

Installation & Maintenance Manual



CMP

The
Revolutionary
Nail Strip

CONSTRUCTION
METAL
PRODUCTS

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Prefabricated
Roof Curb

Air Intake Roof
Penetrations

Hot Stack Roof
Penetrations

Dashed Boxes Indicate
Steel Plates @ Existing
Deck Below

Prefabricated
Roof Curb

RIDGE SIM.

RIDGE SIM.

SLOPE 4 / 12

Dashed Boxes Indicate Steel
Plates @ Existing Deck Below

SLOPE 4 / 12



2.1 GENERAL

This manual provides instructions for the installation of CMP's metal roof systems. Reference to the technical specifications may be necessary to ensure that the finished roof system is installed in compliance with CMP's warranty requirements.

CMP Metal Roof Systems require special considerations with regards to fasteners, insulations, underlayments and attachment requirements. These requirements are provided as a part of this application guide.

APPLICABILITY

- A. Parameters of this manual outline the minimum requirements for a CMP watertightness warranty. Local code and insurance requirements may require specific enhancements for a given performance level.
- B. Statements in this Application Guide are provided in good faith with the expectation that a design professional be consulted prior to any job decisions being made.
- C. The metal roof system shall consist of CMP: S-3000, S-2750, S-2500, S-2500C or S-2000 Metal Roof Systems, all with in-seam sealant over full I&W Underlayment on roofs with a pitch of 3/12 or less. Roofs with a pitch of 3.5/12 or greater require 30lb felt for the field and I&W underlayment at all details and penetrations.
- D. CMP warranted metal roof systems may or may not be applicable, without special consideration, if subject to local, regional or national building code, testing agency or insurance companies' requirements.
- E. It is the building owner's or the design professionals responsibility to consult with the controlling code agency official(s) and others to determine the specific requirements of each project and each system.
- F. The following conditions require special consideration and may not be warrant-able.

Contact our QA department if any of the following conditions are present:

- 1. Roofs that do not meet the minimum slope and/or exceed the maximum height limits for the CMP Metal Roof system assembly.
- 2. Projects that require special wind or severe weather coverage.
- 3. Roofs located where localized wind phenomenon may occur. Reference ASCE-7 wind maps and local building officials.
- 4. Roofs located down slope, foothills, mountain ranges, or escarpments.
- 5. Buildings with large openings in a wall (greater than 10% of the wall surface).
- 6. Roofs subject to positive pressure situations such as: pressurized buildings, distribution centers, laboratories and etc.
- 7. Buildings with high interior humidity such as swimming pools, paper mills or textile mills.
- 8. Roof decks that do not provide adequate fastener pullout resistance.
- 9. Roofs with domes, barrels or swales, or other unusual shapes.
- 10. Cold storage and freezer facilities.

2.2 Job-site Considerations

- A. Keep all adhesives, sealants and cleaning materials away from ALL ignition sources (e.g. a flame, fire, sparks and static, etc.).
- B. Consult container labels, MSDS and Product Information Sheets for specific safety instructions for all products used on the project.
- C. Care must be used when installing fasteners to avoid possible conduits and other piping in or under the deck.
- D. Do not use oil-base or roof cements with the CMP Metal Roof Systems.
- E. Insulation must be properly stored and protected from ignition sources, moisture and damage.
- F. Store all materials and accessories above ground on supported platforms that provide a minimum of 1/4:12 slope.
- G. Keep materials under waterproof covering or indoors and provide proper ventilation of metal roofing system to prevent condensation build-up between each panel, trim or flashing component.
- H. Do not allow other incompatible metals to interact with the Metal Roof System components.

2.3 Safety

- A. Serious injury or death can result if the proper safety equipment is not provided.
- B. Safety is the top priority. Walking on any roof system can be dangerous. Always use a method of fall protection that will meet the approved Occupational Safety and Health Administration (OSHA) standards or any regulatory agency responsible for your building.
- C. It is your responsibility as an owner or employer to make sure that proper training of your maintenance personnel and other employees is adequate for safety procedures and that safety equipment is in proper working condition.
- D. During roof inspections, take the following precautions and any others deemed appropriate by governing authority:
 - 1. Use fall protection and all appropriate safety equipment as agencies and/or job site require.
 - 2. Assure proper footwear usage and keep treads and soles clean.
 - 3. Never walk on ribs, eave, rake, valley, hip or ridge flashings.
 - 4. Never walk or stand on any skylight, fiberglass type panel or any other component not designed to support the weight of a person.
 - 5. Rope off open areas or assign a person to guard these locations during the inspection process to prevent accidental injury, both on the roof and the perimeter of any openings within the roof area.
 - 6. Never go on a roof with any moisture or any other substance present that may cause unsure footing.

2.4 Preparation

A. Preparatory Requirements

- 1. Most of our roof systems require field seaming. electric seamers for our systems are available from a qualified distributor (contact CMP). Other types or similar styles of field seaming machines may NOT properly seam the panels, and CMP cannot be responsible for any damage caused by using another type of field seamer.
- 2. The substrate must be no more than ¼" in 10' out of plane in any direction. Adjacent decking shall not be more than 1/8" out of plane. Out of specified plane areas will need corrective action prior to proceeding.
- 3. The building must be checked for "squareness" within acceptable standard practices. Out of square roofing areas will require adjustments in installation of the system to accommodate irregularities or the structure will need corrective action.
- 4. Verify that the purlins under the decks at the ridge and end laps are installed as detailed and that they are straight from rafter to rafter. Misplacement or swaying of the members will cause the fasteners to fail at the ridge or end laps as the panels expand, contract and possibly deform the roof panel itself.

B. Cautions

- 1. Be aware of roof panel fixity and don't restrict the thermal expansion and contraction of the roof panels.
- 2. Do not rigidly attach panels to the substrate at both ends or restrict panel movement. Refer to specifications, construction details, design professionals and CMP as needed for verification of requirements.
- 3. Adjust panel length to account for movement range of system components and flashing details.

B. Cautions, *continued*...

4. On clear span and open frame type structures, do not fasten roof panels through insulation to primary decking. Conversely install deckboard, and fasten roofing to it to minimize sound transmission. Large clear span areas with steel decking systems that require fastening panels to decking may result in clattering sounds due to the transmission of thermal movement of the roof system acting on the diaphragm.

C. Substrate Defects

1. Defects that need to be corrected before work can commence should be brought to the attention of the General Contractor or Owner in writing and addressed by them.
2. Roof reconstruction projects shall require the complete removal of the existing roof system. Re-cover applications are not acceptable for warranted CMP roof systems.

D. Moisture & Matter Removal

1. Water, snow, frost, dew, ice, dust, dirt or other foreign materials must be removed prior to installing the CMP Roof System.

E. Substrate Preparation

1. Acceptable substrates to which the CMP Roof System is installed must be properly prepared prior to accepting underlayment or roof system installation. The surface must be relatively even (no more than ¼" (6.4 mm) in 10' (3.05 m) out of plane in any direction or more than 1/8" (3 mm) out of plane of adjacent substrates), clean, dry, smooth and free of sharp edges, fins, loose or foreign materials, oil, grease and other materials that may damage the metal roof system. Rough or irregular surfaces that could cause damage to the roof panel must be overlaid with insulation or deckboard.

F. Underlayment Installation

1. Install CMP approved underlayment, appropriate to the substrate and warranty term. Refer to the "Approved Accessories Section" for product listing. Follow the underlayment manufacturer's directions and installation instructions.

2.5 Material Handling

A. Shipping & Delivery

1. Metal panels are shipped with the panels stacked vertically, on edge, up to 60', and braced as needed for stability.
2. Board and Band: 2 x 4s are strapped under the bundles to allow access for straps or a forklift. Bundles less than 30' long may be handled by a single forklift. The forklift should have at least 5' between forks. Bundles longer than 30' should be lifted utilizing a spreader bar with appropriate straps evenly spaced & attached roughly 25% from each end of the bundle.

