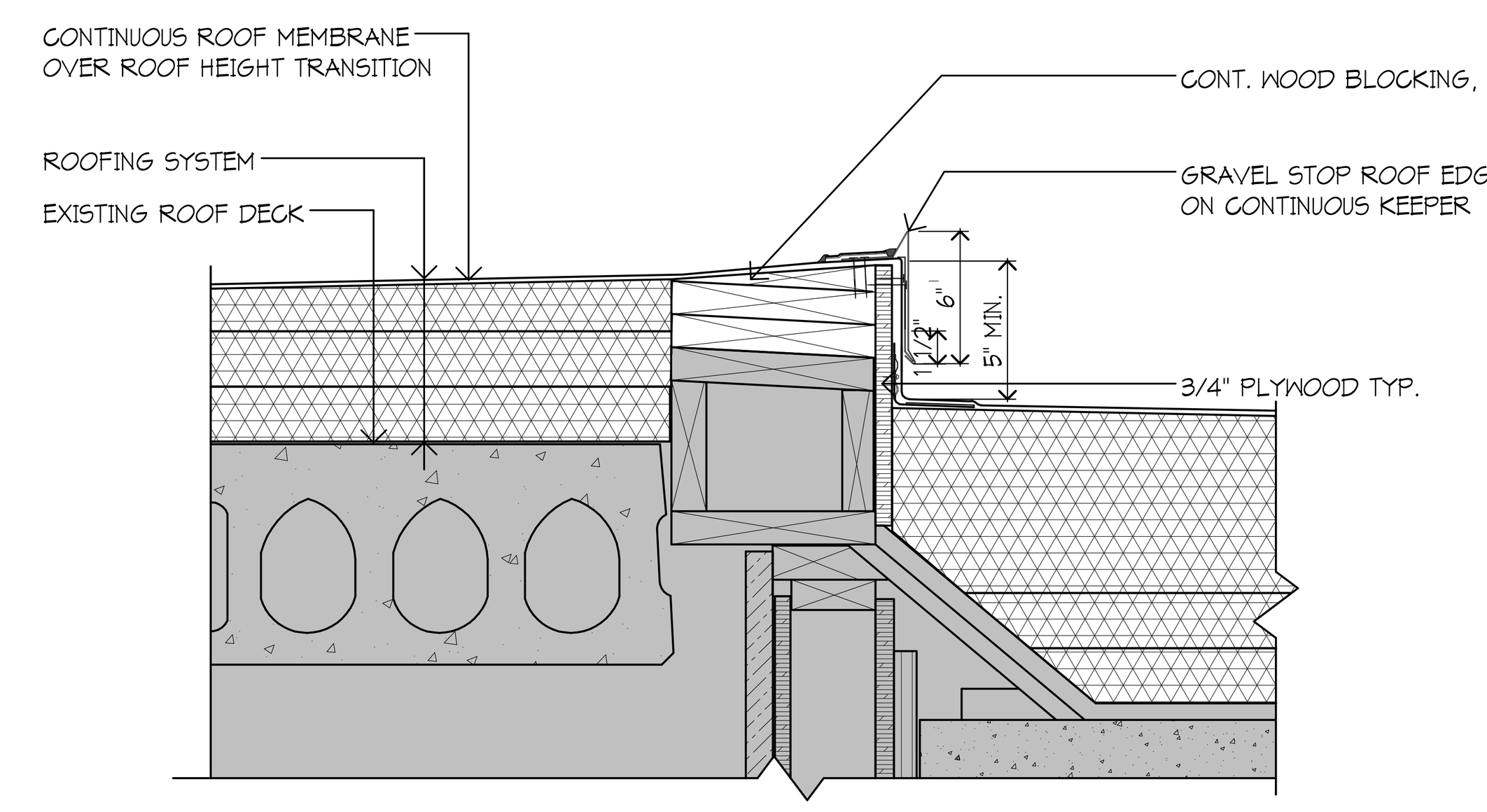
5 ROOF DETAIL
1 1/2" = 1'-0"



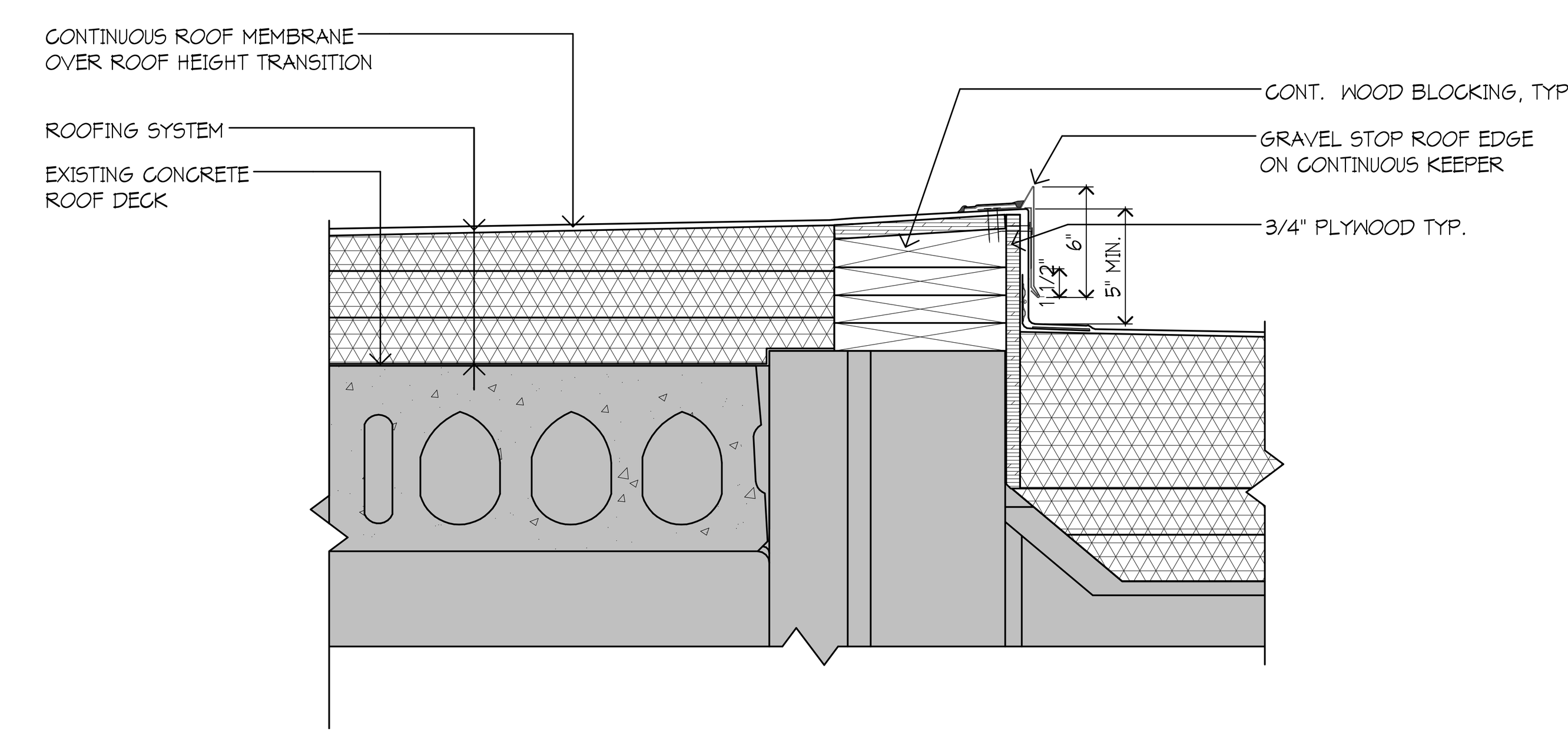
6 ROOF DETAIL
1 1/2" = 1'-0"



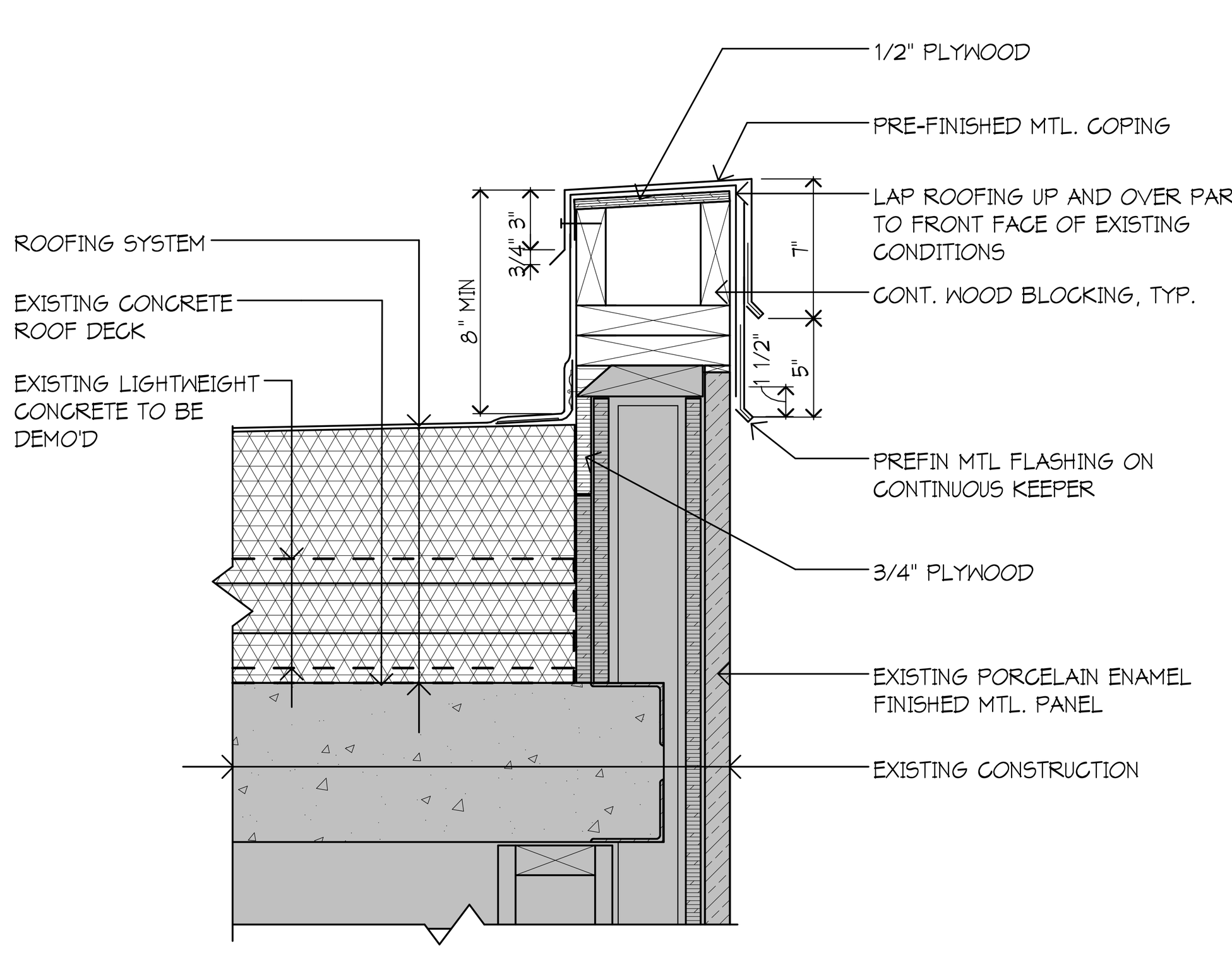
7 ROOF DETAIL
1 1/2" = 1'-0"



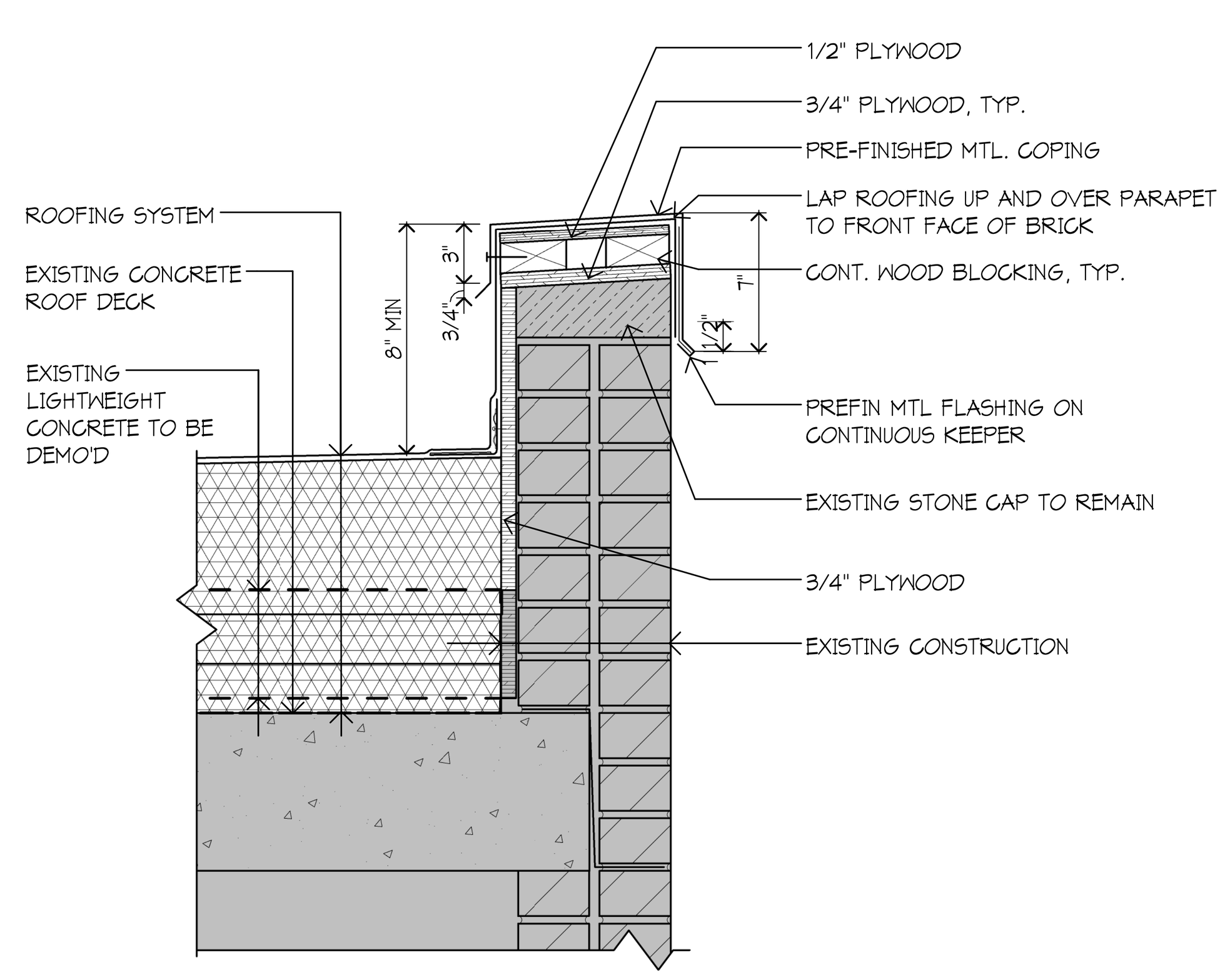
8 ROOF DETAIL
1 1/2" = 1'-0"



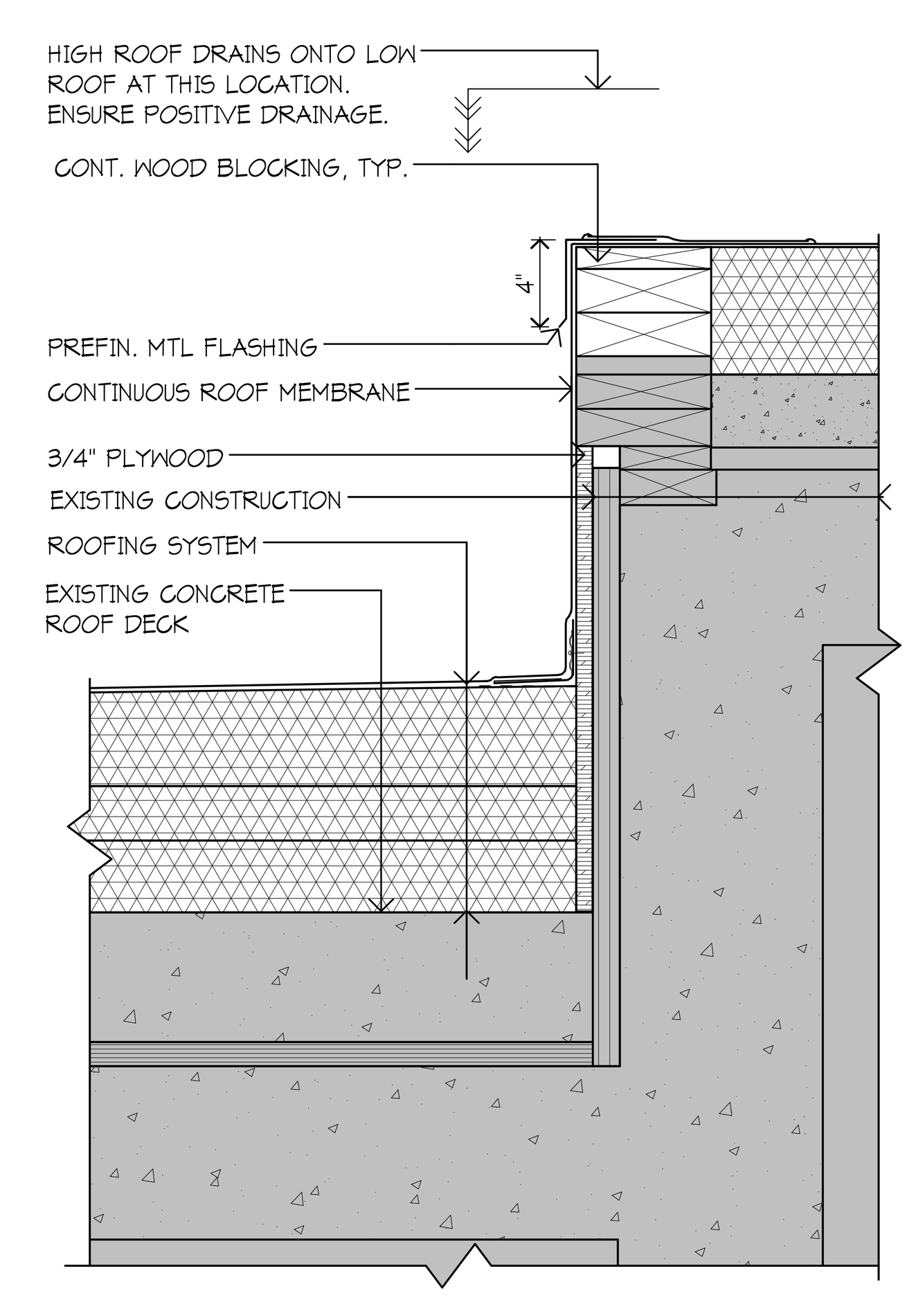
9 ROOF DETAIL
1 1/2" = 1'-0"



