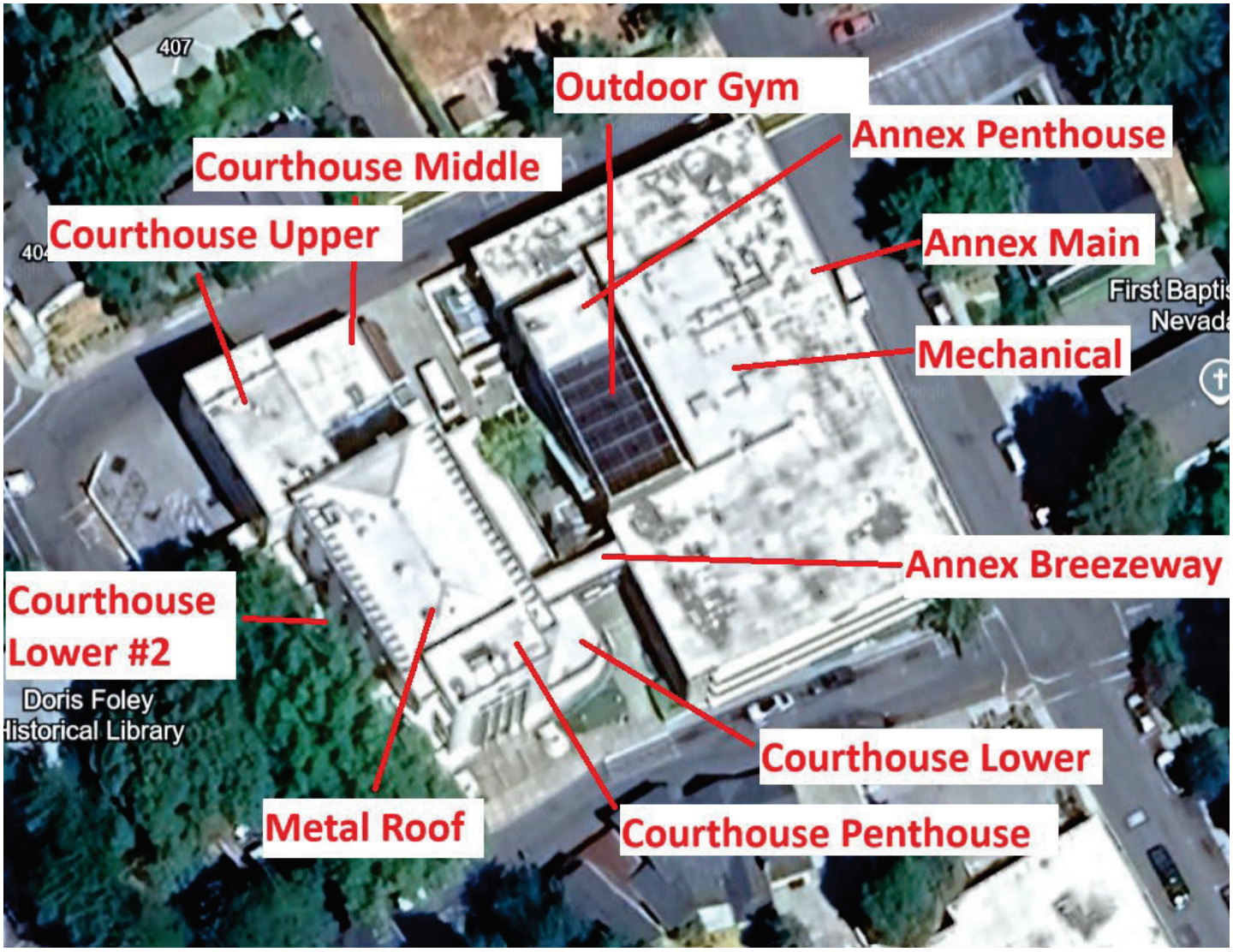
Nevada County

Annex/Courthouse

Roof retrofit Bid

Specifications

Located at 201 Church St. Nevada City, CA. 95959


407
Outdoor Gym
Annex Penthouse
Courthouse Middle
Courthouse Upper
Annex Main
First Bapti
Nevad
Mechanical
Annex Breezeway
Courthouse
Lower #2
Doris Foley
Historical Library
Courthouse Lower
Metal Roof
Courthouse Penthouse

SCOPE OF WORK:

General:

1. Contractor to obtain Encroachment permit for crane operations.
2. Provide temporary fencing to store materials onsite and at staging areas. County Project Manager for storage location.
3. New roof system will have crickets to direct water around all curb mounted roof penetrations.
4. All single ply to be wrapped up and over parapet walls before installing new coping cap. Fully adhere KEE to parapet walls.
5. Raise any curbs as necessary. Install new sleepers and Kynar coated metal sleeper covers at all existing sleepers under HVAC condensers etc.
6. Install walkway roll under downspouts that drain onto the roof.
7. All wood blocks will be replaced with new rubber blocks. Install DBR series Durablok or similar with adjustable all-thread. Wide pipe runs with multiple conduit lines will require two blocks with Unistrut in between to support the pipes.
8. Typical edge metal will be 4" with a continuous cleat unless specified differently in the scopes below.
9. Install 24-gauge galvanized skirt metal at HVAC units per typical curb detail.
10. Install new 24-gauge galvanized counterflashing, factory finished, color: beige at all roof to wall terminations. Cut off existing counterflashing and leave 2" minimum of existing for the new counterflashing to go behind. See detail "skirt metal flashing under existing counterflashing".
11. Install fully adhered, 60-Mil KEE single ply roof system or approved equal where shown, color: white (typical) in Tremply KEE FB WBII bonding adhesive and associated components and flashings. All KEE will go up and over all curbs and parapets. See detail "wall flashing with metal cap flashing.
12. Install OMG retrofit drain assembly at existing drains on every roof section. See detail.
13. Rebuild all scuppers.
14. Do not install walkway roll over seams in single ply roof.
15. Install walkway slip sheet under all satellite/radio antennas.
16. Include warning lines around all roof edges requiring fall protection, color- bright yellow. Install 6" wide strip of yellow TPO, back 6' from edges, fully adhered around perimeters of all roofs requiring fall protection.

Annex Main:

1. Clean and remove all debris from existing roof system. Remove and dispose of all coping caps and perimeter edge metal.
2. Remove all lead jacks, counterflashing's, pitch pans, abandoned equipment, and abandoned conduit lines.
3. Electrician: remove conduit and wire serving lights to the old jail area. Conduit is on top of roof. Remove all existing skylights and replace them with new Versico skylights.
4. Tear off the existing roof down to the concrete deck. Refer to Asbestos report for non-friable ACM, (Asbestos Containing Materials).
5. Adhere one layer of 2.7" iso in low rise foam adhesive over entire roof.
6. Adhere one layer of ¼" dens deck prime in low rise foam adhesive over entire roof.

7. Install fully adhered, 60-Mil KEE single ply roof system, color: white (typical) in Tremply KEE FB WBII bonding adhesive and associated components and flashings. All KEE will go up and over all curbs and parapets. See detail "wall flashing with metal cap flashing.
8. Install new Dura-Blok or similar rubber blocks to properly support all conduit lines – Install at a minimum of 8' on center.
9. Install new 24-gauge counterflashing's at all roof to wall terminations and at HVAC units including the mechanical room corrugated siding.
10. Roof in elevated concrete outdoor gym deck like the field of roof. Shop fabricate sheet metal enclosure at basketball court per the a ttached detail.
11. Install new 24-gauge, Kynar beige coping caps in place of existing coping caps.
12. Install new Coping Caps over low perimeter curbs where there are no existing coping caps.
13. Install termination bar and 3-course raised perimeter edge at Southeast and South perimeter with Alphaguard MT and 4" permafab.
14. Install 300' (3 rolls) of Tremco walkway , spot welded according to manufacturer's specifications , color : white with yellow borders to provide clear path to units/drains that require service.

Annex Outdoor Gym:

1. Remove and dispose of metal cage fencing, aluminum grooved siding panels and steel support structure over the outdoor gym and the stairs on the side of the building leading up to the outdoor gym.
2. Clean and remove all debris from concrete deck.
3. Install new 2"x6" pressure treated lumber around the perimeter of the concrete deck with 2ea Simpson " Titen HD concrete screws at lumber ends and 1ea staggered at 24" OC in field, recess heads flush with surface.
4. Install 1.5" insulation in low rise foam to match height of perimeter pressure treated lumber. See detail "Annex Outdoor Gym Deck".
5. Install ¼" dens deck prime in low rise foam.
6. Install fully adhered, 60-Mil KEE single ply roof system or approved equal in Tremply KEE FB WBII bonding adhesive and associated components, flashings and new cleated KEE clad edge metal.
7. *See detail for outdoor gym to main roof transition.
8. Install 2 exterior rated access doors for access under Annex Gym floor, raise door frame bottom min 2" above deck and make watertight seal. Mfg- Best access doors, 24" x 24" airtight/watertight stainless steel, Part number BA-ADWT-SS-24-24 or approved equal.
9. Install 14" x 6" vents in sidewalls below concrete deck at 10' OC, Mfg- Brandguard 8" x 16" steel foundation vent or approved equal.
10. Install 1 layer of 5/8" OSB on sides of gym deck with metal studs and track for KEE backing as needed.
11. **BID ALTERNATE 1**: Remove concrete gym deck along with cage. Leave supporting beams and piers. Install new KEE roofing at roof level.
12. **BID ALTERNATE 2**: Remove concrete gym deck, supporting beams and piers down to roof top level, along with removing the cage. Install new KEE roofing at roof level.

Annex Mechanical Room:

1. Clean and remove all debris from metal deck
2. Install new 2"x6" pressure treated Nailers around the perimeter of the metal deck screwed to the metal with 2ea ¼"galvanized self-tapping metal screws at board ends and 1 ea. Staggard at 24"

OC in field.

3. Install 1-1/2" rigid insulation in low rise foam to match the height of nailers for proper drainage.
4. Install ¼" dens deck prime in low rise foam.
5. Install 60 mil KEE in FB WBII bonding adhesive.
6. Install new 24-gauge counterflashing's at all roof curbs.
7. New cleated KEE clad edge metal.
8. Install fully adhered, 60-Mil KEE single ply roof system or approved equal in Tremply KEE FB WBII bonding adhesive and associated components and flashings. See details.

Annex Penthouse:

1. Clean and remove all debris from the existing roof.
2. Tear off the existing roof down to the concrete deck, edge metal and counterflashing's included.
3. Prop up roof top radiator serving the generator and install roofing under it. Install new radiator supports with metal covers as noted in general scope section.
4. Install 1.5" rigid insulation in low rise foam.
5. Adhere one layer of ¼" dens deck prime on low rise foam adhesive.
6. Install fully adhered, 60-Mil KEE single ply roof system or approved equal in Tremply KEE FB WBII bonding adhesive and associated components and flashings or approved equal.
7. Install new 24-gauge counterflashing's.
8. New cleated KEE clad edge metal.
9. Seal off area under penthouse. See detail "Annex Outdoor Gym & Annex Penthouse". Include counter flashing under existing flashing
13. Install 2 exterior rated access doors for access under Annex Penthouse floor, raise threshold min 2" above deck and watertight seal. Mfg- Best access doors, 24" x 24" airtight/watertight stainless steel, Part number BA-ADWT-SS-24-24 or approved equal.
14. Install one layer of 5/8" OSB with metal studs and track for KEE backing as needed.