B. Staging of Materials

1. Materials should be placed at job-site in such a way as to minimize handling.
2. Position crates or bundles with the panels in the correct position to be loaded directly on the roof without any additional turning or flipping.
3. Space materials out to limit having to shift on the ground or roof. Check load limits of structure to distribute load evenly and not to exceed building limits.
4. Assure all accessory items are conveniently located, so crew-members will not have to leave the area or cross over the newly installed work.

C. Handling

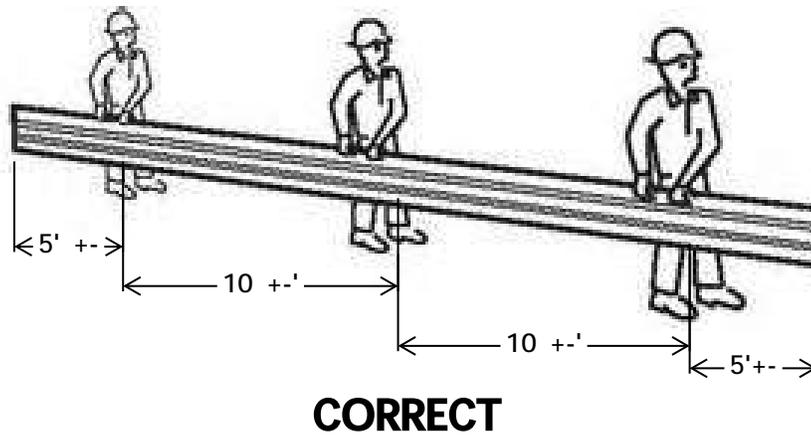
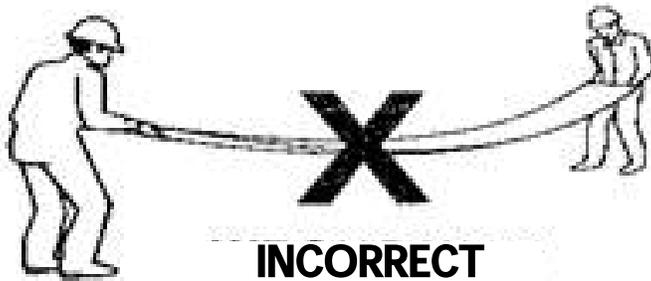
To safely and correctly handle roof panels, please follow to the procedures outlined in Fig. 2.5.2.

Figure 2.5.2
PANEL HANDLING

Panel Length	6' or Less	6' to 15'	15' to 30'	31' to 45'	45' +
Crewmen	1	2 - 3	3 - 4	4 - 5	4 +

Handling of panels and the number of crewmen required are a function of panel length and width, combined with the experience of the crew.

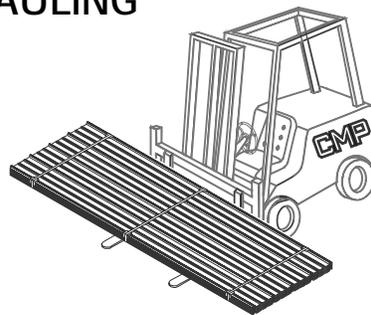
Ensure metal panel does not bend in any direction, up, down or torque, from its shipped or formed shape and maintains it throughout the transportation and installation process.



D. Unloading, Moving & Hauling

To safely and correctly haul and move roof panels, please follow to these procedures.

Figure 2.5.1
PANEL HAULING



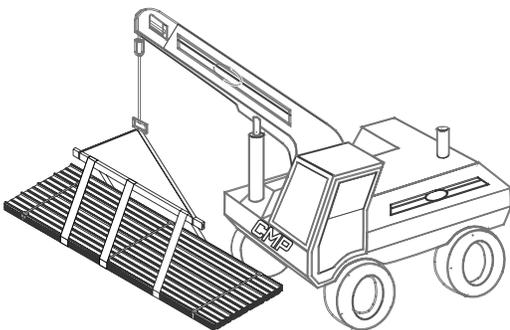
Forklift Method

Before attempting unloading and the subsequent transporting of the Roof & Wall Panels, carefully inspect and select all taxi-ways and staging areas that are reasonably level with firm compacted surfaces without ruts and excavations.

When loading/unloading bundles or crates of lengths up to 30' use a single forklift with wide spaced forks equally positioned under the center of the crate/bundle.

Crates/ bundles in excess 30' can be handled with two forklifts spaced at equal intervals in respect to the crate/bundle.

Handle the crate/bundles one at a time to avoid product damage and maintain safety.



Crane Method

When loading/unloading using crane or other overhead lift devices use nylon lift straps equally positioned under the center of the crate/bundle. Spreader bars suitable to maintain the strap positions are to be used and should be positioned on both the top and underside of the crate/bundles with care to protect the panel edges. Experienced crane operation is critical and care must be taken to avoid jerking and snatching the crate/bundles.

When lifting crate/bundles in excess of 30' with crane type lift devices, three-3 lift strap support points shall be required and include the use of spreaders as noted above.

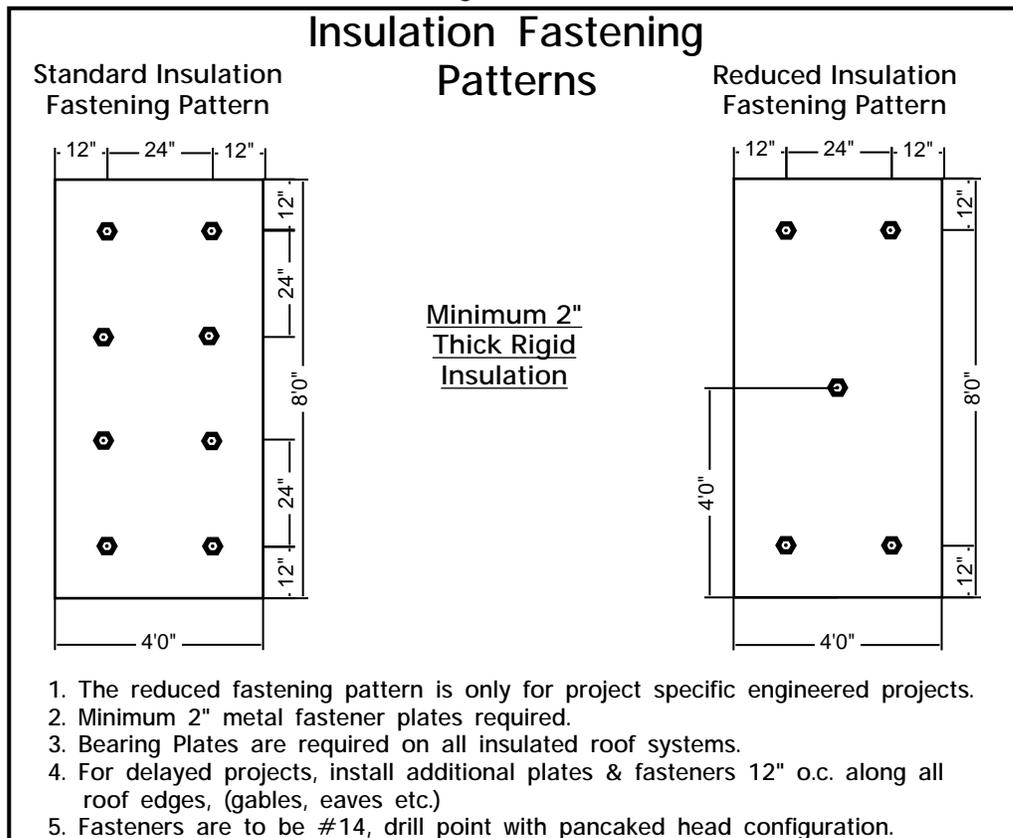
CAUTION:

- Workers must wear appropriate protective gear at all times when handling panels. Failure to do so may cause injury.
- Carry individual panels in the on-edge position. Never move panels in a flat position as excessive flexing may result and may create permanent distortions.
- When moving a solitary panel, it must be turned on its edge first and equally supported to each end with a compliment of handlers to transport the panel safely.
- Lift panels when removing from crate/bundle. Do not drag panels out of the crate/bundle or across each other or any other surfaces.