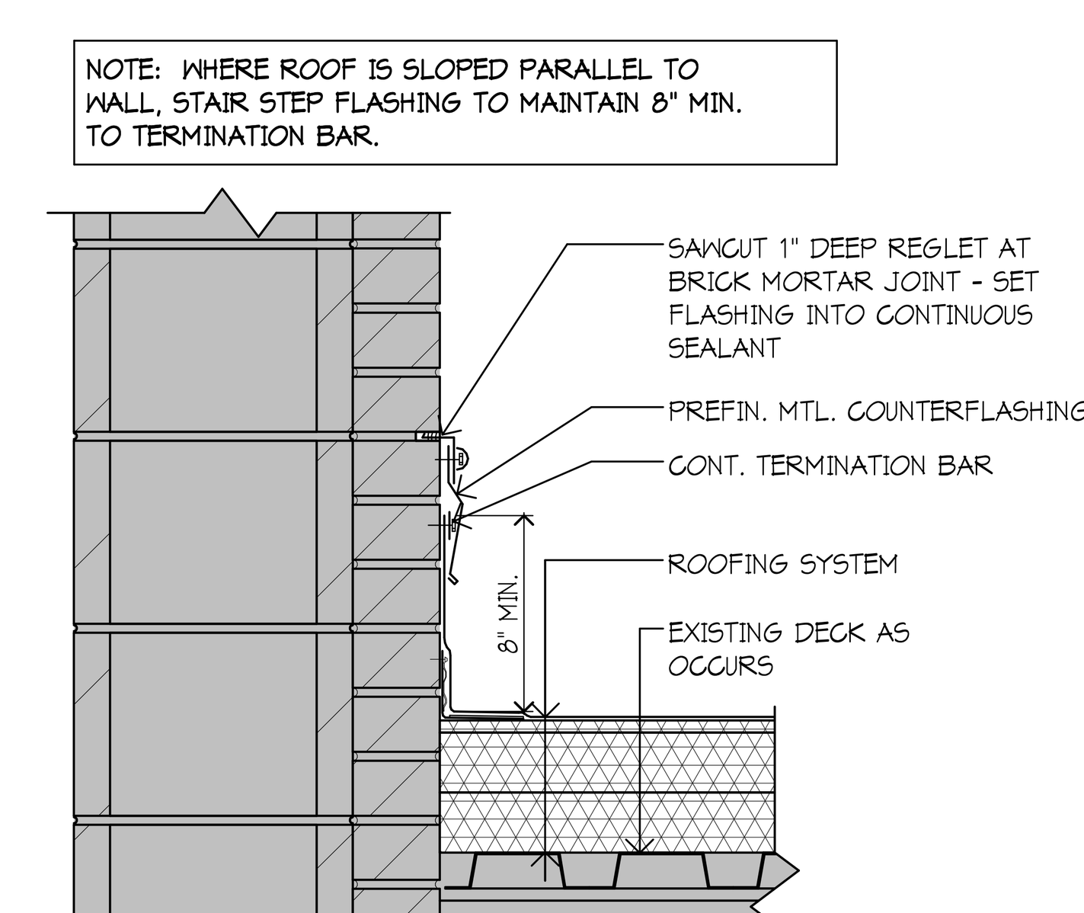
10 ROOF DETAIL
1 1/2" = 1'-0"



11 ROOF DETAIL
1 1/2" = 1'-0"



12 ROOF DETAIL
1 1/2" = 1'-0"



13 ROOF DETAIL
1 1/2" = 1'-0"

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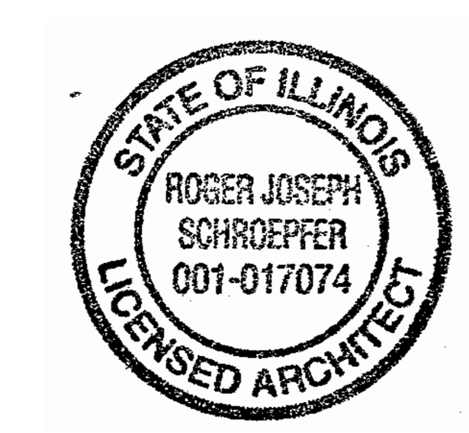

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ROOF DETAILS

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A2.25

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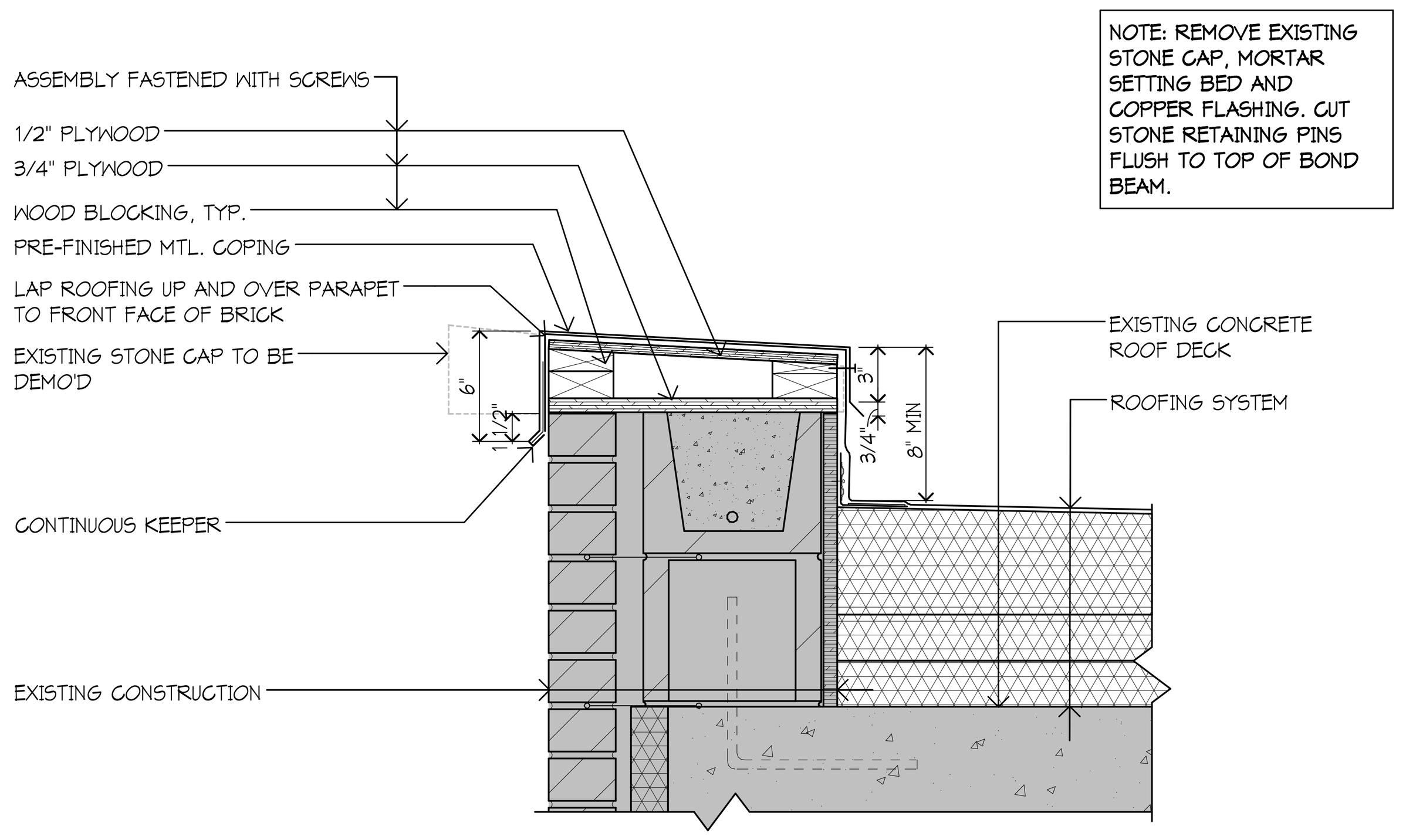

1 PARAPET DETAIL
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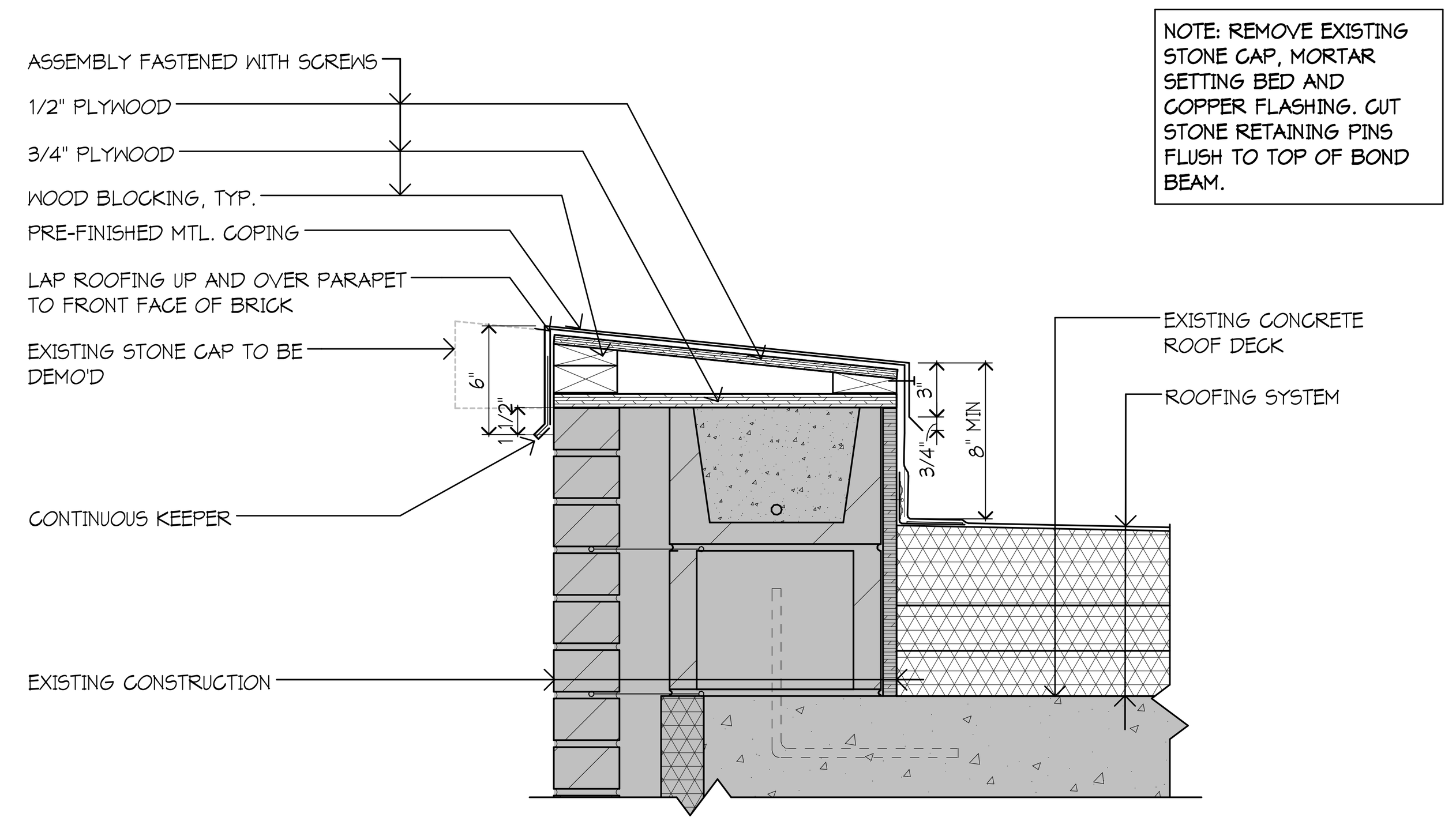
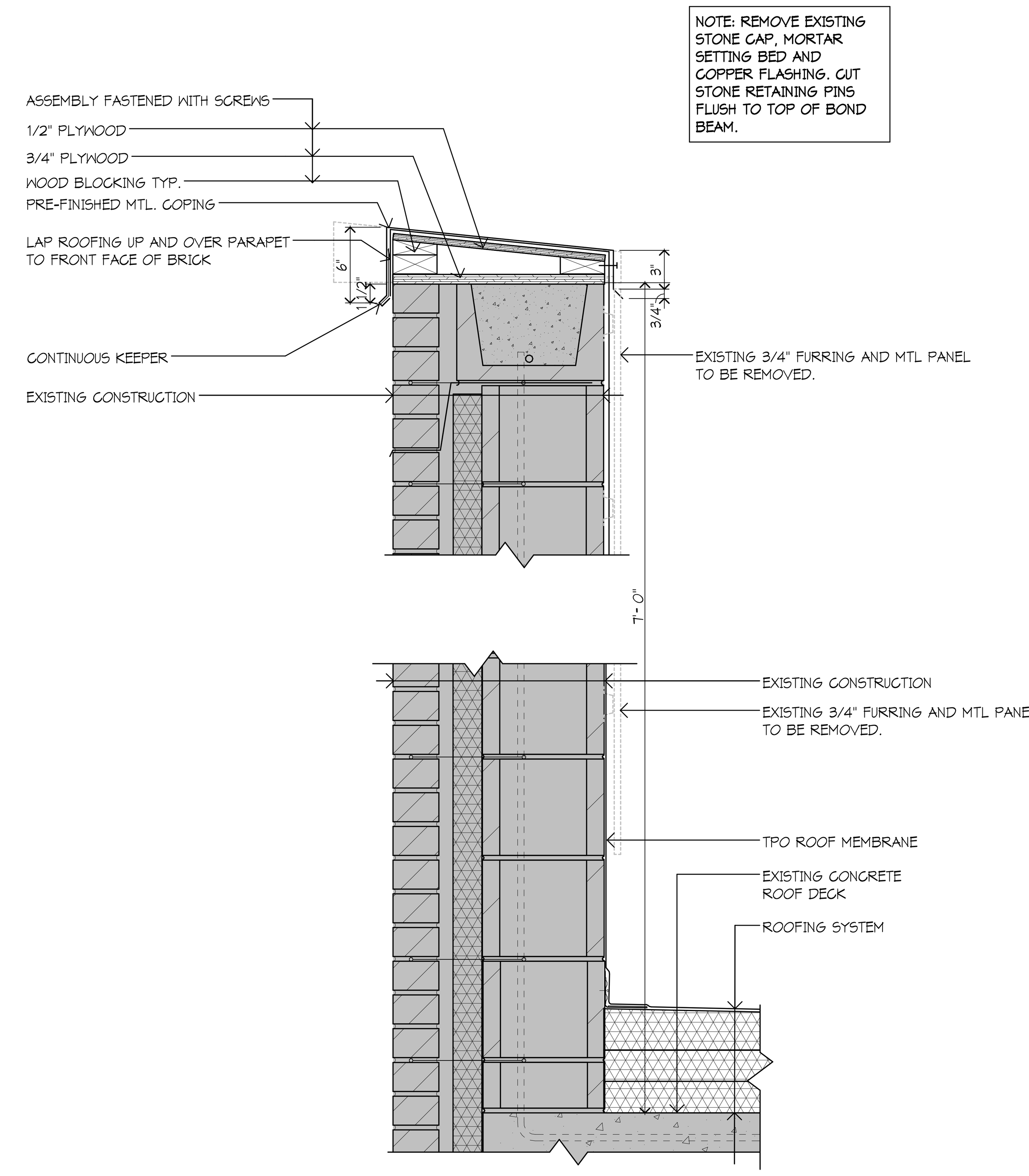
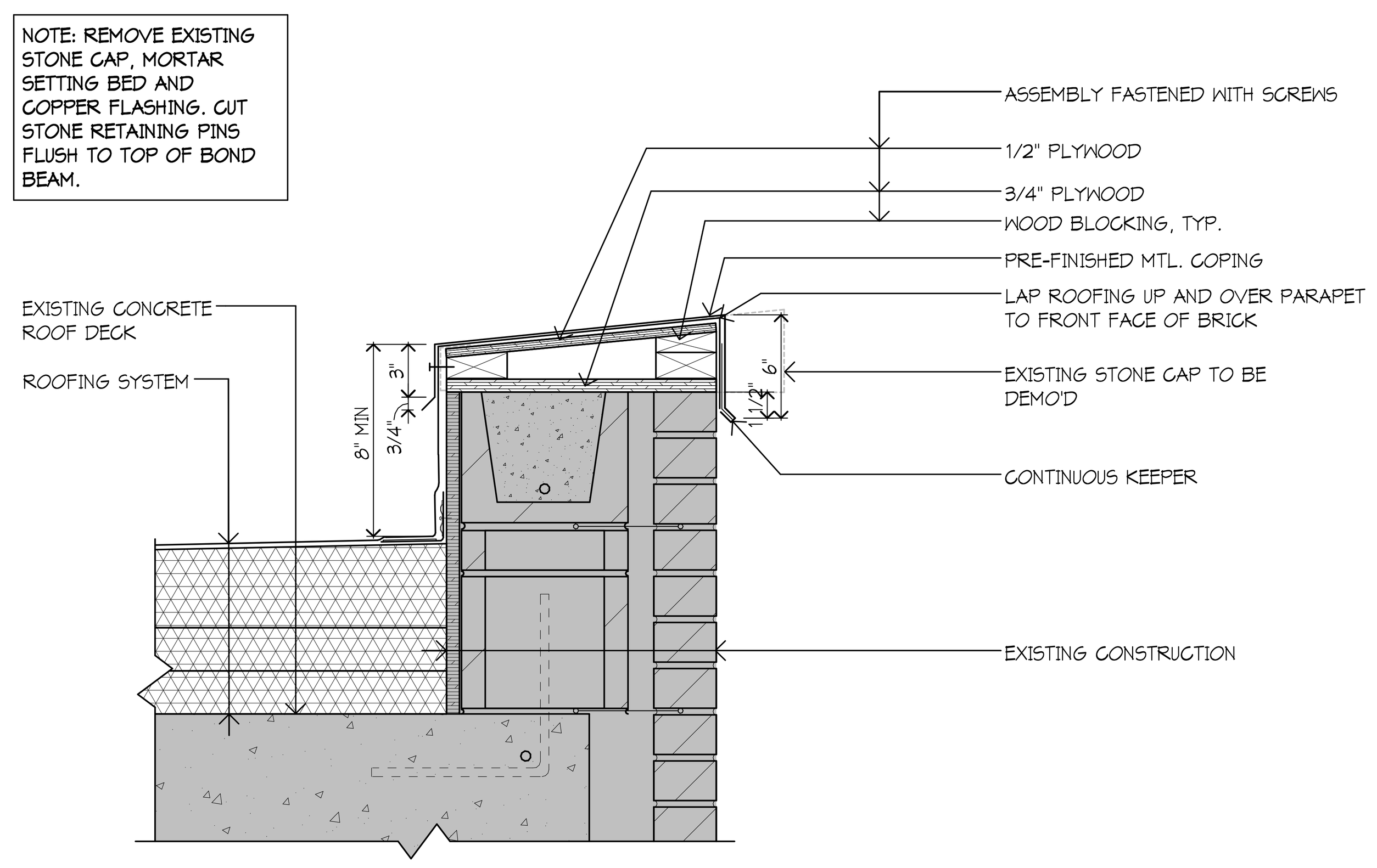


