Metal GreenSil 100 Roof Restoration System TECHNICAL SPECIFICATION

PART 1 GENERAL REQUIREMENTS

1.01. SCOPE

A. Provide labor, materials, equipment, and supervision necessary to install elastomeric silicone coating of the system as outlined in this specification for the complete roof restoration.

B. Successful application is dependent upon the experience, integrity, ability, technology, and common sense of the designer and applicator/contractor.

C. The manufacturer's application instruction for each product utilized is to be considered part of these specifications and should be followed at all times.

1.02. QUALITY ASSURANCE

A. Supplier Qualifications: The Silicone Metal Restoration System, as supplied by UltraTite Solutions, LLC (UltraTite), is approved for use on the project.

B. Applicator Qualifications: The applicator shall be approved by UltraTite to apply the system. The manufacturer's written verification of applicator approval is required.

C. In the absence of a general contractor, the roofing contractor shall be the prime contractor. All subcontractors shall be identified and approved at the time the proposal is submitted. The contractor shall carry a valid state roofing license.

D. Field Quality Control: Before commencing installation of the GreenSil 100 Restoration System, an Adhesion Pull Test must be installed and pass the minimum pull value of 2.0 pli. During the installation of the GreenSil 100 Restoration System, an authorized UltraTite field inspector shall visit the job site as needed to review the installation with the Roofing Contractor. Upon completion of the Metal Restoration System installation, an inspection by UltraTite or UltraTite designated third-party inspection firm may be required. Consult with UltraTite for details and warranty requirements.

1.03. SUBMITTALS

A. The bidders shall submit verification that they are an approved UltraTite contractor.

B. A copy of the manufacturer's technical data bulletins for specified coating materials shall be submitted.

1.04. PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Products shall be delivered in the manufacturer's original, unopened containers, clearly labeled with the manufacturer's name, product identification, safety information, and

lot numbers.

B. Containers shall be stored out of the weather and out of direct sunlight at temperatures specified by the manufacturer.

C. Protect all products from freezing and other damage during transit, handling, storage, and installation.

1.05. PROJECT CONDITIONS

A. Consult the coatings manufacturer for recommendations on the proper system to use on the project substrate and at the expected substrate and ambient temperatures. Under no condition shall the coating be applied when the substrate temperature is expected to be below 40°F or is expected to reach freezing before the material is completely cured. Do not apply coatings when wind velocity is above 15 mph.

B. Do not apply materials unless the surface to receive 100% GreenSil 100 coating is clean and dry.

C. The entire system shall fully adhere to the surface on which it is applied. Voids left under the system caused by bridging are not acceptable.

D. Install all material in strict accordance with all published safety, weather, or applicable regulations of the manufacturer and/or federal agencies that have jurisdiction.

1.06. DETAIL WORK

A. Refer to UltraTite Detail Drawings for preparation and finishing of drains, vents, ducts, flashings, parapet walls, etc. The contractor should outline this work before work commences and the work shall be performed by observing good trade practices. Any details not shown in the drawings need to be approved by UltraTite before application.

PART 2 PRODUCTS

2.01. ELASTOMERIC, GreenSil 100 COATING SYSTEM

A. The coating shall be the UltraTite elastomeric GreenSil 100 coating system, manufactured by UltraTite.

B. Physical Properties of Cured Coating System:

PROPERTY	ASTM METHOD	RESULTS		GreenSil 100
Permeability	D624	>10		10 ± 3
Tensile Strength, psi (Max @ 73°F)	D6083/ D-412	Minimum 200		>307
% Elongation @ Break (73°F)	D6083/ D-412	Minimum 100		>205
Wet Adhesion to Specified Substrate	D6083	Minimum 2.0 ply		>2
Permeance, perms	D6083	Maximum 60		<60
Volume Solids %	D6083	> 50		93
Weight Solids %	D6083	> 60		95
Hardness Shore A	D2240	>50		50 – 55

- **Coverage (mils/100 SF/gal):** 14 Dry Mils
- **Drying Time at 24 wet mils:**
  Dry to Touch - 4 hours
  Dry-Through - 12 hours
  Dry-to-Recoat - >6 hours
- **Total Cure Time (approx.):** 30 days
- **Adhesion/peel test on foam:** 2.4 lbs/in.
- **Service Temperature Range:** 50° to 200°F
- **Roof Deck Classification:** UL 790 (ASTM E-108)
- **Maintenance and Repair:** Class A
- Meets ASTM D6083 - Standard Specification for Liquid Applied GreenSil 100 Coating Used in Roofing
- ENERGY STAR® Certified
- Meets the requirements of California Energy Commission (CEC) Title 24 Section 118(i)3 Cool Roof Rating Council (CRRC) Rated
- FM Certified
- UL Certified as a component within Class "A" and "B" fire-rated roof coverings

2.02. ACCESSORIES AND MISCELLANEOUS MATERIALS

A. Flashing and waterproof coverings for expansion joints shall be compatible with the UltraTite coatings.

B. UltraTite GreenSil FG shall be used to seal fatigued flashings, such as curbs, through roof penetrations, drains, base flashings, and other areas of concern.

C. Miscellaneous materials such as adhesives, elastomeric caulking compounds, metal, vents, and drains shall be a composite part of the roof system and shall be compatible with the coating materials.

PART 3 EXECUTION

3.01. MANUFACTURER'S INSTRUCTIONS

A. Compliance: Comply with the manufacturer's product data, including product technical bulletins and product guide specification instructions.

3.02. EXAMINATION

A. Inspect surfaces, which will receive the coating system to make sure they are clean, smooth, sound, properly prepared, and free of moisture, dirt, debris, or other contamination.

B. Verify that all roof penetrations, mechanical equipment, cants, edge metal, and other on-roof items are in place and secure.

C. Verify that all critical areas around the immediate vicinity of the spray area are suitably protected.

D. Verify that all roof drains are clean and in working order.

E. Verify that all air conditioning and air intake vents are suitably protected or closed.

3.03. SURFACE PREPARATION

A. GENERAL

1. Existing roofing materials shall be securely fastened to meet wind uplift requirements.

2. All roofing surfaces shall be free of loose material, grease, soft asphalt, and other materials that could interfere with adhesion. Typically, this can be achieved by power washing with a minimum of 3500 psi power washer. Severe contamination may require industrial cleaning products. Check with your UltraTite Representative for recommendations.

3. Areas of ponded water must be repaired with the application of SPF or GreenLevel or the installation of additional drains.

B. PRIME

1. If rust is present, prime rusted areas with GreenPrime Metal at a rate of ½ gal/sq (8 wet mils / 4 dry mils).

2. Severely rusted metal should receive a second coat of GreenPrime Metal primer at ½ gal/sq (8 wet mils / 4 dry mils).

3. Metal that has corroded to the point of weakness must be replaced.

4. If any metal panels need to be replaced, the new metal must be primed with GreenPrime Metal (An additional adhesion test is required on all new metal before any base coat is applied to ensure proper adhesion).

C. SEAMS

1. Stitch screw any large gaps or overlaps that cause greater than 1/16” opening.

2. All sealants should be applied to achieve 50 dry mils.

   - The solids content of the product will determine the amount of wet mils needed to achieve 50 dry mils.

3. Apply GreenSil FG to all seams. Apply a 1-1.25” wide bead over the seam and feather in with a chip brush to a width roughly 4” wide. A smooth application over the seam should be obtained.

D. FASTENERS

1. Tighten or replace all fasteners, as necessary. In no case shall joints or seams be allowed to separate greater than 1/16 inch.