2.6 Insulation & Deckboard Installation

- A. Install only as much insulation and/or deckboard as can be covered with underlayment prior to the end of the workday or as dictated by weather conditions.
- B. Neatly fit insulation to all penetrations and nailers. Insulation should be loosely fitted, with gaps greater than 1/4" (6.3 mm) filled with acceptable insulation. Depending on the thickness, insulation board edges running parallel with the deck should be supported by the top deck flute flange.
- C. When installing multiple layers of insulation, all joints should be offset by half a board width, and layers must be staggered a minimum of 6" (152 mm) in both directions.
- D. Using CMP approved fasteners & plates attach the insulation and/or deckboard at a rate of no less than 8 fasteners per 4' x 8' (1.2 m x 2.4 m) board. See Figure 2.6.1 for the specific insulation field attachment patterns.

Figure 2.6.1



2.7 Underlayment Installation

- A. Install CMP approved underlayment as required for the selected warranty as based on the panel selection, roof slope and other requirements.
 1. Start at the lowest part of the roof deck, and install the valleys first. Allow for the membrane to lay completely flat.
 2. Cut the underlayment in lengths that can easily be managed.
 3. Along the sides of the sheet, overlap the seams a minimum of 3" (76 mm).
 4. At the ends of the sheet, overlap the seams a minimum of 6" (152 mm).
 5. Peel half of the release liner off the roll diagonally and apply with heavy, even hand pressure or brooming from the center of the sheet to the outer edges. Remove the remaining release liner from the other half of the roll, and apply pressure in the same manner.
 6. For very steep slope applications, back nailing is recommended. When back nailing, be sure that all fasteners are covered by the next overlapping sheet.
- B. Warranted roof systems have specific underlayment & leak Barrier requirements. Refer to the "Roof Panel Selector Guide" for field and system detail underlayment & leak barrier requirements.

2.8 Roof System Installation Procedures

The following guidelines are for installing the Roof System Panels. Refer to system details for additional information. Confirm all the necessary roof components & accessories are available prior to the commencement of installation.

A. Installation Procedures & Maintaining Panel Aesthetics

1. Assure that all substrates are within roofing manufacturer's required or approved designs and tolerances prior to commencement of work.
2. Verify that all supplied materials are as specified, approved and ordered for the project.
3. Maintain proper care and handling methods of all materials at all times.
4. Use only approved powered installation tools (screw guns, drills etc.).

DO NOT USE STANDARD DRILLS OR DRYWALL DRILLS TO INSTALL ROOF CLIP FASTENERS

5. All materials shall be installed with proper clearance for thermal movements, both expansion and contraction, with manufacturer's supplied accessories and details. These installation guidelines are not in order of application. Typically there can be multiple steps that require mixing the order of these instructions and details.

B. FASTENING

1. Panel Engagement - Align female side seam over the male seam and apply downward pressure to engage the side-seam counterparts. Side seam engagement can be very tight, use of a rubber (non-marking) rubber mallet may be necessary.
2. Fasteners & Screws - For best results use a #10 screw long enough to fully penetrate the substrate with a minimum of three (3) screw threads visible below the deck (Fig. #1). Install screws into the center of the fastener slot (Fig. #2).

"Do not overdrive fasteners"

Install fasteners so that the screw head rests just above the slotted flange to allow for thermal movement.

NOTE: If rigid insulation is used directly under the panel, the fastener length needs to be increased to allow a minimum of 1" penetration into the wood.

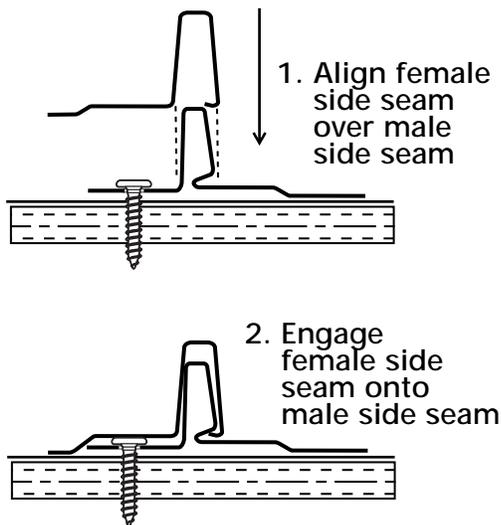


Fig. #1

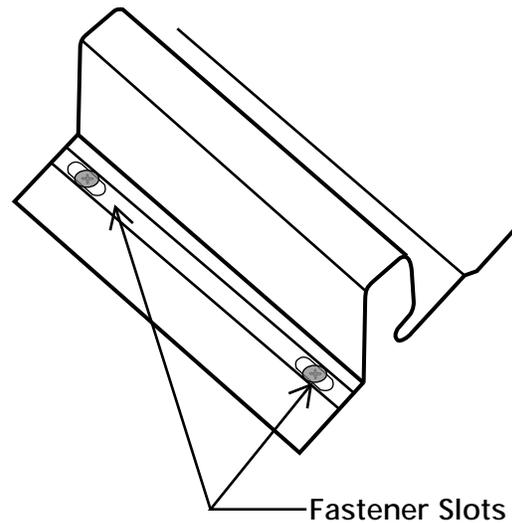


Fig. #2

C. Nailstrip Recommendations

1. Not for application on roof with slopes of less than 3" in 12".
2. Side laps should face away from the prevailing wind (See Fig. #4).
3. Lay the first sheet along the eave at the down-wind side of the roof (farthest away from the direction of the prevailing winds).

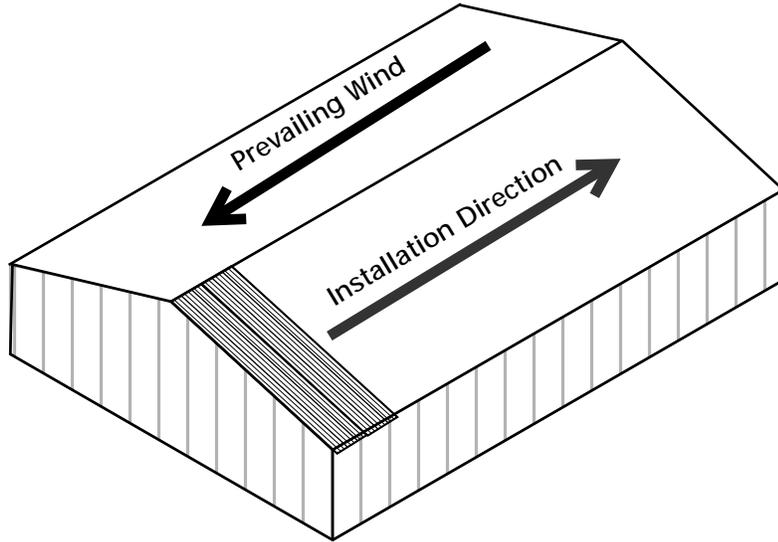


Fig. #4

D. Wind Uplift

- * UL 580: Construction No. 60 Class 90
- * UL 1897: 200psf

1. Metal Panels: (24 ga)-16" wide, continuous over two or more spans.
2. Substructure: (Plywood)-plywood decking to be a nominal 5/8" thick (19/32" actual).
3. Fasteners: No. 10 X 2-1/2" long No. 2 Phillips pancake head wood screw spaced 16" o.c.
4. Joists: joists spaced 2' o.c. may be one of the following:
 - A. Nom. 2" x 6" wood joists No. 2 or better.
 - B. Nom. 2" x 4" wood when used on a top cord of a wood truss, No. 2 or better.
 - C. Light gauge structural steel framing with the member against the plywood to be a minimum No. 18 msg coated steel.
5. Underlayment: 30 lb Roofing felt.
6. Roof Panel: 1" Nailstrip 24ga
7. Fasteners: No. 10-12 X 1" long No. 2 Phillips drive, Pancake head, plated steel screws.