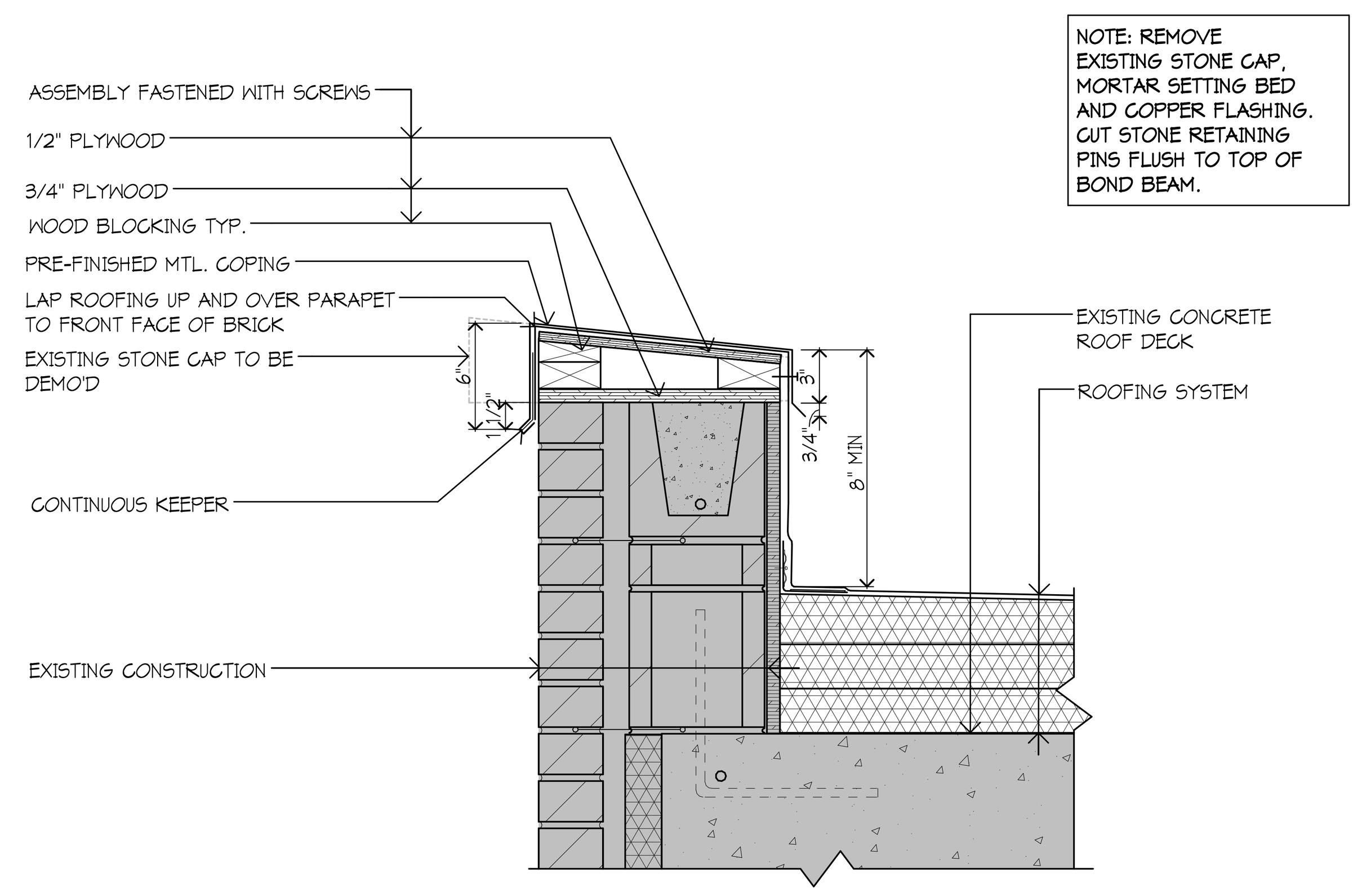
2 PARAPET DETAIL
1 1/2" = 1'-0"



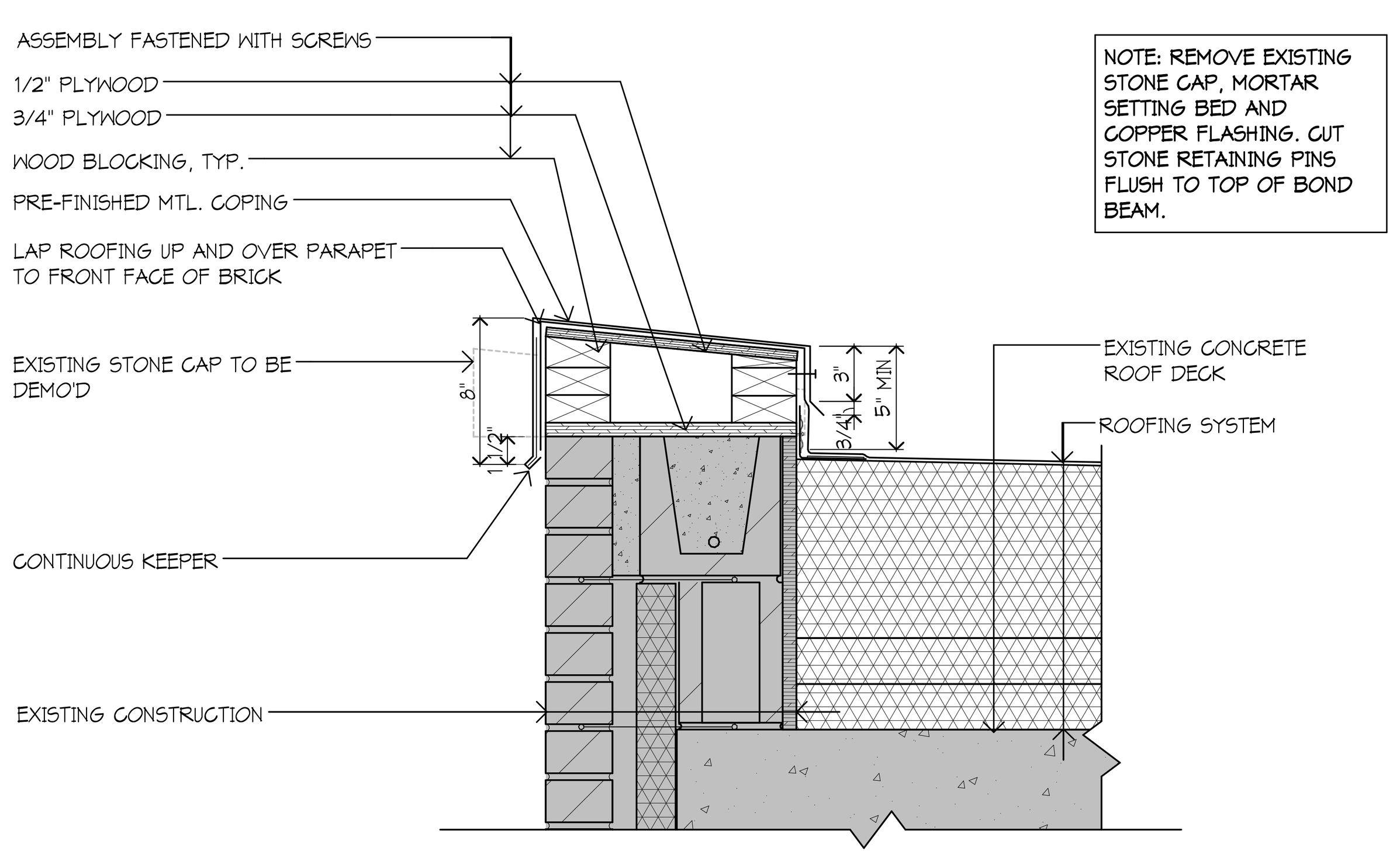
3 ROOF DETAIL
1 1/2" = 1'-0"



4 PARAPET DETAIL
1 1/2" = 1'-0"



5 PARAPET DETAIL
1 1/2" = 1'-0"



6 PARAPET DETAIL
1 1/2" = 1'-0"

A

McHenry County Government Center Roof Replacement

2200 N Seminary Ave, Woodstock, IL 60098

Project Number: 153021

McHenry County
Woodstock, IL

WOLD architects engineers
www.woldae.com
110 North Brockway St, Two Hundred Twenty, Palatine, IL 60067
tel 847 241 6100
fax 847 241 6105
mail@woldae.com

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ROGER J. SCHROEPFER
Registration Number 001-017074 Date 1/04/2016

Revisions		
Description	Date	Num

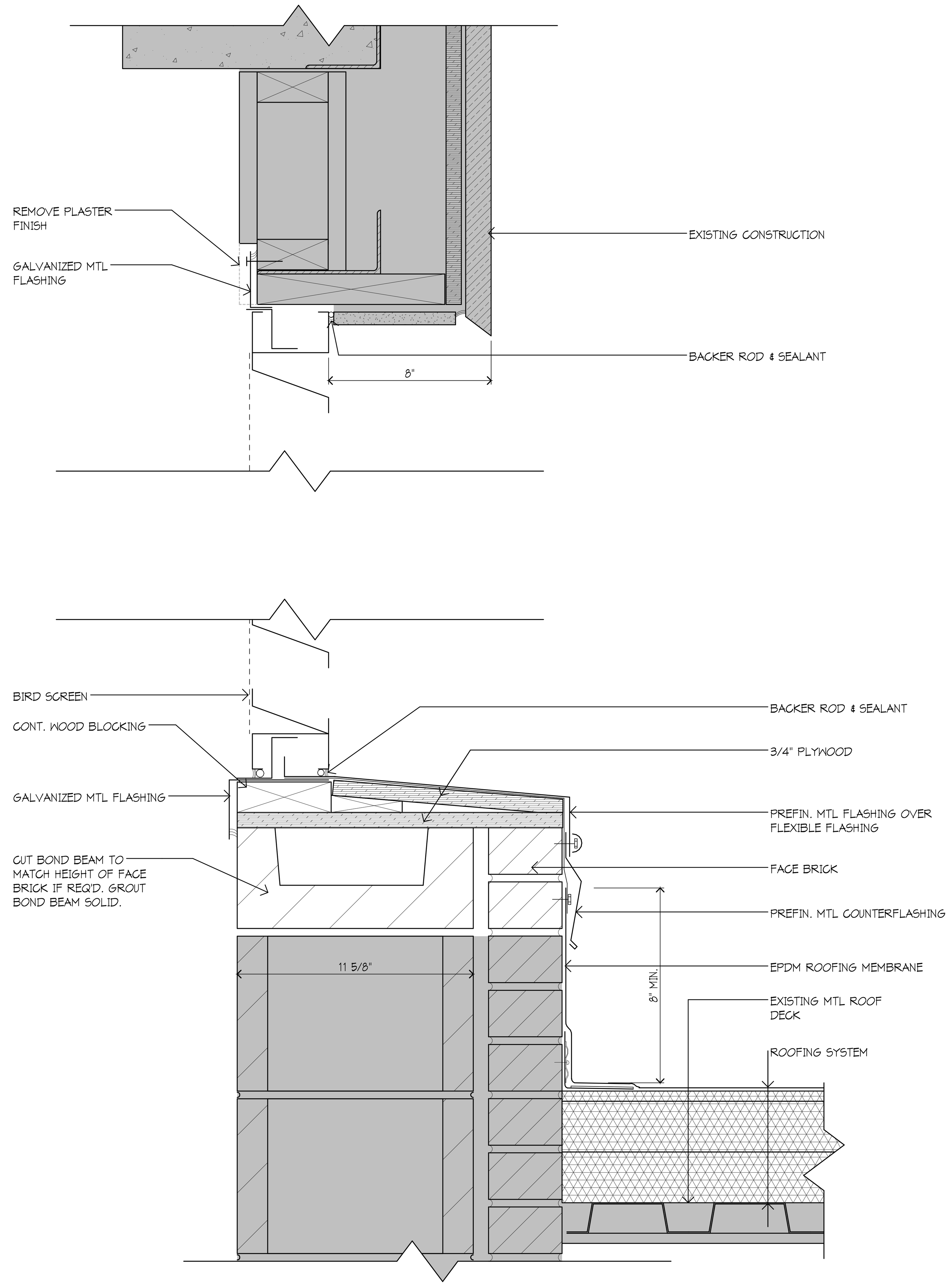
Comm: 153021
Date: 1/04/2016
Drawn: ES, RF
Check: TS

ROOF DETAILS

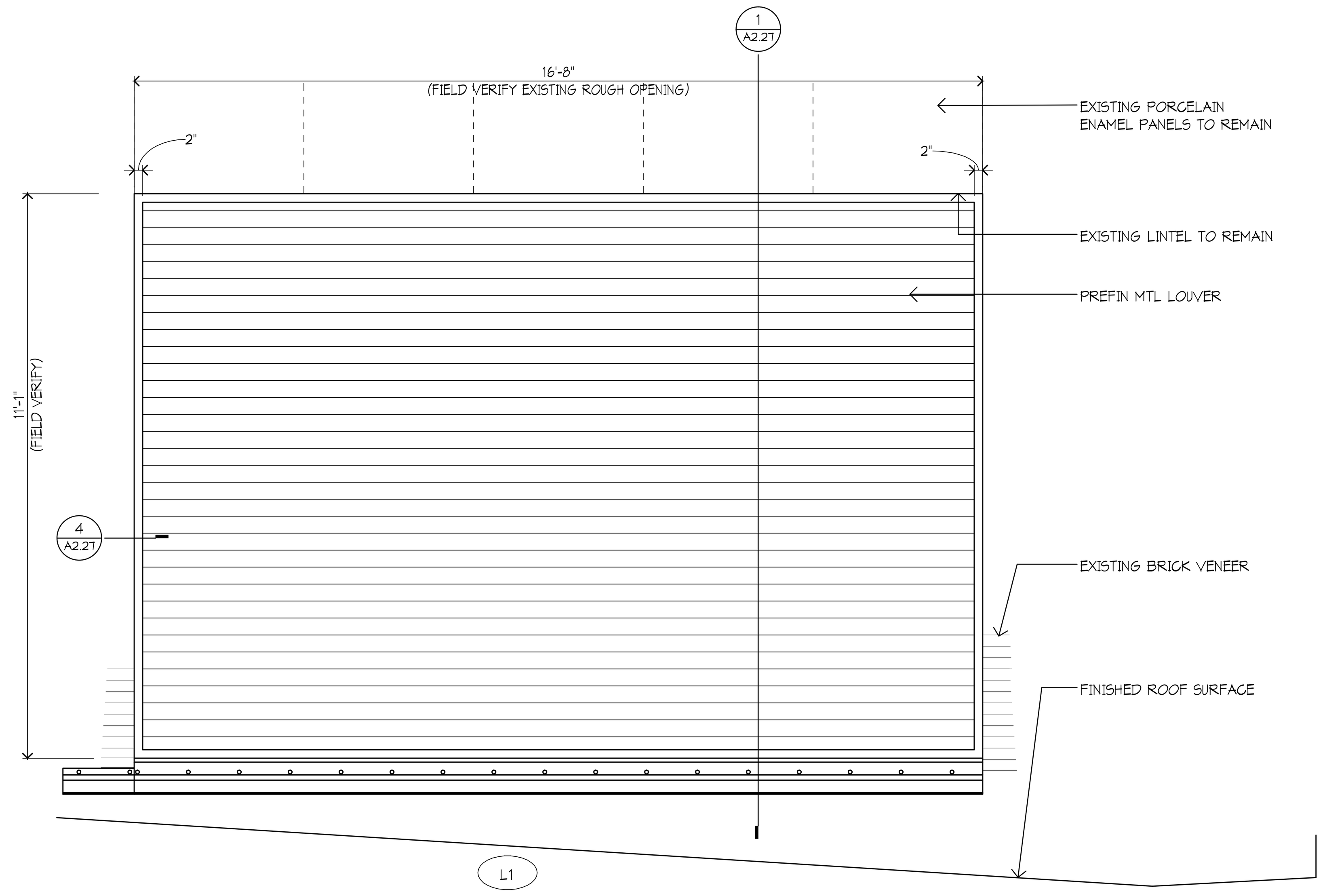
Scale: 1 1/2" = 1'-0"

A2.26

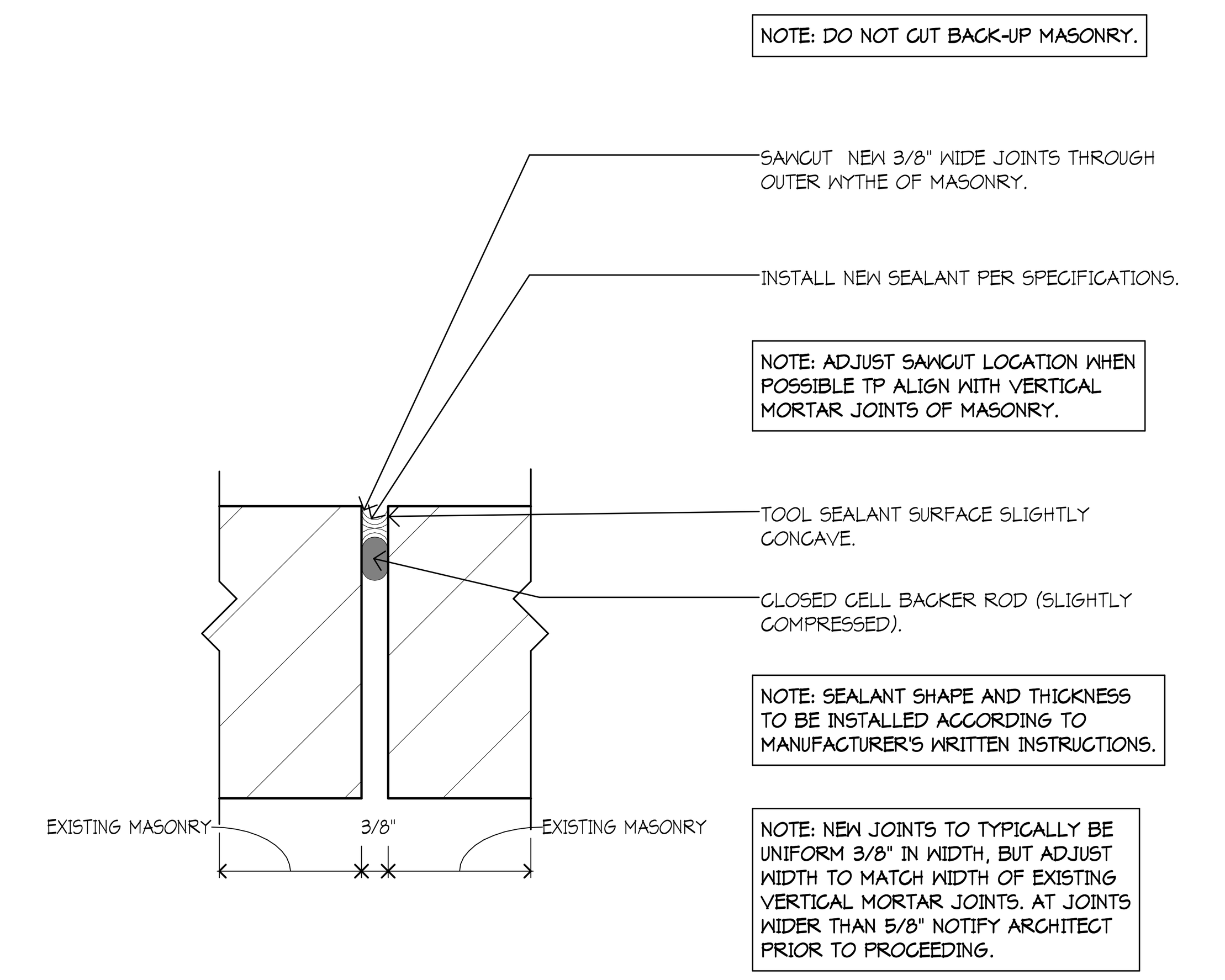
IL



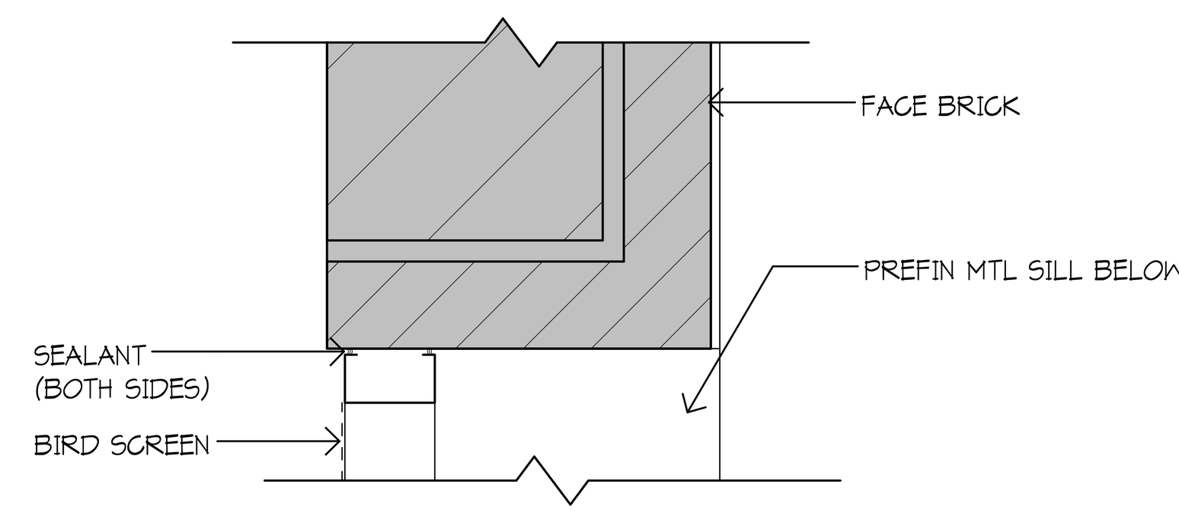
1 LOUVER HEAD & SILL
3" = 1'-0"