Annex Breezeway:

1. Clean and remove all debris from the existing roof.
2. Tear off the existing roof down to the concrete deck, and edge metal.
3. Adhere one layer of 2.7" iso in low rise foam adhesive.
4. Adhere one layer of ¼" dens deck prime in low rise foam adhesive.
5. Install fully adhered, 60-Mil KEE single ply roof system or approved equal in Tremply KEE FB WBII bonding adhesive and associated components and flashings.
6. New cleated KEE clad edge metal.
7. Include KEE going over cubs and new coping caps at curbs. See detail "wall flashing with metal cap flashing".

Courthouse Lower Roofs (2):

1. Clean and remove all debris from the existing roof.
2. Tear off the existing roof down to the concrete deck.
3. Remove and dispose of all coping caps and metal counterflashing's.
4. Adhere one layer of 2.7" iso in low rise foam adhesive.
5. Adhere one layer of ¼" dens deck prime in low rise foam adhesive.
6. Install fully adhered, 60-Mil KEE single ply roof system or approved equal in Tremply KEE FB WBII bonding adhesive and associated components and flashings.
7. Install new 24-gauge counterflashing's at roof to wall terminations and windows.
8. Install new 24-gauge, Kynar beige coping caps in place of existing coping cap areas.
9. Add new scupper next to existing drain on the south side.

Courthouse Middle Roof:

1. Clean and remove all debris from the existing roof.
2. Remove and dispose equipment and one skylight that is marked for removal by the county.
3. Tear off the existing roof down to the concrete deck.
4. Remove and dispose of all coping caps, edge metal, and metal counterflashing's.
5. Adhere one layer of 2.7" iso in low rise foam adhesive.
6. Adhere one layer of ¼" dens deck prime in low rise foam adhesive.
7. Install fully adhered, 60-Mil KEE single ply roof system or approved equal in Tremply KEE FB WBII bonding adhesive and associated components and flashings.
8. Install new 24-gauge counterflashing's at roof to wall terminations and HVAC curbs.
9. Install new 24-gauge, Kynar beige coping caps in place of existing coping cap areas.
10. New cleated KEE clad edge metal.
11. Install 60' (1 roll) of walkway roll to provide clear path to units/drains that require service.

Courthouse Penthouse Roof:

1. Clean and remove all debris from the existing roof.
2. Remove and dispose of skylight, roof hatch, and edge metal.
3. Tear off the existing roof down to the concrete deck.
4. Install new 37"x38" roof hatch.
5. Cover skylight hole with 2 x 6, #2 or better lumber, Rim Joist nailed with 2ea 16d sinkers at 16" OC into solid wood frame. Install field joists at 16" OC attached with Simpson LUS26 joist hangers at each end and ¾" CDX plywood over the joists nailed with 8d sinkers at 6" OC at edges and 8" OC field.
6. Adhere one layer of 2.7" iso in low rise foam adhesive.
7. Adhere one layer of ¼" dens deck prime in low rise foam adhesive.
8. Install fully adhered, 60-Mil KEE single ply roof system or approved equal to roof and walls in Tremply KEE FB WBII bonding adhesive and associated components and flashings.
9. Install new 24-gauge counterflashing's at roof to wall terminations and HVAC curbs.
10. New cleated KEE clad edge metal.
11. Install 25' (1/4 roll) of walkway roll to provide clear path to units/drains that require service.

Courthouse Metal Roof:

Nevada County Courthouse/Annex - Roof Replacement

1. Clean and remove all debris from the existing roof.
2. Remove HVAC unit that is marked "Demo" and all coping caps and dispose.
3.
4. Install one layer of ½" exterior CDX plywood or exterior OSB over the existing wood sheathing planks with 8d common nails at 6" on edges and 8" in field nailed into the rafters. Stagger ends of plywood approx. 48". Ends of plywood to be over rafters for proper nailing.
5. Cut in ridge vents through the plywood and planking to provide attic ventilation.
6. Install high heat ice and water underlayment over hip entire roof and valley.
7. Install fully adhered, 60-Mil KEE single ply roof system or approved equal in Tremply KEE FB WBII bonding adhesive from 18" minimum past and under the bottom edge of new standing seam metal roofing down through the valley and up and over the parapet wall.
8. Install new 24-gauge, Kynar beige coping caps in place of existing coping cap areas.
9. Field fabricate boot flashings for parapet wall braces.
10. Install 120' (1.25 rolls) of walkway roll to provide clear path to units/drains that require service.
11. Install new 22 gauge galvanized Tremco TremLock VP 1.5" x 16" or approved equal metal standing seam, steel roofing or approved equal, color- Zincalume Plus, over entire hip roof and lap over the single ply by 16" down to approx. 6" above steel parapet braces.
12. Install matching hip and ridge flashing with matching metal gap flashing between the standing seams at hips and ridges. Use screened blocks between the standing seams to provide ventilation at the ridge line only.

Courthouse Upper Roof:

1. Clean and remove all debris from the existing roof.
2. Remove and dispose of coping caps and edge metal.
3. Tear off the existing roof down to the concrete deck.
4. Adhere one layer of 2.7" iso in low rise foam adhesive.
5. Adhere one layer of ¼" dens deck prime in low rise foam adhesive.
6. Adhere 60 mil KEE in FB WBII bonding adhesive.
7. Install new 24-gauge counterflashing's at roof to wall terminations and HVAC curbs.
8. Install new 24-gauge, Kynar beige coping caps in place of existing coping cap areas.
9. New cleated KEE clad edge metal.
10. Install 75' (3/4 roll) of walkway roll to provide clear path to units/drains that require service.

Annex HVAC Cooling tower deck and adjacent deck into Annex back lower door.

1. Clean and remove all debris from the existing roof.
2. Remove and dispose of coping caps and edge metal.
3. Tear off the existing roof down to the concrete deck.
4. Adhere one layer of 1" iso in low rise foam adhesive.
5. Adhere one layer of ¼" dens deck prime in low rise foam adhesive.
6. Adhere 60 mil KEE in FB WBII bonding adhesive.
7. Install new 24-gauge counterflashing's at roof to wall terminations and HVAC curbs.
8. Install new 24-gauge, Kynar beige coping caps in place of existing coping cap areas.
9. New cleated KEE clad edge metal.
10. Replace wooden access walkway with new 2 x 6 pressure treated lumber and hot dipped galvanized deck screws. Install walkway slipsheet under wood plank supports.
11. Replace drains and pipe supports, see general scope of work section.

END OF SCOPE

Disclaimer:
The products and materials specified herein are provided as a basis of quality control and are intended to establish a standard of quality, performance, and design. The use of the specified products is not mandatory, and substitutions are permitted. Any substitutions must be approved by the district, County of Nevada Facilities Department, provided that the substitute products or materials are of equal or better quality, performance, and design, as determined by the district. All substitutions must meet the requirements set forth in the project specifications and be approved in writing prior to their use.

SECTION 075416 - KETONE ETHYLENE

ESTER (KEE) ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Adhered thermoplastic KEE roofing system on concrete deck, including:

2. Roof insulation.

3. Roof insulation cover board.

4. Walkway material.

1.2 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D1079 "Standard Terminology Relating to Roofing and Waterproofing" and applicable edition of NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" and NRCA's Glossary for definition of terms related to roofing work in this Section.

1.3 PREINSTALLATION MEETINGS

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

1. Meet with Owner, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.

2. Review drawings and specifications.

3. Review methods and procedures related to roofing installation, including manufacturer's written instructions.

4. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.

5. Examine substrate conditions and finishes for compliance with requirements, including

6. flatness and fastening.

7. Review structural loading limitations of roof deck during and after roofing.

8. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.

9. Review governing regulations and requirements for insurance and certificates if applicable.

10. Review temporary protection requirements for the roofing system during and after installation.

11. Review roof observation and repair procedures after roofing installation.

1.4 CLOSEOUT SUBMITTALS

A. Executed copies of warranties.

B. Maintenance Data: To include in maintenance manuals.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An employer of workers trained and certified by manufacturer, including a full-time on-site supervisor with a minimum of five years' experience installing products comparable to those specified, able to communicate verbally with Contractor, and employees, and qualified by the manufacturer to install manufacturer's product and furnish warranty of type specified.

B. Roofing Inspector Qualifications: A technical representative of manufacturer not engaged in the sale of products and experienced in the installation and maintenance of the specified roofing system, qualified to perform roofing observation and inspection specified in Field Quality Control Article, to determine Installer's compliance with the requirements of this Project, and approved by the manufacturer to issue warranty certification. The Roofing Inspector shall be the following:

1. An authorized full-time technical employee of the manufacturer.

2. An independent party certified as a Registered Roof Observer by the International Institute of Building Enclosure Consultants (formerly the Roof Consultants Institute) retained by the Contractor or the Manufacturer and approved by the Manufacturer.

C. Manufacturer's Installation Instructions: Obtain and maintain on-site access to manufacturer's written recommendations and instructions for installation of products.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.

B. 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 material from direct sunlight.

1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

C. 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 manufacturer's written instructions for handling, storing, and protecting during installation.

D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.7 PROJECT / FIELD CONDITIONS

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

B. Daily Protection: Coordinate installation of roofing so insulation and other components of roofing system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.

1. Provide tie-offs at end of each day's work to cover exposed roofing and insulation with a course of roofing sheet securely in place with joints and edges sealed.

2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing.

3. Remove temporary plugs from roof drains at end of each day.

4. Remove and discard temporary seals before beginning work on adjoining roofing.

1.8 WARRANTY

A. Manufacturer's Warranty: Roof System Manufacturer's standard form in which Manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within warranty period, as follows.

1. Form of Warranty: Manufacturer's standard warranty form.

2. Scope of Warranty: Work of this Section and including sheet metal details and termination details installed by the roof system Installer and approved by the Roof System Manufacturer.

3. Warranty Period: 30 years from date of completion.

B. Manufacturer Inspection Services: By manufacturer's technical representative, to report maintenance responsibilities to Owner necessary for preservation of Owner's warranty rights. The cost of manufacturer's inspections is included in the Contract Sum.

1. Inspections to occur in following years: 2, 5, 10, 15, 20 and 25 following completion.

C. Installer Warranty: Installer's warranty signed by Installer, as follows.

1. Form of Warranty: Form acceptable to Roofing Manufacturer and Owner.

2. Scope of Warranty: Work of this Section.

3. Warranty Period: 2 years from date of completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: Tremco or approved equal.

B. Source Limitations: Obtain components for roofing system from same manufacturer as membrane roofing or manufacturer approved by membrane roofing manufacturer.

2.2 MATERIALS, GENERAL

A. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roof membrane manufacturer based on testing and field experience.