2.9 Flashing Elements

A. General

1. Remove any existing flashing (i.e., metal, bituminous materials, mastic, sealants etc.).
2. Flash all penetrations that pass through the roof panel.
3. Relocate any penetration that will be within 3" (77 mm) of a roof panel side seam.
4. The flashing seal must be made directly to the metal roof penetration.

B. Pipes, Round Supports, Steel Tubing, etc.

1. Flash penetrations with pre-molded pipe boots wherever possible.
2. Refer to "Accessories Section" for minimum and maximum pipe diameters that can be flashed with pre-molded pipe boots & flashings.
3. Steel Tubing: Field-fabricated pipe flashing details are acceptable when the corner radius is greater than 1/4" (6.4 mm) and the sides of the tube is less than 4" (101.6 mm).
When the tube exceeds 4" (101.6 mm), use a diamond platform or a standard curb detail.
4. Additional flashing elements may be required for pipes and tubes based on the warranty requirements.

C. Expansion Joints

1. Install expansion joints in accordance with CMP details and where indicated.
2. If an E/J intersects a valley, fails to continue through the roof ridge and eave, do not continue and contact CMP's QA department immediately.

D. Fastener, Clip & Bearing Plate Installation *(if applicable)*

1. Install roof panel retainer clips as required to accommodate the wind uplift specifications and warranty requirements.
2. Verify the clip is appropriate for the roof panel selected. Install the clip onto the seam of the roof panel and position the base snugly against the side-seam.
3. Verify fasteners are of the correct type to penetrate the roofing substrate. Verify the fastener length is sufficient to penetrate the substrate as required.
 - a. Steel roof decks: Fasteners must have a minimum of three-3 complete threads exposed below the substrate.
 - b. Steel roof decks with Insulation: Fasteners must have a minimum of 3/4" exposed below the substrate.
 - c. Wooden roof decks: Fasteners must have a minimum of 3/4" exposed below the substrate.
4. Install the first row of clips within 6" of the Eave, Ridge, High Eave & Valley conditions.
5. Bearing Plates: Install CMP bearing plates beneath clips on all insulated systems.
6. Install two-2 fasteners with a torque limiting, clutch type screw guns,

E. Snow Guards

1. Snow Guards with mechanical fastening elements must be of a non-penetrating type and one that does not penetrate the roof panel itself or the panel side-seams.
2. Mechanically attached snow guard systems that fasten through the panel are unacceptable may void the warranty.
3. Adhesive attachment of snow guards to roof panels are acceptable but are not covered under any CMP roof system warranty or paint/finish warranty.

Drywall screw guns & drills without torque limiters & auto-stop are strictly prohibited

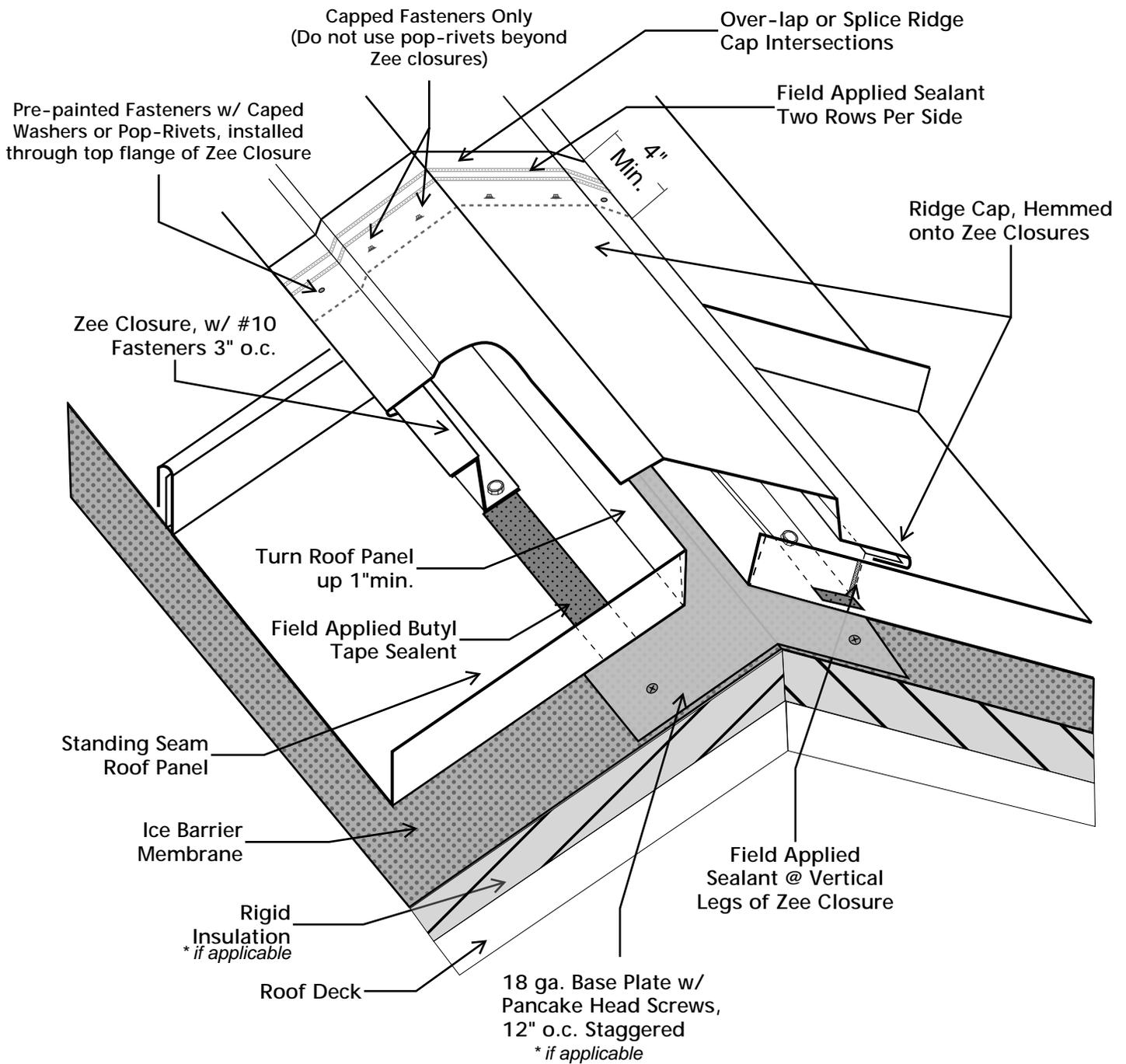
1. Do not over torque clip fasteners. Overdriving clip fasteners can crimp and compromise the panel side-seam, causing the roof panels to bind, deform and create undulations or field effect-oilcanning. Slowly drive fasteners and tighten only enough to allow the clip top to contact the panel side-seam.
2. Note, Follow all local building code and/or agency listings. CMP recommends that all projects be specifically engineered to determine the appropriate clip/fastener spacing for your area/windzone.

2.9 Flashing Elements (Details)

Next page...