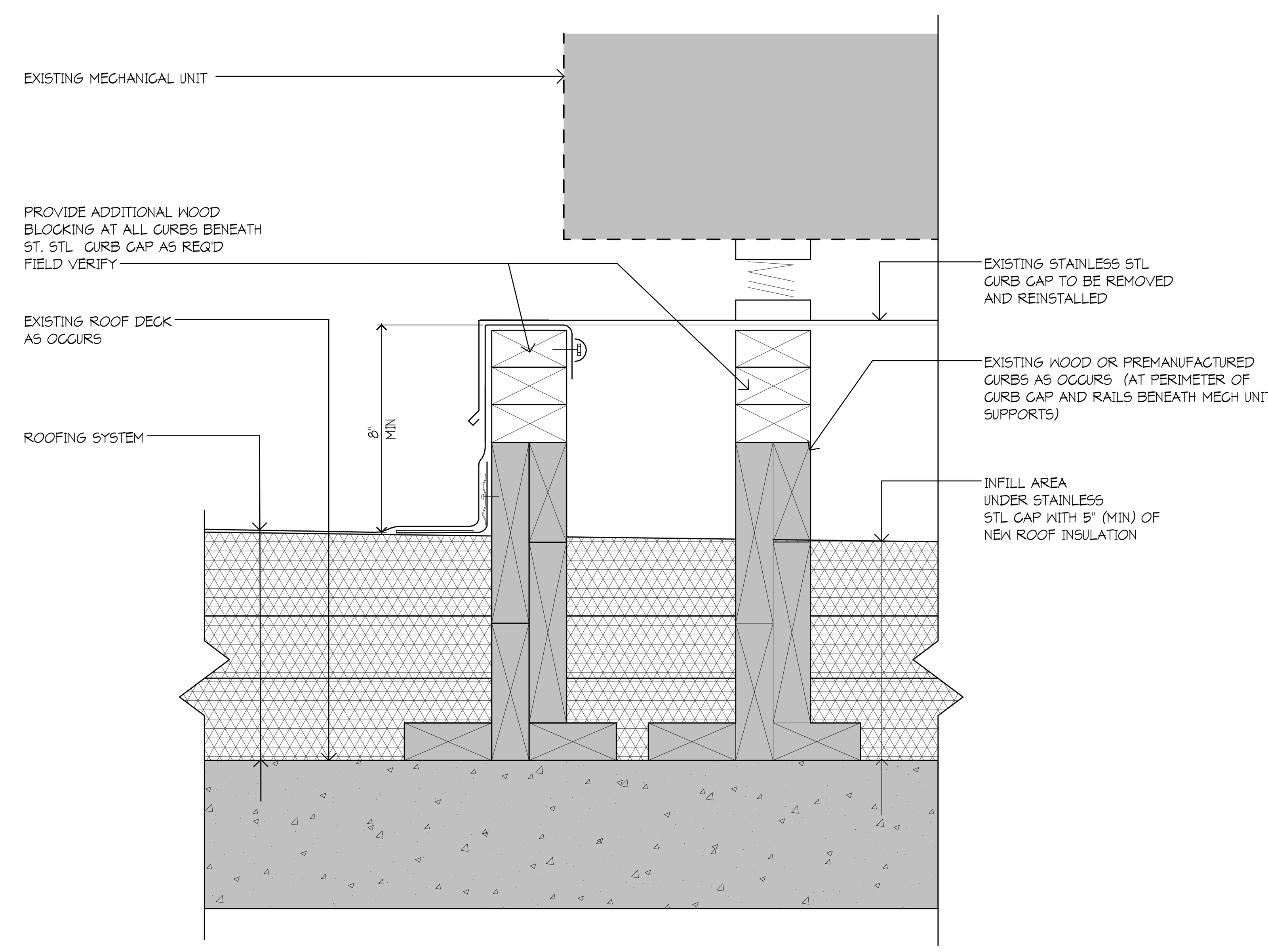
2 LOUVER ELEVATION
1/2" = 1'-0"



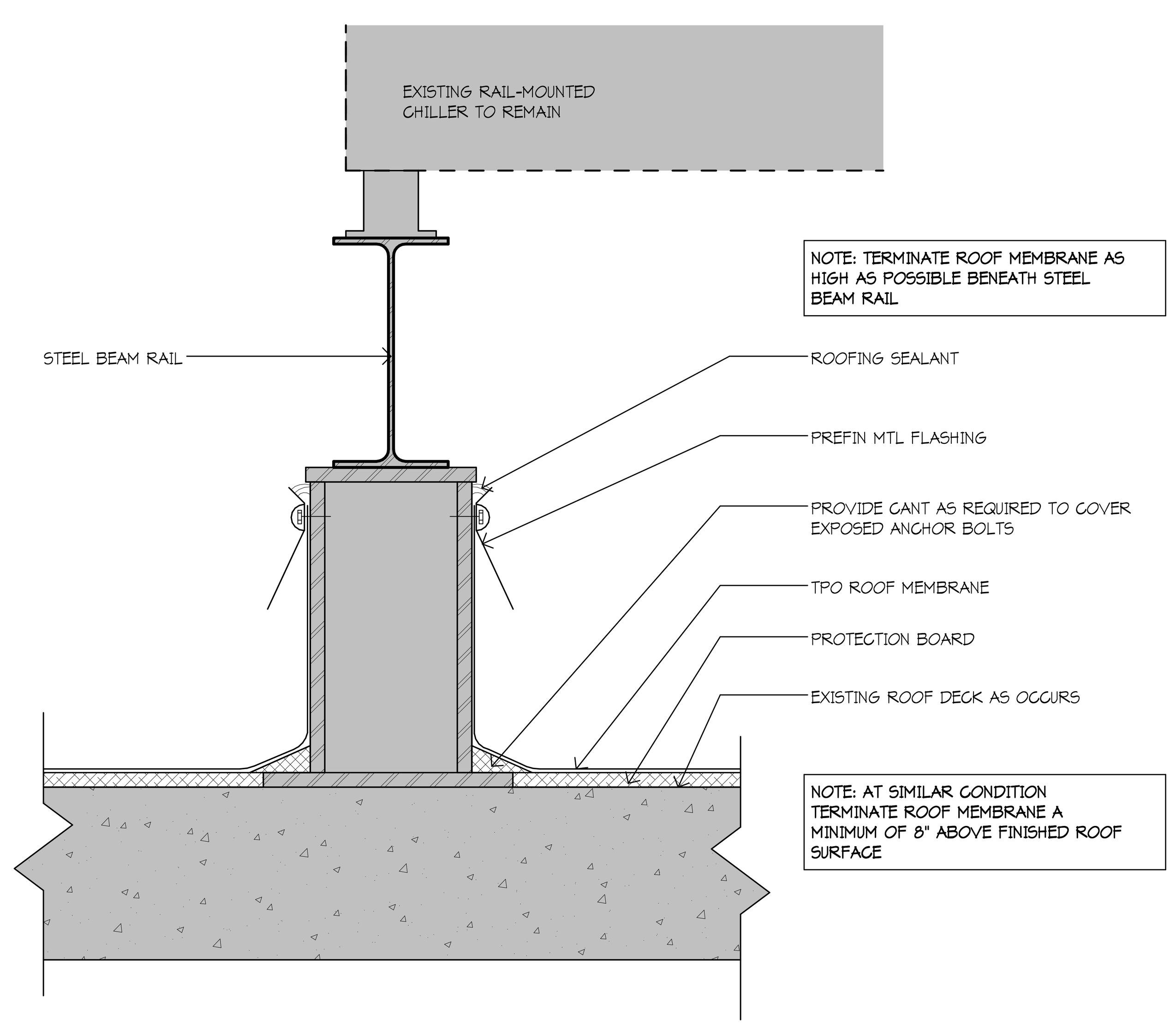
3 SAWCUT NEW VERTICAL EXPANSION/CONTROL JOINTS
6" = 1'-0"



4 LOUVER JAMB
1 1/2" = 1'-0"

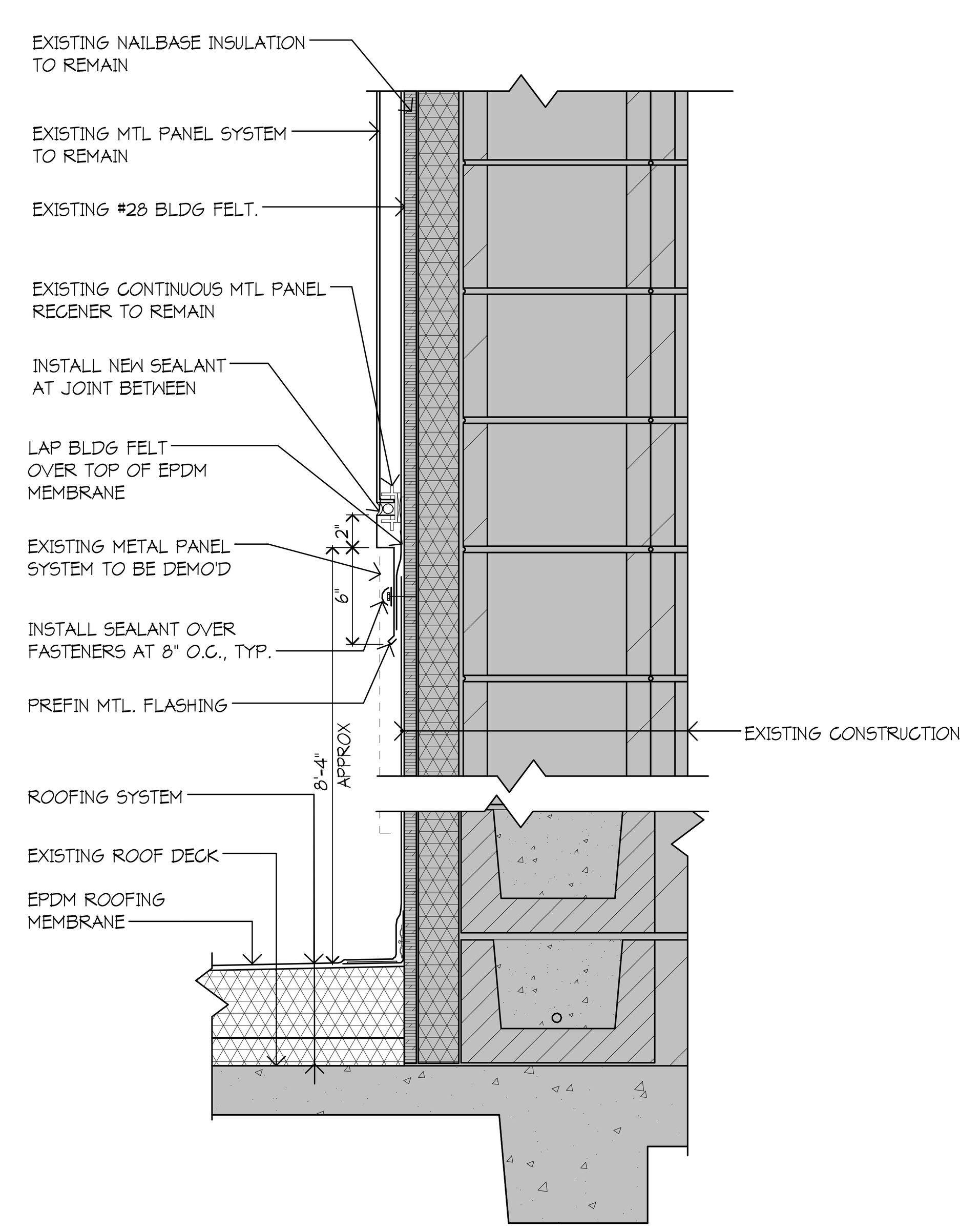


5 EXISTING CURB DETAIL
3" = 1'-0"

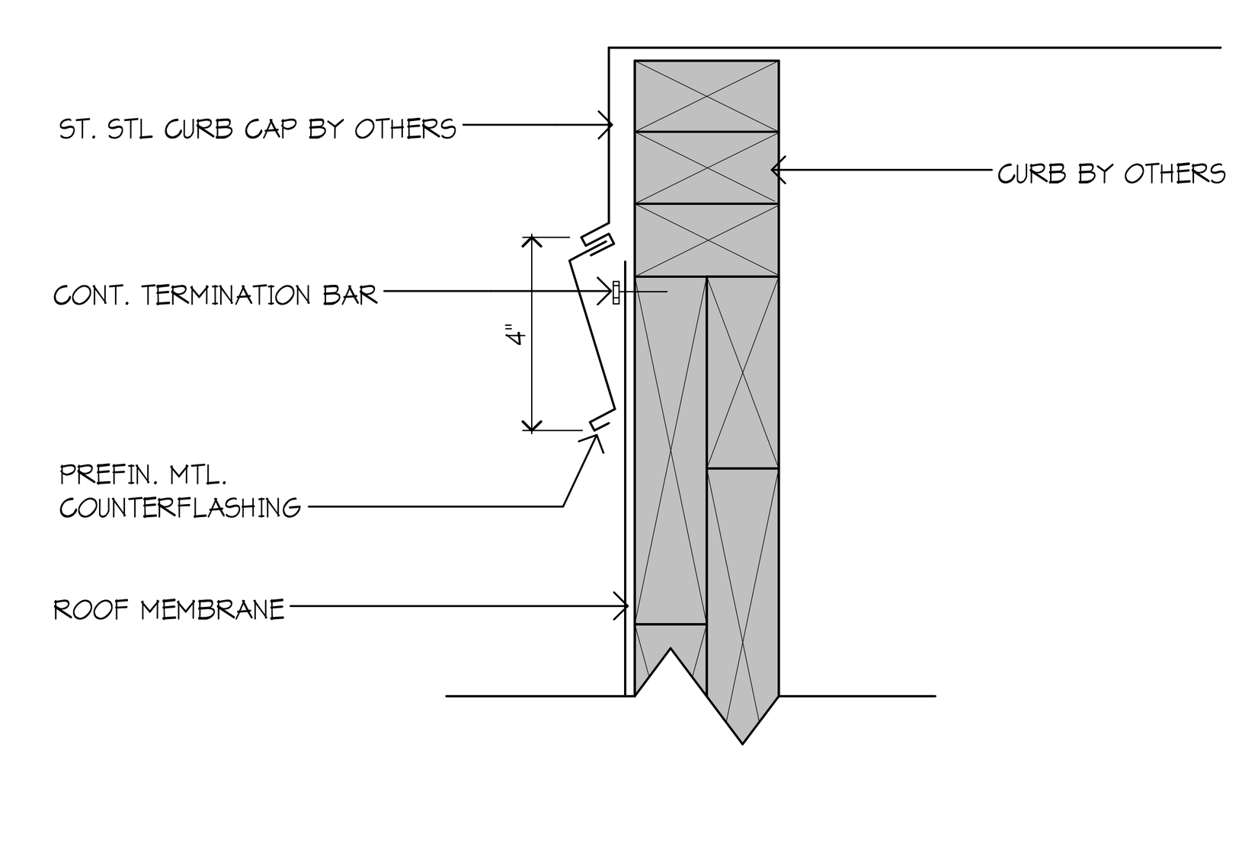


A

6 EXISTING SUPPORT POST DETAIL
3" = 1'-0"



7 METAL PANEL DETAIL
1 1/2" = 1'-0"



8 CURB DETAIL
3" = 1'-0"

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STATE OF ILLINOIS
ROGER JOSEPH SCHROEPFER
001-017074
LICENSED ARCHITECT

