

Addendum No: Two (2)

Project: Iowa High School – Repairs to Auxiliary Gym & Main Gym Roof
CPSB Hurricane Laura Damages Restoration Program
HL-026-06

Architect’s Project No: MA2128

Date: April 20, 2023

To: All Plan Holders

Introduction

The following items shall be considered part of the Contract Documents and shall be included in same when Construction Contract is executed. Changes made by Addenda shall take precedence over original Documents. Any changes which may affect construction or proper installation of materials, equipment, or fixtures, not specifically mentioned in this Addendum, should be brought to the attention of the Architect before submitting bid. Otherwise, such conditions, if found later to exist, must be worked out in an acceptable manner without additional cost to the Owner. General Contractors are hereby advised to call to the attention of all subcontractors, changes which may affect their work.

Acknowledge receipt of this Addendum by inserting its number and date in the proper blank appearing on the Bid Form. Failure to do so may disqualify the Bidder.

This Addendum consists of 14 typewritten page(s) and 02 attached drawing(s) for a total of 16 pages.

ARCHITECTURAL ITEMS

General Items

not applicable

Modifications to the Project Manual

- 1) In reference to Section 061000 – Rough Carpentry; Add roof separator at Lobby Area utilizing treated lumber. The finished height of roof separator shall be 8” above finished roof elevation.
- 2) Include attached, revised Section 070150.91 – Fluid Applied Roof Restoration in the Project Manual.
- 3) In reference to Section 072200 – Roof and Deck Insulation; delete reference to tapered insulation. Insulation assembly shall be one layer of 2” Polyisocyanurate insulation, ¼” Tapered polyisocyanurate crickets sloped to drain and ½” gypsum board.
- 4) In reference to Section 072200 – Roof and Deck Insulation; Insulation fasteners shall be OMG Polymer Gyptec by Olympic or equal in lieu of OMG Lite Deck fasteners.
- 5) In reference to Section 072200 – Roof and Deck Insulation; Add insulation assembly at Lobby Area base layer of insulation shall be 2” of Polyisocyanurate, ¼” Tapered Polyisocyanurate Insulation and ½” gypsum board all mechanically attached with #14 HD fasteners per ASCE 7-16 requirements.

Modifications to the Drawings

- 1) Include attached, revised Sheet A1.1 – Roof Plan in the Bid Documents.
- 2) Include attached, revised Sheet A3.0 – Sections & Details in the Bid Documents.

Prior Approvals

Contractor shall note that prior approval is by manufacturer's name only. Contractor shall ensure that the products used in preparation of his proposal and proposed to be used on this project, is equivalent to that specified in appearance, performance, size, installation type, and shape. Any material found to not be equivalent to that specified will be rejected. Prior approval of one manufacturer does not automatically prior approve any subsidiary company, parent company and/or sister company and their associated products.

Subject to compliance with the provisions of the Contract/Documents and Specifications, the following manufacturer(s) may be substituted:

SECTION	NAME	MANUFACTURER	PRODUCT
07 42 10	Standing Seam Metal Wall Panels	Berridge Manufacturing Co	Tee-Lock Panel
09 64 66	Wood Gymnasium Flooring	Tarkett Sports	Clutch Court Flex Lock

END OF ADDENDUM 02

SECTION 070150.91 – FLUID APPLIED ROOF RESTORATION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Mineral Modified Bitumen Surface Roof Restoration
- B. Accessories
- C. Edge Treatment and Roof Penetration Flashings

1.2 RELATED SECTIONS

- A. Section 061000 - Rough Carpentry: Roof blocking installation and requirements.
- B. Section 076000 - Sheet Metal Flashing and Trim: Metal cap flashing and expansion joints.
- C. Section 076000 - Sheet Metal Flashing and Trim: Weather protection for base flashings.
- D. Section 076300 - Manufactured Roof Specialties: Counter flashing gravel stops, and fascia, scuppers, gutters and downspouts.
- E. Section 221319 - Plumbing Specialties: Piping vents and roof drains.

1.3 REFERENCES

- A. ASTM C 78 - Standard Test Method for Flexural Strength of Concrete.
- B. ASTM C 92 - Standard Test Methods for Sieve Analysis and Water Content of Refractory Materials.
- C. ASTM C 109 - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars.
- D. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants.
- E. ASTM C 1250 - Standard Test Method for Nonvolatile Content of Cold Liquid-Applied Elastomeric Waterproofing Membranes.
- F. ASTM D 93 - Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester.
- G. ASTM D 562 - Standard Test Method for Consistency of Paints Measuring Krebs Unit (KU) Viscosity Using a Stormer-Type Viscometer.
- H. ASTM D 624 - Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers
- I. ASTM D 1002 - Standard Test Method for Apparent Shear Strength of Single-Lap-Joint Adhesively Bonded Metal Specimens by Tension Loading (Metal-to-Metal).
- J. ASTM D 1475 - Standard Test Method for Density of Liquid Coatings, Inks, and

Related Products.

- K. ASTM D 2196 - Standard Test Methods for Rheological Properties of Non-Newtonian Materials by Rotational (Brookfield type) Viscometer.
- L. ASTM D 2369 - Standard Test Method for Volatile Content of Coatings.
- M. ASTM D 3960 - Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings.
- N. ASTM D 4212 - Standard Test Method for Viscosity by Dip-Type Viscosity Cups.
- O. ASTM D 4402 - Standard Test Method for Viscosity Determination of Asphalt at Elevated Temperatures Using a Rotational Viscometer.
- P. ASTM E 1980 - Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces
- Q. SRI - Solar Reflectance Index calculated according to ASTM E 1980.
- R. SMACNA Architectural Sheet Metal Manual.
- S. National Roofing Contractors Association (NRCA) - Roofing and Waterproofing Manual.

1.4 SYSTEM DESCRIPTION

- A. Mineral Modified Bitumen Surface Roof Restoration: Renovation work includes:
 - 1. Surface preparation: Remove dirt and debris.
 - 2. Fascia Edges: Cut back edges. Prime, coat with mastic, cover with fabric.
 - 3. Metal Flashings: Repair/Replace metal flashings, pitch pockets, etc.
 - 4. Roof Repairs: Repair blisters, stressed or cracked membrane. Cut back, patch with primer/mastic/membrane.
 - 5. Primer: Prime surface.
 - 6. Full Reinforcement: Apply base coat and install full fabric reinforcement and topcoat over entire roof surface.
 - 7. Coating: Apply coating over entire roof surface.
 - 8. Install roofing mineral or reflective surfacing into the coating while it is wet or let coating cure for 30 days and then paint with reflective coating.

1.5 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Shop Drawings: Submit shop drawings including installation details of fluid applied roofing and flashing prior to job start.

- D. LEED Submittals: Provide documentation of how the requirements of Credit will be met:
 - 1. List of proposed materials with recycled content. Indicate post-consumer recycled content and pre-consumer recycled content for each product having recycled content.
 - 2. Product data and certification letter indicating percentages by weight of post-consumer and pre-consumer recycled content for products having recycled content.
 - 3. Product reflectivity and emissivity criteria to qualify for one point under the LEED credit category, Credit 7.2, Landscape & Exterior Design to Reduce Heat Island - Roof.
- E. Verification Samples: For each product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, and color.
- F. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
- G. Closeout Submittals: Provide manufacturer's maintenance instructions that include recommendations for periodic inspection and maintenance of all completed roofing work. Provide product warranty executed by the manufacturer. Assist Owner in preparation and submittal of roof installation acceptance certification as may be necessary in connection with fire and extended coverage insurance on roofing and associated work.

1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with manufacturer's current Application and Installation Guidelines and the NRCA Roofing and Waterproofing Manual.
- B. Manufacturer Qualifications: Manufacturer: Company specializing in manufacturing products specified in this section with documented ISO 9001 certification and minimum twelve years and experience.
- C. Installer Qualifications: Company specializing in performing Work of this section with minimum five years documented experience and a certified Pre-Approved Garland Contractor.
- D. Installer's Field Supervision: Maintain a full-time Supervisor/Foreman on job site during all phases of roofing work while roofing work is in progress.
- E. Product Certification: Provide manufacturer's certification that materials are manufactured in the United States and conform to requirements specified herein, are chemically and physically compatible with each other, and are suitable for inclusion within the total roof system specified herein.
- F. Source Limitations: Obtain all components of roof system from a single manufacturer. Secondary products that are required shall be recommended and approved in writing by the roofing system Manufacturer. Upon request of the Architect or Owner, submit Manufacturer's written approval of secondary components in list form, signed by an authorized agent of the Manufacturer.

1.7 PRE-INSTALLATION CONFERENCE

- A. Convene a pre-roofing conference approximately two weeks before scheduled commencement of roofing system installation and associated work.
- B. Require attendance of installers of deck or substrate construction to receive roofing, installers of rooftop units and other work in and around roofing which must precede or follow roofing work including mechanical work, Architect, Owner, roofing system manufacturer's representative.
- C. Objectives include:
 - 1. Review foreseeable methods and procedures related to roofing work, including set up and mobilization areas for stored material and work area.
 - 2. Tour representative areas of roofing substrates, inspect and discuss condition of substrate, roof drains, curbs, penetrations, and other preparatory work.
 - 3. Review structural loading limitations of deck and inspect deck for loss of flatness and for required attachment.
 - 4. Review roofing system requirements, Drawings, Specifications, and other Contract Documents.
 - 5. Review and finalize schedule related to roofing work and verify availability of materials, installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 6. Review required inspection, testing, certifying procedures.
 - 7. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including possibility of temporary roofing.
 - 8. Record conference including decisions and agreements reached. Furnish a copy of records to each party attending.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store products in manufacturer's unopened packaging with labels intact until ready for installation.
- B. Store all roofing materials in a dry place, on pallets or raised platforms, out of direct exposure to the elements until time of application. Store materials at least 4 inches above ground level and covered with "breathable" tarpaulins.
- C. Stored in accordance with the instructions of the manufacturer prior to their application or installation. Store roll goods on end on a clean flat surface. No wet or damaged materials will be used in the application.
- D. Storage temperatures should be between 60 degrees F to 80 degrees F (15.6 degrees to 26.7 degrees C). Indoor ventilated storage is recommended. Ensure jobsite storage is in a shaded and ventilated area. Do not store in direct sunlight. Keep materials away from open flame or welding sparks.
- E. Avoid stockpiling materials on roofs without first obtaining acceptance from the Architect/Engineer.