2.3 THERMOPLASTIC MEMBRANE MATERIALS

A. KEE Roof Membrane:

1. Thermoplastic Ketone Ethylene Ester (KEE) coated polyester fabric-reinforced fleece-backed sheet, ASTM D6754.

a. Basis of design product: Tremco, TremPly KEE FB Single Ply Roof Membrane.

b. Breaking Strength, minimum, ASTM D751: Machine direction, 500 lbf (87 kN/m); Cross machine direction 400 lbf (70 kN/m).

c. Tear Strength, minimum, ASTM D751: Machine direction, 125 lbf (22 kN/m); Cross machine direction (145 lbf (25 kN/m).

d. Elongation at Break, ASTM D751: 20 percent.

e. Dynamic Impact/Puncture Resistance, ASTM D5635: 30 J, minimum.

f. Minimum Membrane Thickness, nominal, less backing, ASTM D751: 60 mils (1.5 mm).

g. Thickness over fiber, optical method: 0.016 inches (0.406 mm).

h. Accelerated Weathering, ASTM G155 and ASTM G154: Not greater than 15,000 hr., no cracking or crazing.

i. Abrasion Resistance, ASTM D3389: Not greater than 2,000 cycles, H-18-wheel, 1,000 g load.

j. Color: White.

k. Solar Reflectance Index (SRI), ASTM E1980: 110 (White, initial), 86 (White, 3-yr aged).

B. Sheet Flashing: Manufacturer's standard, smooth-backed, sheet flashing of same material, type, reinforcement, thickness and color as KEE roof membrane.

2.4 AUXILIARY ROOFING MATERIALS

A. General: Auxiliary membrane roofing materials recommended by roofing system manufacturer for intended use, and compatible with membrane roofing.

1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.

B. Membrane Bonding Adhesive:

1. Bonding adhesive, waterborne low-VOC, for bonding KEE fleece-backed single ply membranes and flashings to substrates.

a. Basis of design product: Tremco, TremPly KEE FB WBII Bonding Adhesive.

b. VOC, maximum, ASTM D3960: 153 g/L.

C. Flashing Membrane Adhesive:

1. Bonding adhesive, contact-type solvent-based low VOC, for bonding TPA non-fleece-backed single ply membranes and flashings to substrates.

a. Basis of design product: Tremco, TPA LV Single Ply Bonding Adhesive.

b. VOC, maximum, ASTM D3960: 200 g/L.

D. Metal Termination Bars: Manufacturer's standard, predrilled stainless-steel or aluminum bars, approximately 1 by 1/8 inch (25 mm by 3 mm) thick; with anchors.

E. Joint Sealant: Elastomeric joint sealant compatible with roofing materials, with movement capability appropriate for application.

1. Joint Sealant, Polyurethane: ASTM C920, Type S, Grade NS, Class 50 single-component moisture curing sealant, formulated for compatibility and use in dynamic and static joints; paintable.

a. Basis of design product: Tremco, TremSEAL Pro.

b. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 40 g/L.

c. Hardness, Shore A, ASTM C661: 40.

d. Adhesion to Concrete, ASTM C794: 35 pli.

e. Tensile Strength, ASTM D412: 350 psi (2410 kPa).

f. Color: White.

F. Prefabricated Pipe Flashings: As recommended by roof membrane manufacturer.

G. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories.

2.5 ROOF INSULATION MATERIALS

A. General: Preformed roof insulation boards manufactured or approved by roofing manufacturer, selected from insulation manufacturer's standard sizes, suitable for application, and of thicknesses indicated.

1. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated, not less than two times the roof slope.

B. Roof Insulation: Provide roof insulation product in thicknesses indicated in Part 3 as follows:

1. Board Insulation, Polyisocyanurate: CFC- and HCFC- free, with recycled content glass-fiber mat facer on both major surfaces, ASTM C1289 Type II Class 1.

a. Basis of design product: Tremco, Trisotech Insulation or equal.

2.6 ROOF INSULATION ACCESSORIES

A. Cover Board:

1. Gypsum panel glass-mat-faced, primed, ASTM C1177/C1177M.

a. Basis of design product: Tremco/GP Gypsum DensDeck Prime or equal.

b. Thickness: 1/4 inch (6 mm).

B. Roof Insulation Adhesive:

1. Urethane adhesive, bead-applied, low-rise two-component solvent-free low odor, formulated to adhere roof insulation to substrate.

a. Basis of design product: Tremco, Low Rise Foam Insulation Adhesive or equal.

b. Flame Spread Index, ASTM E84: 10.

c. Smoke Developed Index, ASTM E84: 30.

d. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 0 g/L.

e. Tensile Strength, minimum, ASTM D412: 250 psi (1720 kPa).

f. Peel Adhesion, minimum, ASTM D903: 17 lbf/in (2.50 kN/m).

g. Flexibility, 70 deg. F (39 deg. C), ASTM D816: Pass.

C. Substrate Joint Tape: 6- or 8-inch- (150- or 200-mm-) wide, coated, glass fiber.

2.7 WALKWAY MATERIALS

A. Walkway Material:

1. Protection walkway roll, reinforced KEE membrane roll with diamond-tread, slip-resistant surface, fabricated for heat welding to compatible KEE membrane surface.

a. Basis of design product: Tremco, TremPly KEE Protection Walkway Roll.

b. Roll Size: 30 inches by 100 ft (760 mm by 25.4 m).

c. Thickness: 0.060 inch (1.5 mm).

d. Breaking strength: 450 lbs (77 kN/m).

e. Color: Yellow.

PART 3 - EXECUTION

3.1 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 curbs are set and braced and that roof drain bodies are securely clamped in place.

2. Verify that wood cants, blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.

3. Existing Concrete Roof Deck:

a. Verify that concrete substrate is visibly dry and free of moisture. Test for moisture according to ASTM F2659 or other recognized test method utilizing non-destructive, electronic moisture meter.

b. Verify adhesion of new roofing components to concrete.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.

B. Prevent materials from 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.

C. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

D. Prime surface of concrete deck with manufacturer's recommended primer at manufacturer's recommended application rate.

E. Remove and dispose of metal cage and metal siding over the outdoor gym section.

F. Remove and dispose of the stairs that lead up to the outdoor gym.

3.3 INSTALLATION, GENERAL

A. Install roofing system in accordance with manufacturer’s written instructions and approved details.

B. NRCA Installation Details: Install roofing system in accordance with applicable NRCA Manual Plates and NRCA recommendations; modify as required to comply with manufacturer's approved details and perimeter fastening requirements of FM Global references if applicable.

3.4 INSULATION INSTALLATION

A. Coordinate installing membrane roofing system components, so insulation is not exposed to precipitation or left exposed at the end of the workday.

B. Comply with membrane roofing system and insulation manufacturer's written instructions for installing roof insulation.

C. Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2.7 inches (70 mm) or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches (150 mm) in each direction.

1. Flat Insulation System on Sloped Roof Deck: Install insulation at minimum thickness as follows:

2. Insulation Drain Sumps: Tapered insulation sumps, not less than 2 by 2 ft. (600 by 600 mm), sloped to roof drain.

D. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.

E. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6 mm) with insulation.

1. Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.

F. Adhered Insulation: Install each layer of insulation and adhere to substrate as follows:

1. Prime substrate with primer as recommended by manufacturer and allow to dry.

2. Set each layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.

G. Cover Boards: Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches (150 mm) in each direction. Loosely butt cover boards together.

1. Secure cover boards Secure cover boards to resist uplift pressure at corners, perimeter, and field of roof.

2. Adhere cover boards by setting in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining cover board in place.

3.5 ADHERED MEMBRANE ROOFING INSTALLATION

A. Adhere membrane roofing over area to receive roofing and install according to membrane roofing system manufacturer's written instructions.

B. Start installation of membrane roofing in presence of membrane roofing system manufacturer's technical personnel.

C. Accurately align membrane roofing and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

D. Water-Based Bonding Adhesive: Apply to substrate at rate required by manufacturer. Install membrane immediately into adhesive, avoiding any air entrapment; do not allow adhesive to dry. Roll membrane into wet adhesive. Do not apply adhesive to splice area of membrane.

E. Welded Seams: Clean seam areas, overlap membrane roofing, and hot-air weld side and end laps of membrane roofing and sheet flashings 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 sheet membrane.

2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.

3. Repair tears, voids, and lapped seams in roofing that does not comply with requirements.

F. Spread sealant bed over deck drain flange at roof drains and securely seal membrane roofing in place with clamping ring.

3.6 BASE FLASHING INSTALLATION

A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.

B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.

D. Clean seam areas, overlap, and firmly roll sheet flashings into the adhesive. Hot-air weld side and end laps to ensure a watertight seam installation.

E. Seal top termination of base flashing with a metal termination bar and a continuous bead of joint sealant.

3.7 CLAD METAL FLASHING INSTALLATION

A. New edge metal will be KEE coated metal with a 4" fascia with hemmed drip edge.

1. Fully cleat with 22-gauge galvanized metal.

B. Install new sheet metal skirting elsewhere as needed to flashing terminations in accordance with warranty requirements.

C. 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.

3.8 WALKWAY INSTALLATION

A. Protection Mat: Install protection mat walkways from roof access hatches and roof access points to provide clear walkway to and in-between HVAC units.

B. Do not weld over single ply seams.

3.9 COPING CAP INSTALLATION

A. Remove existing coping caps and discard.

B. Install 24 gauge beige coping caps, to match color of the building.

3.10 SKYLIGHT INSTALLATION

A. Skylight basis of design: Versico.

B. Remove and dispose of all existing skylights.

C. Install new Versico skylights to match existing dimensions.

3.11 FIELD QUALITY CONTROL

A. Roofing Inspector: Owner will engage a qualified roofing inspector to perform roof tests and inspections and to prepare test reports.

B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion.

C. Repair or remove and replace components of membrane roofing system where inspections indicate that they do not comply with specified requirements.

3.12 PROTECTING AND CLEANING

A. Protect membrane roofing system 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 Owner.

B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements; repair substrates; and repair or reinstall membrane roofing system to a condition free of damage and deterioration at 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.

SECTION 074113.06 - METAL ROOF PANELS, STANDING SEAM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Architectural standing-seam metal roof panels.

2. Metal roof panel accessories.

3. Roof Sheathing.

4. Underlayment.

1.2 DEFINITIONS

A. Metal Roof Panel Assembly: Metal roof panels, attachment system components, miscellaneous framing and accessories necessary for a complete, weather tight roofing system.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Meet with Owner, Owner's insurer if applicable, testing and inspecting agency representative, metal roof panel Installer, metal roof panel manufacturer's representative, substrate Installer, and installers whose work interfaces with or affects metal roof panels including installers of roof accessories and roof-mounted equipment.

2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.

3. Review methods and procedures related to metal roof panel installation, including manufacturer's written instructions.

4. Examine substrate conditions for compliance with requirements, including flatness and attachment to structural members.

5. Review structural loading limitations of deck during and after roofing.

6. Review flashings, special roof details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect metal roof panels.

7. Review governing regulations and requirements for insurance, certificates, and testing and inspecting if applicable.

8. Review temporary protection requirements for metal roof panel assembly during and after installation.

9. Review roof observation and repair procedures after metal roof panel installation.

10. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.4 ACTION SUBMITTALS

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

B. Shop Drawings: Show fabrication and installation layouts of metal roof panels; details of edge conditions, side-seam and end lap joints, panel profiles, corners, anchorages, trim, flashings, closures, and accessories; and special details. Indicate point of fixity of metal panels. Distinguish between factory- and field-assembled work.

1. Accessories: Include details of flashing, trim, and anchorage systems, at a scale of not less than 1-1/2 inches per 12 inches (1:10); Include details of the following items:
   a. Flashing and trim.

   b. Pipe penetration flashings.

   c. Roof curbs.