2. Apply enough GreenSil FG, to completely encapsulate each fastener.

3. Allow to dry for 12 to 24 hours.

4. If the roof has surface clips, they must be completely encapsulated with GreenSil FG. Special care must also be taken to allow water to flow around the clips. If damming occurs, water will collect above clips and may cause staining of the film over time (Each clip will need to encapsulate at least ¼ inch thick and 1.5 inches beyond the clip on all sides).

E. **PENETRATIONS, FLASHINGS, RIDGE-CAPS, ETC.**

1. Apply GreenSil FG at a 1-1.25" wide bead over the seam and feather in with a chip brush to a width roughly 4" wide. A smooth application over the seam should be obtained.

2. Small holes in the roof should be treated as follows:

   a. If the area has been previously coated, remove all coating in a 6" area around the hole.

   b. Remove all rust in the exposed area.

   c. Scuff the new metal with sandpaper to produce a profile.

   d. Prime exposed area with GreenPrime Metal at ½ gallon per sq (8 wet mils / 4 dry mils).

   e. Apply sheet metal patch with standard fasteners with neoprene washers.

   f. Apply GreenSil FG to new metal, paying special attention to the seams.

3. On previously coated roofs, with rust showing through, these areas MUST be treated as follows:

   a. The surface should be power washed, and all loose, blistered, or damaged coating removed.

   b. Mechanically remove the coating in rusted areas until a 1" non-rusted area is exposed beyond the rusted area.

   c. Continue until all rusted areas are removed.

   d. Prime the whole exposed area with GreenPrime Metal at a rate of ½ gallon per square (8 wet mils / 4 dry mils).

   e. Apply a single layer of GreenSil 100 coating at a rate of 1.5 gallons per 100 square feet to the area (24 wet mils / 9 dry mils).

4. Ponding Areas above Vents and Penetrations:

   a. Clean and remove prior repairs.

b. Fill areas with GreenLevel.

5. Allow to dry for 12 to 24 hours.

3.04. APPLICATION

A. **Metal GreenSil 100 Roof Restoration System:**

PRODUCT	Warranty	APPLICATION RATE	COATS
GreenSil 100	5 Year	1 Gallons/sq. (16 wmt / 14 dmt)	1
GreenSil 100	10 Year	1.5 Gallons/sq. (24 wmt / 21 dmt)	1
GreenSil 100	15 Year	2 Gallons/sq. (32 wmt / 28 dmt)	1
GreenSil 100	20 Year	2.5 Gallons/sq. (40 wmt / 35 dmt)	2

1. Material shall be applied to the entire roof according to the application chart:

2. These minimum recommendations for material usage are for ideal conditions. The number of gallons per 100 square feet may need to increase due to uneven application, roof profile, wind conditions while spraying, or other variables.

3. No coating shall be applied if the weather will not allow it to dry prior to exposure to precipitation or freezing temperatures.

3.05. FIELD QUALITY REQUIREMENTS

A. Inspection by the coating manufacturer's representative shall be made, as needed, to verify the proper installation of the system. Any areas that do not meet the minimum standards for application as specified herein shall be corrected at the contractor's expense.

3.06. CLEANING

A. Surfaces not intended to receive elastomeric coating materials shall be protected during the application of the system. Should this protection not be effective, or not be provided, the respective surfaces shall be restored to their proper conditions by

B. Cleaning, repairing, or replacing. All debris from the completion of work shall be completely removed from the project site. The site shall be left in a broom-clean condition.