1.9 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- B. Weather Condition Limitations: Product application must not be done when rain or other conditions such as fog or heavy dew are possible within a 24-hour period. Roof surface must be at least 6° F or 3° C above the dew point and rising.
- C. Proceed with roofing work only when existing and forecasted weather conditions will permit unit of work to be installed in accordance with manufacturer's recommendations and warranty requirements.
- D. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.
- E. When applying materials with spray equipment, take precautions to prevent overspray from damaging or defacing surrounding walls, building surfaces, vehicles or other property. Care should be taken to do the following:
 - 1. Close air intakes into the building.
 - 2. Have a dry chemical fire extinguisher available at the jobsite.
 - 3. Post and enforce "No Smoking" signs.
- F. Avoid inhaling spray mist; take precautions to ensure adequate ventilation.
- G. Protect completed roof sections from foot traffic for a period of at least 48-hours at 75° F (24° C) and 50 percent relative humidity or until fully cured.
- H. Take precautions to ensure that materials do not freeze.
- I. Minimum temperature for application for most products is 40° F (4° C) and rising for solvent based materials and 50° F (10° C) and rising for water based.

1.10 WARRANTY

- A. Warranty Period: 10 years.
 - 1. Upon completion of the work, provide the Manufacturer's written and signed limited labor and materials Warranty, warranting that, if a leak develops in the roof during the term of this warranty, due either to defective material or defective workmanship by the installing contractor, the manufacturer shall provide the Owner, at the Manufacturer's expense, with the labor and material necessary to return the defective area to a watertight condition.
 - a. Mineral Modified Bitumen Surface Roof Restoration:
- B. Warranty Period: Installer is to guarantee all work against defects in materials and workmanship for a period indicated following final acceptance of the Work.
 - 1. Warranty Period:
 - a. 2 years from date of acceptance.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design: Garland Company, Inc. (The); (225) 266-5179 or approved equal.

2.2 MINERAL MODIFIED BITUMEN SURFACE ROOF RESTORATION

- A. Energizer K Plus FR:
 - 1. Primer: Garla-Prime.
 - 2. Coating: Energizer K Plus FR.
 - 3. Flashing: Replace flashings.
 - 4. Reinforcement: full fabric reinforcement.
 - a. Grip Polyester Firm.
 - 5. Surfacing/Reflective:
 - a. Garla-Brite

2.3 ACCESSORIES:

- A. Roof Insulation: In accordance with Section 072200.
- B. Nails and Fasteners: Non-ferrous metal or galvanized steel, except that hard copper nails shall be used with copper; aluminum or stainless-steel nails shall be used with aluminum; and stainless steel nails shall be used with stainless steel, Fasteners shall be self-clinching type of penetrating type as recommended by the deck manufacturer. Fasten nails and fasteners flush-driven through flat metal discs not less than 1 inch (25 mm) diameter. Omit metal discs when one-piece composite nails or fasteners with heads not less than 1 inch (25 mm) diameter are used.

2.4 EDGE TREATMENT AND ROOF PENETRATION FLASHINGS

- A. Drain Flashing should be 4lb (1.8kg) sheet lead formed and rolled.
- B. Plumbing stacks should be 4lb (1.8kg) sheet lead formed and rolled.
- C. Fabricated Flashing: Fabricated flashings and trim are specified in Section 076000.
 - 1. Fabricated flashings and trim shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the CDA Copper Development Association "Copper in Architecture - Handbook" as applicable.
- D. Manufactured Roof Specialties: Manufactured copings, fascia, gravel stops, control joints, expansion joints, joint covers and related flashings and trim are specified in Section 076300.
 - 1. Manufactured roof specialties shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the NRCA "Roofing and Waterproofing Manual" as applicable.

PART 3 EXECUTION

3.1 EXAMINATION

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

3.2 ROOF PREPARATION AND REPAIR

- A. General: All necessary field and flashing repairs must be done according to good construction practices, including the removal of all wet insulation and defective materials as identified through a moisture detection survey such as an infrared scan and replacement with like-materials.
 - 1. Remove damaged flashings from curbs, roof drains and roof penetrations.
 - 2. Remove all wet, deteriorated, blistered, or delaminated roofing membrane or insulation and fill in any low spots with like materials occurring as a result of removal work to create a smooth, even surface for application of new roof membranes.
 - 3. Existing roof surfaces shall be primed as necessary and allowed to dry prior to installing the roofing system.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Repair all defects such as deteriorated roof decks, saturated materials, loose or brittle membrane or membrane flashings, etc. Verify that existing conditions meet the following requirements:
 - 1. Existing membrane is either fully adhered or that the membranes mechanical fasteners are secured and functional.
 - 2. Application of roofing materials over a brittle, damaged or poor condition roof membrane is not permitted.
- D. Remove all loose dirt and foreign debris from the roof surface. Do not damage roof membrane in cleaning process.
- E. Clean and seal all parapet walls, gutters, and coping caps, and repair any damaged metal where necessary. Seal watertight all fasteners, pipes, drains, vents, joints, and penetrations where water could enter the building envelope.
- F. Confirm local water run-off ordinances and restrictions prior to cleaning roof. Clean the entire roof surface by removing all dirt, algae, mold, moss, paint, oil, talc, rust, or other foreign substance. Use a bio-degradable cleaner like Simple Green Oxy Solve when necessary and warm water. Scrub heavily soiled areas with a brush. Power wash roof thoroughly with an industrial surface cleaner equipped with one-piece balanced spray rotating jets for streak free close contact cleaning. Rinse with fresh water to completely remove all residuals. Allow roof to dry thoroughly before continuing.

- G. Repair existing roof membrane as necessary to provide a sound substrate for the liquid membrane. All surface defects must be repaired/renovated and be made watertight. Any repairs must be with be only with materials compatible with the fluid-applied roofing restoration system.

3.3 INSTALLATION

A. General Installation Requirements:

1. Install in accordance with manufacturer's current Application and Installation Guidelines and the NRCA Roofing and Waterproofing Manual.
2. Adequate coating thickness is essential to performance. If the applicator is unfamiliar in gauging application rates, we suggest that a controllable area be measured, and the specified material be applied. In all cases, all minimum specified material must be applied, and proper minimum dry film thicknesses must be achieved. Care must be taken to ensure that all areas completed including all flashings, roof penetrations, etc. are coated sufficiently to ensure a watertight seal.
3. Cooperate with manufacturer, inspection and test agencies engaged or required to perform services in connection with installing the roof system.
4. Insurance/Code Compliance: Where required by code, install, and test the roofing system to comply with governing regulation and specified insurance requirements.
5. Protect work from spillage of roofing materials and prevent materials from entering or clogging drains and conductors. Replace or restore adjacent work damaged by installation of the roofing system.
6. All primers must be top coated within 24 hours after application, preferably immediately after drying. Clean and re-prime if more time passes after priming.
7. Coordinate counter flashing, cap flashings, expansion joints and similar work with work specified in other Sections under Related Work.
8. Coordinate roof accessories and miscellaneous sheet metal accessory items, including piping vents and other devices with work specified in other Sections under Related Work.

B. Mineral Modified Bitumen Surface Roof Restoration: Renovation work includes:

1. Flashings (As Noted on Plans):
 - a. Fascia Edges: Cut back edges. Prime, coat with mastic, cover with membrane.
 - b. Parapets and Vertical Surfaces: Cut back and replace fabric base flashings. Prime, coat with mastic, cover with fabric.
 - c. Metal Flashings: Repair/Replace metal flashings, pitch pockets, etc.
2. Primer: Prime roof surfaces at a rate of 0.5 gallons per 100 SF.
3. Full Reinforcement with Base Coat: Install full fabric reinforcement in base coat on the entire roof surface.
 - a. Begin reinforcement at flashing laps and penetration details.
 - b. Where required to reduce the height of the overlaps, apply additional coating or a bead of Green Lock XL or Tuff-Stuff MS into side and end laps and allow to skin over.
 - c. On field surfaces run fabric parallel to the low edge using a

- shingling method up the slope with minimum 3-inch fabric laps.
- d. After positioning reinforcement to roll out, apply Coating 40 inches wide to surface where reinforcement ply is to be applied at a rate of 3.5 gallons per 100 SF for mineral modified bitumen.
 - e. Do not apply coating too far ahead of fabric so coating does not dry before fabric can be embedded.
 - f. Immediately roll a 40-inch width of reinforcement into wet coating.
 - g. Ensure roller is fully saturated with coating and backroll over the reinforcement surface to fully saturate fabric.
 - h. Use care to lay the fabric tight to the roof surface without air pockets, wrinkles, fishmouths, etc.
 - i. Lap adjacent rolls of reinforcement 3 inches and end laps 3 inches.
4. Coating: Apply coating to the entire roof as soon as possible after embedding reinforcement. Use special attention to coating flashings and other critical areas to build adequate membrane thickness.
 - a. Apply Energizer K Plus FR Coating to entire roof surface at 3.0-3.5 gallons per 100 SF.
 5. Surfacing Reflective: Apply Garla-Brite surfacing in 2 coats; first coat at 3/4 gal per 100 SF over the entire roof surface and let dry. Apply second coat at 3/4 gal per 100 SF over the entire roof surface.

3.4 REPAIR OF EDGE TREATMENT AND ROOF PENETRATION FLASHING

A. General

1. Repair flashing in accordance with the requirements/recommendations of the Membrane manufacturer and as indicated on the manufacturer's standard drawings. Provide system with base flashing, edge flashing, penetration flashing, counter flashing, and all other flashings required for a complete watertight system.
2. Install and repair flashings concurrently with the roofing as the job progresses.
3. Terminate flashings as required by the membrane manufacturer.

B. Repairs of Existing Roof Penetrations and Flashings

1. Metal Edge (As Indicated on Plans):
 - a. Inspect the nailers to ensure proper attachment and configuration.
 - b. Run one ply over the edge. Assure coverage of all wood nailers. Fasten plies with ring shank nails at 8 inches (203 mm) o.c.
 - c. Install continuous cleat and fasten at 6 inches (152 mm) o.c.
 - d. Install new metal edge hooked to continuous cleat and set in bed of roof cement. Fasten flange to wood nailers every 3 inches (76 mm) o.c. staggered.
 - e. Prime metal edge at a rate of 100 square feet per gallon and allow to dry.
 - f. Strip in flange with base flashing ply covering entire flange in bitumen with 6 inches (152 mm) on to the field of roof. Assure ply laps do not coincide with metal laps.
 - g. Install a second ply of modified flashing ply in bitumen over the base flashing ply, 9 inches (228 mm) on to the field of the roof.