C. Samples for Initial Selection: For each type of metal roof panel indicated with factory-applied color finishes.

1. Include similar Samples of trim and accessories involving color selection.

D. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below:

1. Metal Roof Panels: 16 inches (300 mm) wide by actual panel Length. Include fasteners, clips, closures, and
2. other metal roof panel accessories.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For manufacturer and manufacturer's technical representative.

1. Submit Installer qualifications in the form of an original letter on manufacturer's letterhead signed by authorized manufacturer representative. B. Sample Warranties: For special warranties.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For metal roof panels to include in maintenance manuals.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications: A manufacturer of plant-fabricated metal roof panel systems listed in this Section and meeting performance requirements, with a minimum of five years' experience providing metal roof panel systems for projects of similar type and scope, offering warranty, technical inspection, and maintenance inspection services specified.

B. Installer Qualifications: An employer of workers trained and certified by manufacturer, including a full-time on-site supervisor with experience installing similar work, able to communicate verbally with Contractor, and employees, and qualified by the manufacturer to furnish warranty of type specified.

C. Manufacturer's Technical Representative Qualifications: An authorized full-time employee representative of manufacturer and experienced in the installation and maintenance of the specified roof panel system and qualified to determine Installer's compliance with the requirements of this Project.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver components, sheets, metal roof panels, and other manufactured items so as not to be damaged or deformed. Package metal roof panels for protection during transportation and handling.

B. Unload, store, and erect metal roof panels in a manner to prevent bending, warping, twisting, and surface damage.

C. Stack metal roof panels on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal roof panels to ensure dryness. Do not store metal roof panels in contact with other materials that might cause staining, denting, or other surface damage.

D. Protect strippable protective covering on metal roof panels from exposure to sunlight and high humidity, except to extent necessary for period of metal roof panel installation.

1.9 PROJECT / FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit metal roof panel work to be performed according to manufacturer's written instructions and warranty requirements.

B. Field Measurements: Verify actual dimensions of construction contiguous with metal roof panels by field measurements before fabrication.

1.10 COORDINATION

A. Coordinate sizes and locations of roof curbs, equipment supports, and roof penetrations with actual equipment provided.

B. Coordinate metal roof panels with rain drainage work, flashing, trim, and construction of substrate, parapets, walls, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.11 WARRANTY

A. Manufacturer's Warranty: Roof System Manufacturer's standard form in which Manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within warranty period, as follows.

1. Form of Warranty: Manufacturer's standard warranty form.

2. Scope of Warranty: Work of this Section and including sheet metal details and termination details installed by the roof system Installer and approved by the Roof System Manufacturer.

3. Warranty Period: 30 years from date of completion.

4. Manufacturers Inspection Services:

A. Inspections to occur in the following years: 2, 5, 10, 15, 20, and 25 following completion.

5. Installer Warranty: Installer's warranty signed by installer, as follows.

A. Form of Warranty: Form acceptable to Roofing Manufacturer and Owner.

B. Scope of Warranty: Work of this section.

C. Warranty Period: 2 years from date of completion.

D. One manufacturer will be responsible for both metal and single ply warranties.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: Tremco or approved equal.

B. Source Limitations: Obtain components for roofing system from same manufacturer as membrane roofing or manufacturer approved by membrane roofing manufacturer.

2.2 STANDING-SEAM METAL ROOF PANELS

A. Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed clips in side laps. Include clips, cleats, pressure plates, and accessories required for weathertight installation.

1. Steel Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E1514.

B. Vertical-Rib, Seamed-Joint, Standing-Seam Metal Roof Panels: Factory-formed with vertical ribs at panel edges and flat pan between ribs; designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of

panels and engaging opposite edge of adjacent panels and mechanically seaming panels together.

1. Basis-of-Design Product: Tremco, Inc., TremLock VP 1.5".

2. Metallic-Coated Steel Sheet: ASTM A 792/A 792M, Class AZ50 coating designation, Grade 50 (Class AZM150 coating designation, Grade 340), prepainted by the coil-coating process to comply with ASTM A 755/A 755M.

a. Thickness: 0.0236-inch/24 ga. (0.71-mm).

b. Surface: Smooth, flat finish.

c. Exposed Coil-Coated Finish: High-performance organic coating.

d. Color: Zincalume Plus Finish.

3. Aluminum Sheet: Coil-coated sheet, ASTM B209 (ASTM B209M), alloy as standard with manufacturer, with temper as required to suit forming operations and structural performance required.
   a. Thickness: 0.040 inch (1.02 mm).

   b. Surface: Smooth, flat finish.

   c. Exposed Coil-Coated Finish: High-performance organic coating.

      1) Color:. Zincalume Plus

      2) Finish 4. Joint Type:

         A. Field mechanically seamed, 180 deg.

5. Panel Shape: Flat.

6. Panel Pan Configuration: Double pencil ribbed.

7. Panel Seam Height and Coverage: 1-1/2 inch (38 mm) by 16 inches (406 mm).

8. Eave Notch: Factory-formed.

9. Clips: Fixed Clips that accommodate thermal movement. Continuous clips where required to meet performance requirements. Bearing plates where required.

   a. Material: zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet. 0.064-inch/16 ga. (1.63-mm) nominal thickness for individual clips, or 0.0236inch/24 ga. (0.71-mm) nominal thickness for continuous clips.

2.3 ROOF PANEL SYSTEM ACCESSORIES

A. Roof Panel System Accessories, General: Provide components approved by roof panel manufacturer and as required for a complete metal roof panel assembly including trim, copings, fasciae, corner units, ridge closures, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal roof panels unless otherwise indicated.

1. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal roof panels.

2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.

B. Panel Sealants: Provide one of the following identical to that used in test panels meeting performance requirements:

1. Sealant Tape: Pressure-sensitive, 99 percent solids, gray polyisobutylene or butyl rubber compound sealant tape with release-paper backing. Provide permanently elastic, no sag, nontoxic, nonstaining tape 1-inch- (25-

mm-) wide and 1/8-inch- (3-mm-) thick, with nylon spacer beads to prevent over compression of the sealant tape.

2. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C 1311, with nylon spacer beads to prevent over compression of the sealant tape.

C. Flashing and Trim: Provide flashing and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.

1. Basis of Design Product: Tremco, TremLock Sheet

D. Pipe Penetration Flashings: Flexible boot type, with stainless-steel compression ring, and stainless-steel pipe strap. Use silicone-type boot at hot pipes.

E. Roof Curbs: Fabricated from aluminum sheet, minimum 0.080-inch- (1.2-mm-) thick; with bottom of skirt profiled to match roof panel profiles, and welded top box, integral internal fastener flange, and water diverter. Fabricate curb subframing of minimum 0.0598-inch- (1.5mm-) thick, angle-, C-, or Z-shaped galvanized steel sheet. Fabricate curb and subframing to withstand indicated loads, of size and height indicated. Finish roof curbs to match metal roof panels.

2.4 SHEATHING

A. Plywood / OSB

1. Exterior rated

2. Thickness: 1/2 inch .

2.5 UNDERLAYMENT MATERIALS

A. Self-Adhering, High-Temperature Sheet: 30-to-40-mils- (0.76-to-1.0-mm-) thick minimum, consisting of slip-resisting, polyethylene-film top surface laminated to layer of butyl or SBSmodified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer.

1. Basis of Design Product: Self-Adhering High-Temperature Underlayment (Tremco SA).

2. Thermal Stability: Stable after testing at 240 deg F (116 deg C); ASTM D 1970.

3. Low-Temperature Flexibility: Passes after testing at minus 20 deg F (29 deg C); ASTM D 1970.

2.6 MISCELLANEOUS MATERIALS

A. Panel Fasteners: Self-tapping screws, bolts, nuts, self-locking rivets and bolts, end-welded studs, and other suitable fasteners designed to withstand design loads. Provide exposed fasteners with heads matching color of metal roof panels by means of plastic caps or factory-applied coating. Provide EPDM, PVC, or neoprene sealing washers.

2.7 FABRICATION

A. Fabricate and finish metal roof panels and accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes and as necessary to fulfill indicated performance requirements. Comply with indicated profiles and with dimensional and structural requirements.

B. Fabricate metal panels with joints between panels designed to form weathertight seals.

C. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.

D. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.

1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.

2. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.

3. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.

2.8 FINISHES

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal roof panel supports, and other conditions affecting performance of the Work.

1. Examine solid roof substrate to verify that substrate joints are supported by framing or blocking and that installation is within flatness tolerances required by metal roof panel manufacturer.

B. Examine roughing-in for components and systems penetrating metal roof panels to verify actual locations of penetrations relative to seam locations of metal roof panels before metal roof panel installation.

C. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrates of substances harmful to insulation, including removing projections capable of interfering with plywood attachment.

3.3 SHEATHING

A. Sheathing Installation: Make repairs or add blocking to any broken planks before installing plywood. Install taper board at bottom end of new plywood to flush up to existing roof near valley. Install plywood or OSB over existing wood planks with long joints in continuous straight lines with end joints staggered between rows. Offset joints of plywood 4’ and land ends over rafters.. Notch in ridge vents at 48"

3.4 UNDERLAYMENT INSTALLATION

A. Self-Adhering Sheet Underlayment: Apply primer if required by manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation. Apply at locations indicated below, wrinkle free, in shingle fashion to shed water, and with end laps of not less than 6 inches (150 mm) staggered 24 inches (600 mm) between courses. Overlap side edges not less than 3-1/2 inches (90 mm). Roll laps with roller. Cover underlayment within 14 days.
1. Apply over entire sloped roof surface and through valleys.

3.5 METAL ROOF PANEL INSTALLATION, GENERAL

A. Install metal roof panels according to manufacturer's written instructions in orientation, sizes, and locations indicated on Drawings.

B. Provide metal roof panels of full length from eave to ridge unless otherwise indicated.

C. Thermal Movement. Rigidly fasten metal roof panels to structure at one and only one location for each panel. Allow remainder of panel to move freely for thermal expansion and contraction. Predrill panels for fasteners.

1. Point of Fixity: Fasten each panel along a single line of fixing located at ridge.

2. Avoid attaching accessories through roof panels in a manner that will inhibit thermal movement.

D. Install metal roof panels as follows:

1. Commence metal roof panel installation in the presence of manufacturer representative.

2. Field cutting of metal panels by torch or abrasive saw is not permitted.

3. Install panels perpendicular to supporting purlins.

4. Locate and space fastenings in uniform vertical and horizontal alignment.

5. Provide metal closures at rake edges, rake walls, and each side of ridge and hip caps.

6. Flash and seal metal roof panels with weather closures at eaves, rakes, and perimeter of all openings.

7. Install ridge and hip caps as metal roof panel work proceeds.

8. Install metal flashing to allow moisture to run over and off metal roof panels.

E. Fasteners: Use long-life fasteners, as recommend by panel manufacturer, for surfaces exposed to the exterior and galvanized steel fasteners for surfaces exposed to the interior.

F. Anchor Clips: Anchor metal roof panels and other components of the Work securely in place, using manufacturer's approved fasteners according to manufacturers' written instructions.

G. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by metal roof panel manufacturer.

Use underlayment where roof panels will contact wood, ferrous metal, or cementitious construction.

H. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of metal roof panel assemblies. Provide types of gaskets, fillers, and sealants indicated or, if not indicated, types recommended by metal roof panel manufacturer.

3.6 METAL ROOF PANEL INSTALLATION

A. Standing-Seam Metal Roof Panels: Fasten metal roof panels to supports with concealed clips at each standing-seam joint at location, spacing, and with fasteners recommended by manufacturer.