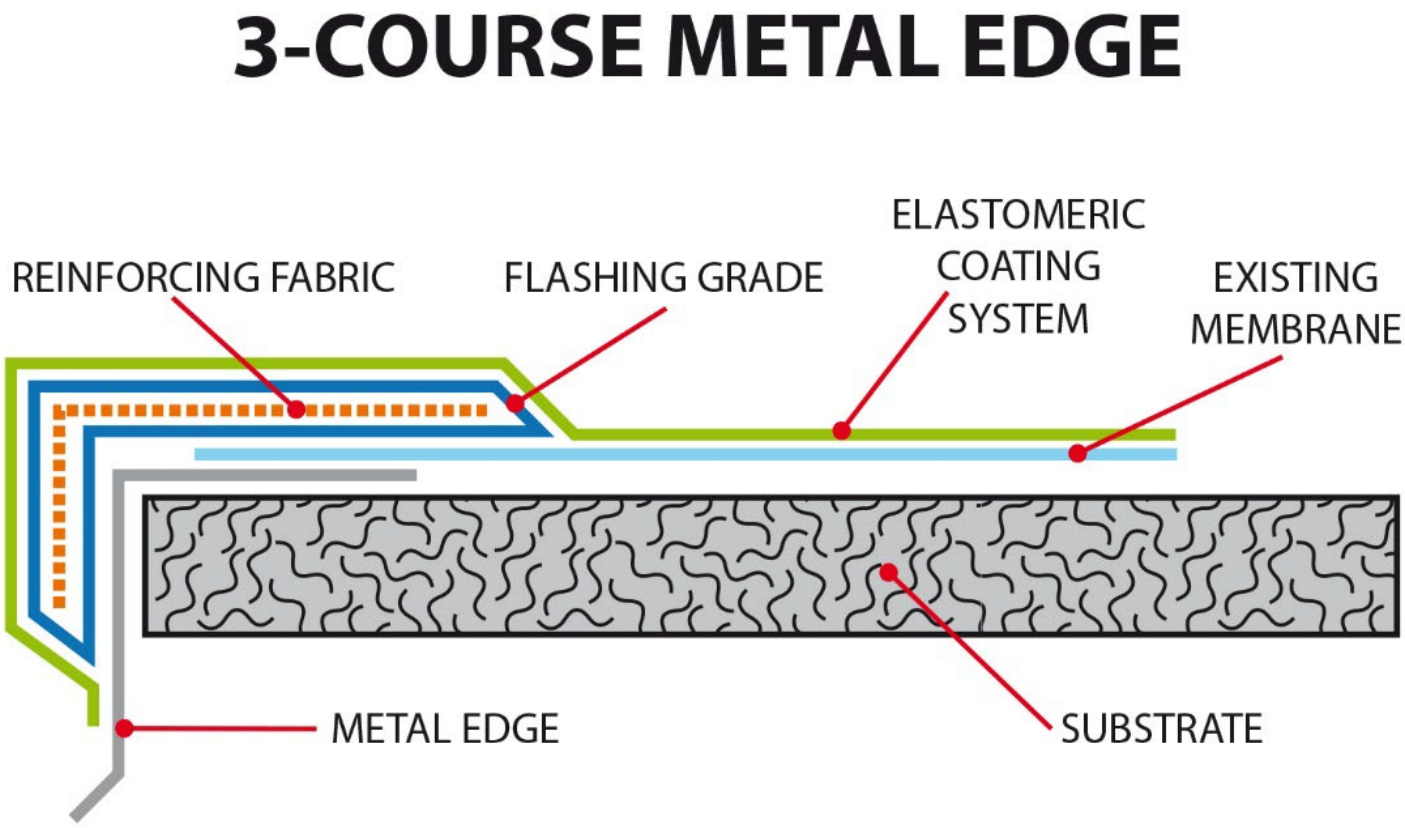
3.07. MATERIAL

A. The following materials are available from UltraTite:

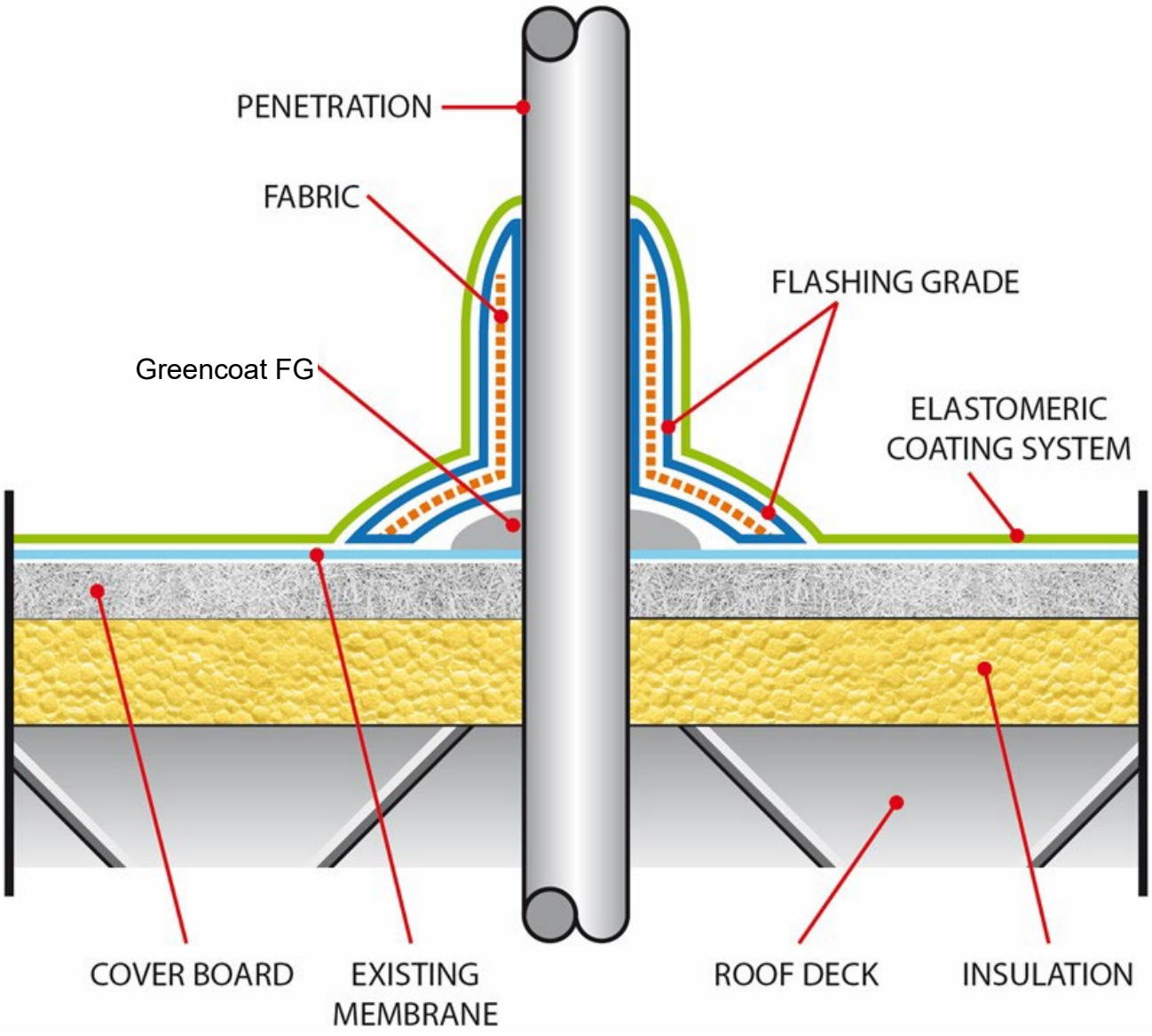
1. GreenSil 100 series – high solids elastomeric silicone roof coating

3. GreenPrime METAL -Rust Inhibitive Primer
4. GreenSil FG – silicone Flashing Grade
5. GreenLevel – 2 Component Roof Leveling Compound