Ridge Trim, High Profile

DETAIL #A

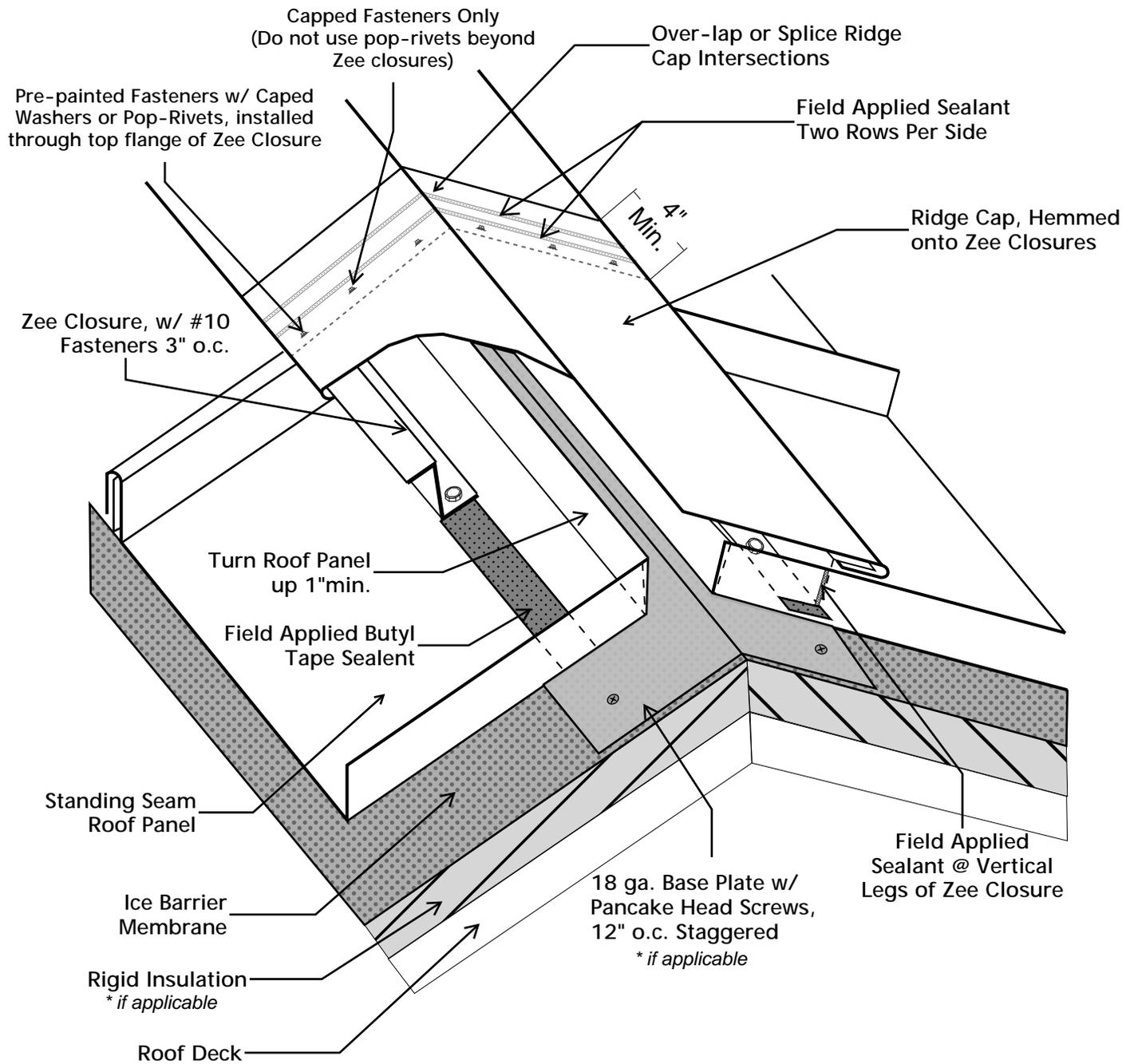


A. Ridge Trim, "Fixed, Non-Vented"

1. Install 18ga min. Base Plate (required on insulated systems) centered over the roof ridge line. Fasten into roof deck with approved fasteners staggered on both sides at 12" (304.8 mm) o.c.
2. Install roof panels using appropriate specified panel clips and fasteners, noting that first clip is to be 6" (152.4 mm) max. from the centerline of hip/ridge.
3. Field hem roof panel end (bread-pan) up 1" (25.4 mm) min.
4. Modify Zee-Trim to snugly fit between the roof panel side seams. Install modified Zee-Trim over double bead butyl tape, install field applied sealant at panel seam & zee-trim intersections and fasten into base plate or roof deck with approved fasteners 3" (76.2 mm) o.c.
5. Install adjacent roof panels, with field applied in-seam sealant for 10" (254 mm) min. down each roof side-seam.
6. Install hip/ridge cap onto the modified zee-trims and close hem. Install 6" (152.4 mm) splice plates or lap ridge cap sections a minimum of 4", with two rows of field applied sealant.
7. Fasten both sides of Ridge Cap with capped fasteners or rivets installed through top flange of zee-trim, at 12" o.c. or 1 per each panel.

Ridge Trim, Low Profile

DETAIL #A-1

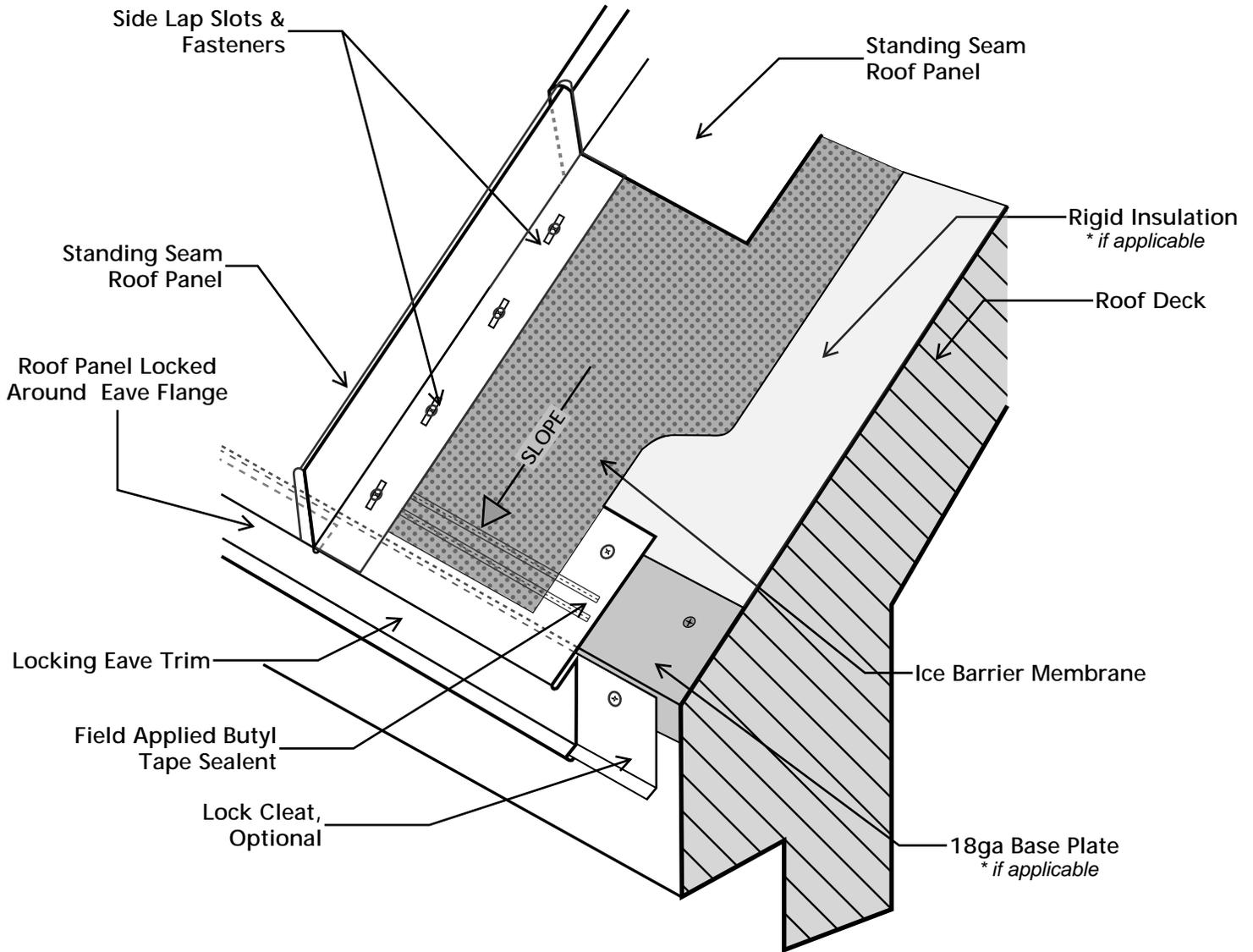


A-1. Low Profile Ridge & Hipped Ridge Trim, "Fixed, Non-Vented"