1. Install clips to supports with self-tapping fasteners.

2. Install pressure plates at locations indicated in manufacturer's written installation instructions.

3. Seamed Joint: Crimp standing seams with manufacturer-approved, motorized seamer tool so clip, metal roof panel, and factory-applied sealant are completely engaged.

4. Watertight Installation:

a. Apply a continuous ribbon of sealant or tape to seal joints of metal panels, using sealant or tape as recommend in writing by manufacturer as needed to make panels watertight.

b. Provide sealant or tape between panels and protruding equipment, vents, and accessories.

3.7 ACCESSORY INSTALLATION

A. General: Install accessories with positive anchorage to building and weathertight mounting and provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete metal roof panel assembly including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.

B. Flashing and Trim: Comply with performance requirements and manufacturer's written installation instructions. Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

1. Form trim and transition joints using compressed joints with captive butyl sealant capable of resisting static water pressure. Cleated joints and exposed joint sealants do not meet this requirement.

2. Install exposed flashing and trim that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.

3. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (600 mm) of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof,

form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant deep, filled with mastic sealant (concealed within joints).

C. Roof Curbs: Install curbs at locations indicated on Drawings. Install flashing around bases where they meet metal roof panels.

D. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to metal roof panels as recommended by manufacturer.

3.8 FIELD QUALITY CONTROL

A. Manufacturer's Technical Representative: Engage a qualified manufacturer's technical representative acceptable to Owner for a minimum of 3 times on site, per 40-hour crew week to perform substrate examination, interim observations, and final roof inspections, and to prepare reports.

B. Additional inspections, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.9 CLEANING

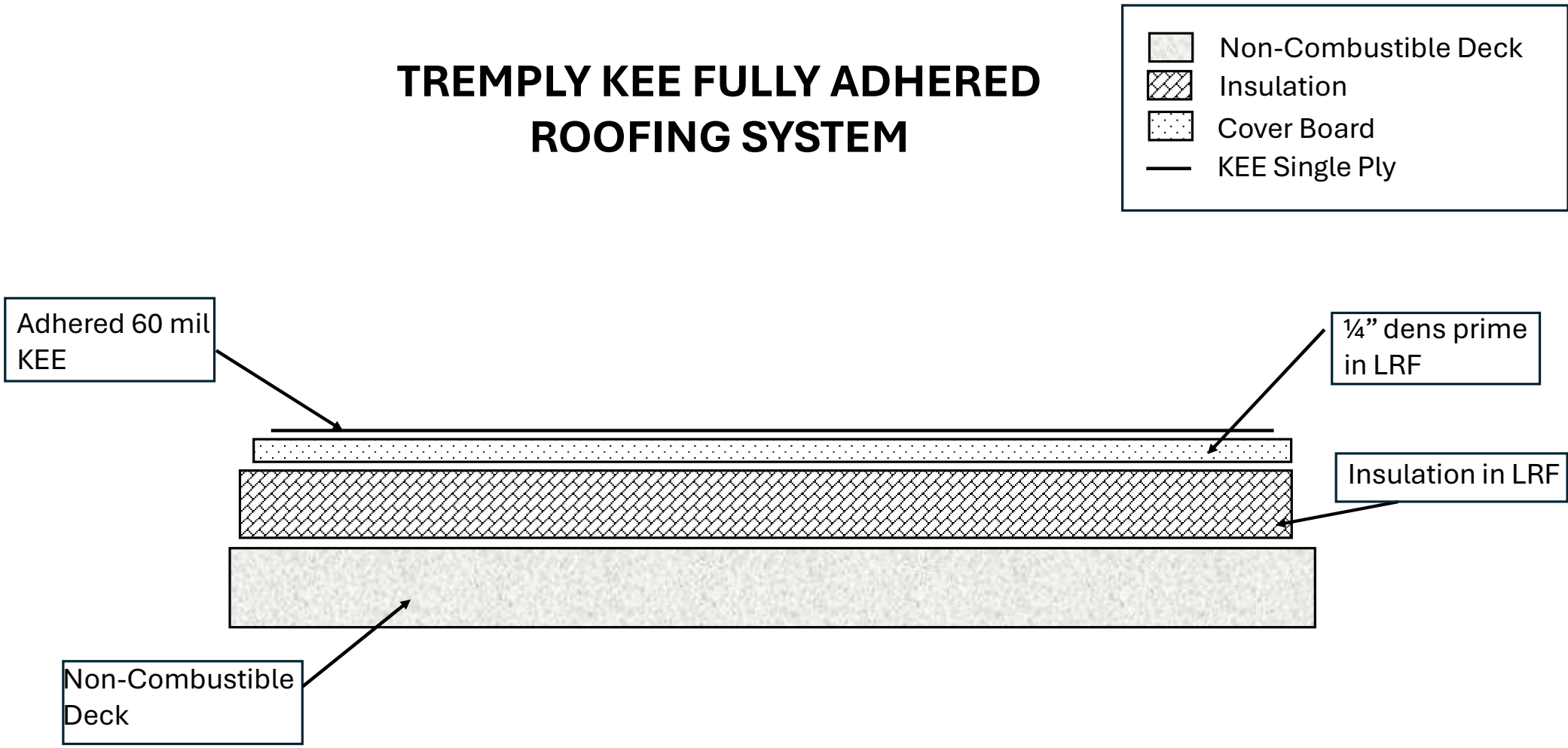
A. Remove temporary protective coverings and strippable films, if any, as metal roof panels are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of metal roof panel installation, clean finished surfaces as recommended by metal roof panel manufacturer.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

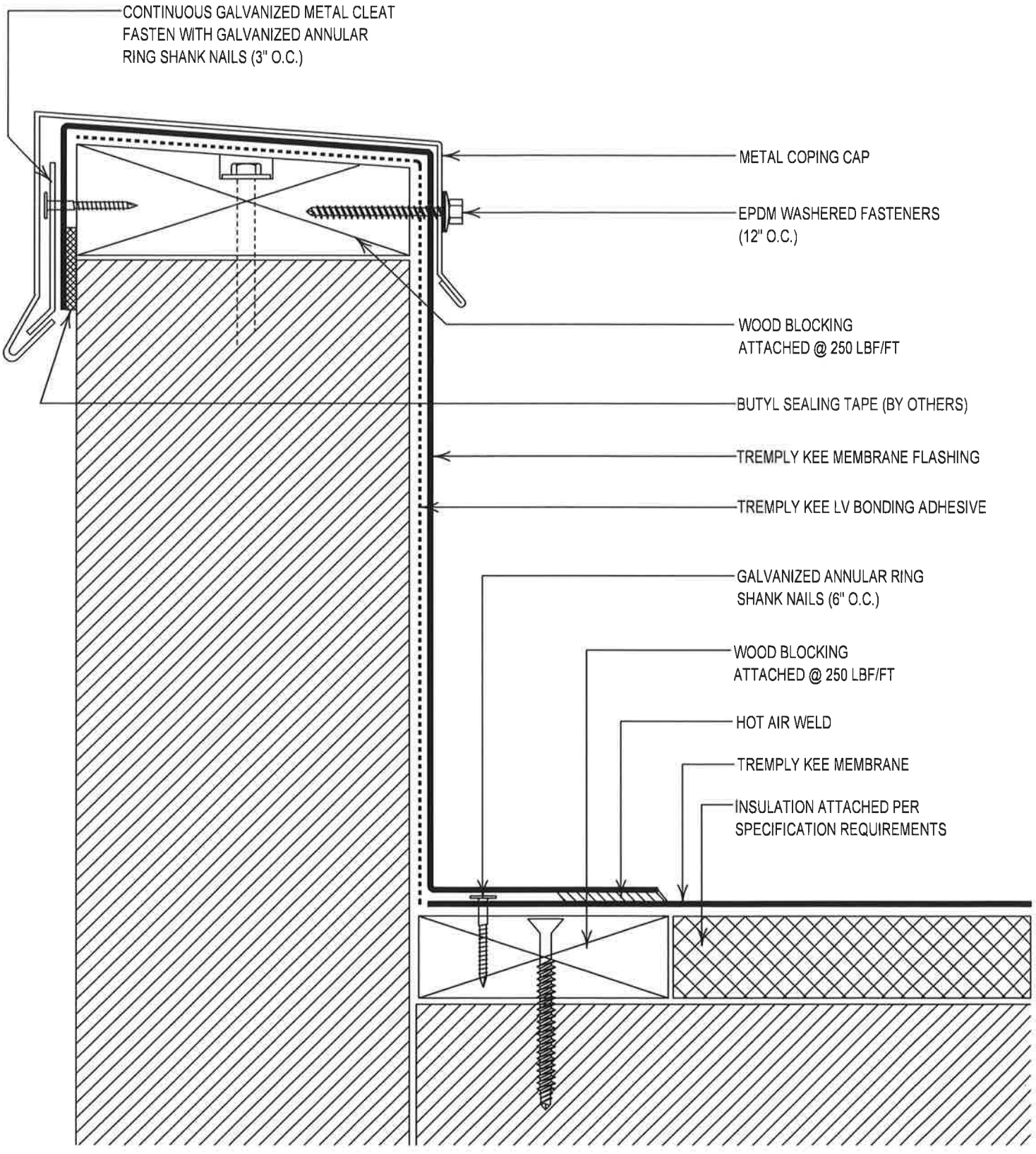
B. After metal roof panel installation, clear drainage channels of obstructions, dirt, and sealant.

C. Replace metal roof panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 074113.06 - METAL ROOF PANELS, STANDING SEAM