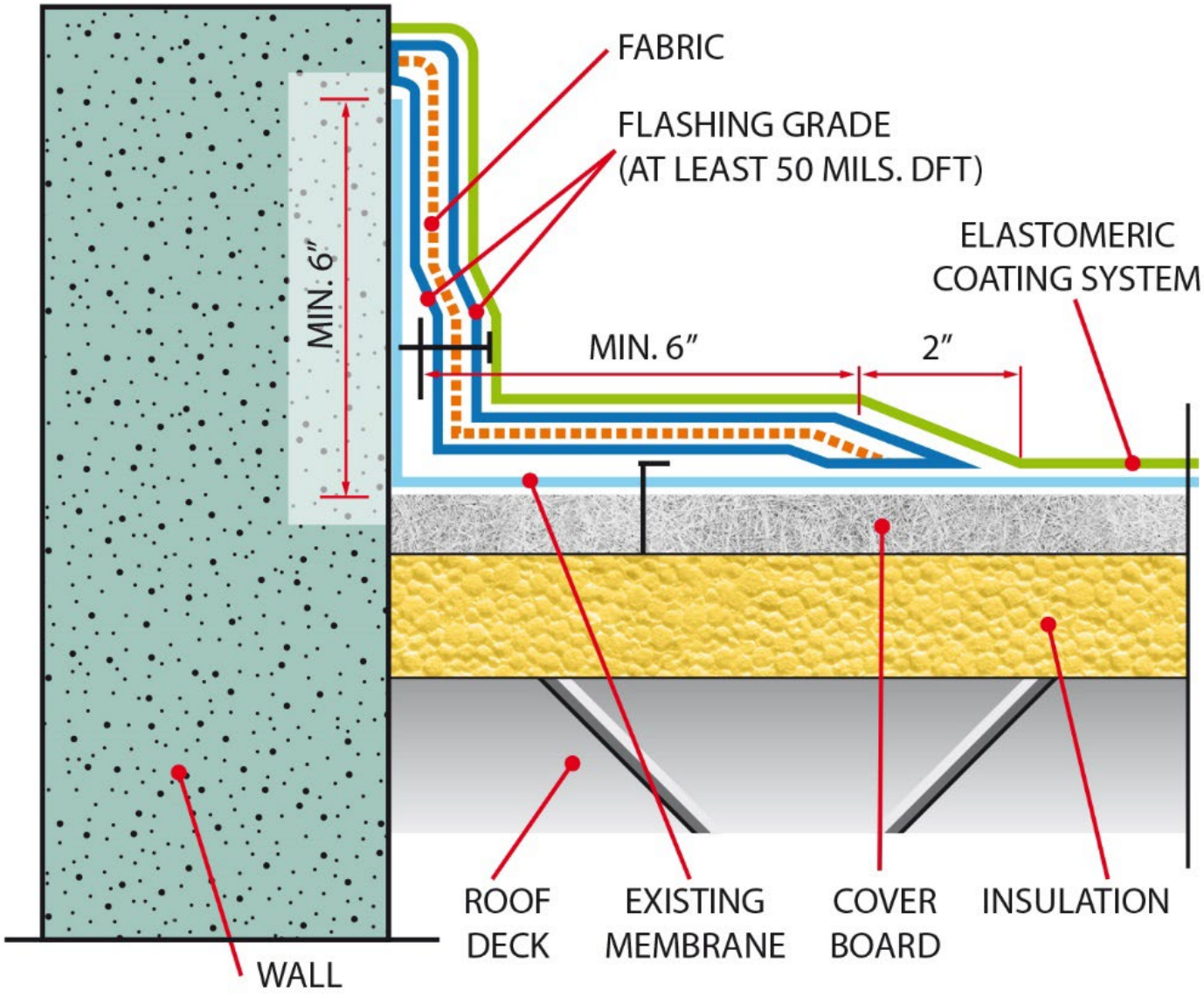
3.08. DETAIL DRAWINGS

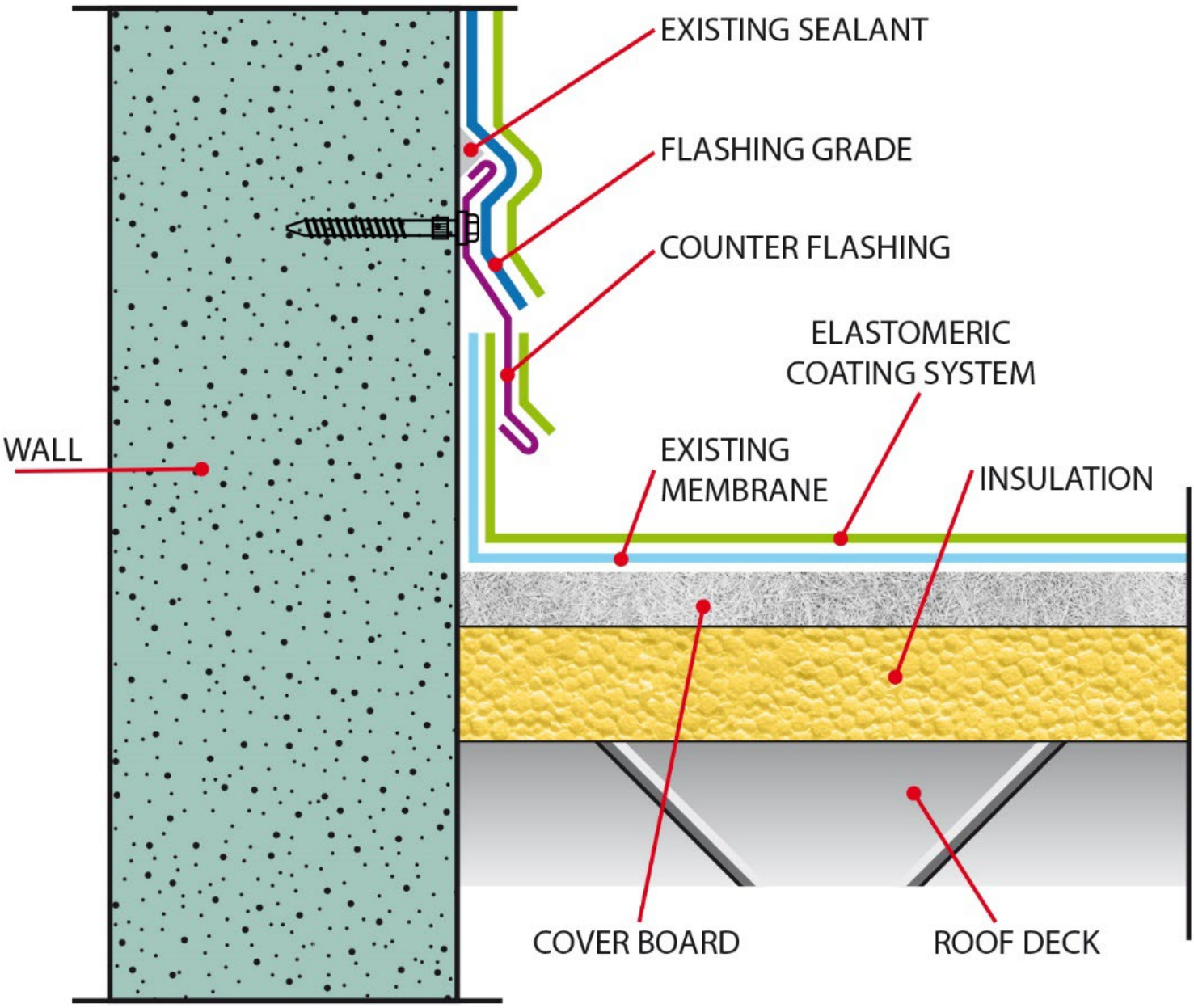


3-COURSE PIPE FLASHING

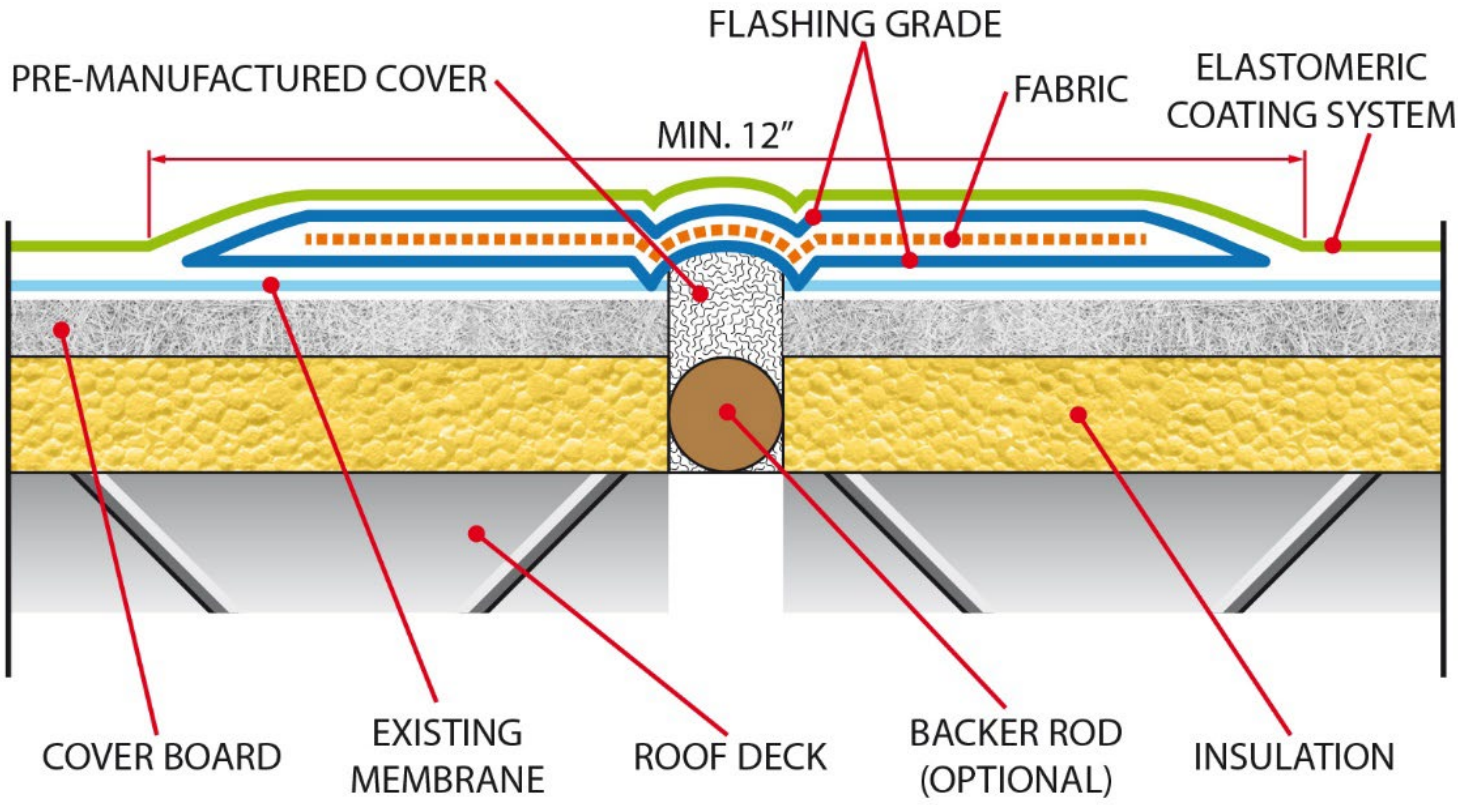


3-COURSE ROOF-TO-WALL DETAIL



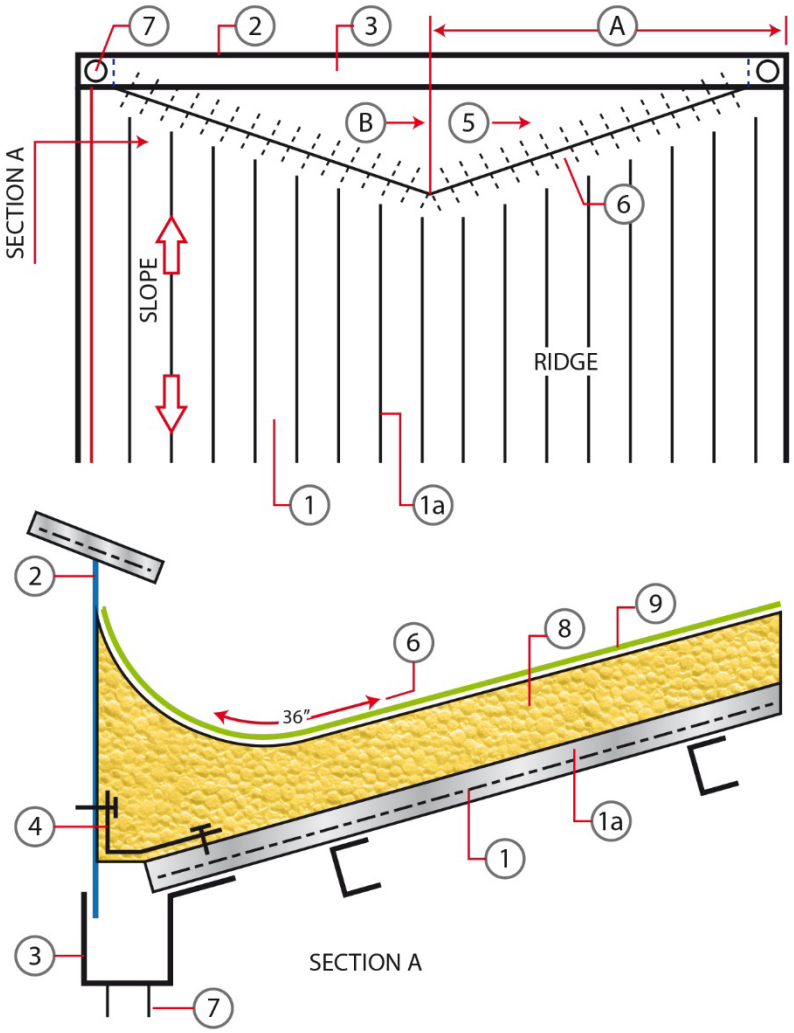


COUNTER FLASHING



EXPANSION JOINT

DETAIL 31-A, GUTTER / METAL ROOF



1 METAL CORRUGATED ROOF PANELS

1a RAISED CORRUGATED RIB

2 ADJOINING BUILDING OR WALL

3 EXISTING GUTTER TO BE COVERED

A CRICKET HEIGHT IS DETERMINED FROM DISTANCE OF DRAIN OR SCUPPER TO CENTER OF ROOF, DIVIDED BY 3 EQUALS 'B' HEIGHT OF CRICKET (UP ROOF SLOPE). SLOPE OF CRICKET SHALL BE A MINIMUM OF 1/2-INCH IN 12 INCHES

B CRICKET CENTER LINE OR RIDGE FROM WALL UP SLOPE