Seal outside edge with rubberized cement.

3.5 CLEANING

- A. Clean-up and remove daily from the site all wrappings, empty containers, paper, loose particles, and other debris resulting from these operations.
- B. Remove coating markings from finished surfaces.
- C. Repair or replace defaced or disfigured finishes caused by Work of this section.

3.6 PROTECTION

- A. Provide traffic ways, erect barriers, fences, guards, rails, enclosures, chutes, and the like to protect personnel, roofs and structures, vehicles and utilities.
- B. Protect exposed surfaces of finished walls with tarps to prevent damage.
- C. Plywood for traffic ways required for material movement over existing roofs shall be not less than 5/8 inch (16 mm) thick.
- D. In addition to the plywood listed above, an underlayment of minimum 1/2 inch (13 mm) recover board is required on new roofing.
- E. Special permission shall be obtained from the Manufacturer before any traffic shall be permitted over new roofing.

3.7 FIELD QUALITY CONTROL

- A. Require attendance of roofing materials manufacturers' representatives at site during installation of the roofing system.
- B. Perform field inspection and (and testing) as required under provisions of Section 014523.
- C. Correct defects or irregularities discovered during field inspection.

3.8 FINAL INSPECTION

- A. At completion of roofing installation and associated work, meet with Contractor, Architect, installer, installer of associated work, roofing system manufacturer's representative and others directly concerned with performance of roofing system.
- B. Walk roof surface areas, inspect perimeter building edges as well as flashing of roof penetrations, walls, curbs, and other equipment. Identify all items requiring correction or completion and furnish copy of list to each party in attendance.
- C. If core cuts verify the presence of damp or wet materials, the installer shall be required to replace the damaged areas at his own expense.
- D. Repair or replace deteriorated or defective work found at time above inspection as required to produce an installation that is free of damage and deterioration at time of Substantial Completion and according to warranty

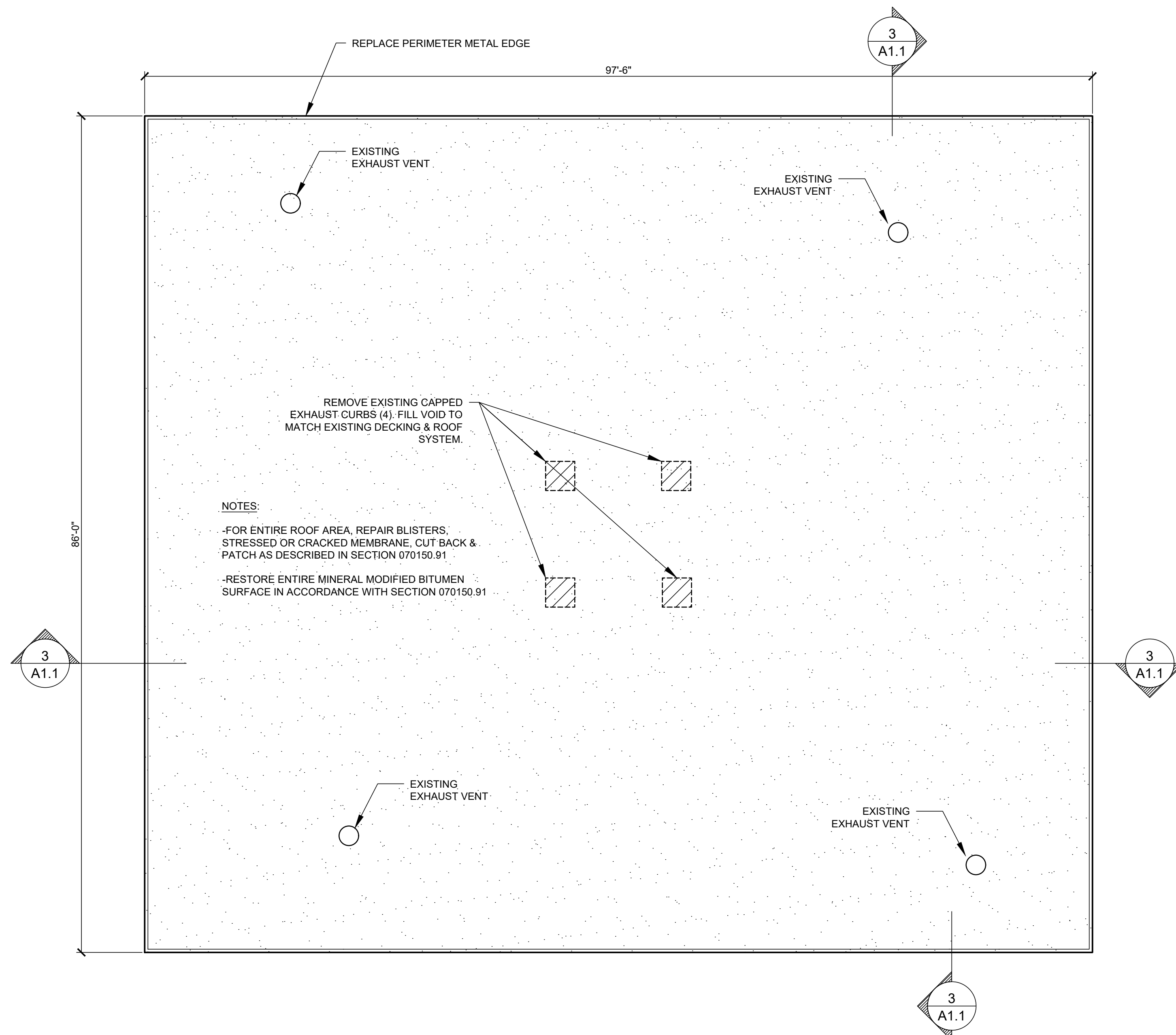
- requirements.
- E. Notify Architect upon completion of corrections.
 - F. Following the final inspection, provide written notice of acceptance of the installation from the roofing system manufacturer.