1. Install 18ga min. Base Plate (required on insulated systems) centered over the roof ridge line. Fasten into roof deck with approved fasteners staggered on both sides at 12" (304.8 mm) o.c.
2. Install roof panels using appropriate specified panel clips and fasteners, noting that first clip is to be 6" (152.4 mm) max. from the centerline of hip/ridge.
3. Field hem roof panel end (bread-pan) up 1" (25.4 mm) min.
4. Modify Zee-Trim to snugly fit between the roof panel side seams. Install modified Zee-Trim over double bead butyl tape, install field applied sealant at panel seam & zee-trim intersections and fasten into base plate or roof deck with approved fasteners 3" (76.2 mm) o.c.
5. Install adjacent roof panels, with field applied in-seam sealant for 10" (254 mm) min. down each roof side-seam.
6. Install hip/ridge cap onto the modified zee-trims and close hem. Install 6" (152.4 mm) splice plates or lap ridge cap sections a minimum of 4", with two rows of field applied sealant.
7. Fasten both sides of Ridge Cap with capped fasteners or rivets installed through top flange of zee-trim, at 12" o.c. or 1 per each panel.
8. Fasten both sides of Hip Cap with capped fasteners or rivets installed through top flange of zee-trim at 12" (304.8 mm) o.c.

Locking Eave Trim

DETAIL #B

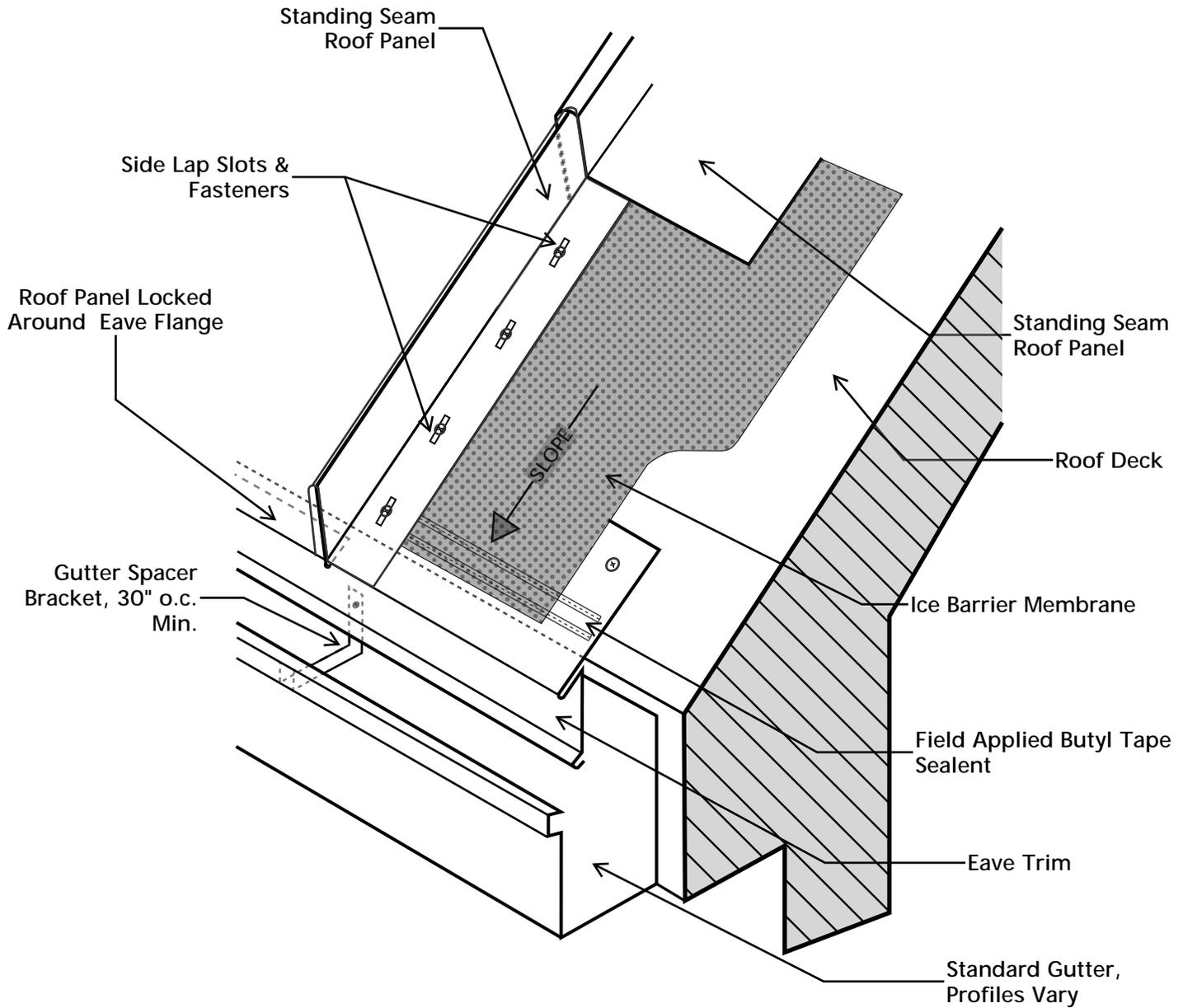


B. Locking Eave Trim, (Fixed Ridge Systems)

1. Install optional lock cleat onto fascia and fasten with pancake head fasteners 8" (203.2 mm) o.c.
2. Install locking eave trim hemmed onto cleat (if present) and fasten with pancake head fasteners 8" (203.2 mm) o.c.
3. Install two beads of field applied non-curring sealant over top of eave trim.
4. Install panel using panel clips and fasteners, noting that the first clip is to be 6" (152.4 mm) max. from eave.
5. Hem panel over lip of eave trim flashing, with a gap to accommodate the anticipated expansion & contraction. (see Fig. ??)
6. Install adjacent roof panels, with field applied in-seam sealant for 10" (254 mm) min. up each roof panel side-seam.
7. Fold end tab of the female side-seam around end of the opposing male side-seam. Fold tabs to the inside of the side-seams.