4 'L' METAL MECHANICALLY ATTACHED TO ADJOINING BUILDING OR WALL AND CORRUGATED ROOF DECK CONSTRUCTED FROM MINIMUM 22 GA. GALVANIZED MATERIAL

5 CRICKET FROM CENTER OF ROOF SLOPING TO DRAINS OR SCUPPERS

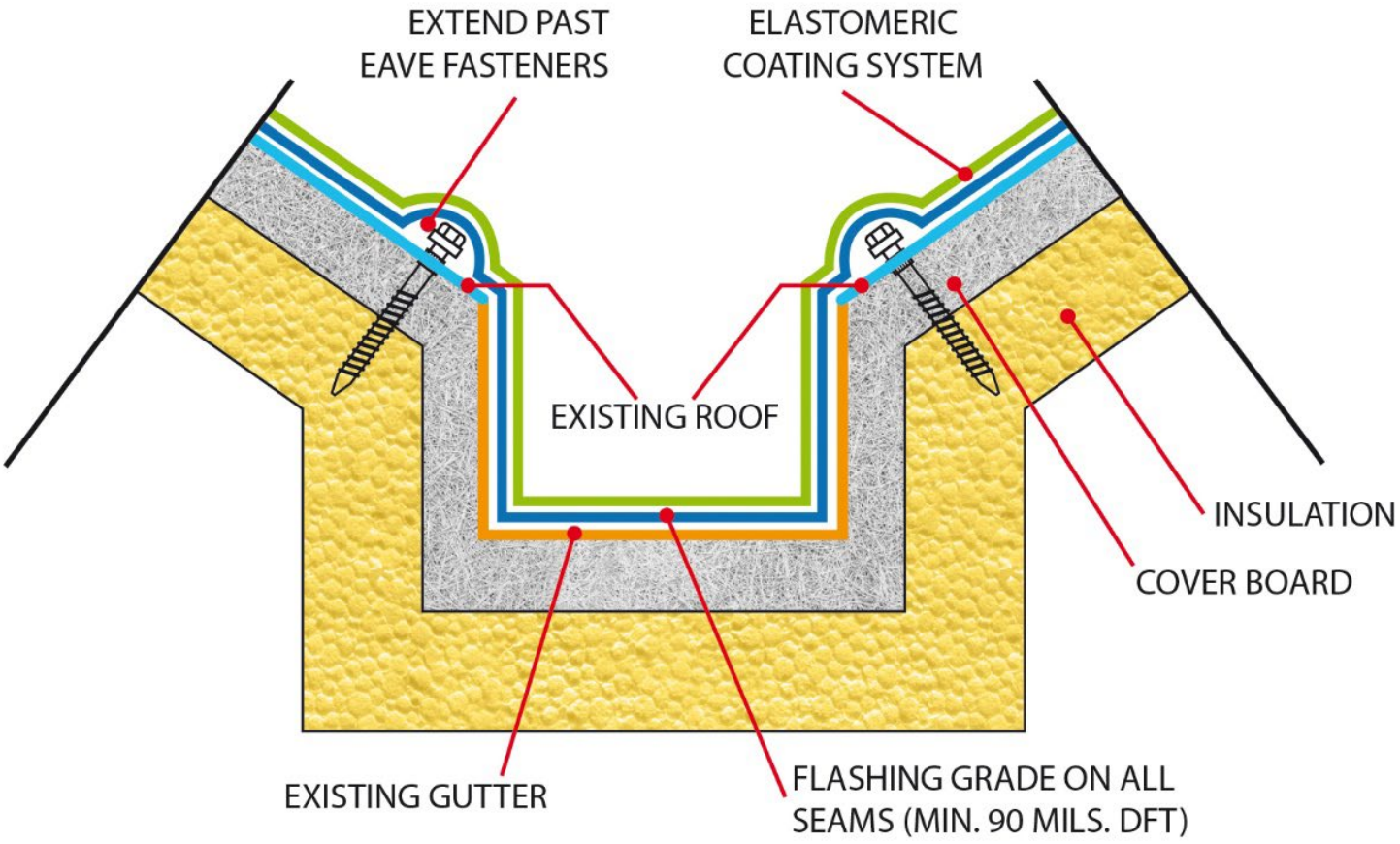
6 TRANSITION FROM CORRUGATED METAL ROOF TO CRICKET SHALL HAVE RIDGES GROUND SMOOTH TO PROVIDE A SMOOTH CHANNEL (MINIMUM 36-INCHES WIDE) WITHOUT OBSTRUCTIONS OR RIDGES FOR WATER TO EXIT ROOF. EXCESS FOAM ON RIBS SHALL BE GROUND-OFF AFTER BASE FOAM APPLICATION IS APPLIED PRIOR TO APPLYING CRICKET FOAM TO PROVIDE A "SKINNED" FOAM SURFACE ... OR, GROUND FINISHED FOAM SHALL RECEIVE ADDITIONAL COATING PER THE SPECIFICATIONS