3.9 SCHEDULES

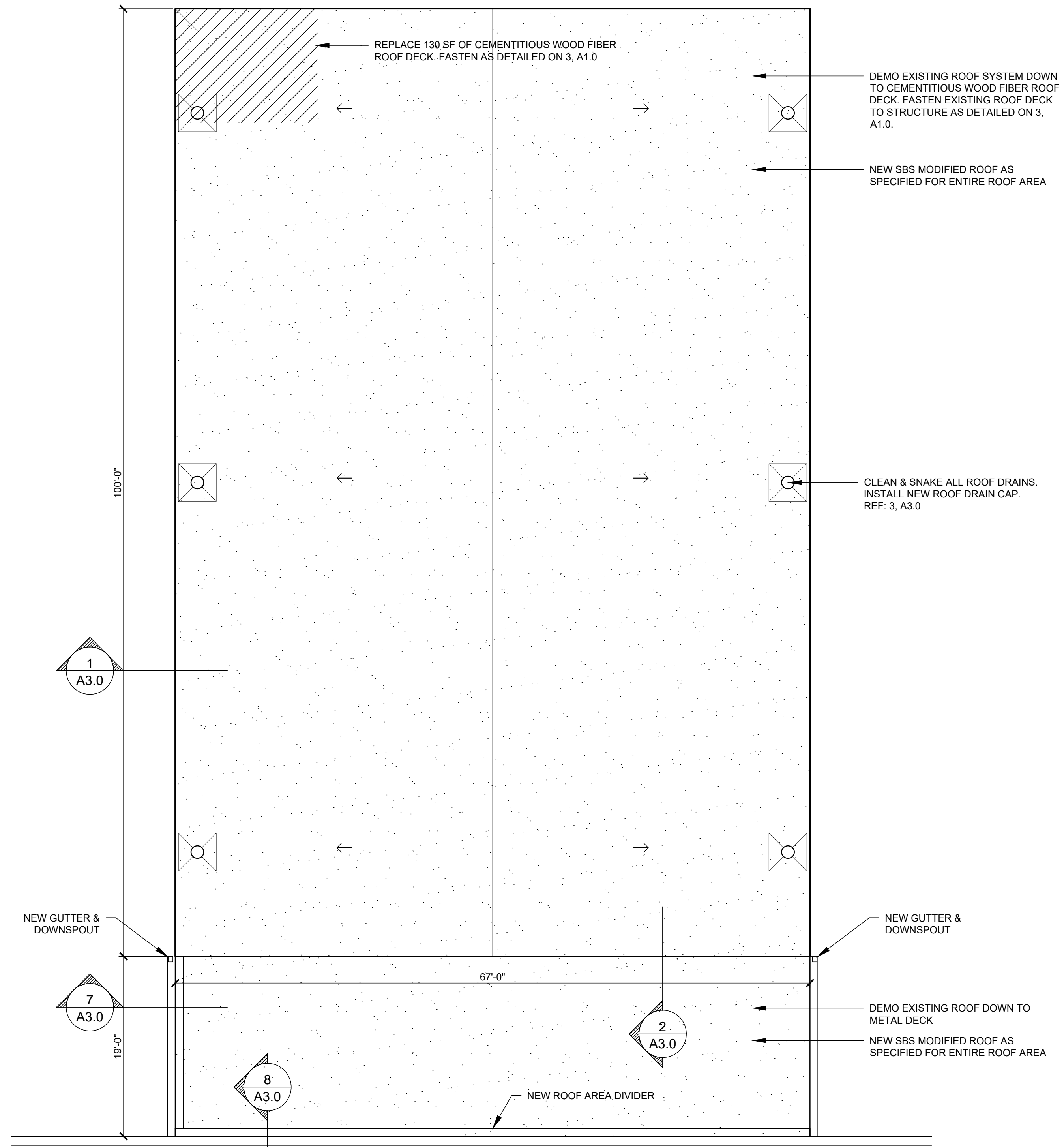
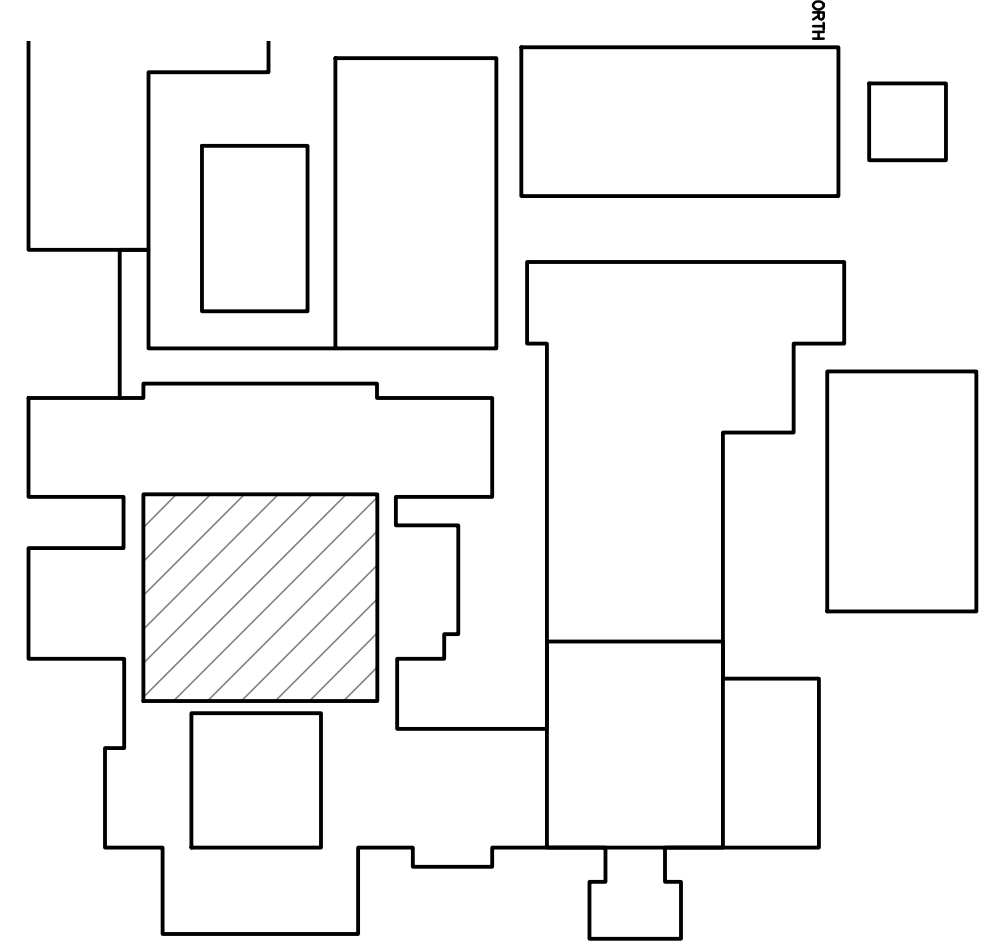
- A. Primers:
 - 1. Primer: Garla-Prime: Non-fibered, quick drying, asphalt-based roof primer having the following characteristics:
 - a. Viscosity by Zahn Cup #2 ASTM D 4212: 18-21 sec
 - b. Flash Point: ASTM D 93 100° F (37.70° C)
 - c. Non-Volatile (ASTM D 2369): 47.6%
 - d. V.O.C. ASTM D 3960 470 g/l
- B. Reinforcement:
 - 1. Grip Polyester Firm: Strong, rigid polyester reinforcing fabric.
 - a. Tensile Strength ASTM D 3766, 75.3 lbs (34.2 kg).
 - b. Tear Strength, 17.4 lbs (7.89 kg).
 - c. Elongation ASTM D 3786, 44.25%
 - d. Weight per Area, 3 oz./sq yd. (102 g/m²)
 - e. Mullen Burst, ASTM D 3786: 139 lbs. (63 kg)
- C. Coatings:
 - 1. Coating: Energizer K Plus FR: Multi-purpose: rubberized, liquid waterproofing membrane designed to restore and upgrade fire ratings on existing smooth surfaced SBS, aged APP, and built-up roof surfaces.
 - a. Non-Volatile, ASTM C 1250: Typical 80%
 - b. Density, ASTM D 1475: 10 lbs./gal (1.21 g/cm³)
 - c. Viscosity @ 77° F (25° C), Brookfield RVT, Spindle #5, 50 rpm: Typical 15,000/25,000 cP
 - d. Flash Point, ASTM D 93: Minimum 100° F (37.7° C)
 - e. Elongation @ 77° F (25° C), ASTM D 412: Typical 275%
 - f. Water Absorption: Less than 0.7%
 - g. Compound Stability: Passes 200° F (93.3° C)
 - h. Accelerated Weathering Test (Q-UV; UVB-313 bulbs): Passes 2,000 hrs. exposure.
 - i. VOC: 250 g/l
- D. Surfacing: Topping.
 - 1. Surfacing:
 - a. Garla-Brite/Reflective.
 - 1) Flash Point, ASTM D 93: 103° F (39° C)
 - 2) Density, ASTM D 1475: 8.51 lbs./gal
 - 3) Typical Drying Time, Overnight
 - 4) Service Temperature, -20° F to 230° F
 - 5) Non-Volatile, ASTM D 4479: Typical 68%
 - 6) VOC: 500 g/l
 - 7) Reflectance, Initial 0.74, 3 year 0.65

- 8) SRI, Initial 77, 3 year 60

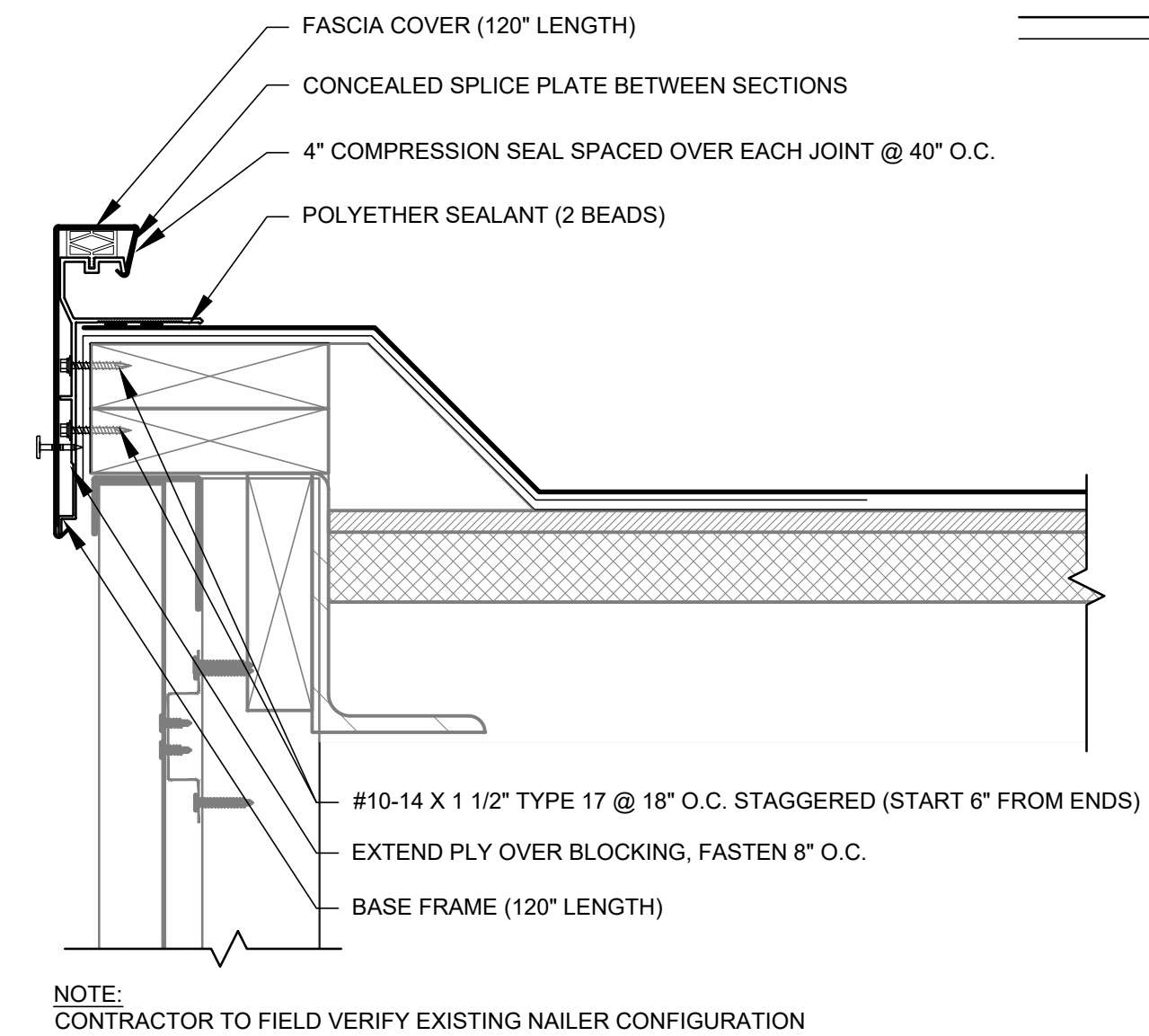
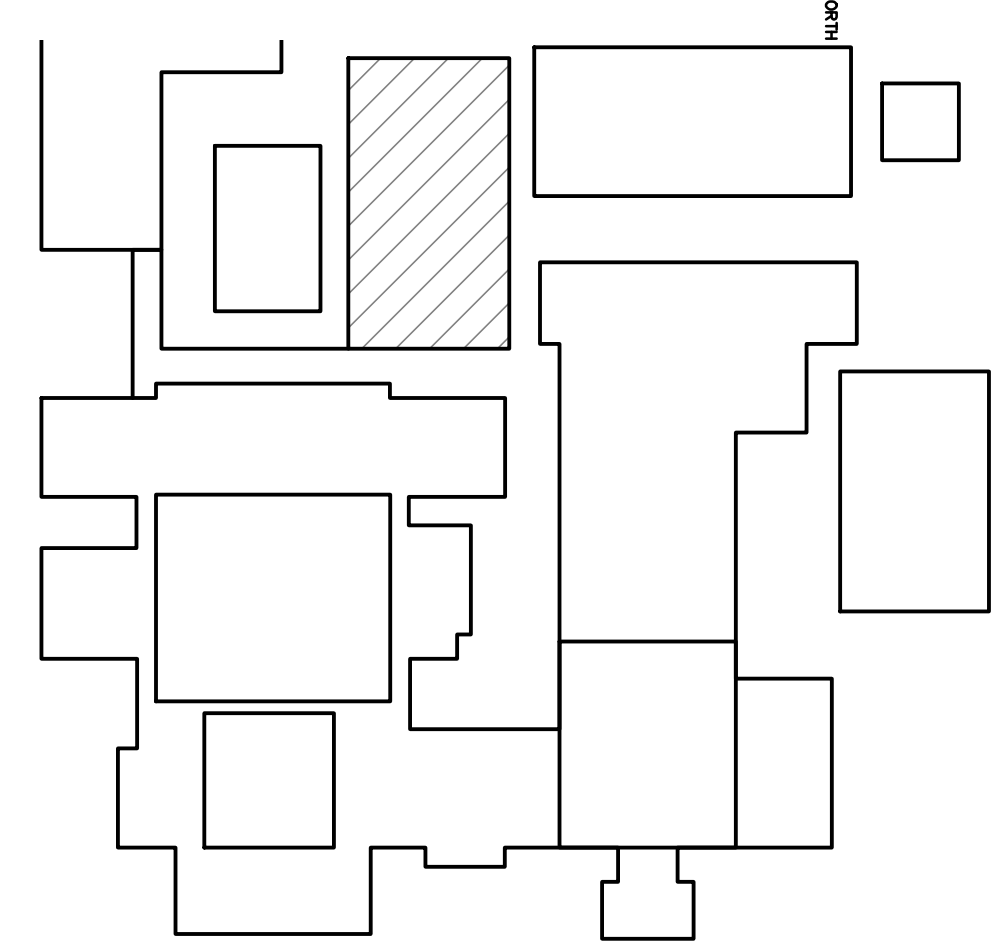
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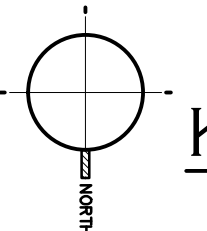
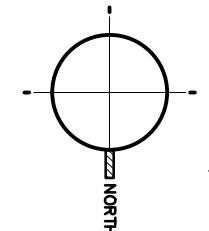
1 ROOF PLAN (MAIN GYM)
SCALE: 1/8" = 1'