TREMPLY KEE FULLY ADHERED ROOFING SYSTEM

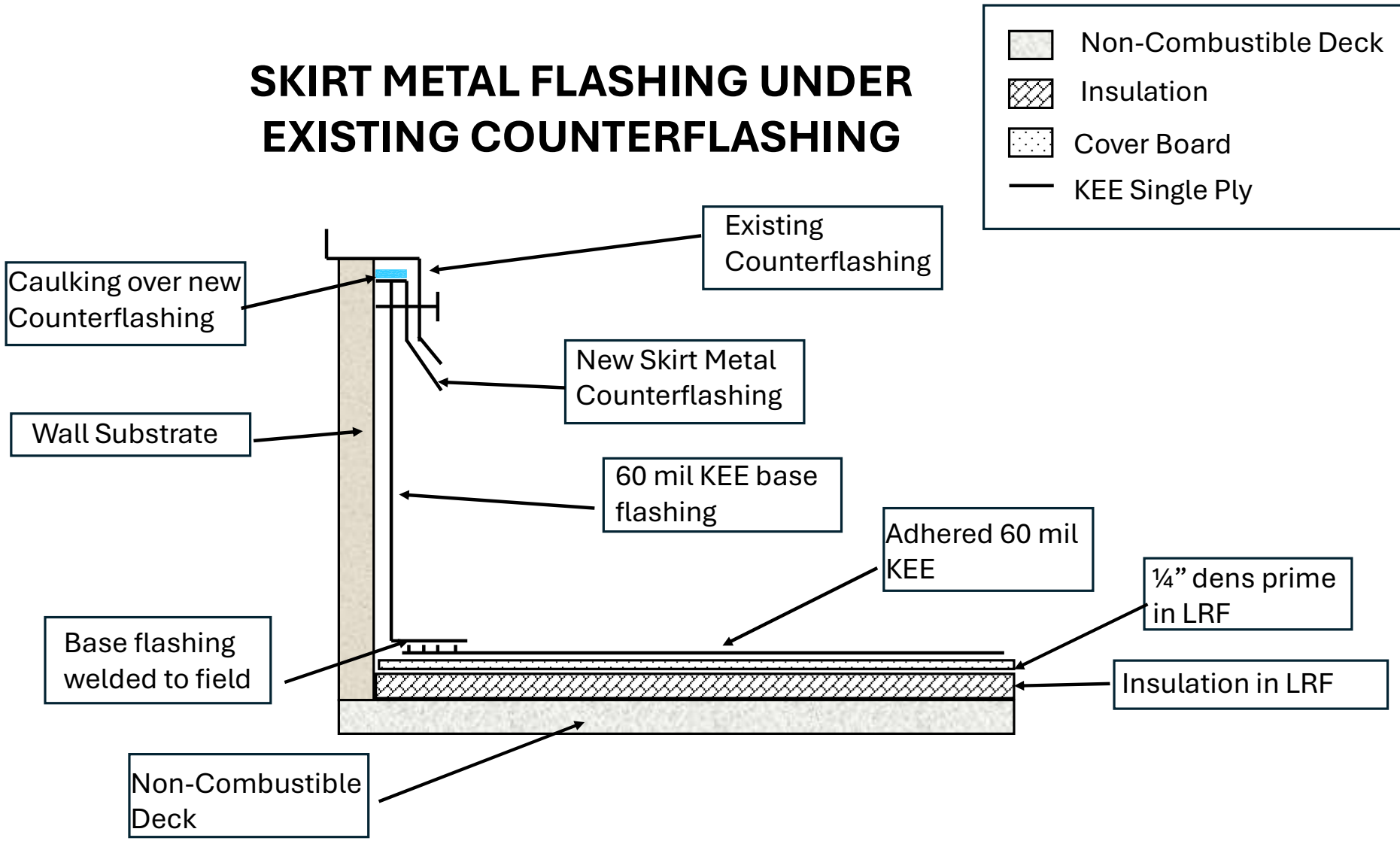


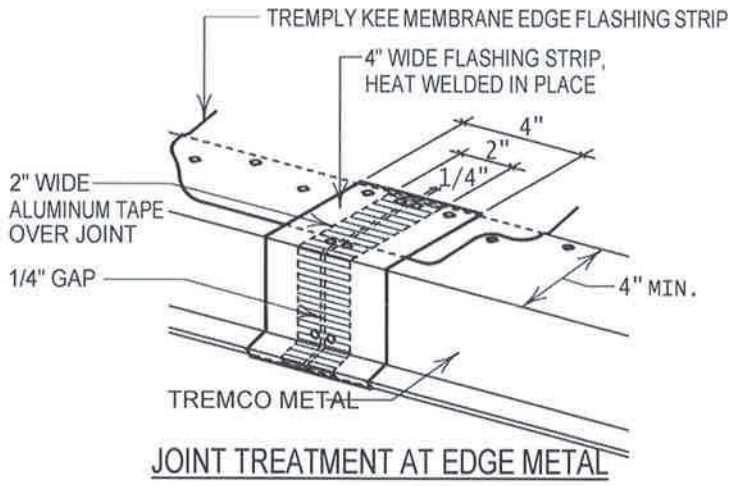


	SHEET TITLE:	SCALE:
	WALL FLASHING WITH METAL CAP FLASHING	NTS
		DRAWING No.: DWG NO. 130

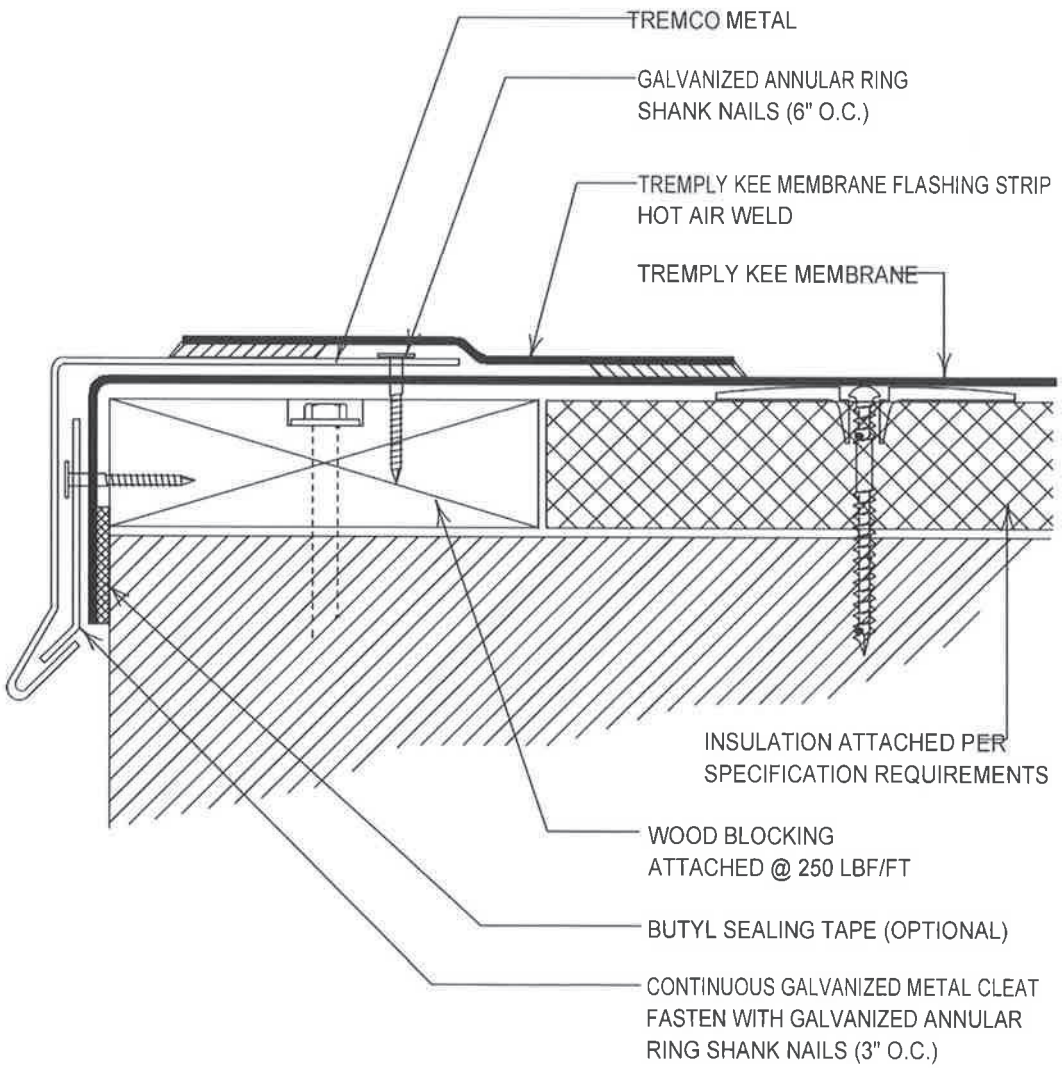
2023

SKIRT METAL FLASHING UNDER EXISTING COUNTERFLASHING





JOINT TREATMENT AT EDGE METAL



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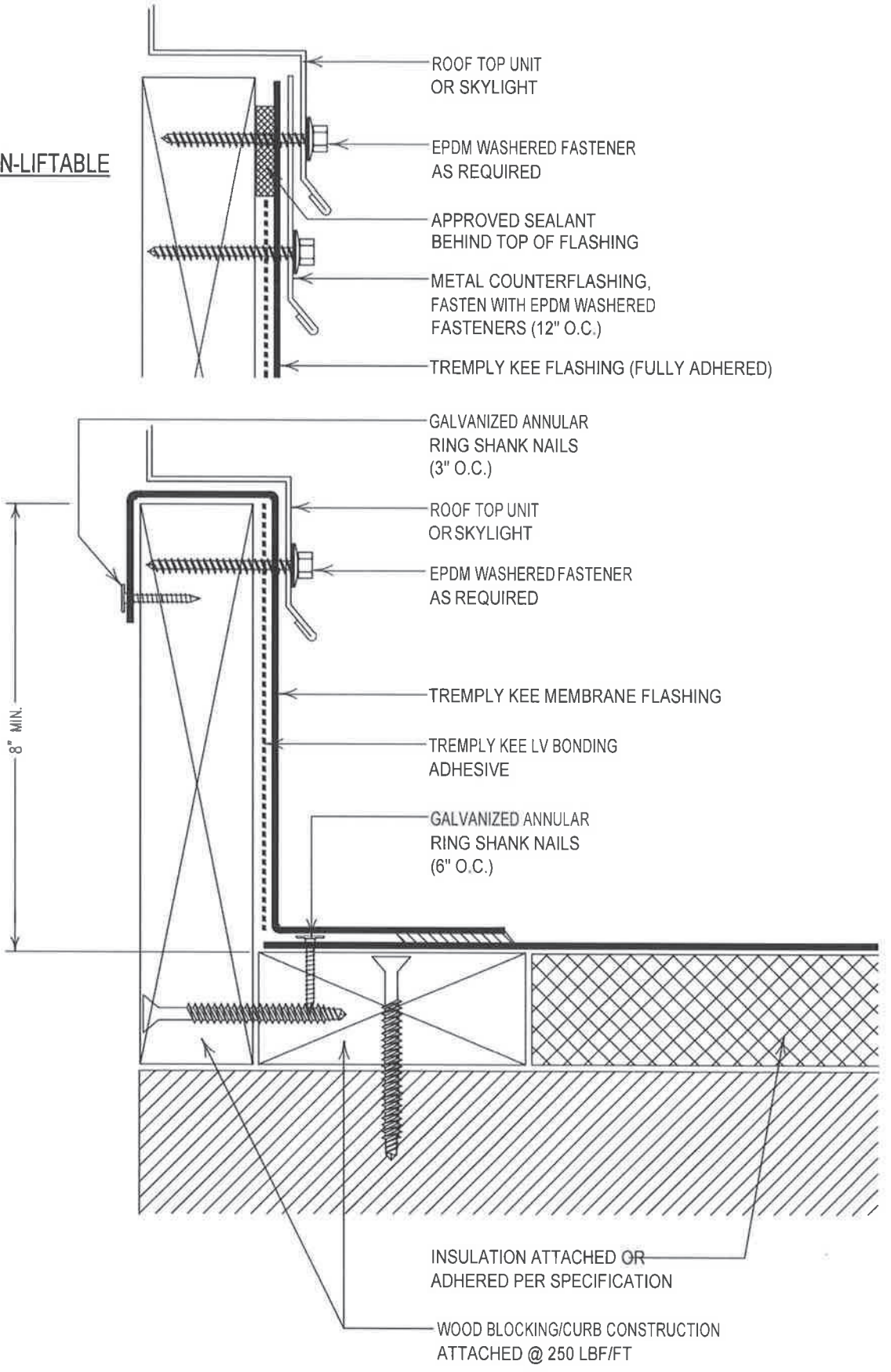
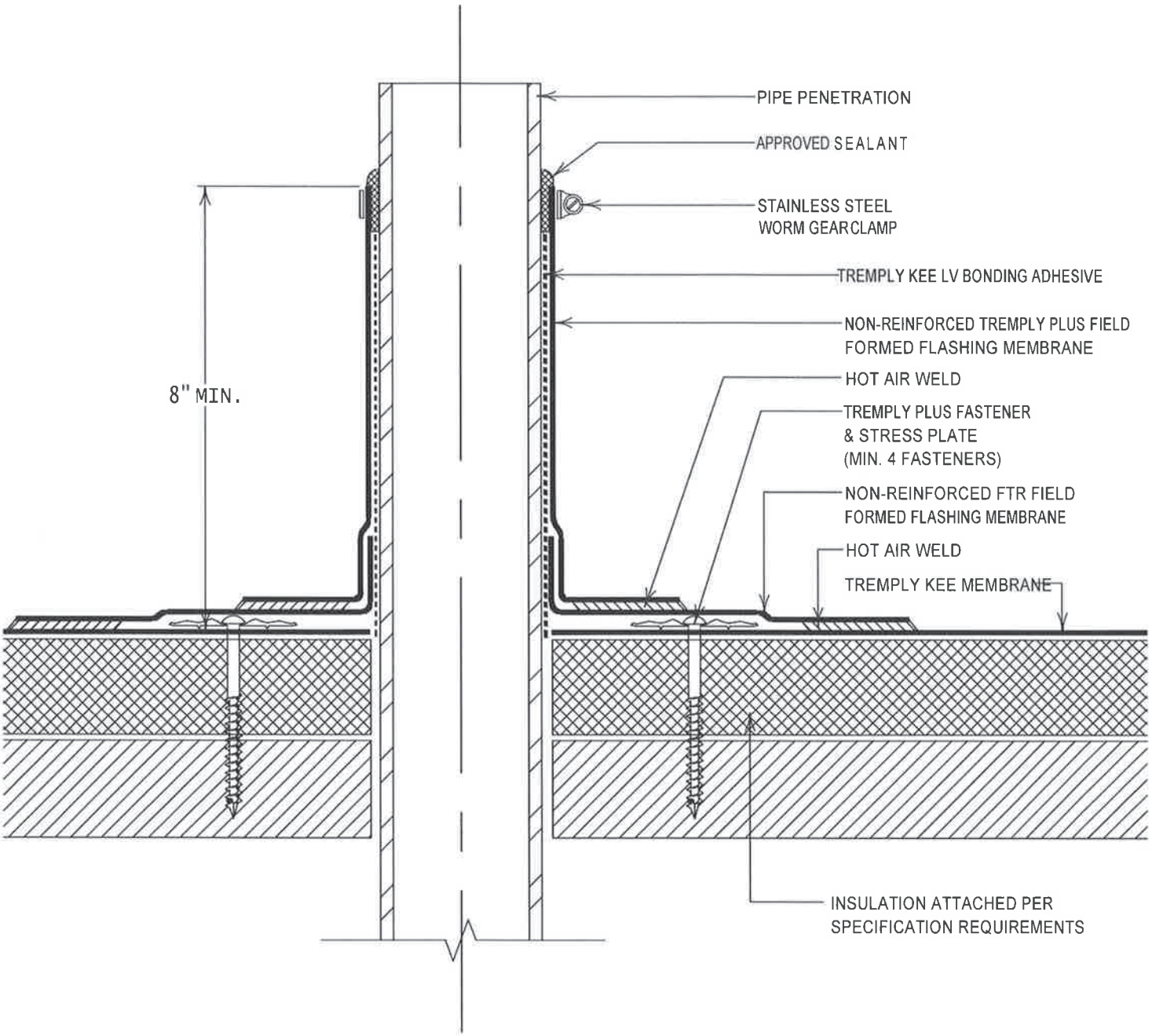
	TYPICAL EDGE FLASHING	NTS
		DRAWING No.: DWG NO. 114