7 ROOF DRAIN

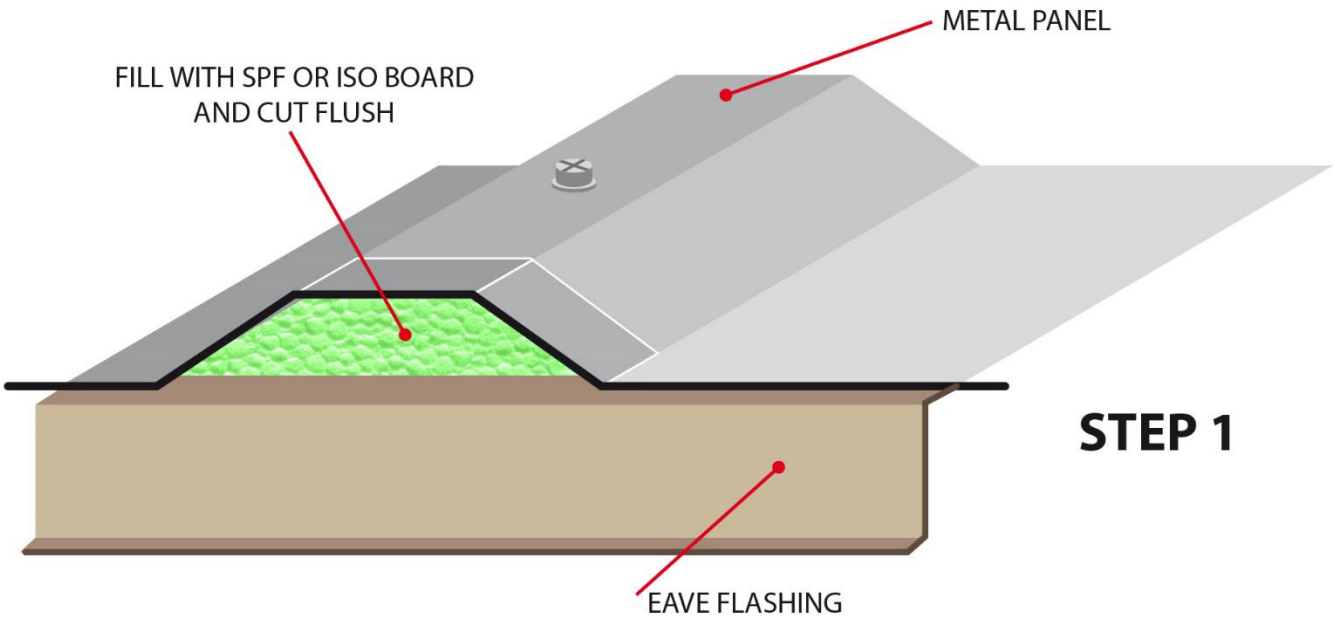
8 SPRAYED POLYURETHANE INSULATION

9 ELASTOMERIC COATING SYSTEM

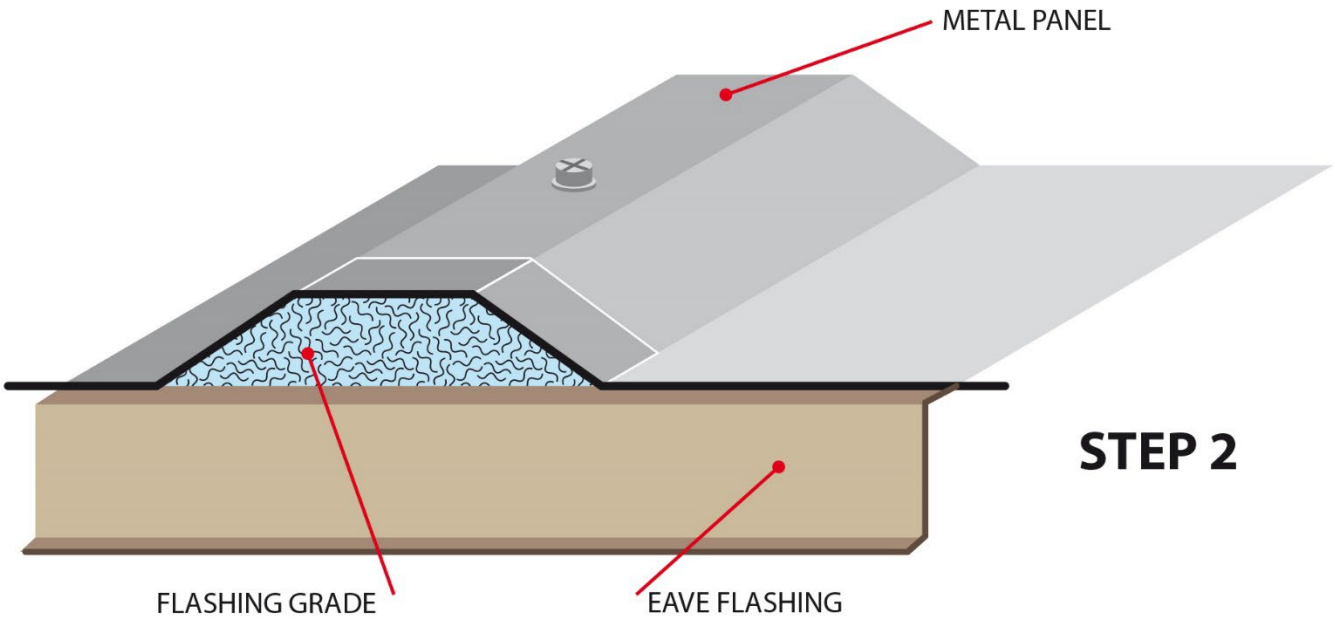
MEMBRANE ROOF GUTTER (INTERNAL)