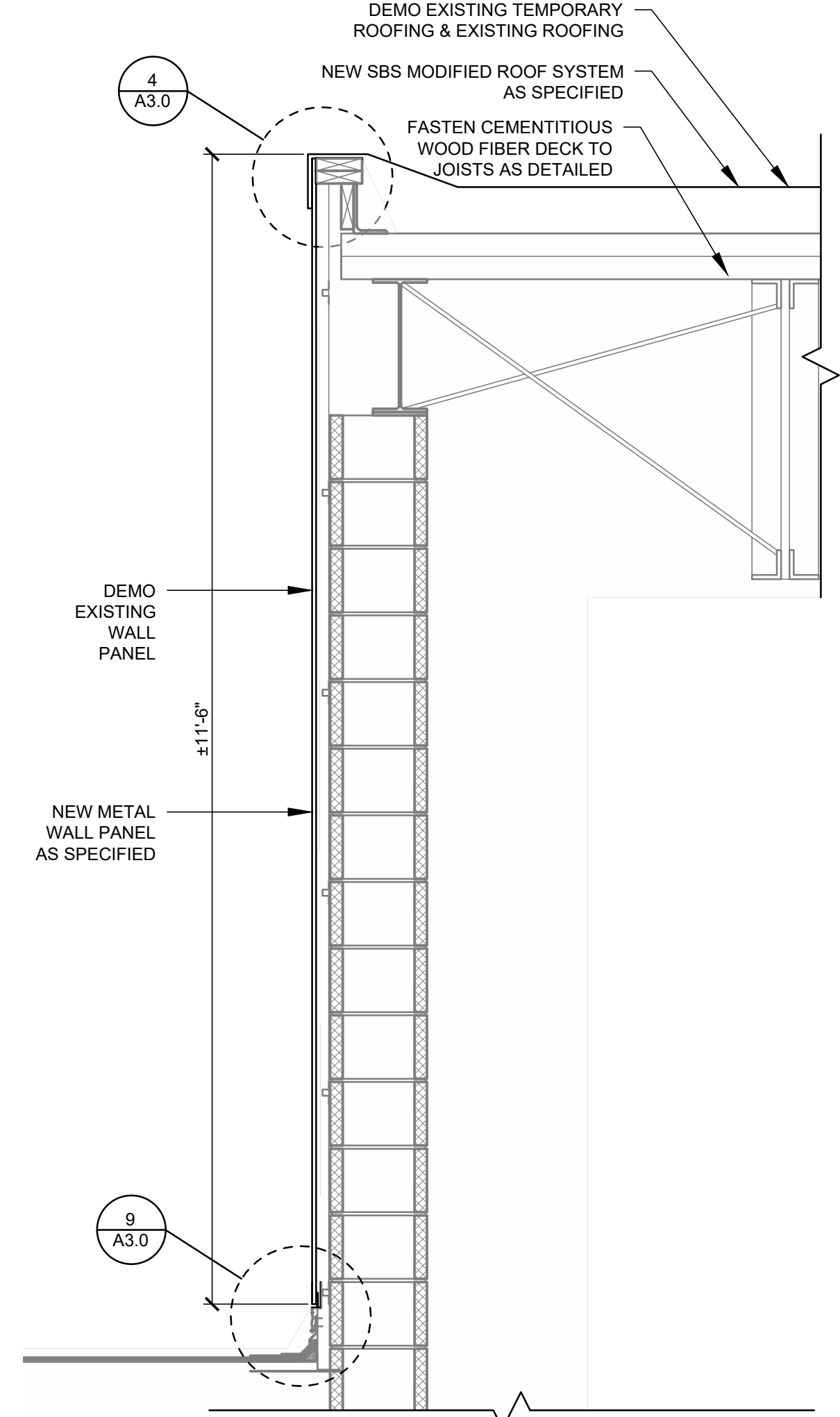
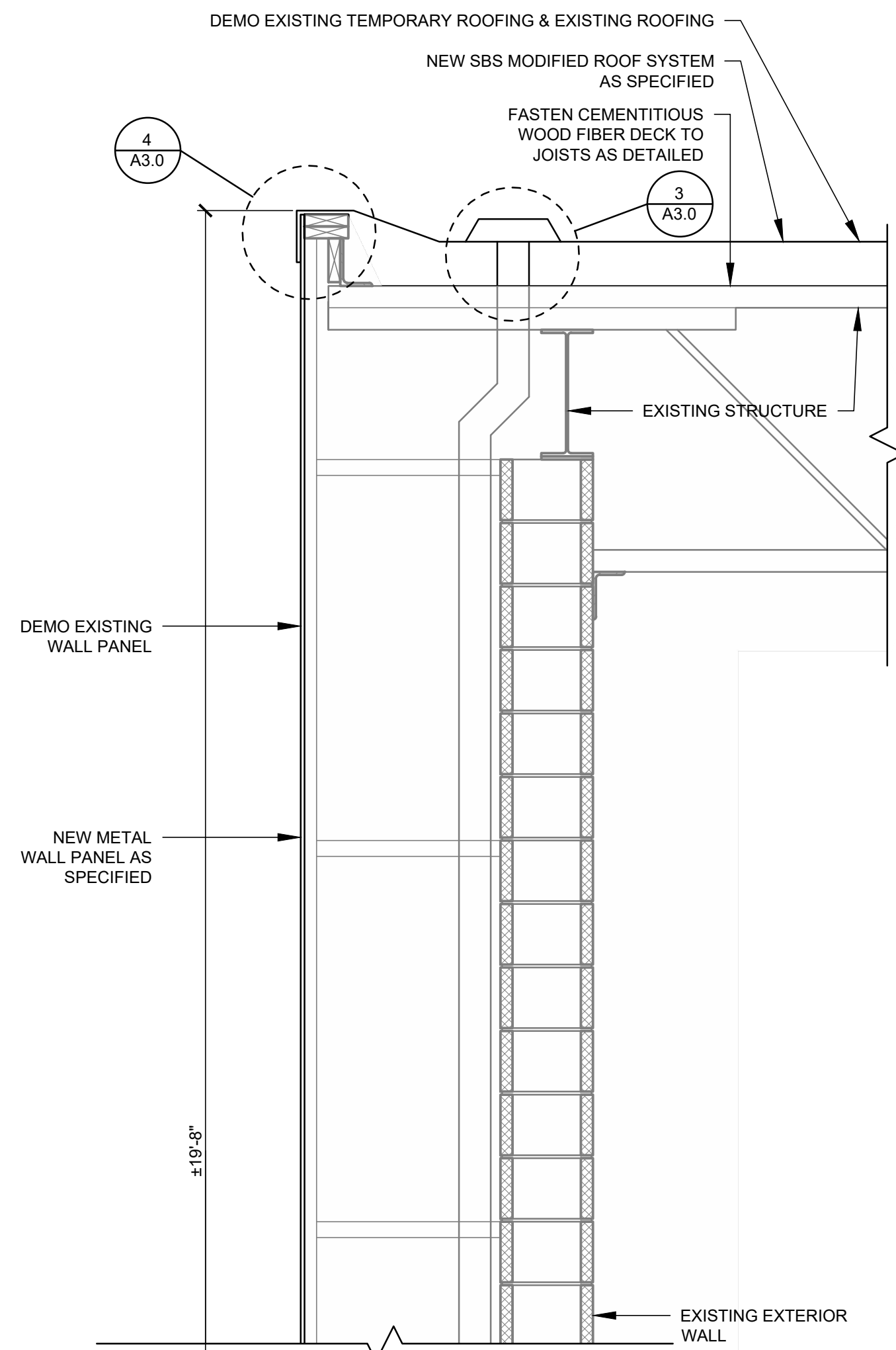