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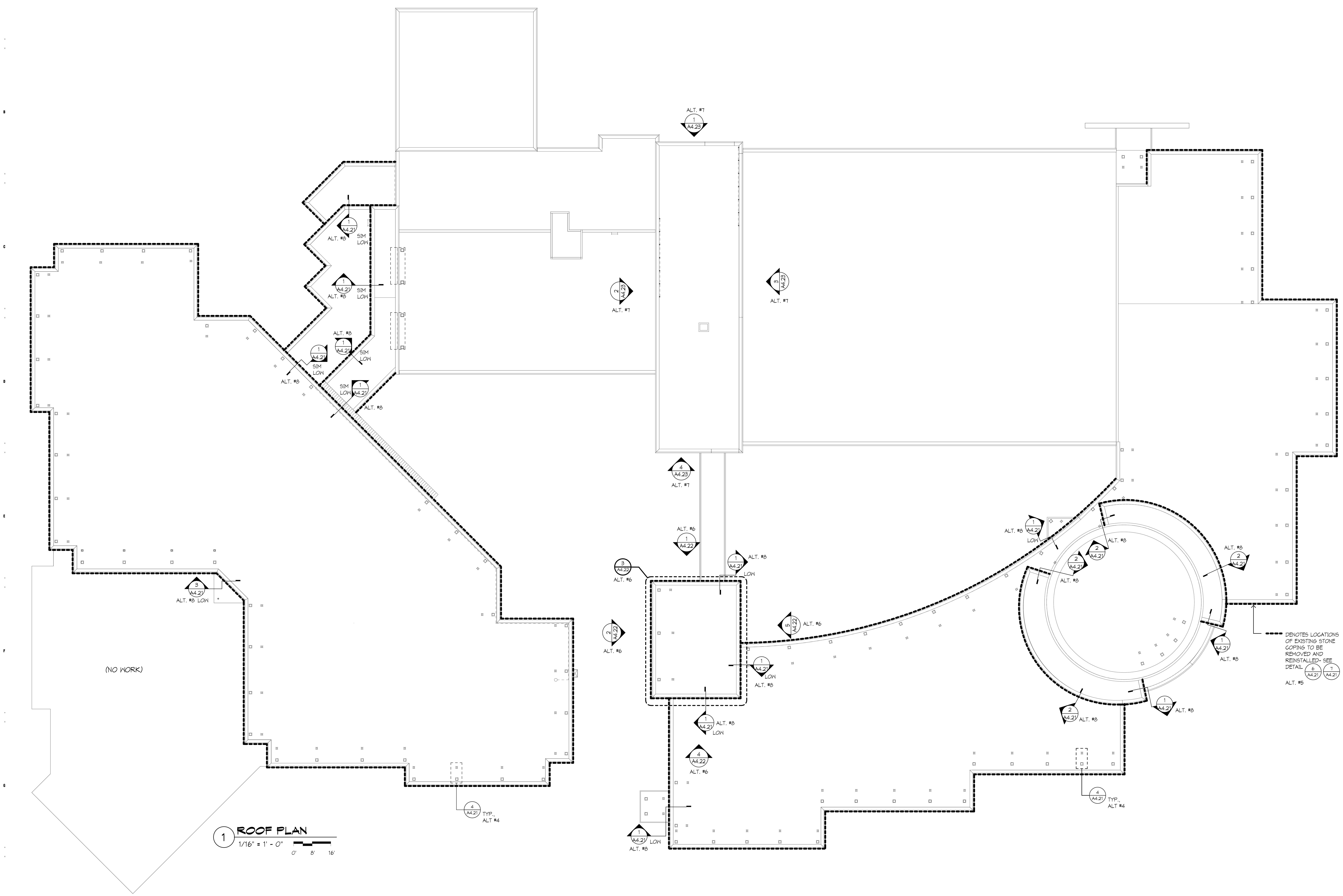
ROOF DETAILS

Scale: As indicated

A2.27



1 ROOF PLAN
1/16" = 1' - 0"

McHenry County Government Center Roof Replacement

2200 N Seminary Ave, Woodstock, IL 60098

Project Number: 153021

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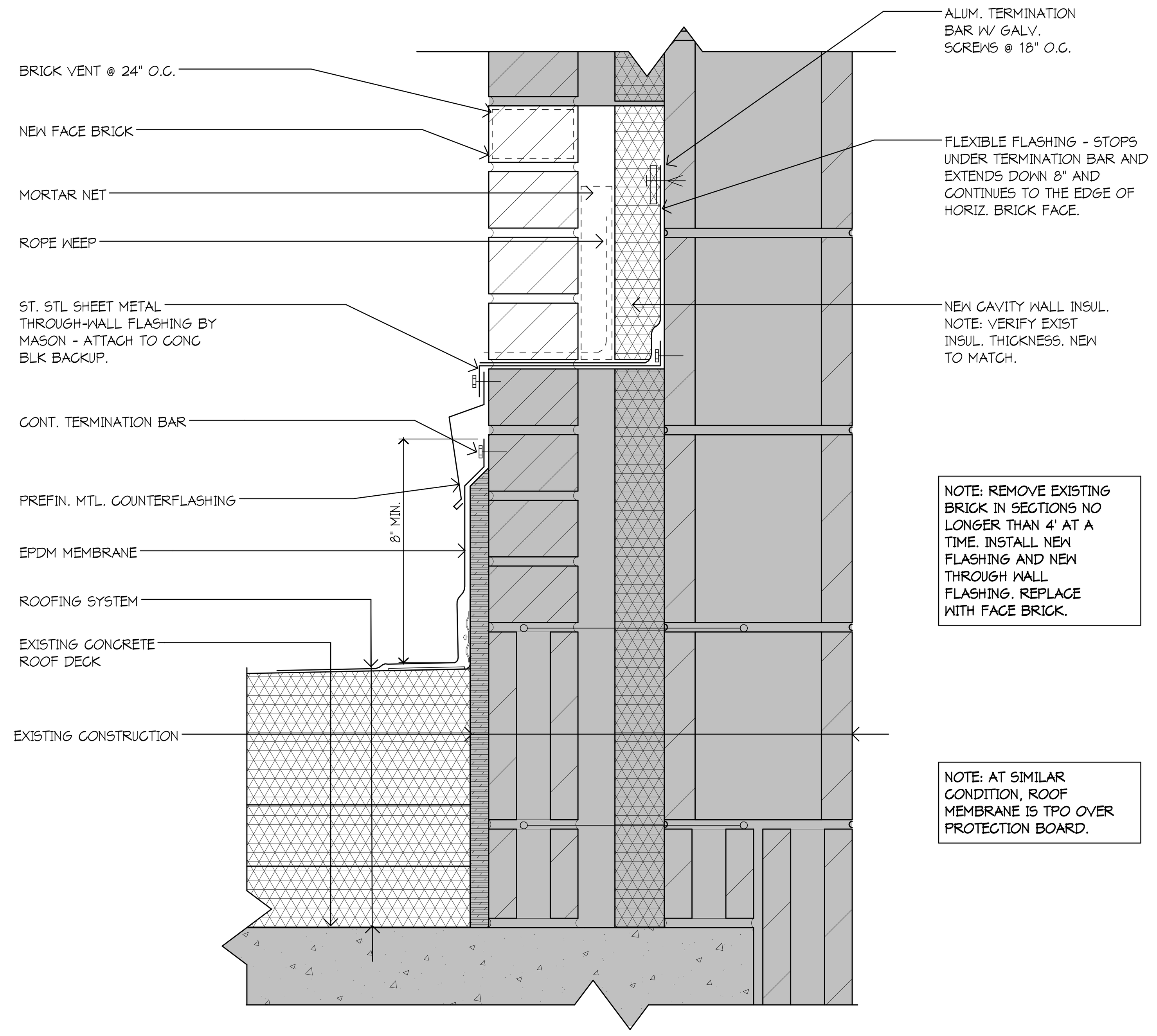
North

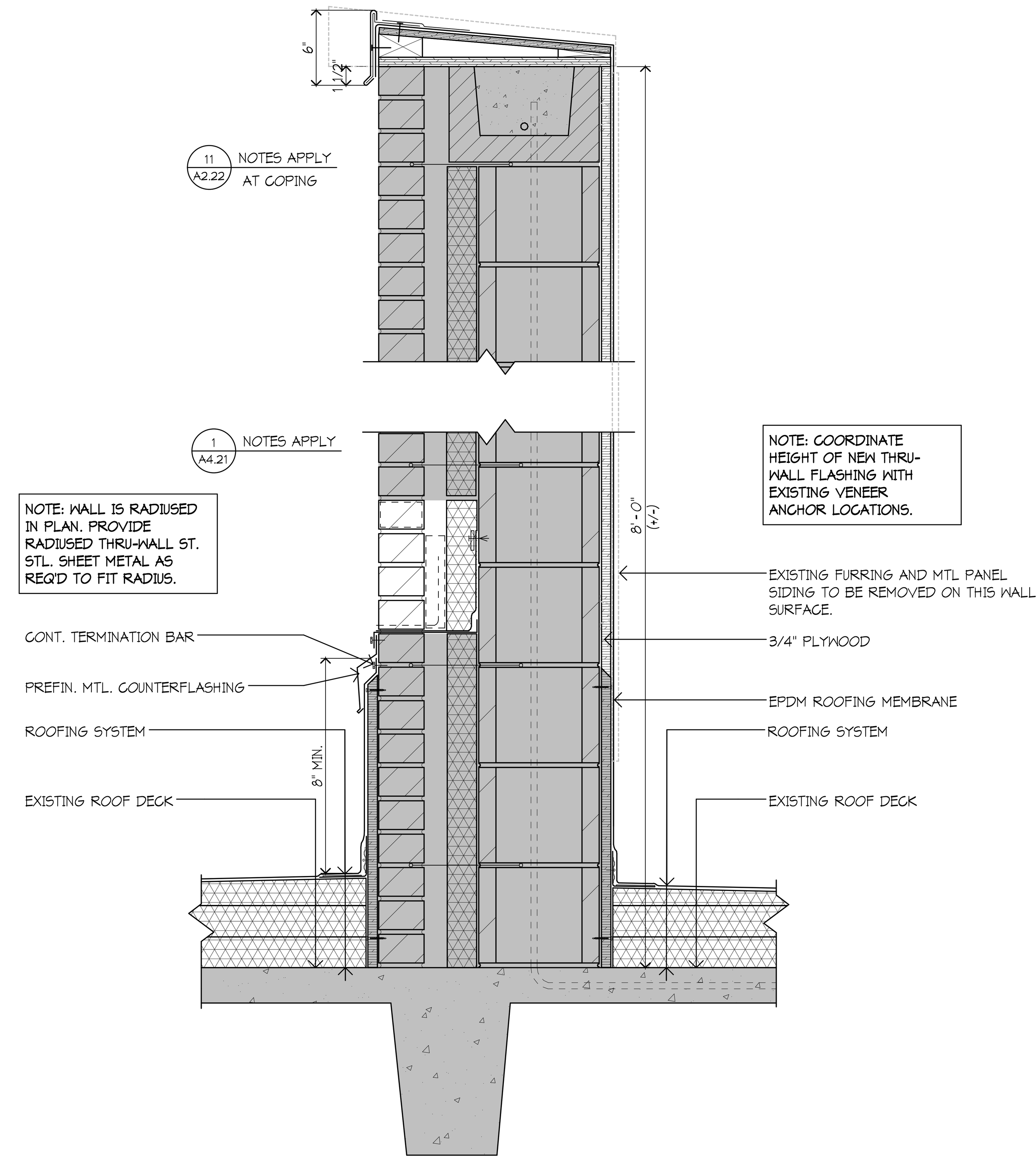
ROOF PLAN- ALTERNATE #4, ALTERNATE #5, ALTERNATE #6, ALTERNATE #7,& ALTERNATE #8

Scale: 1/16" = 1'-0"

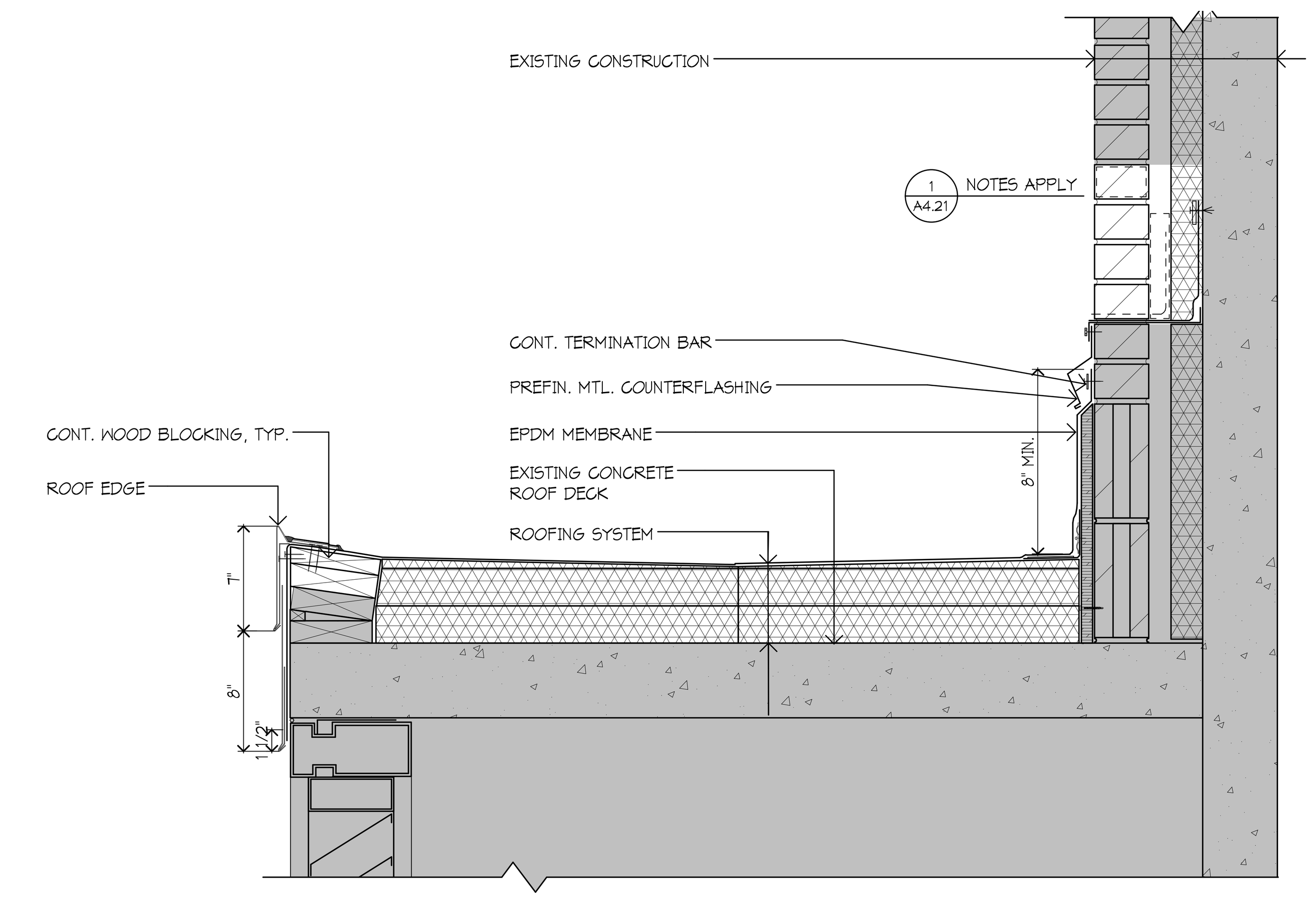
A3.51



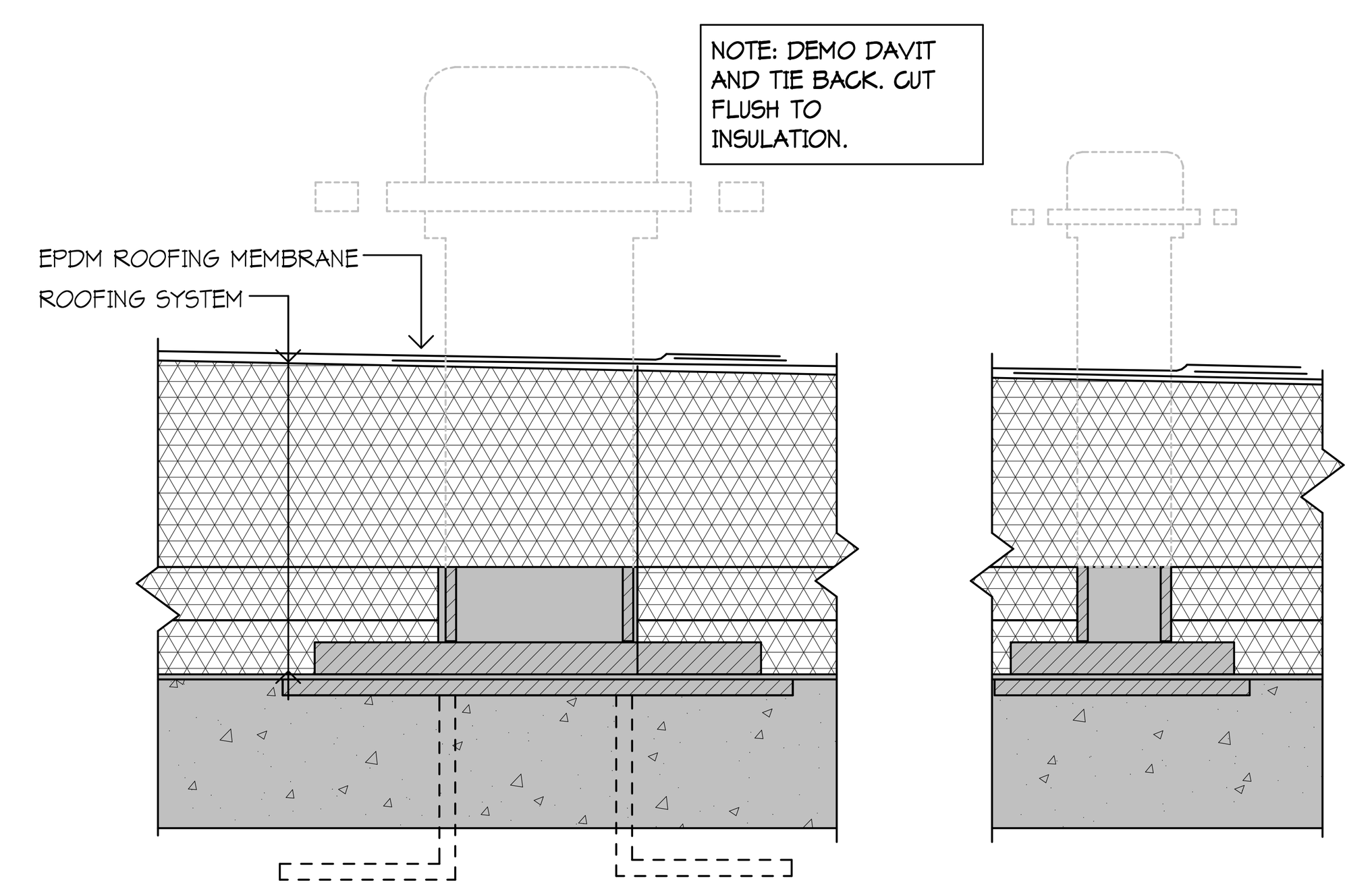
1 THROUGH-WALL FLASHING (ALT #8)
3" = 1'-0"



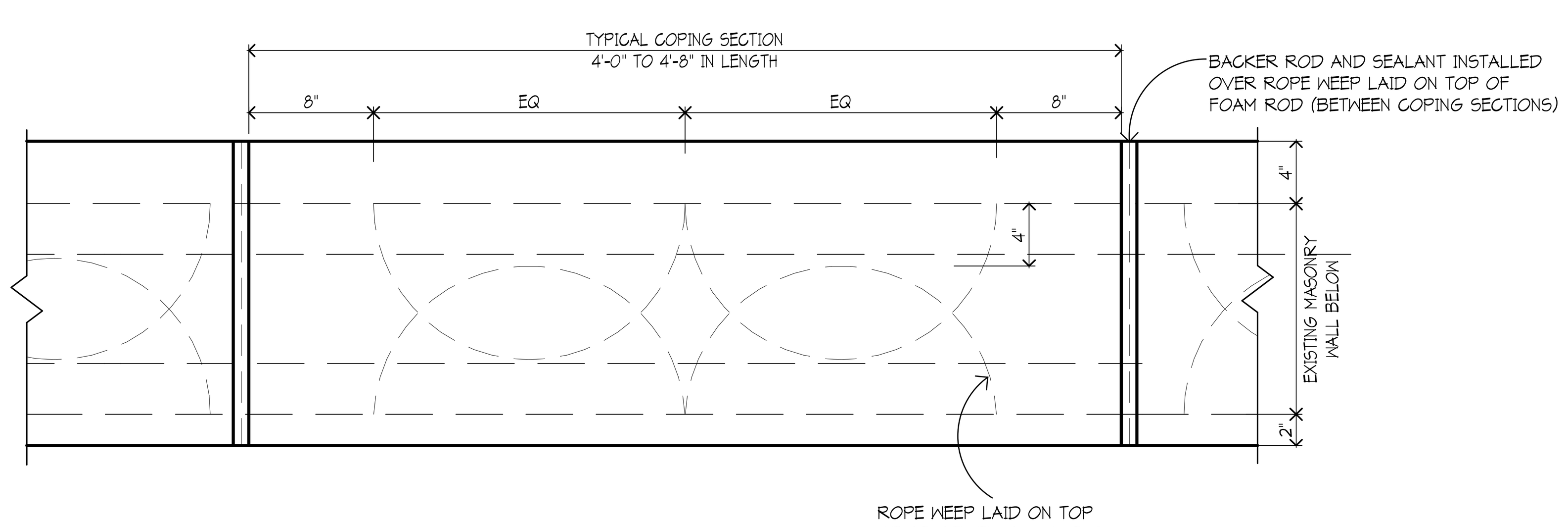
2 THROUGH-WALL FLASHING DETAIL (ALT #8)
1 1/2" = 1'-0"