Locking Eave Trim W/ Gutter

DETAIL #B-1

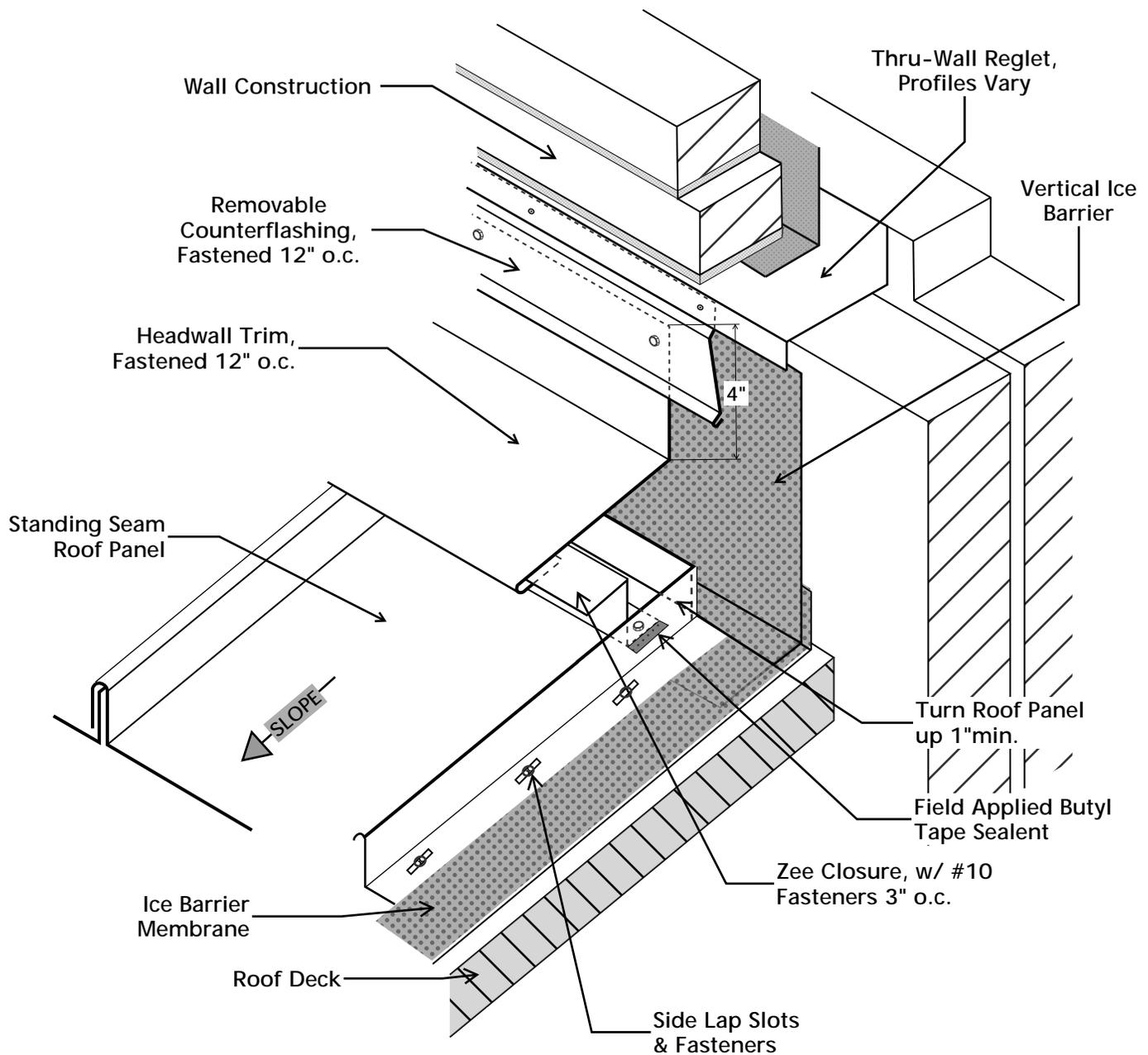


B-1. Locking Eave Trim with Gutter, (Fixed Ridge Systems)

1. Install gutter onto fascia and fasten with brackets/hangers @ 30" o.c.
2. Install locking eave trim and fasten with pancake head fasteners 8" (203.2 mm) o.c.
3. Install two beads of field applied non-curring sealant over top of eave trim.
4. Install panel using panel clips and fasteners, noting that the first clip is to be 6" (152.4 mm) max. from eave.
5. Hem panel over lip of eave trim flashing, with a gap to accommodate the anticipated expansion & contraction.
6. Install adjacent roof panels, with field applied in-seam sealant for 10" (254 mm) min. up each roof panel side-seam.
7. Fold end tab of the female side-seam around end of the opposing male side-seam.

Headwall Flashing

DETAIL #C

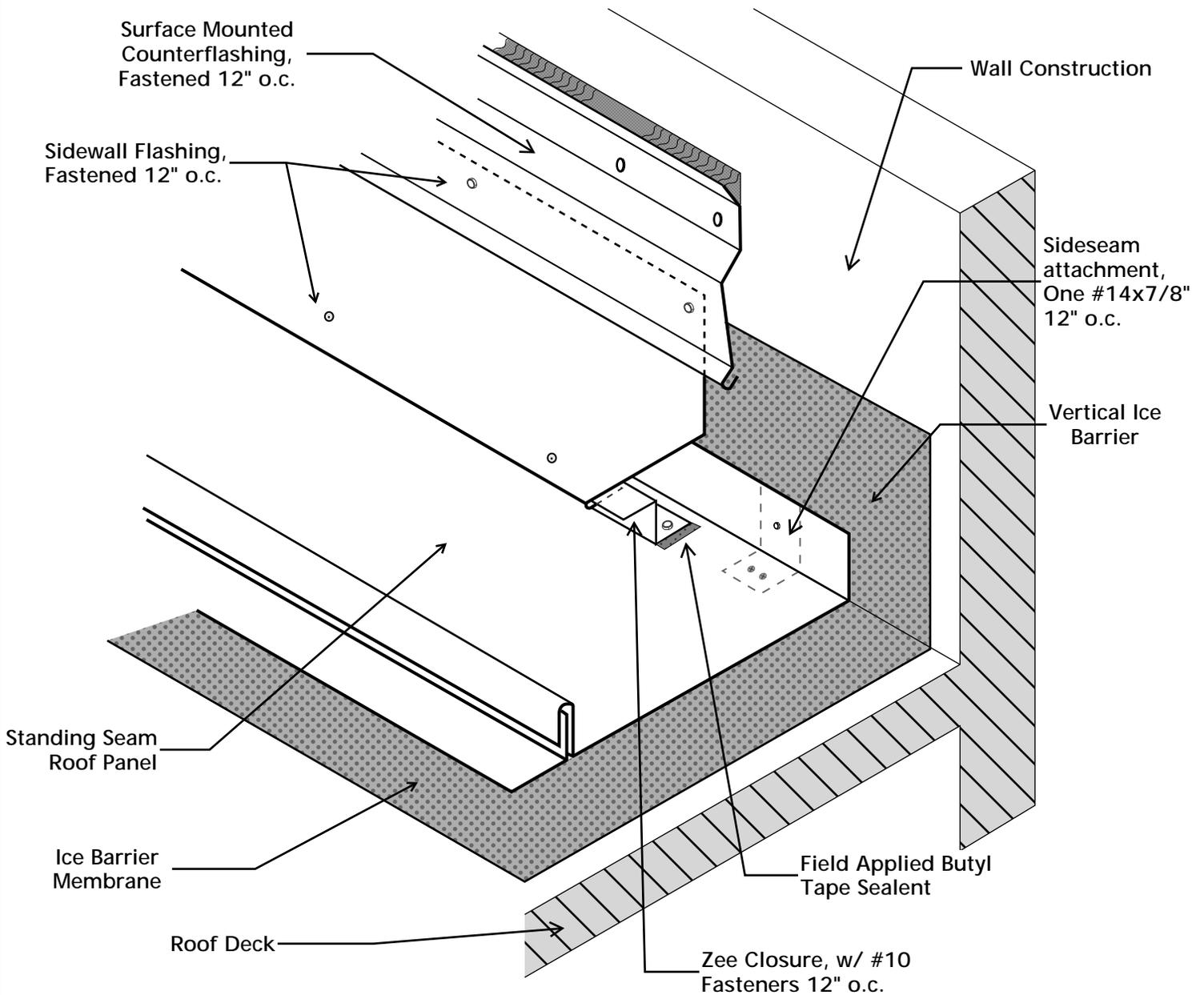


C. Roof to Headwall Flashing (Fixed)

1. Install 18ga min. Base Plate (required on insulated systems) at wall base. Fasten into roof deck with approved fasteners at 12" (304.8 mm) o.c.
2. Install roof panels using appropriate specified panel clips and fasteners, noting that first clip is to be 6" (152.4 mm) max. from the base of wall.
3. Field hem roof panel end (bread-pan) up 1" (25.4 mm) min.
4. Modify Zee-Trim to snugly fit between the roof panel side seams. Install modified Zee-Trim over double bead butyl tape, install field applied sealant at panel seam & zee-trim intersections and fasten into base plate or roof deck with approved fasteners 3" (76.2 mm) o.c.
5. Install adjacent roof panels, with field applied in-seam sealant for 10" (254 mm) min. down each roof side-seam.
6. Install base-flashing onto the modified zee-trims and close hem. Install 6" (152.4 mm) splice plates or lap flashing sections a minimum of 4", with two rows of field applied sealant.
7. Fasten base-flashing to wall with approved fasteners 12" (304.8 mm) o.c.
8. Fasten base-flashing with rivets installed through top flange of zee-trim 12" (304.8 mm) o.c.
9. Install counter-flashing into sawn-reglet and apply continuous field applied sealant.