2 ROOF PLAN (AUX. GYM)
SCALE: 1/8" = 1'

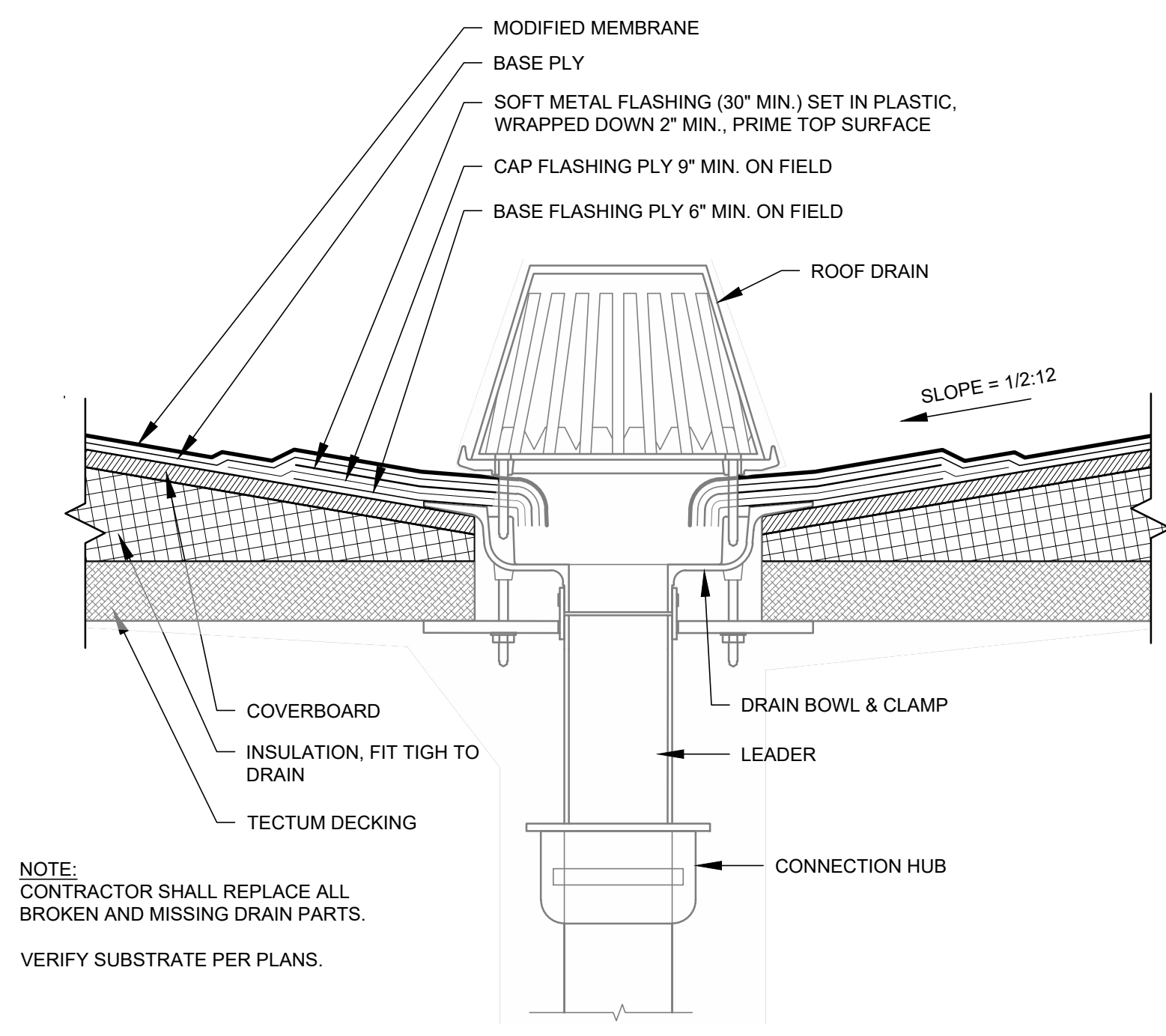
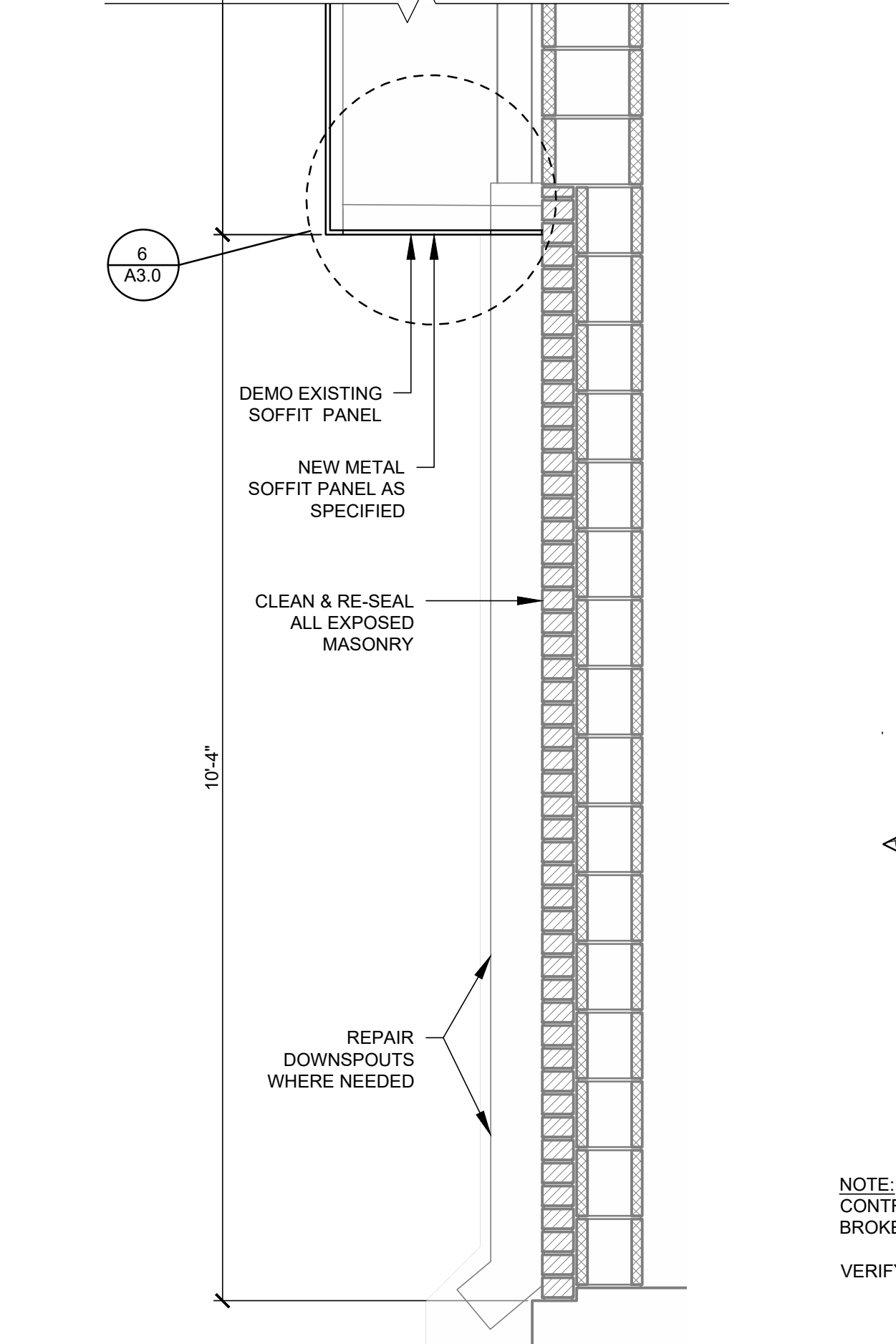