NON-LIFTABLE



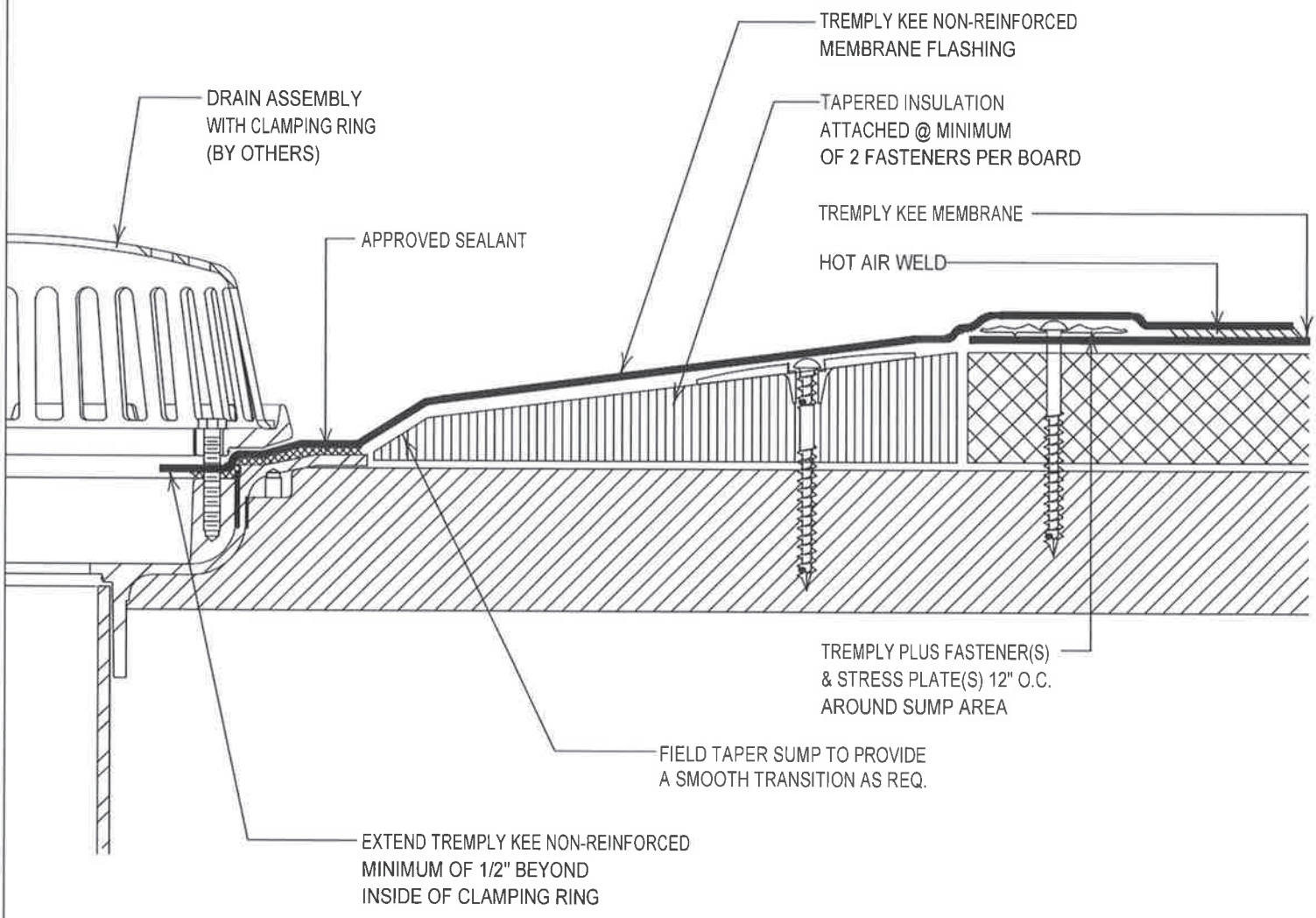
	SHEET TITLE:	SCALE:
	TYPICAL WOOD CURB OR SKYLIGHT	NTS
		DRAWING No.: DWG NO. 123

2023



	SHEET TITLE:	SCALE:
	FIELD FABRICATED PIPE FLASHING	NTS
		DRAWING No.: DWG NO. 27

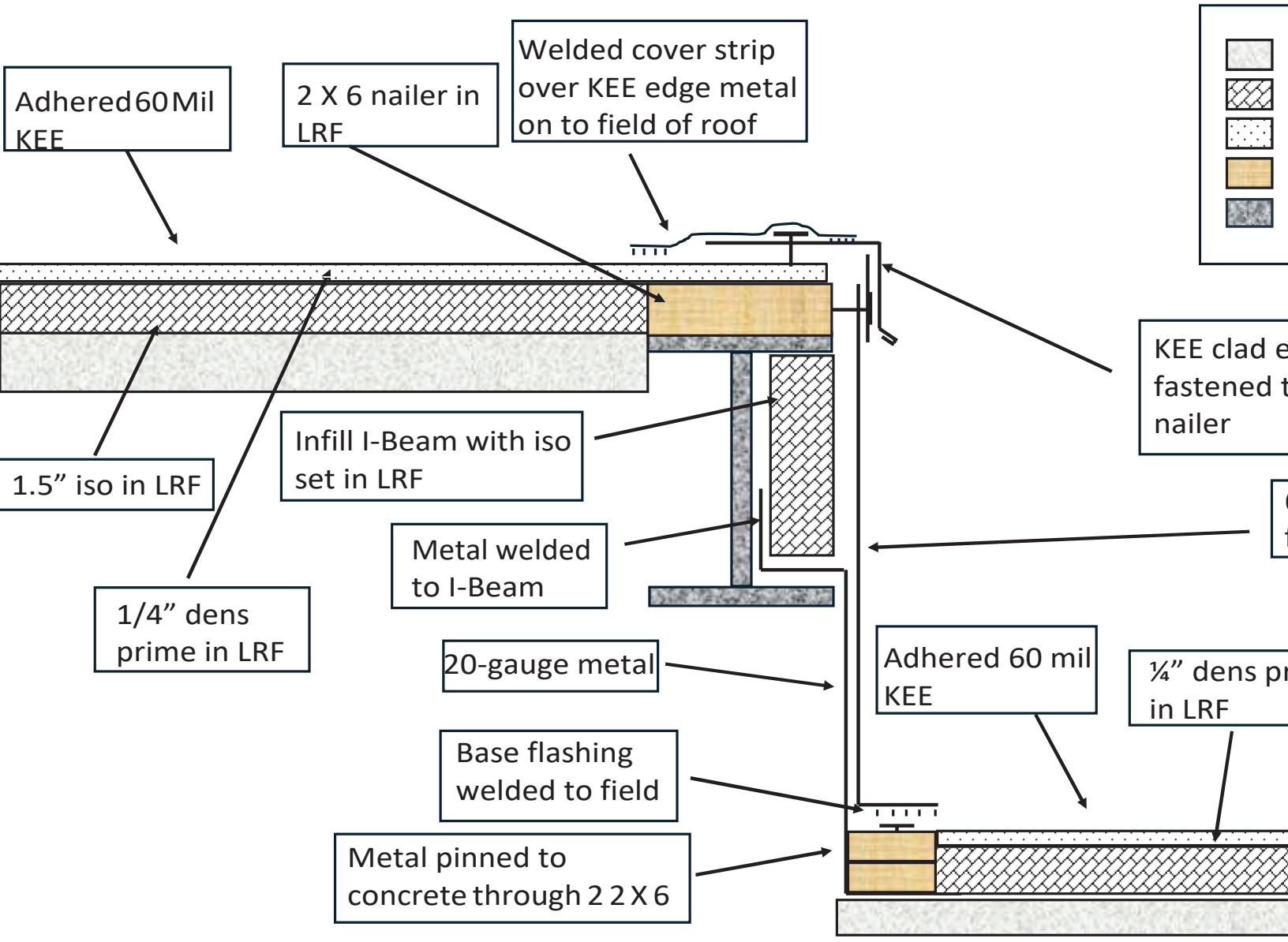
2023



NOTES

1. USE TAPERED ROOF INSULATION (EDGE STRIPS) TO CREATE DRAIN SUMP. IF TOTAL INSULATION THICKNESS IS LESS THAN OR EQUAL TO 1 1/2 IN., TAPER 12 IN. FROM THE DRAIN CENTER. IF TOTAL INSULATION THICKNESS IS GREATER THAN 1 1/2 IN., TAPER 18 IN. FROM DRAIN CENTER.