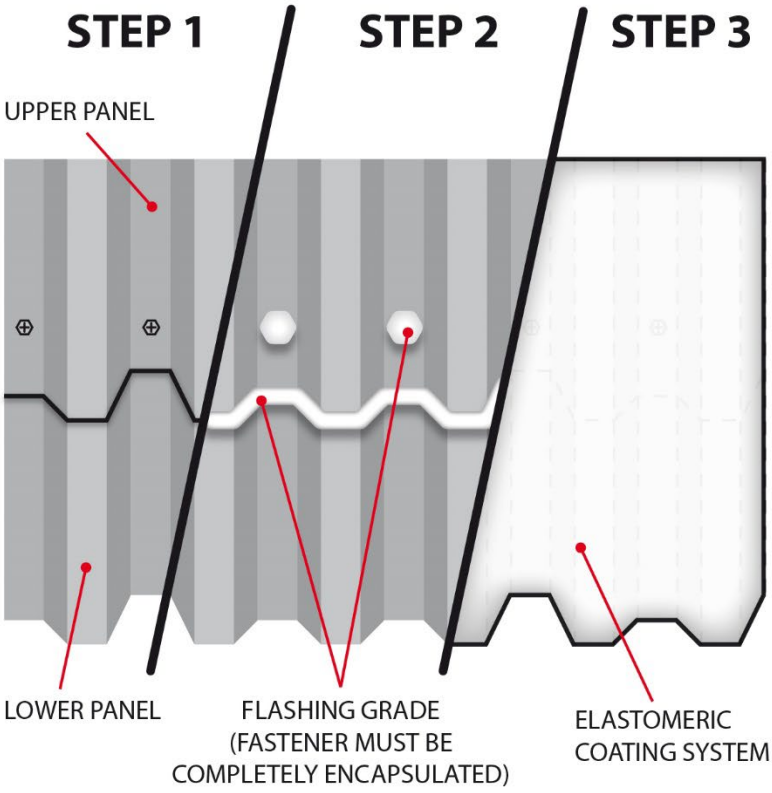
METAL EAVE CLOSURE



STEP 1

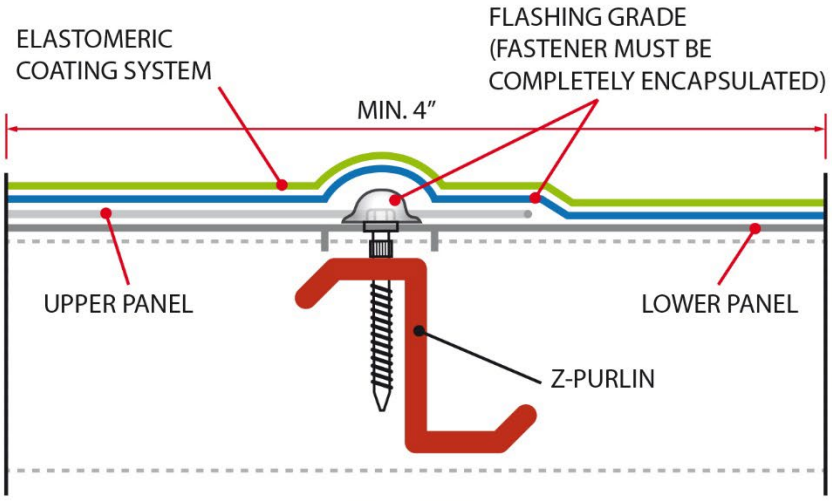


STEP 2

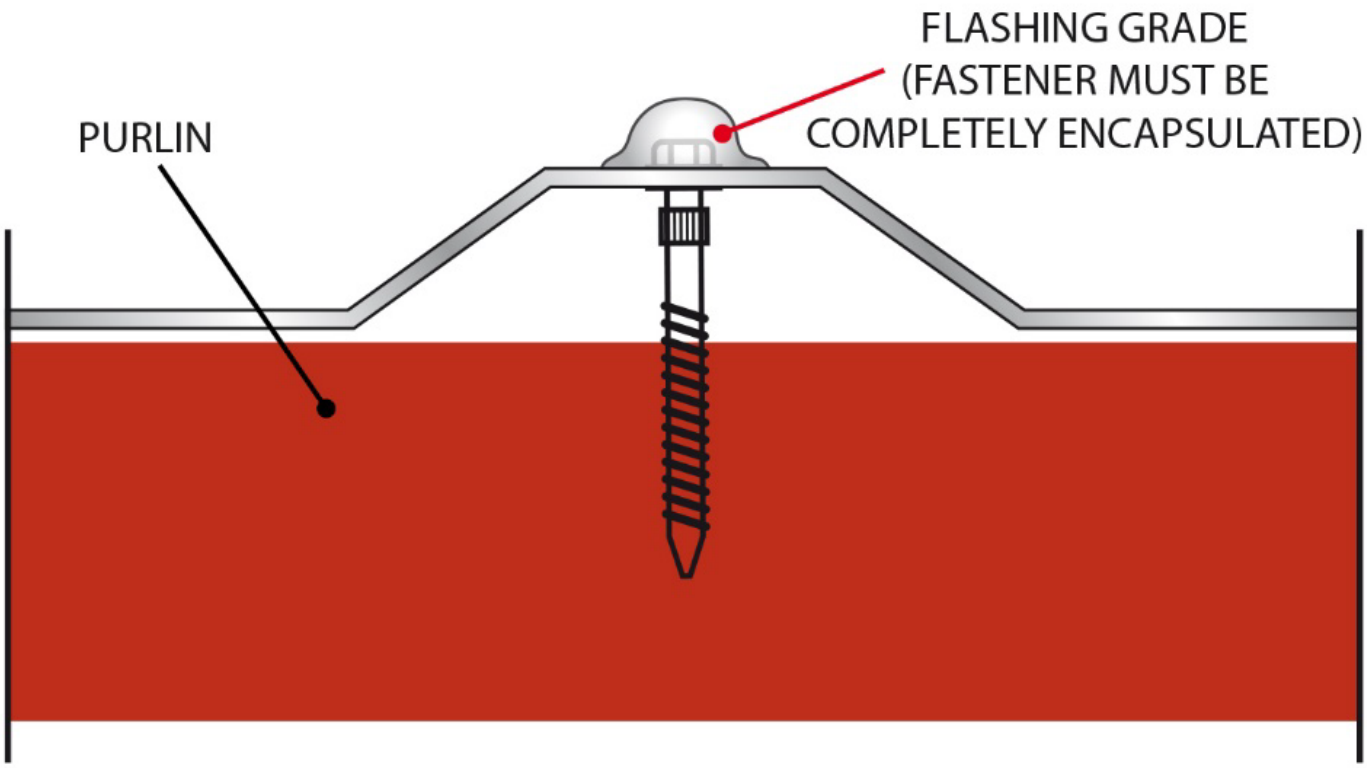


TOP VIEW

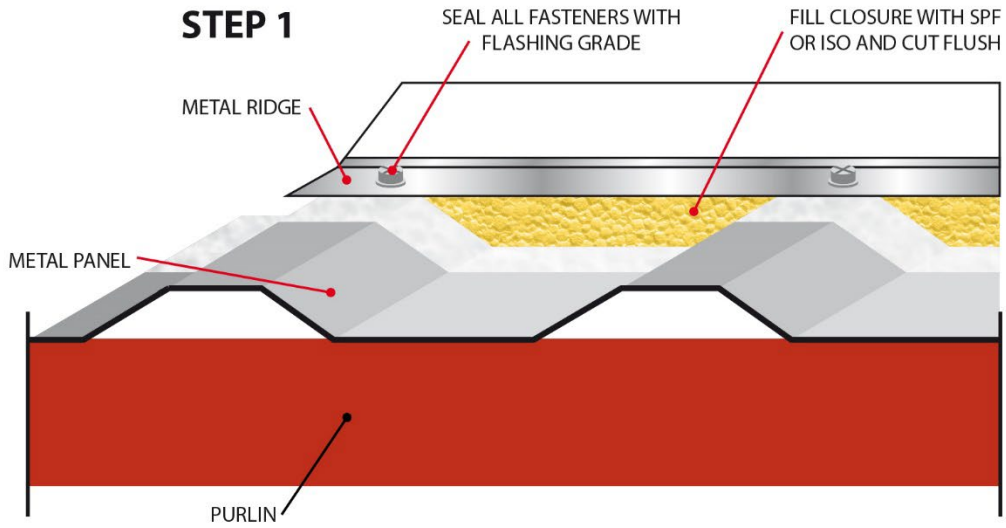