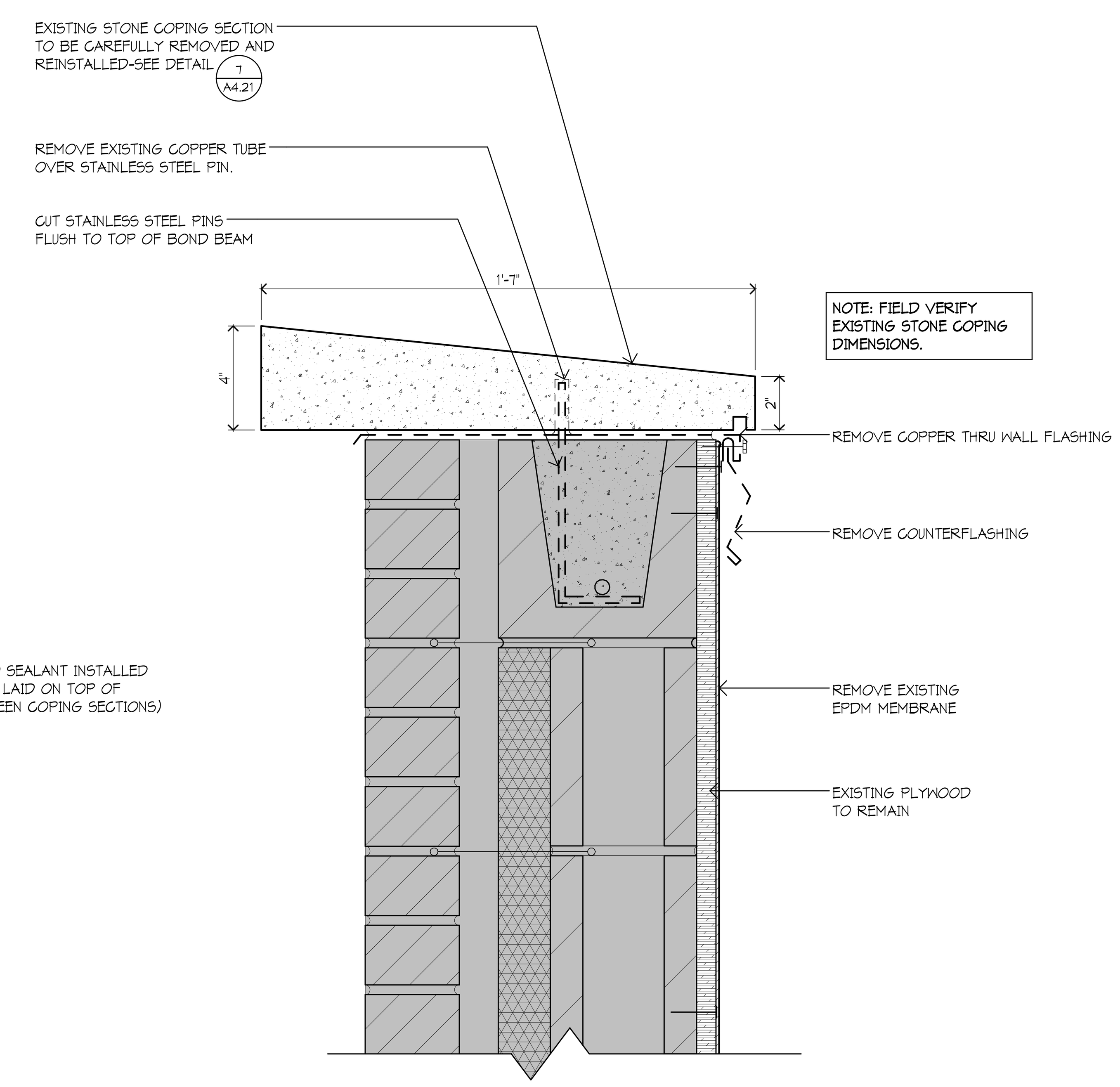
3 THROUGH-WALL FLASHING DETAIL (ALT #8)
1 1/2" = 1'-0"



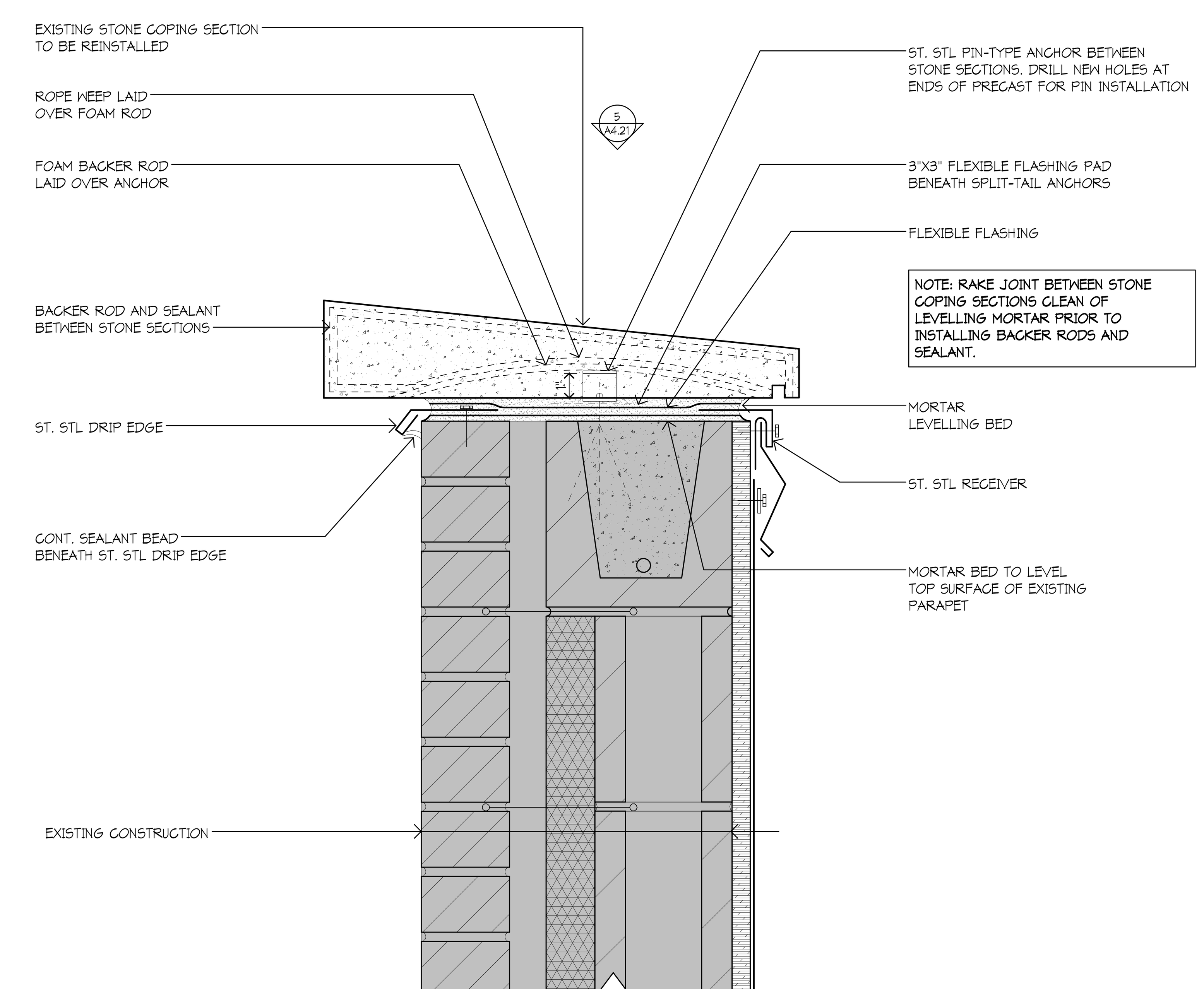
4 ROOF DAVIT REMOVAL DETAIL (ALT #4)
1 1/2" = 1'-0"



5 TYPICAL SECTION OF STONE COPING (ALT #5)
1 1/2" = 1'-0"



6 EXISTING STONE COPING REMOVAL DETAIL (ALT #5)
3" = 1'-0"



7 EXISTING STONE COPING REINSTALLATION DETAIL (ALT #5)
3" = 1'-0"

McHenry County Government Center Roof Replacement

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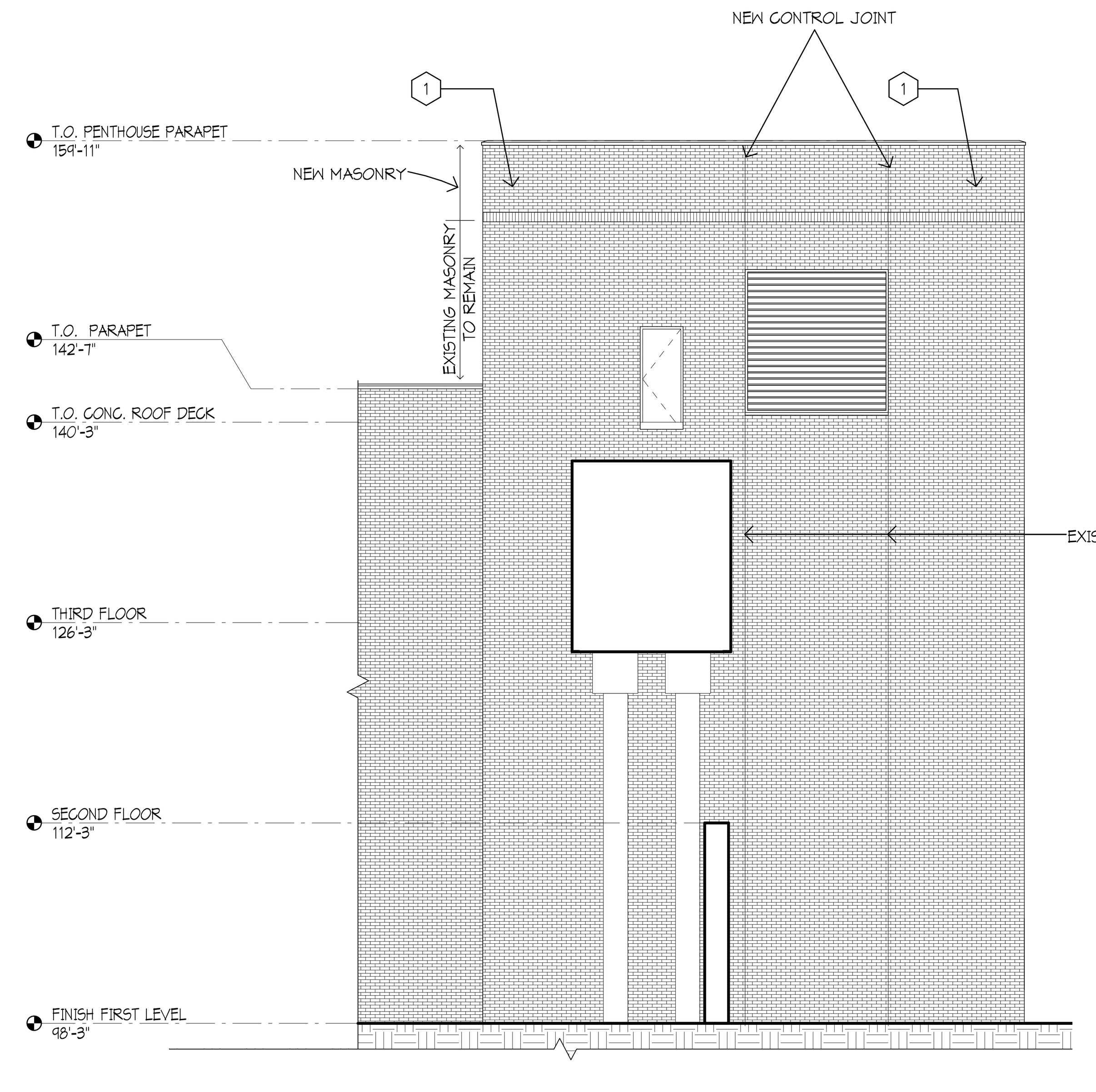
ROOF DETAILS- ALTERNATE #4, ALTERNATE #5, & ALTERNATE #8