3 METAL EDGE DETAIL
SCALE: 3" = 1'

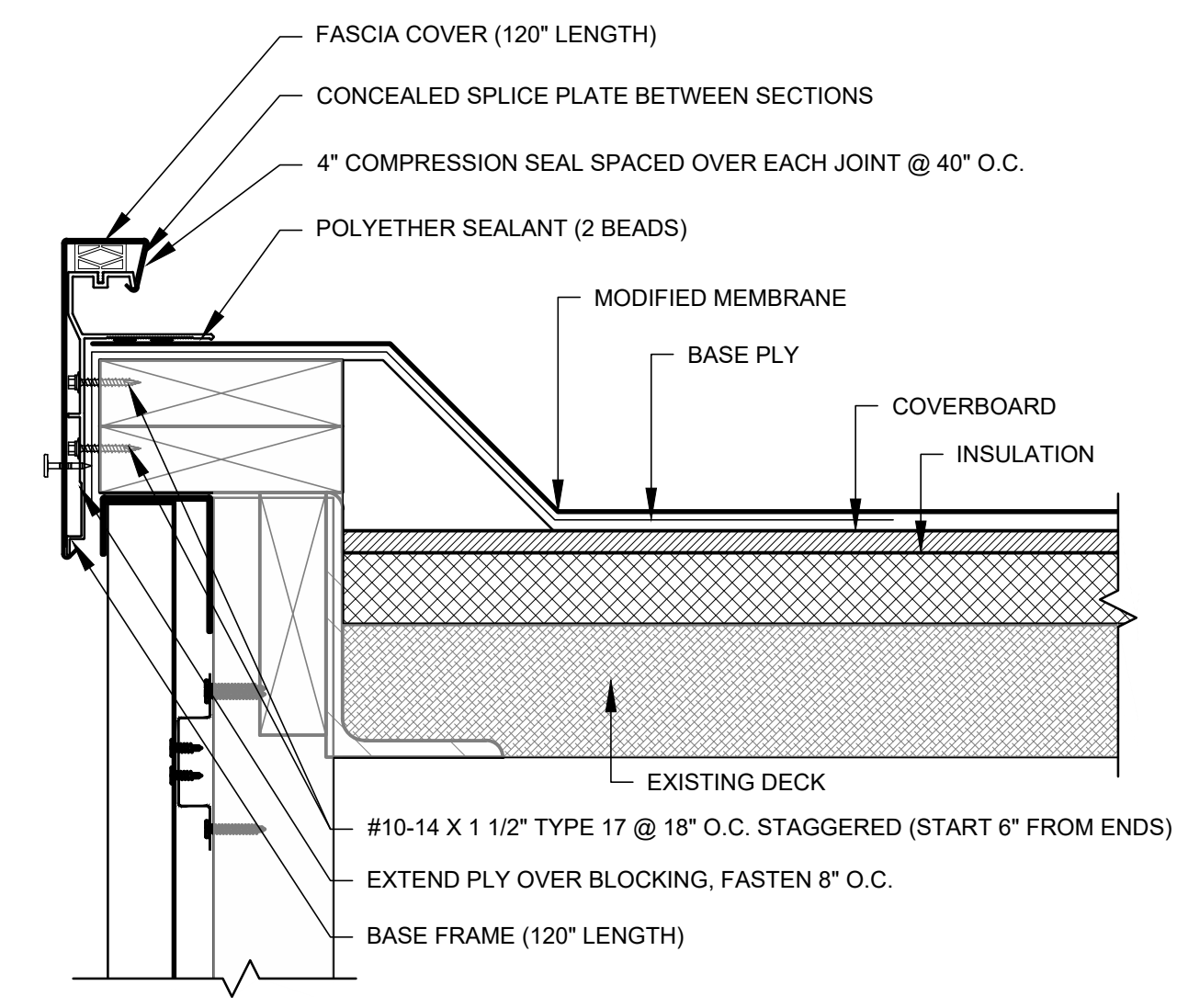




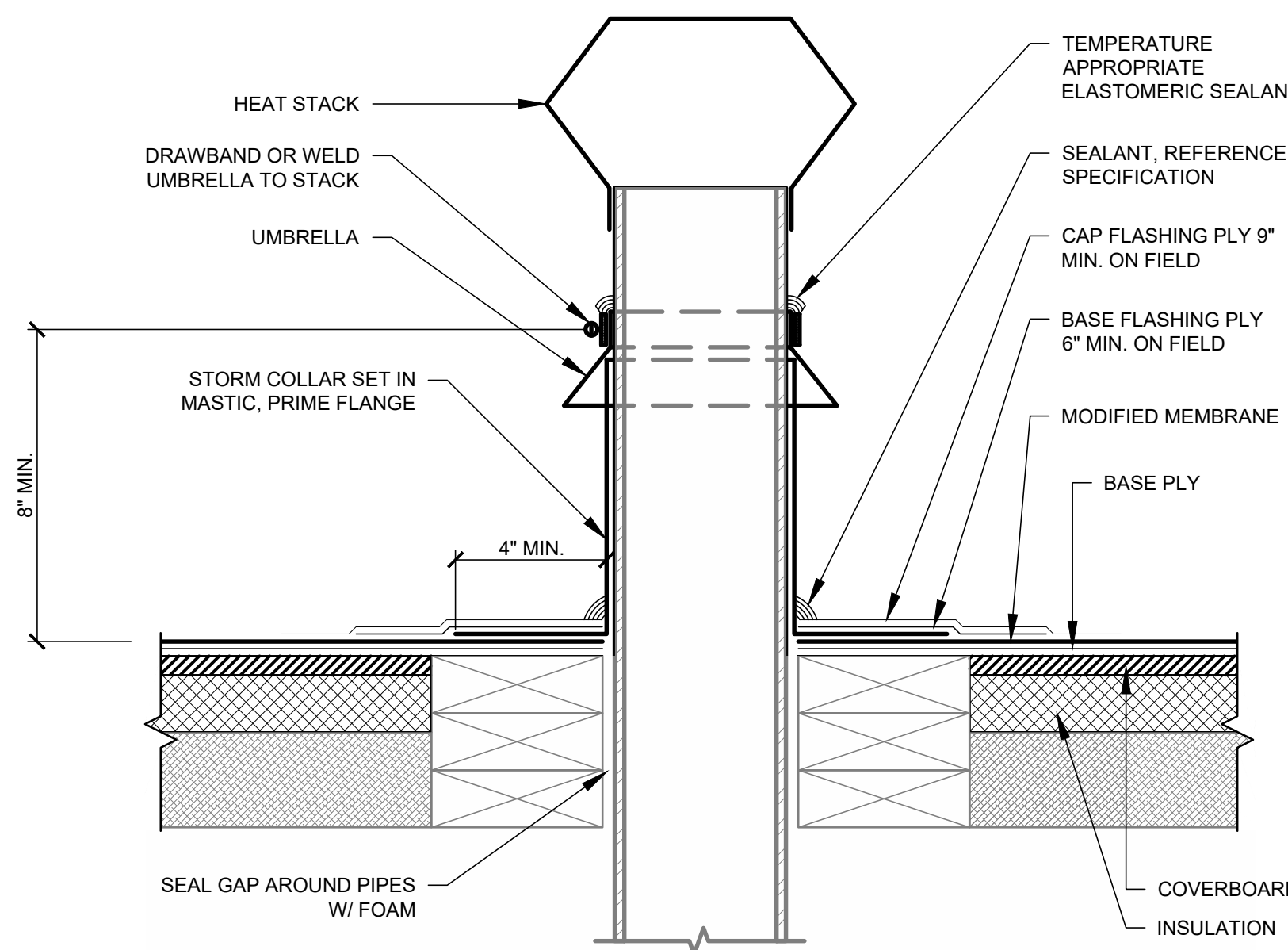
2 WALL SECTION
SCALE: 3/4" = 1'



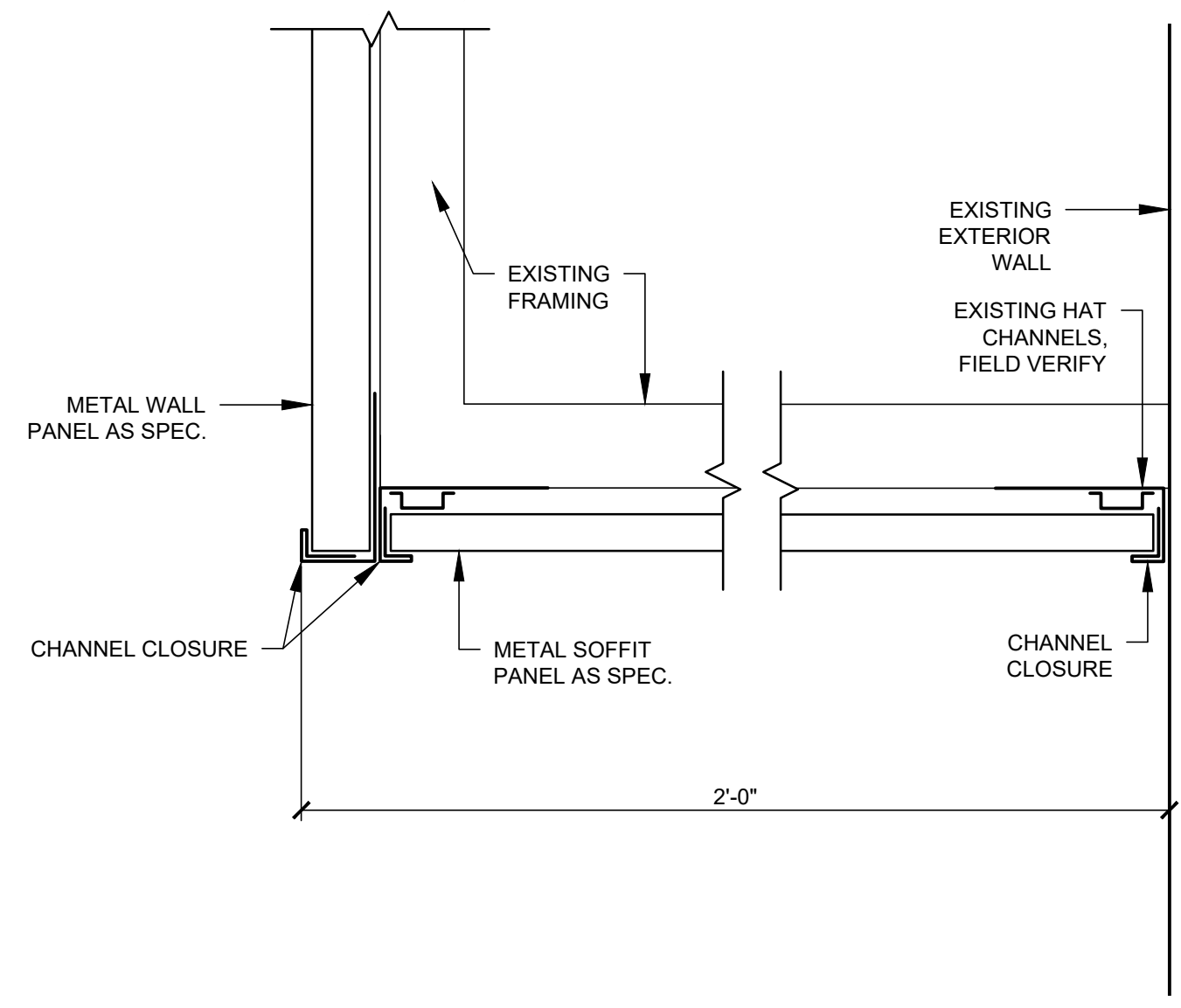
3 TYPICAL ROOF DRAIN
SCALE: 3" = 1'