METAL HORIZONTAL SEAMS

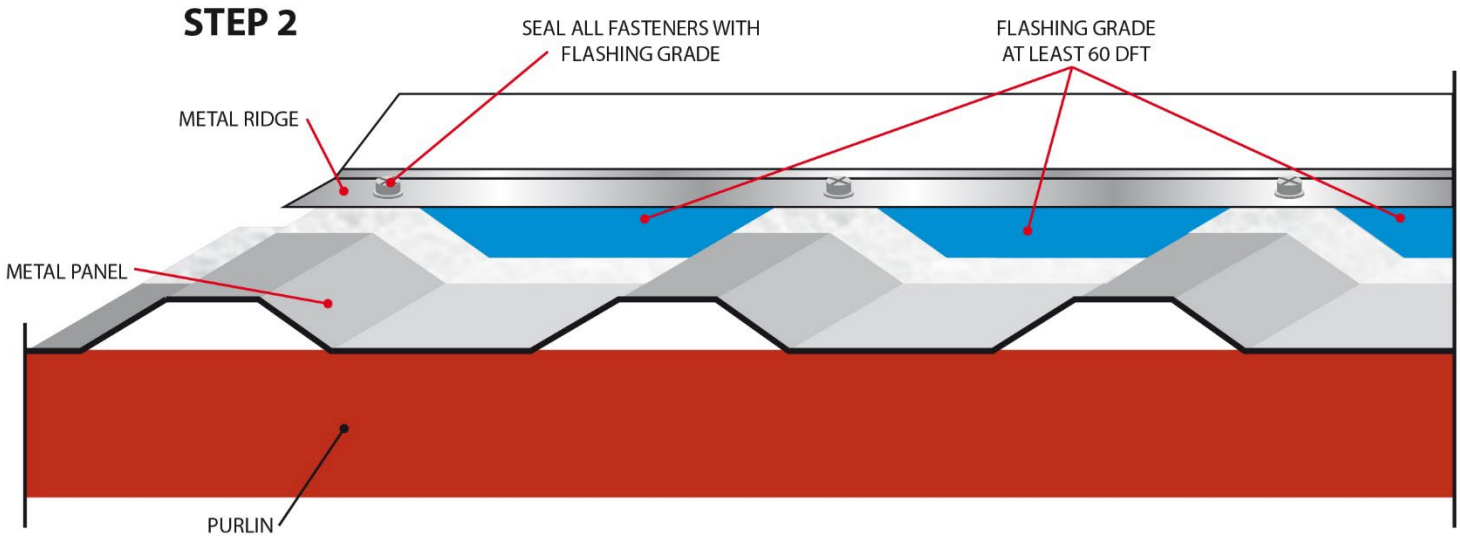


SIDE VIEW



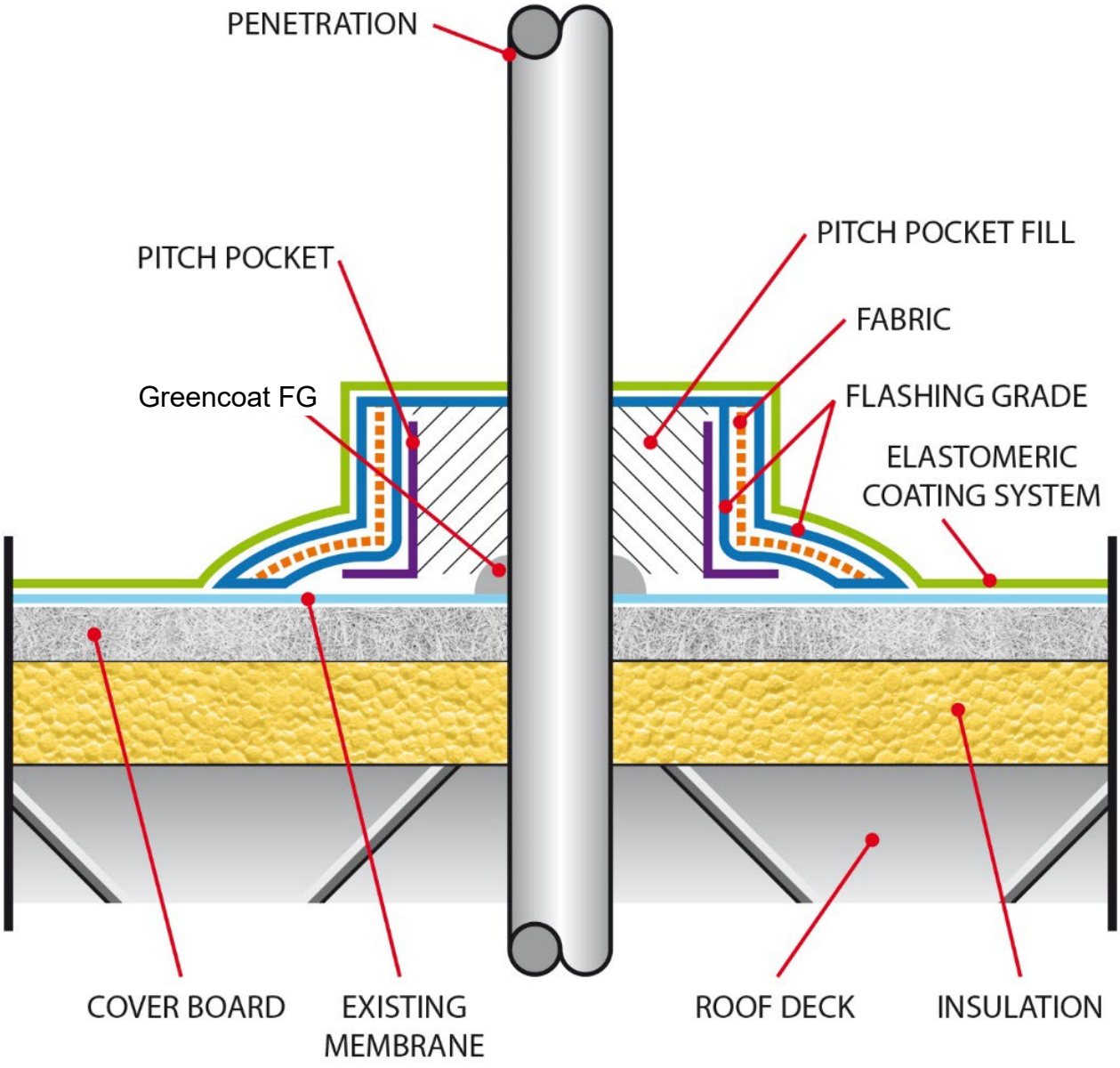
METAL PANEL FASTENERS





METAL RIDGE CLOSURE

PITCH POCKET



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