	SHEET TITLE:	SCALE:
	TYPICAL DRAIN FLASHING	NTS
		DRAWING No.: DWG NO. 113


Adhered 60 Mil KEE
2 X 6 nailer in LRF
Welded cover strip over KEE edge metal on to field of roof
KEE clad e
fastened t
nailer
1.5” iso in LRF
Infill I-Beam with iso set in LRF
Metal welded to I-Beam
1/4” dens prime in LRF
20-gauge metal
Adhered 60 mil KEE
¼” dens pr
in LRF
Base flashing welded to field
Metal pinned to concrete through 2 2 X 6

AdamLabs, Inc.

3807 Pasadena Avenue, Suite 190
Sacramento, CA 95821
Phone: (916) 692-8355

Asbestos Report — Addendum : 3/7/2025

Date: *February 11, 2024* — *All changes will be underlined and made Italic.*

Client: *County of Nevada*

Site: *201 Church Street, Nevada City, CA*

On February 07, 2024 *& January 27, 2025,* a survey was conducted at the site above by AdamLabs, Inc. The aforementioned site is a residential structure that is planned for restoration. Results of the samples collected indicate **ACM (Asbestos Containing Material) was detected.** Handling, removing, or disposing of ACM must be performed in accordance with the local Air Resource Board, State, and Federal Regulations (CCR & CFR) by a Licensed Asbestos Abatement Contractor.

OSHA requires that levels even down to a tenth of a percent (0.1%) of ACM **can be removed only by a DOSH (State of California Division of Occupational Safety and Health) Registered Asbestos Abatement Contractor** with trained personnel holding valid asbestos worker certification, and proper PPE (Personal Protection Equipment). Work must be in accordance with State and Federal Law (Cal/OSHA and EPA). The identified asbestos-containing material must be properly removed prior to any renovation and/or demolition that may disturb asbestos-containing material. The information provided in this report can be used to obtain accurate bids from abatement contractors.

Non-friable (NESHAP Category I) Asbestos Containing Material (black roof mastic): Old Court House Bldg. Roof mastic throughout - Approx. 3,000 Ft²

Non-friable (NESHAP Category I) Asbestos Containing Material (Asphalt felt): Annex Bldg. Roof asphalt felt throughout - Approx. 20,000 Ft²

Non-friable (NESHAP Category I) Asbestos Containing Material (black roof penetration mastic): Roof penetration mastic throughout all Bldgs. - Approx. 150 Ft² -

The ACM material is summarized in the description & table below and identifies asbestos-containing material with concentrations of asbestos greater than one percent. The building material tested is hereafter quantified and categorized according to the present physical conditions, physical characteristic properties, and potential ability to be rendered airborne otherwise known as friability. Friable asbestos-containing material is more hazardous than non-friable asbestos and can be rendered airborne by hand pressure. According to the local Air Resource Board, the abbreviation RACM is used to classify friable and/or the potential to become friable asbestos-containing material and is categorized as Regulated Asbestos Containing Material (RACM). According to the State of California Department of Toxic Substance Control (DTSC) *California Code of Regulations, section 66261.24*, asbestos-containing material containing equal to or greater than 1% asbestos shall be treated as hazardous waste.

The samples were collected by a State OSHA Certified "Site Surveillance Technician" and/or "Asbestos Consultant" under Adam Laboratories Inc (in accordance with Rule 902 Section 401.3). An Asbestos Abatement Plan can be provided by request, if so please contact us at the number provided on the letterhead. Any suspect material not identified in this report shall be treated as presumed ACM. The location of material, quantity, percent, friability, type of asbestos, and date sampled can be found on the attached analytical lab *reports dated February 7, 2024 & January 27, 2025.*

Sincerely,

Adam Jahnsen, Asbestos Consultant
Certified by the State of California Division of Occupational Safety and Health # 00-2813

This lab report is filed under lab number 24ABPb0211.

AdamLabs, Inc.
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AIHA Laboratory #163722

Lab #:
Date Sampled: 1/27/2025
Date Analyzed: 1/30/2025
Sampled By: Adam Jahnsen
Analyzed By: Adam Jahnsen

Assessment and Analysis of Bulk Asbestos by Polarized Light Microscopy (PLM) EPA 600/M4 Method

CLIENT: County of Nevada **SITE:** 201 Church St, Nevada City, CA

No.	LAYERS	AREA	LOCATION	DESCRIPTION	I.D.	RACM	Result
1	1	*	NW roof top layer	vinyl	Non-Fibrous		NAD
2	4	*	NW roof mid layers	asphalt felt	Glass and Cellulose Fibers		NAD
3	1	*	NW roof mid layers	insulation	Cellulose Fibers		NAD
4	3	*	NW roof bottom layers	asphalt felt	Glass and Cellulose Fibers		NAD
5	1	20ft	NW roof W flashing joint (TIN ROOF)	black-roof mastic	Chrysotile - 15%		Non-friable Asbestos
6	1	1ft²	NW roof pipe penetration (TIN ROOF)	black roof mastic	Chrysotile - 5%		Non-friable Asbestos
7	2	*	Annex roof pipe penetration	vinyl	Synthetic and Cellulose Fibers		NAD
8	1	*	Annex roof E duct sleeve	canvas	Synthetic and Cellulose Fibers		NAD
9	1	*	Annex roof E duct	caulking	Cellulose Fibers		NAD
10	1	*	Annex roof skylight penetration	vinyl	Synthetic and Cellulose Fibers		NAD
11	1	*	Annex roof S ctr patch	black roof mastic	Cellulose Fibers		NAD
12	1	*	Annex roof SW patch	black roof mastic	Cellulose Fibers		NAD

LEGEND

NAD = No Asbestos Detected DL = detection limit: <1% asbestos (trace) I.D. = fiber identification and/or asbestos type - percent

APPROVED BY:

Adam Jahnsen, Lab Director
Certified Asbestos Consultant
Cal/OSHA 00-2813

Friable Asbestos = NESHAP RACM (Regulated Asbestos Containing Material): can be crumbled, pulverized or reduced to powder by hand pressure
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RACM = NESHAP Regulated Asbestos Containing Material is all Friable ACM (>1% asbestos), including some conditions of Non-friable Category I & II ACM.
NESHAP = US EPA National Emissions Standards for Hazardous Air Pollutants

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AIHA Laboratory #163722

Lab #:
Date Sampled: 1/27/2025
Date Analyzed: 1/30/2025
Sampled By: Adam Jahnsen
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Assessment and Analysis of Bulk Asbestos by Polarized Light Microscopy (PLM) EPA 600/M4 Method

CLIENT: County of Nevada **SITE:** 201 Church St, Nevada City, CA

No.	LAYERS	AREA	LOCATION	DESCRIPTION	I.D.	RACM	Result
13	1	-	Annex roof SE patch	black roof mastic	Cellulose Fibers		NAD
14	1	-	Annex roof NE flashing joint	vinyl	Non-Fibrous		NAD
15	1	-	Annex roof NE flashing joint	silver paint	Non-Fibrous		NAD
16	1	-	Annex roof NE top layer	vinyl	Non-Fibrous		NAD
17	1	20000ft² (10K)	Annex roof NE top layer	asphalt felt	Chrysotile - 5%		Non-friable Asbestos
18	3	-	Annex roof NE mid layer	asphalt felt	Glass and Cellulose Fibers		NAD
19	1	-	Annex roof NE bottom layer	insulation	Cellulose Fibers		NAD
20	1	-	Annex roof NE bottom layer		Synthetic and Cellulose Fibers		NAD
21	1	-	Annex roof SE top layer	vinyl	Non-Fibrous		NAD
22	1	~~Flooring~~ (10K)	Annex roof SE top layer	asphalt felt	Chrysotile - 5%		Non-friable Asbestos
23	3	-	Annex roof SE mid layer	asphalt felt	Glass and Cellulose Fibers		NAD
24	1	-	Annex roof SE bottom layer	insulation	Cellulose Fibers		NAD
25	1	-	Annex roof SE bottom layer	black roof mastic	Synthetic and Cellulose Fibers		NAD

LEGEND

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AIHA Laboratory #163722

Lab #: 24ABPb0211
Date Sampled: 2/7/2024
Date Analyzed: 2/11/2024
Sampled By: Adam Jahnsen
Analyzed By: Adam Jahnsen

Assessment and Analysis of Bulk Asbestos by Polarized Light Microscopy (PLM) EPA 600/M4 Method

CLIENT: County of Nevada

SITE: 201 Church Street
Nevada City, Ca

No.	LAYERS	AREA	LOCATION	DESCRIPTION	I.D.	RACM	RESULT
1	1	*	NW tin roof top layer	vinyl	Non-Fibrouse		NAD
2	1	2,960 sq ft	NW tin roof bottom layer	black mastic	Chrysotile - 10%		Non-friable Asbestos
3	1	*	NW flat roof top layer	vinyl	Non Fibrouse		NAD
4	4	*	NW flat roof mid layer	asphalt felt	Glass and Cellulose Fibers		NAD
5	1	*	NW flat roof mid layer	insulation	Cellulose Fibers		NAD
6	1	*	NW flat roof bottom layer	tar paper	Cellulose Fibers		NAD
7	1	*	Court house roof top layer	vinyl	Non Fibrouse		NAD
8	5	*	Court house roof bottom layers	asphalt felt	Glass and Cellulose Fibers		NAD
9	1	*	Court house roof skylight	Puddy	Non Fibrouse		NAD
10	1	*	NE ANNEX Roof top layer	vinyl	Non Fibrouse		NAD
11	1	~~Pending~~ 20,000 ☆	NE ANNEX Roof top layer	black mastic	Chrysotile - 3%		Non-friable Asbestos
12	4	*	NE ANNEX Roof mid layer	asphalt felt	Glass and Cellulose Fibers		NAD
13	1	*	NE ANNEX Roof bottom layer	insulation	Cellulose Fibers		NAD
14	1	*	NE ANNEX Roof bottom layer	tar paper	Cellulose Fibers		NAD
15	1	*	NE ANNEX Roof NE elec. pipe penetration	black mastic	Cellulose Fibers		NAD
16	1	*	ANNEX NW roof at perimeter tin flashing	caulking	Cellulose Fibers		NAD
17	1	*	ANNEX NW roof at comm shed	caulking	Cellulose Fibers		NAD

10,000 at NE
+ 10,000 at SE
20K

LEGEND

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Nevada City, CA

/// = Identified Asbestos containing Material (23,000 ft² approx) AdamLabs Inc