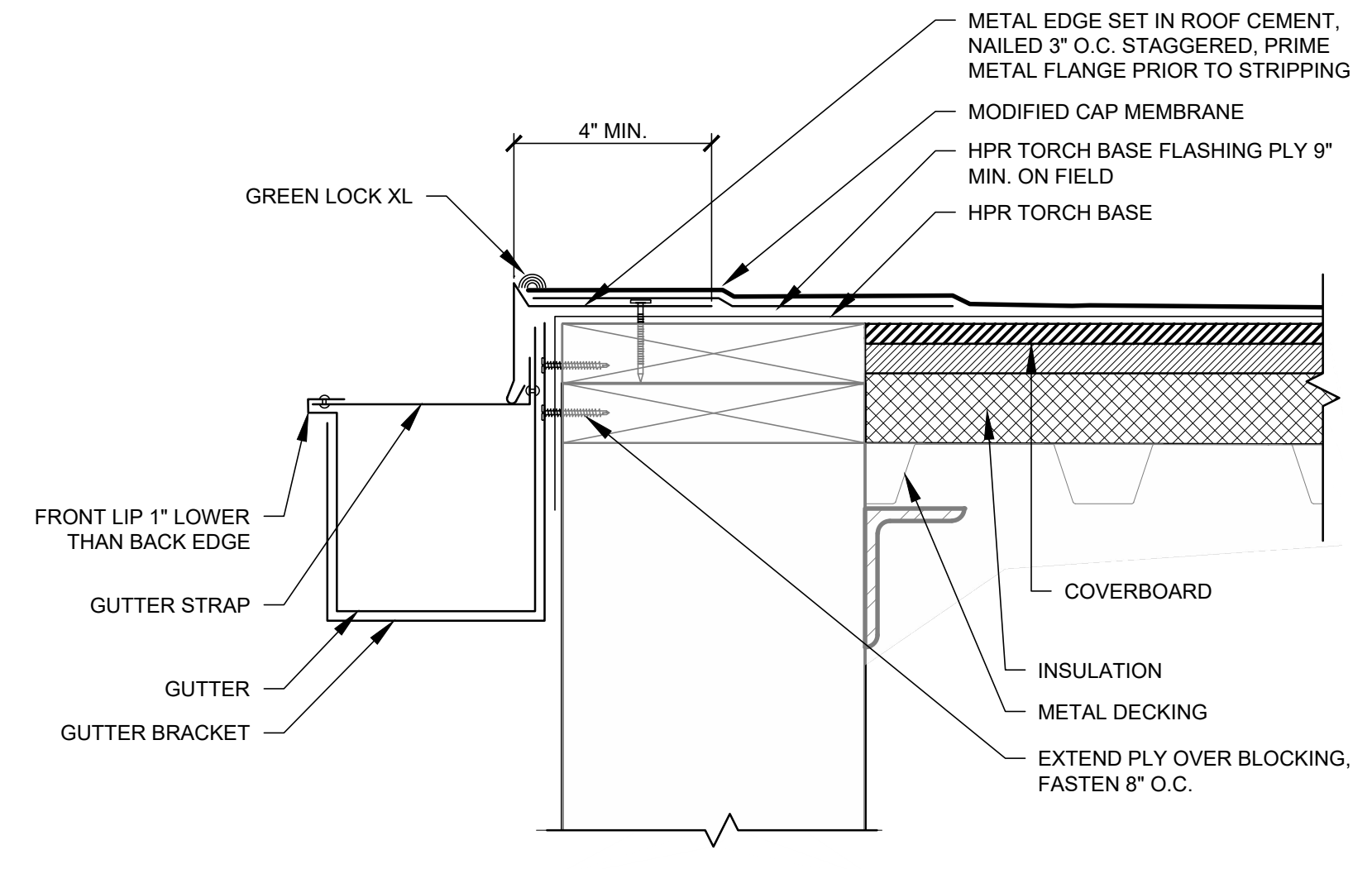
4 METAL EDGE DETAIL
SCALE: 3" = 1'



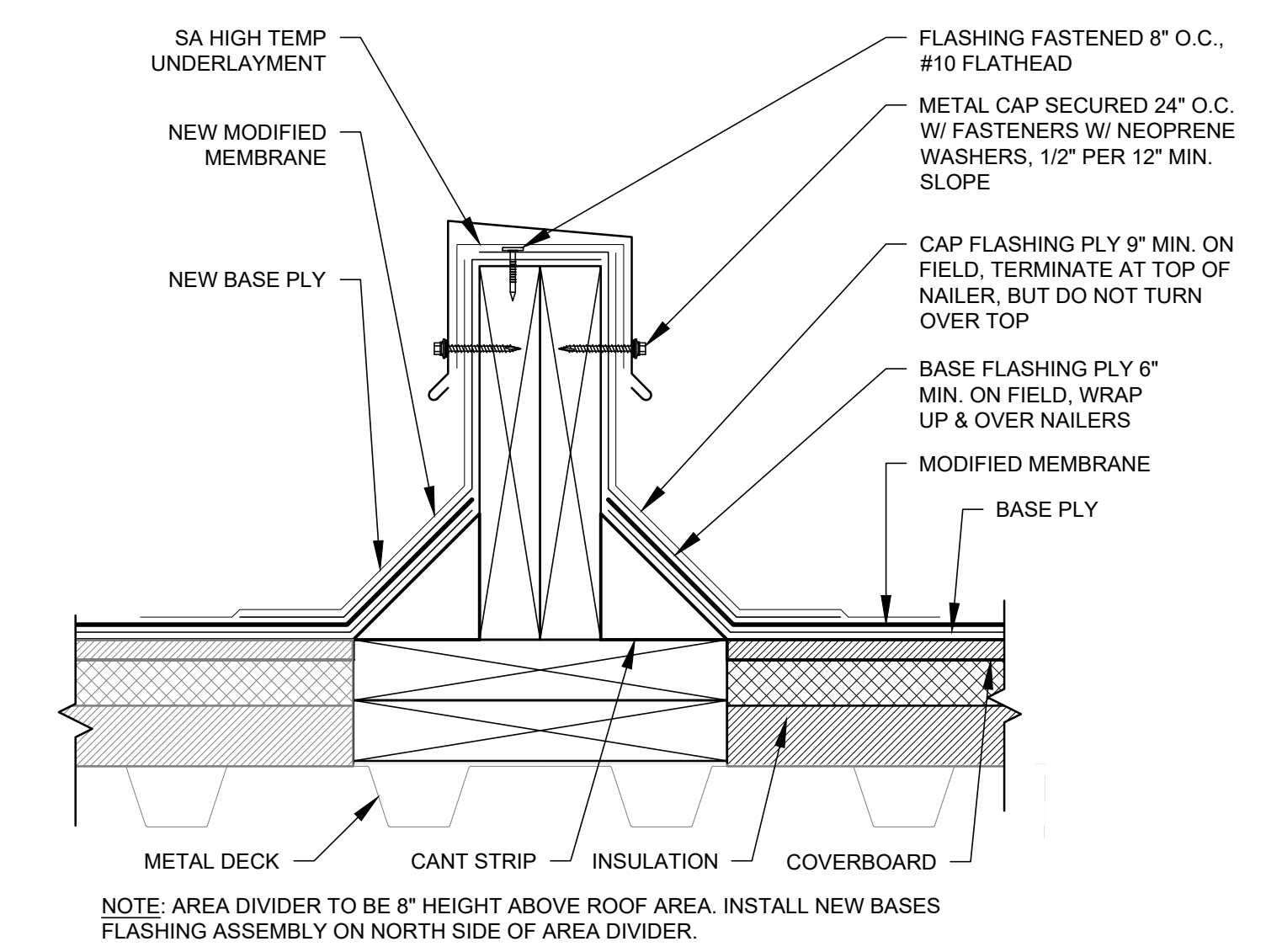
5 HEAT STACK DETAIL
SCALE: 3" = 1'



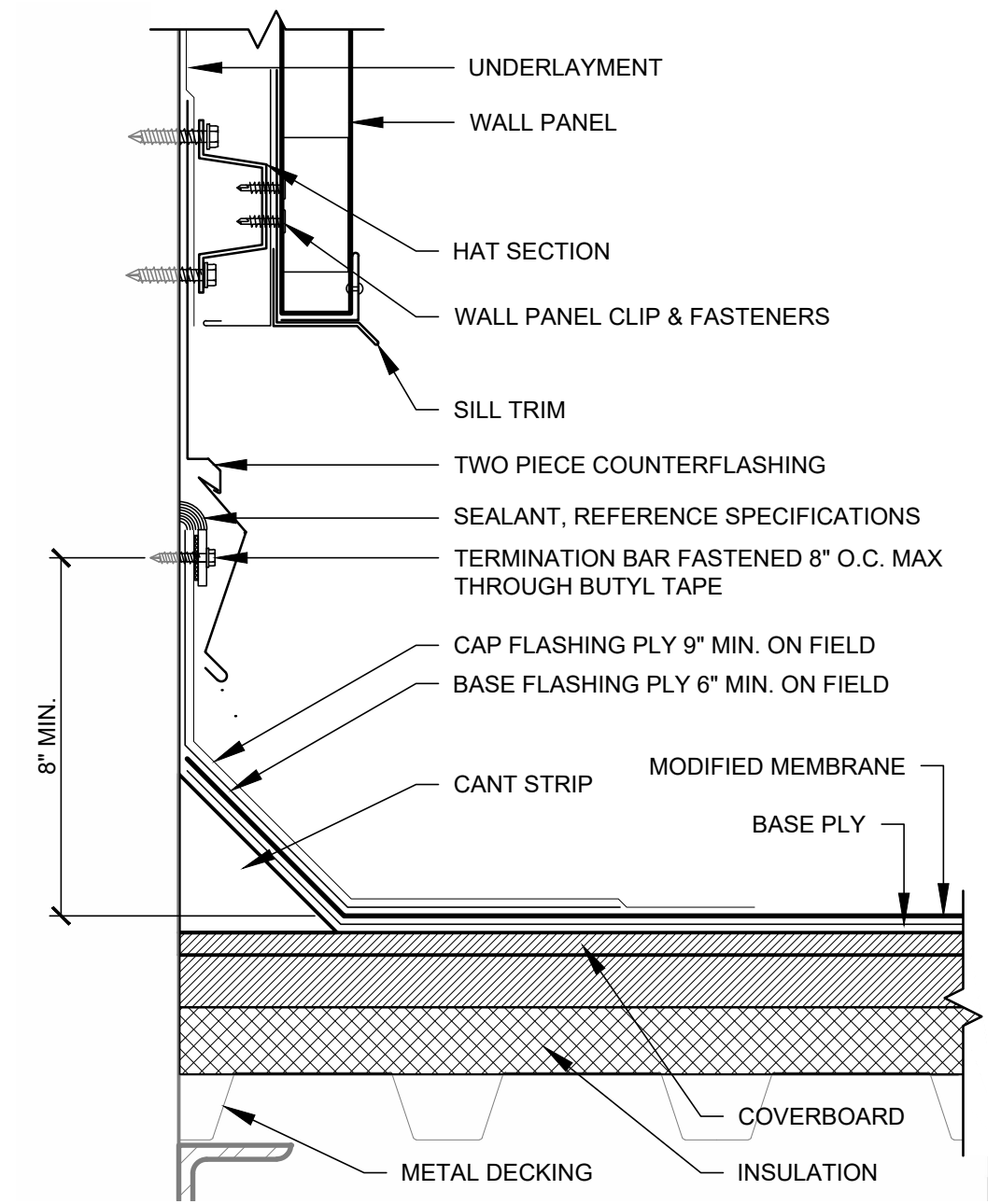
6 SOFFIT DETAIL
SCALE: 3" = 1'



7 METAL EDGE W/ GUTTER
SCALE: 3" = 1'



8 AREA DIVIDER DETAIL
SCALE: 3" = 1'



9 WALL FLASHING AT WALL PANEL
SCALE: 3" = 1'