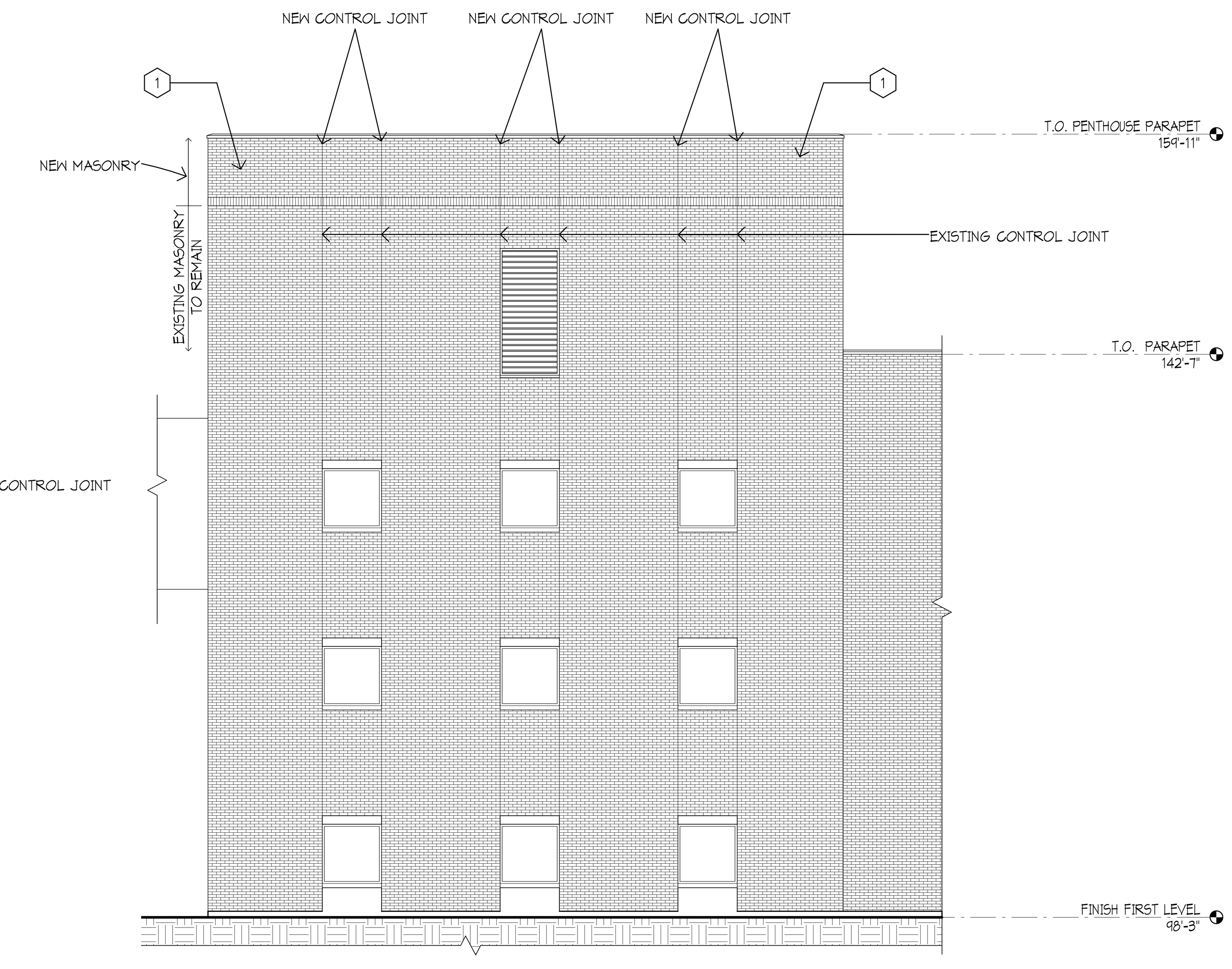
Scale: As indicated

A4.21

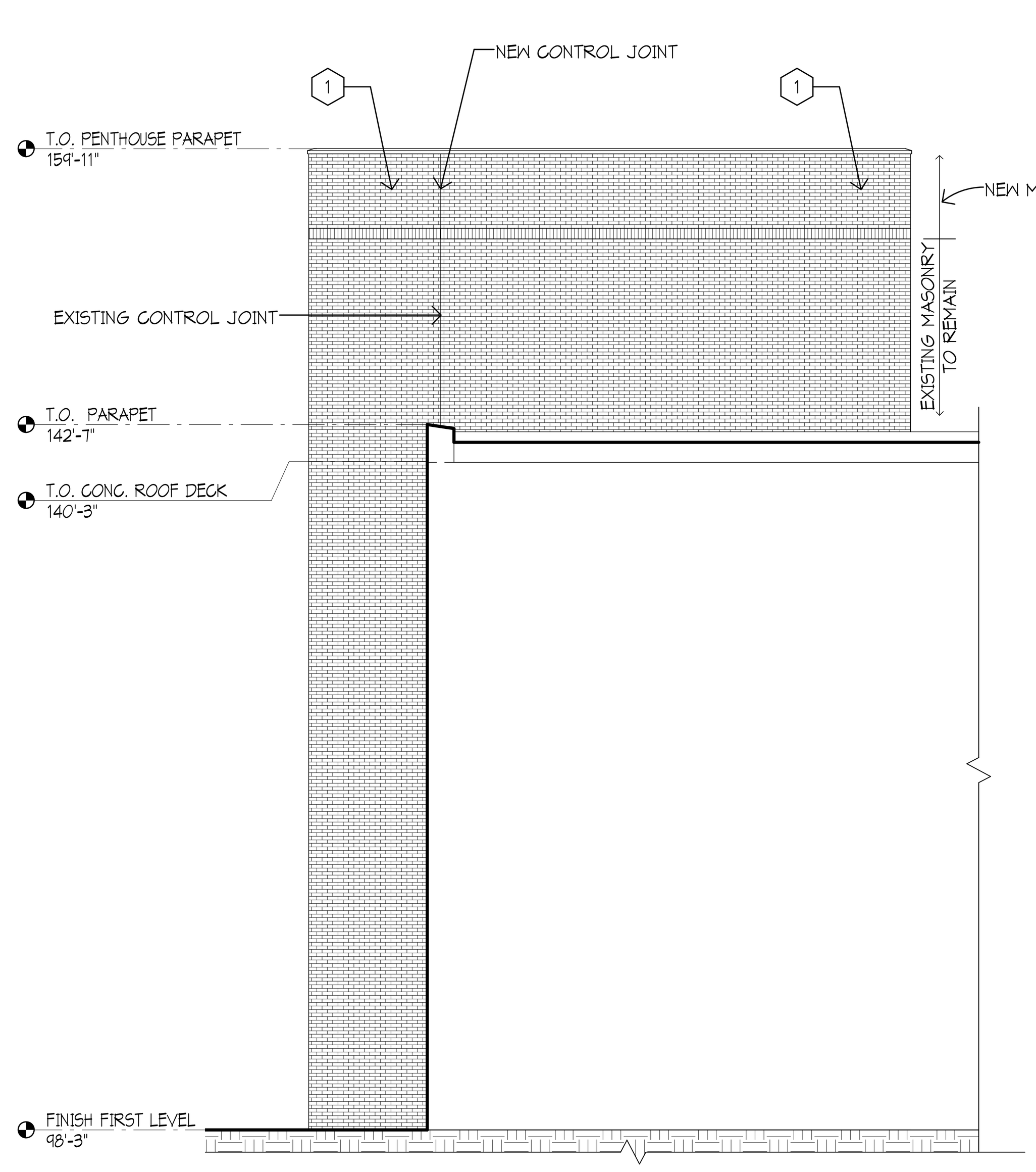
IL



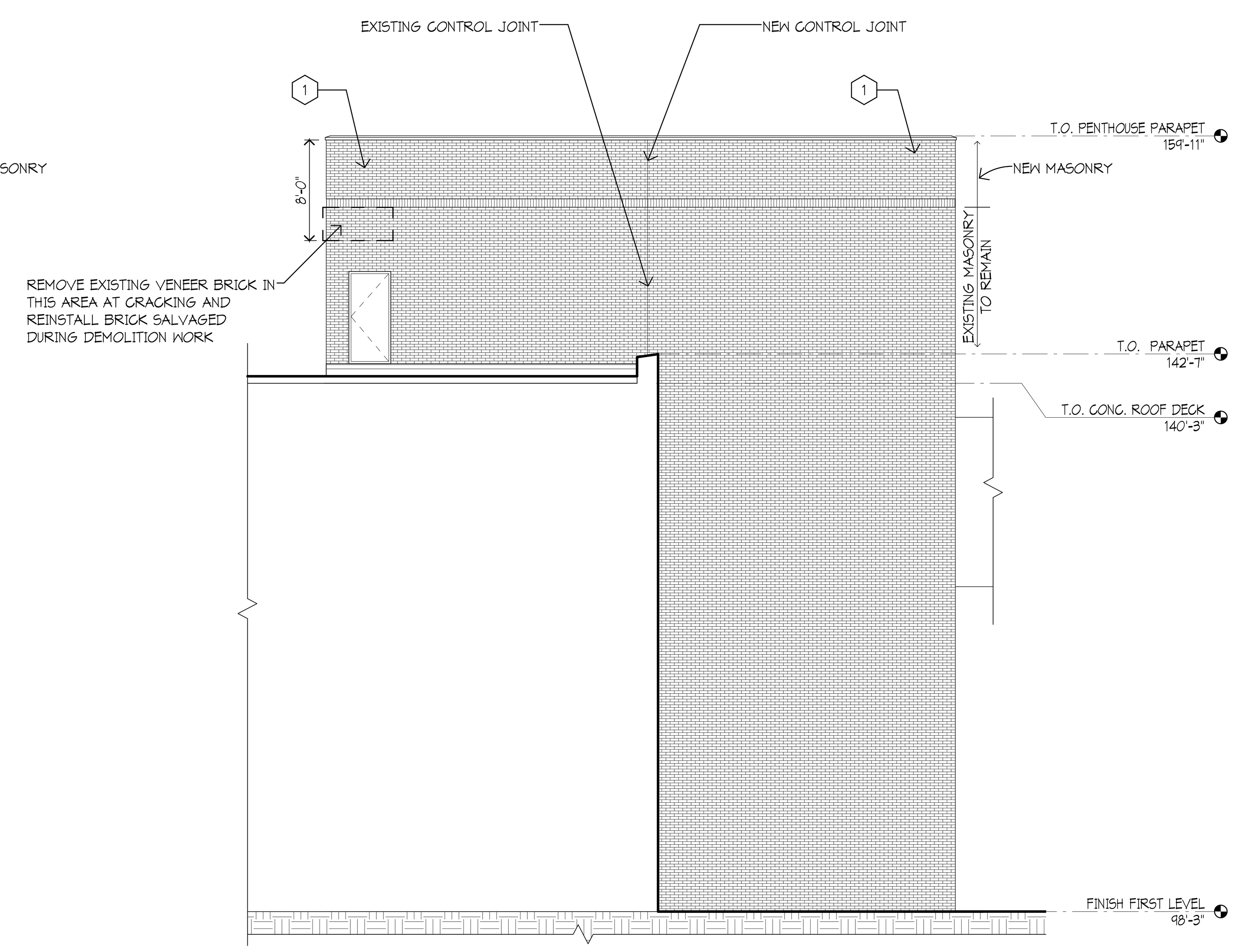
1 EAST ELEVATION - 1990 PENTHOUSE (ALT #6)
1/8" = 1'-0" 0' 8' 16'



2 NORTH ELEVATION - 1990 PENTHOUSE (ALT #6)
1/8" = 1'-0" 0' 8' 16'



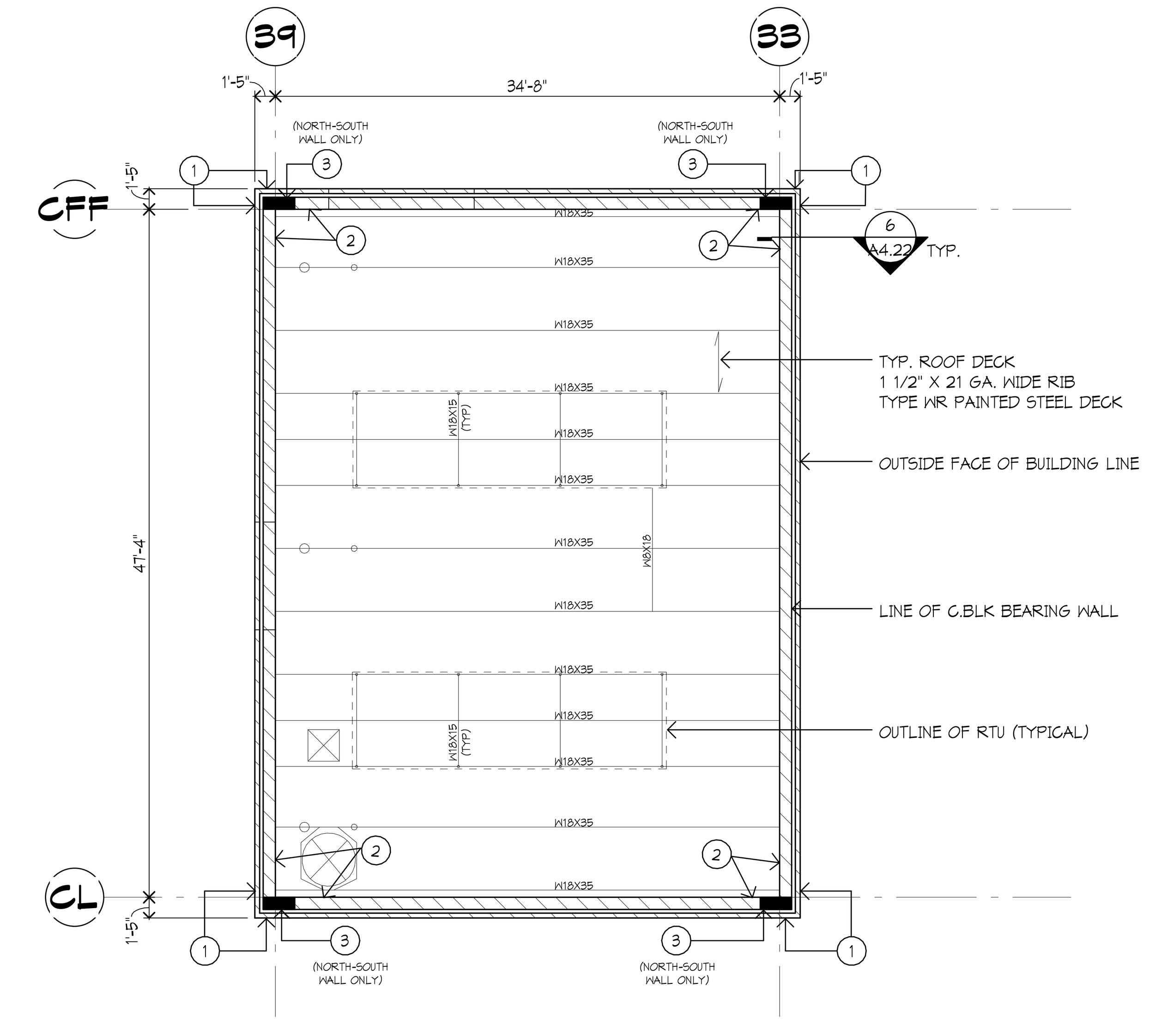
4 WEST ELEVATION - 1990 PENTHOUSE (ALT #6)
1/8" = 1'-0" 0' 8' 16'



5 SOUTH ELEVATION - 1990 PENTHOUSE (ALT #6)
1/8" = 1'-0" 0' 8' 16'

ELEVATION KEY NOTES:

1. REMOVE PARAPET WALL IN ITS ENTIRETY AND REBUILD.-SEE PARAPET SECTION 6/A4.22
2. SAWCUT MORTAR AT CRACKED MORTAR JOINT TO 1 1/2" DEEP AND INSTALL NEW MORTAR.



3 MASONRY PARAPET (ALT #6)
1/8" = 1'-0" 0 6' 12'

MASONRY PARAPET (ALT #6)
GENERAL NOTES:

1) ALL WORK UNDER ALTERNATE #6 SHALL BE PERFORMED PRIOR TO INSTALLATION OF NEW ROOF INSULATION AND/OR ROOF MEMBRANE AT ROOF AREA BELOW SURROUNDING PARAPET.

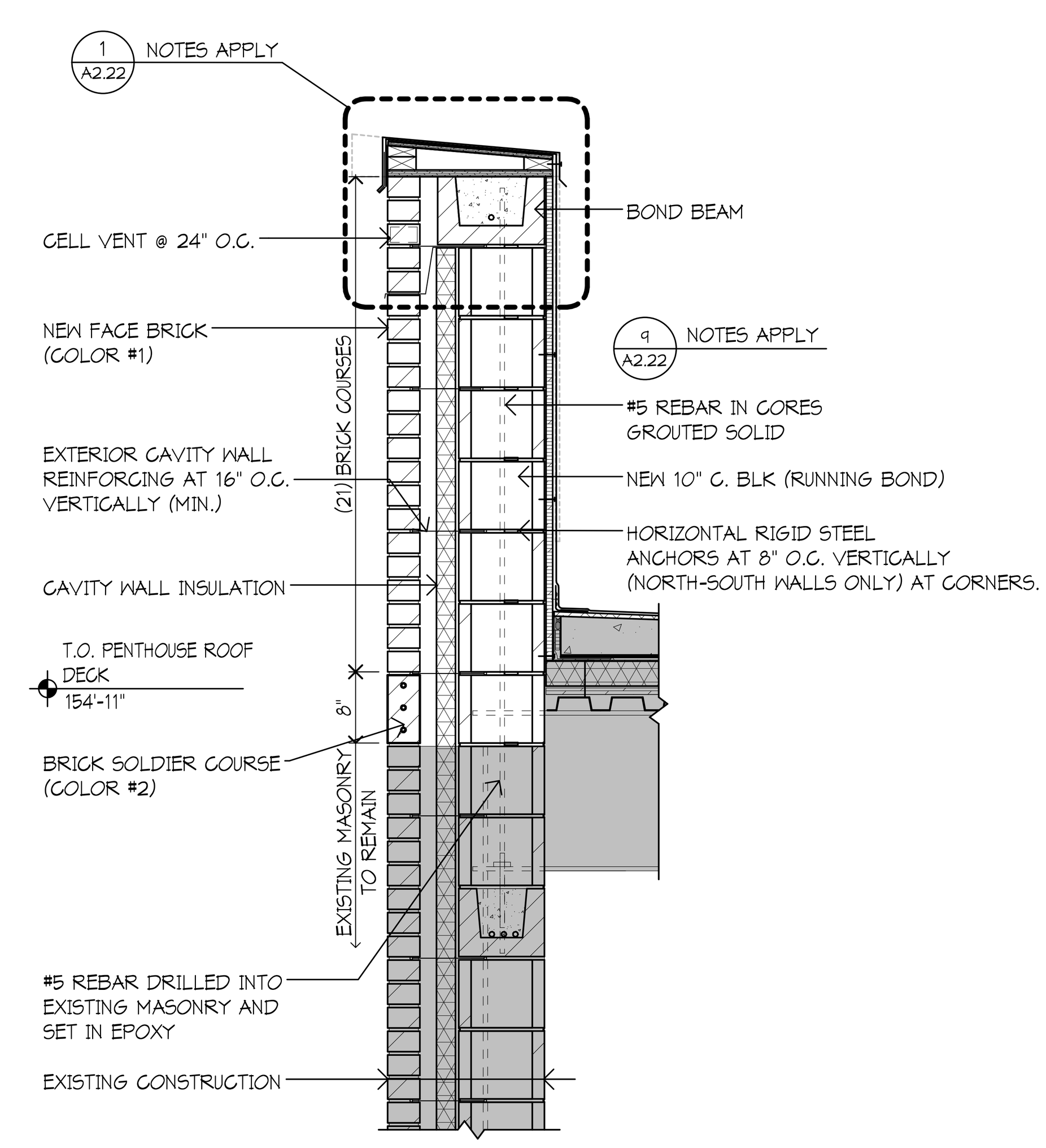
2) CONTRACTOR SHALL PROTECT INSULATION TO REMAIN WITH 3/4" PLYWOOD SHEETING TO A MINIMUM OF 8' AWAY FROM WALL SURFACE, OR MORE IF NECESSARY TO PROVIDE WORK AREA NEEDED FOR MASONRY CONSTRUCTION.

3) REMOVE BALLAST FROM AREAS BENEATH PLYWOOD PRIOR TO PLACEMENT. WEIGHT PLYWOOD WITH SCAFFOLDING AND BALLAST OR CONCRETE BLOCK DURING MASONRY WORK.

4) SALVAGE EXISTING BRICK AS REQ'D TO MAKE REPAIRS NOTED.

MASONRY PARAPET (ALT #6)
KEY NOTES:

1. REMOVE EXISTING BRICK VENEER, INSULATION, C. BLK, PARAPET, MASONRY, AND PRECAST CONC. COPING.
2. NEW C.BLK TO BE LAID IN RUNNING BOND PATTERN. PROVIDE #5 REBAR VERTICALLY AT CORNERS AND AT 48" O.C. DRILL AND EPOXY REBARS 24" INTO EXISTING C.BLK. GROUT CORES AROUND REBAR SOLID FULL HEIGHT.
3. PROVDE HORIZONTAL RIGID STEEL ANCHOR (EQUIVALENT TO HECKMAN #272) BETWEEN EACH COURSE OF BLOCK (8" O.C. VERTICAL) AT N.S. WALL AT CORNER. GROUT CORES SOLID AROUND VERTICAL LEGS OF ANCHORS.



6 TYP. PARAPET SECTION
3/4" = 1'-0" 0 1' 2'

A

McHenry County Government Center Roof Replacement

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Woodstock, IL

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STATE OF ILLINOIS
ROGER JOSEPH SCHROEPFER
001-017074
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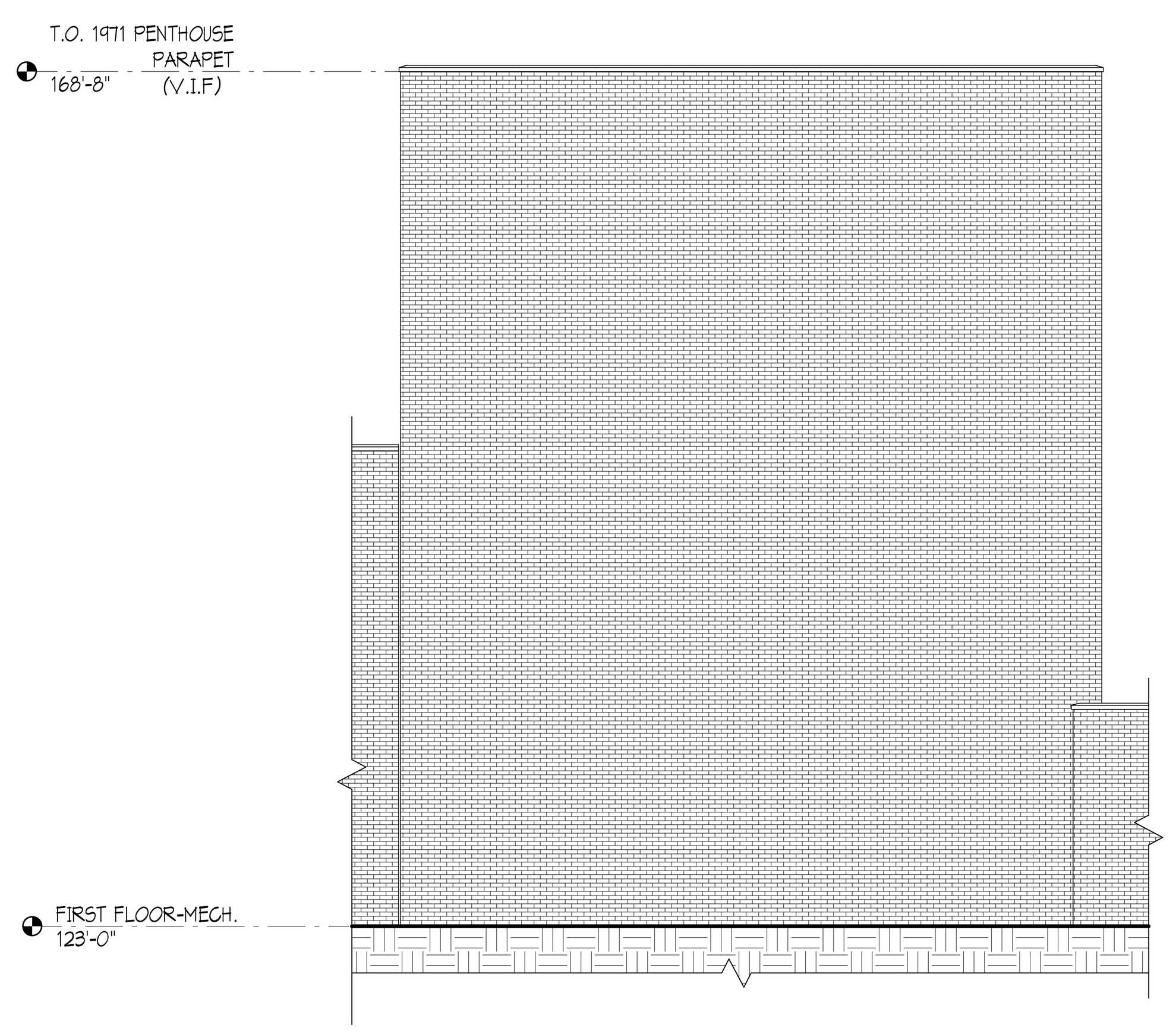
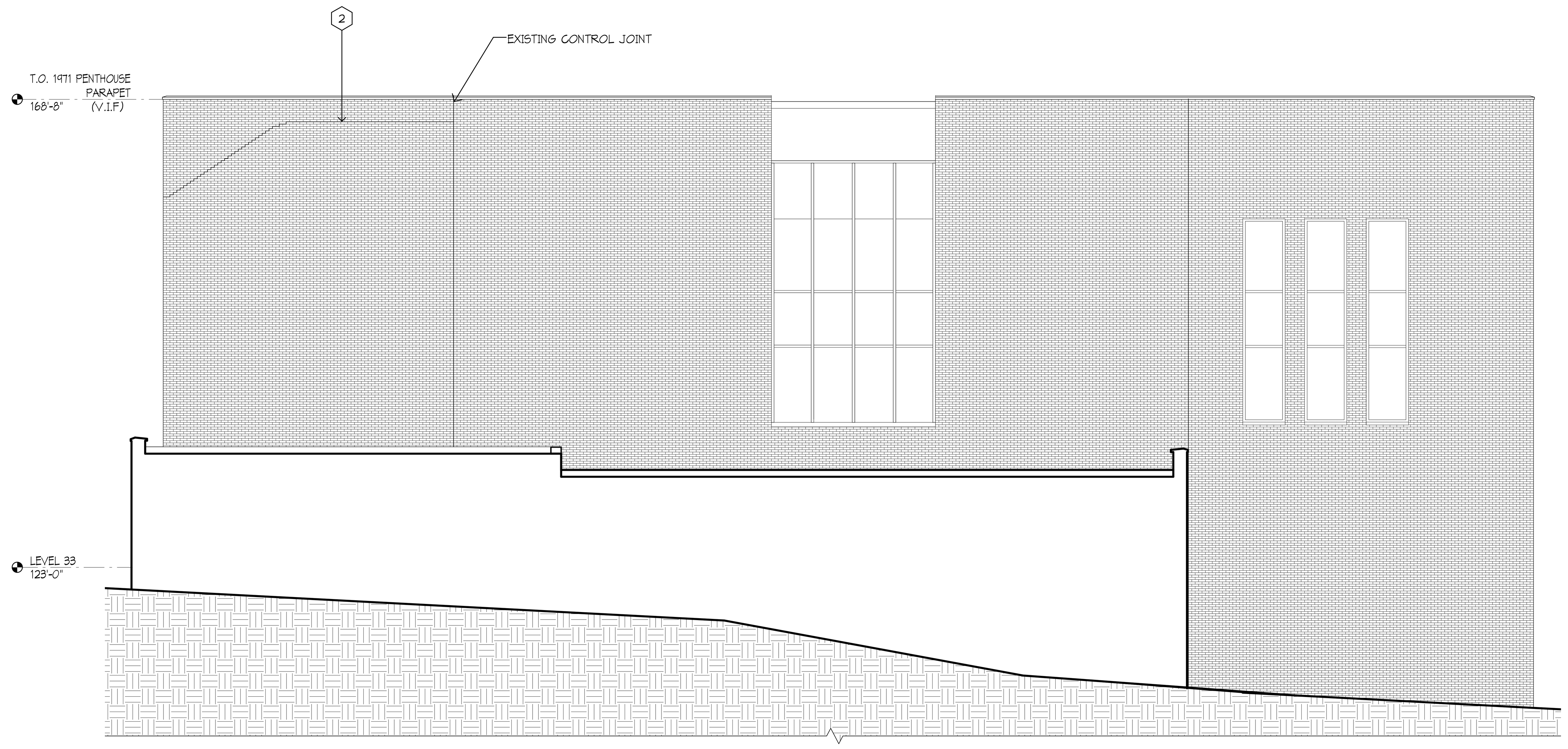
1990 PENTHOUSE ELEVATIONS- ALTERNATE #6

Scale: As indicated

A4.22



1 EAST ELEVATION - 1971 PENTHOUSE (ALT #7)
1/8" = 1'-0"
0' 8' 16'



2 NORTH ELEVATION - 1971 PENTHOUSE (ALT #7)
1/8" = 1'-0"
0' 8' 16'

ELEVATION KEY NOTES:

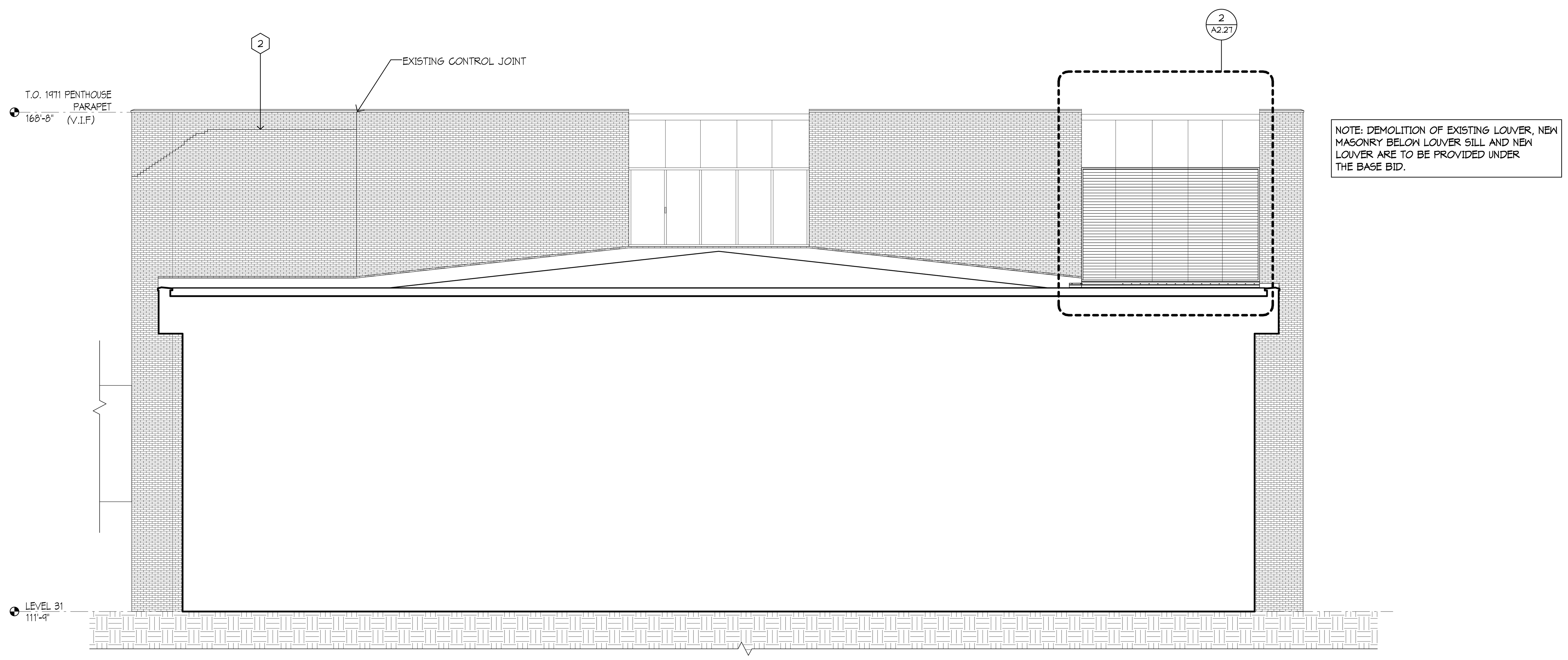
1. REMOVE PARAPET WALL IN ITS ENTIRETY.-SEE PARAPET SECTION 6/A4.22
2. SAWCUT MORTAR AT CRACKED MORTAR JOINT TO 1 1/2" DEEP AND INSTALL NEW MORTAR.

MASONRY REPAIRS (ALT #7) GENERAL NOTES:

1) ALL WORK UNDER ALTERNATE #6/#7 SHALL BE PERFORMED PRIOR TO INSTALLATION OF NEW ROOF INSULATION AND/OR ROOF MEMBRANE.

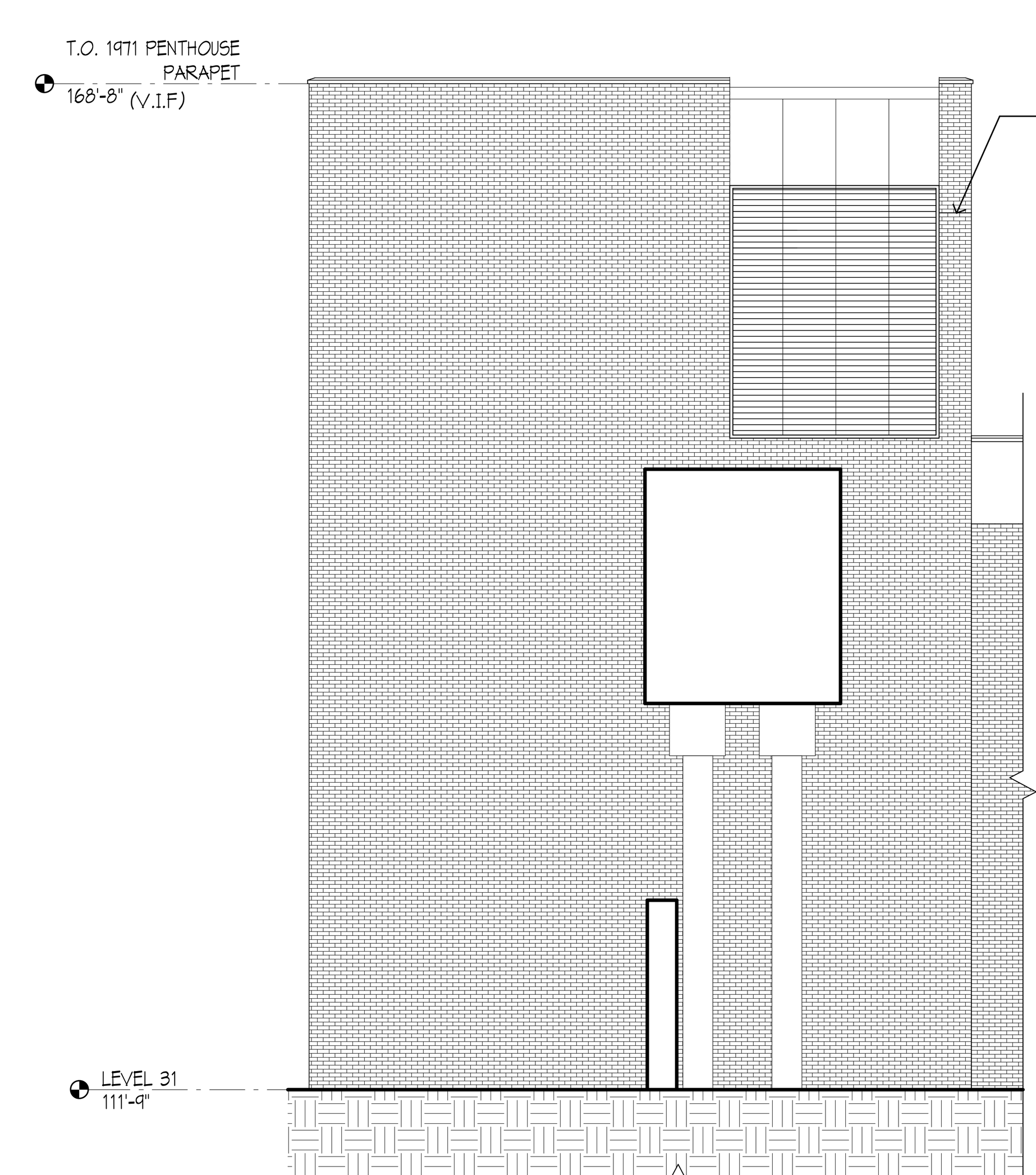
2) CONTRACTOR SHALL PROTECT INSULATION TO REMAIN WITH 3/4" PLYWOOD SHEETING TO A MINIMUM OF 8' AWAY FROM WALL SURFACE, OR MORE IF NECESSARY TO PROVIDE NEEDED FOR MASONRY CONSTRUCTION WORK AREA.

3) REMOVE BALLAST FROM AREAS BENEATH PLYWOOD PRIOR TO PLACEMENT. WEIGHT PLYWOOD WITH SCAFFOLDING AND BALLAST OR CONCRETE BLOCK DURING MASONRY WORK.



NOTE: DEMOLITION OF EXISTING LOUVER, NEW MASONRY BELOW LOUVER SILL AND NEW LOUVER ARE TO BE PROVIDED UNDER THE BASE BID.

3 SOUTH ELEVATION - 1971 PENTHOUSE (ALT #7)
1/8" = 1'-0"
0' 8' 16'



4 WEST ELEVATION - 1971 PENTHOUSE (ALT #7)
1/8" = 1'-0"
0' 8' 16'

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1971 PENTHOUSE ELEVATIONS- ALTERNATE #7

Scale: As indicated

A4.23

THIS PAGE IS MANDATORY

BID FORM

BID PROPOSAL FOR: GOVERNMENT CENTER ROOF REPLACEMENT
MCHENRY COUNTY GOVERNMENT CENTER
2200 NORTH SEMINARY AVENUE
WOODSTOCK, ILLINOIS 60098

BID TO: County of McHenry
McHenry County Administration Building
Purchasing Department, Room 200
667 Ware Road
Woodstock, Illinois 60098

BID FROM: _____

We have examined the Contract Documents for the proposed Government Center Roof Replacement as prepared by Wold Architects and Engineers, Palatine, Illinois, and the conditions affecting the work.

In accordance therewith the undersigned proposes to furnish all labor and materials for Construction as set forth in the Contract Documents, including Addenda Nos._____ issued thereto.

1. Accompanying this proposal is a Bid Security for all work, required to be furnished by Contract Documents, the same being subject to forfeiture in the event of default by the undersigned.

2. I agree to complete the Project, provided a contract is executed within 60 calendar days, by September 30, 2016.

3. I understand the Owner reserves the right to reject any or all bids, and it is agreed that this bid may not be withdrawn for a period of sixty (60) days from the opening thereof.

A. Base Bid

1. The Bidder agrees to perform all work including General, Mechanical and Electrical Construction for the Base Bid Sum of:

   _____ Dollars $_____

B. Alternates:

1. The Bidder agrees to add to or deduct from the Base Bid Sum the following amounts to perform the alternate work described in Section 01 23 00, including all associated costs.

   a. Alternate No. 1 – Salvage and Reinstall Existing Roofing Ballast

      Add / Deduct _____ Dollars $ _____

   b. Alternate No. 2 – Complete Roofing and Insulation Tear-off and Replacement

      Add / Deduct _____ Dollars $_____

   c. Alternate No. 3 – Provide White EPDM Membrane

      Add / Deduct _____ Dollars $_____

d. Alternate No. 4 – Remove Existing Window Wash Davits and Tie-Backs

Add / Deduct _____ Dollars $_____

e. Alternate No. 5 – Stone Coping Rehabilitation

Add / Deduct _____ Dollars $ _____

f. Alternate No. 6 – Structural and Masonry Repairs at Corners of 1990 Addition

Add / Deduct_____ Dollars $_____

g. Alternate No. 7 – Structural and Masonry Repairs at Corners of 1971 Addition

Add / Deduct_____ Dollars $ _____

h. Alternate No. 8 – Replace Through-Wall Flashings

Add / Deduct_____ Dollars $_____

C**. Unit Prices**:

1. Unit Price No. 1 – Wet Tapered and Flat Stock Insulation Replacement

$ _____Dollars per Board Foot

2. Unit Price No. 2 – TPO Walkway Protection

$ _____ Dollars per 30” Wide (min.) Lineal Foot

3. Unit Price No. 3 – EPDM Walkway Protection

$ _____Dollars per 30”x30” Pad

4. Unit Price No. 4 – New Precast Concrete Coping Section

$ _____Dollars per Unit

5. Unit Price No. 5 – Weekend Premium Time

$ _____Dollars per Man-Hour

DATE: _____

FIRM NAME: _____

OFFICIAL ADDRESS: _____

TELEPHONE NUMBER: (_____)_____

FAX NUMBER: (_____)_____

BY: _____

TITLE:_____

THIS PAGE IS MANDATORY

REFERENCES

List three (3) references that you have done similar work, service or supplied similar products to within the last twelve (12) months (Only correct contact names and phone numbers will be acceptable).

Entity:

Address:

City, State, Zip Code:

Telephone Number:

Contact Person:

Entity:

Address:

City, State, Zip Code:

Telephone Number:

Contact Person:

Entity:

Address:

City, State, Zip Code:

Telephone Number:

Contact Person:

THIS PAGE IS MANDATORY.

RUBBER STAMPED, FAXED, COPIED, OR TYPED SIGNATURE WILL DISQUALIFY YOUR BID MUST BE AN ORIGINAL SIGNATURE

CERTIFICATIONS

Vendor certifies that it has not been barred from contracting with a unit of State or local government as a result of a violation of Section 33E-3 or 33E-4 of the Criminal Code of 1961, as amended. _____ Yes _____ No

Vendor certifies that it is aware that all contracts for the Construction of Public Works are subject to the Illinois Prevailing Wage Act (820 ILCS 130/1-12) _____ Yes
No

Under penalties of perjury, I certify that _____ is my correct Federal Taxpayer Identification Number. I am doing business as a (please check one):

___Individual
___Sole Proprietorship
___*Partnership
___**Corporation
___Not-for-Profit Corporation
___Medical and Health Care
Services Provider Corporation
___Real Estate Agent
___Government Entity
___Tax Exempt Organization
(IRC 501(a) only)
___Trust or Estate

*State full names, titles and addresses of all responsible principles and/or partners below;

Name: _____ Title: _____

Address: _____

Name: _____ Title: _____

Address: _____

Name: _____ Title: _____

Address: _____

Name: _____ Title: _____

Address: _____

Name: _____ Title: _____

Address: _____

If needed please submit any additional sheets.

PROPOSER'S CERTIFICATION

I have carefully examined the Bid, Scope of Work, Specifications, and any other documents accompanying or made a part of this Bid.

I hereby propose to furnish the goods or services specified in the Bid. I agree that my proposal will remain firm for a period of up to 120 days in order to allow the County adequate time to evaluate the qualifications submitted.

I verify that all information contained in this proposal is truthful to the best of my knowledge and belief. I further certify that I am duly authorized to submit this Bid on behalf of the firm as its act and deed, and that the firm is ready, willing, and able to perform if awarded the contract.

I further certify, under oath, that this proposal is made without prior understanding, agreement, connection, discussion, or collusion with any other person, firm or corporation submitting a proposal for the same product or service. No officer, employee or agent of the County of McHenry or any other proposer is interested in said proposal and that the undersigned executed this Proposer's Certification with full knowledge and understanding of the matters therein contained and was duly authorized to do so.

**State of Incorporation _____

_____

(Individual - Partnership - Company - Corporation)

_____

(Business Address)

_____

(City, State and Zip Code)

_____

(By Printed Name and Signature) (Title)

_____

(Witness Signature) (Title)

_____

(Telephone No) (Fax No.)

_____

(Date)

End of Document