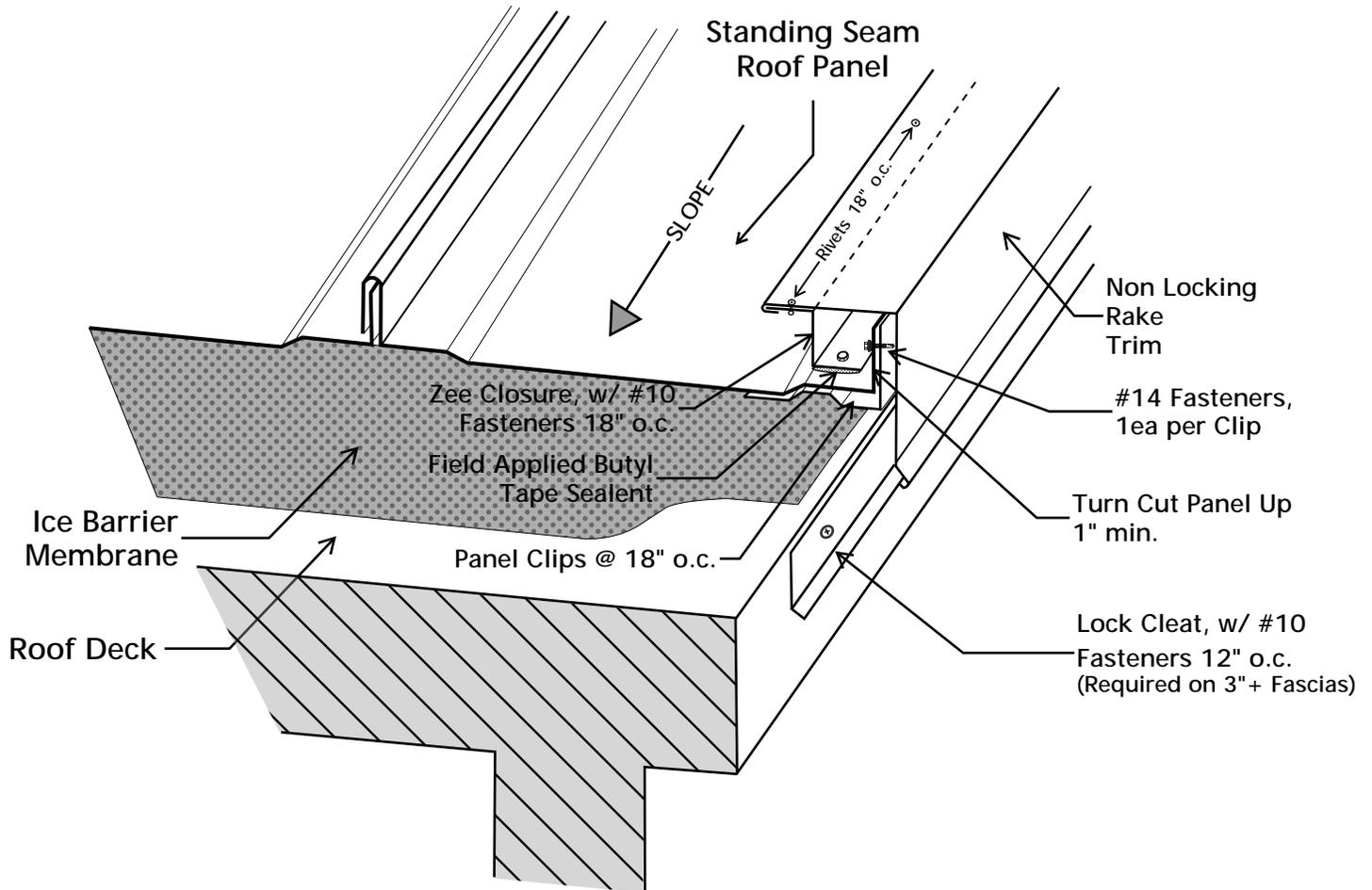
Sidewall Flashing

DETAIL #D



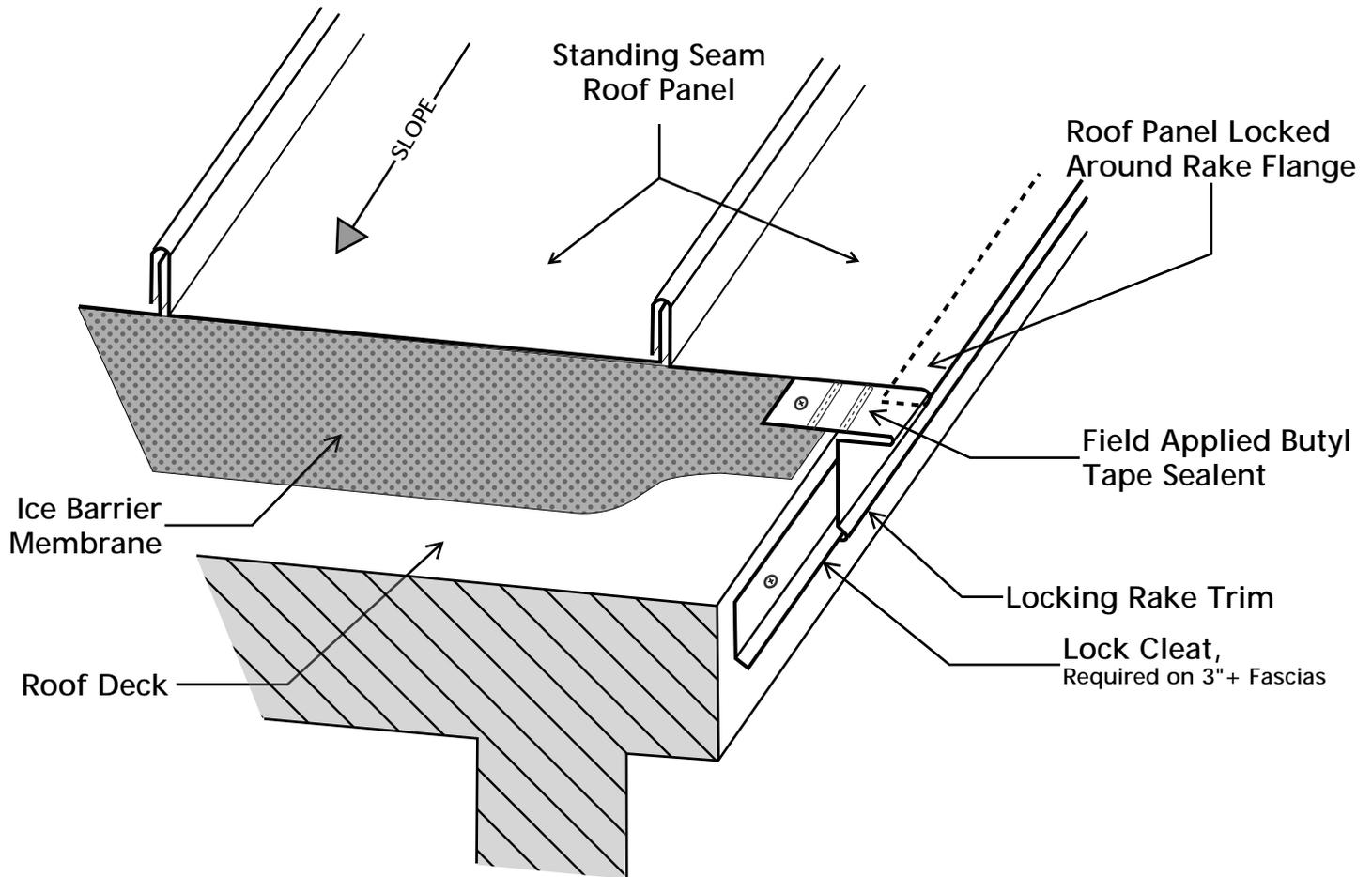
D. Roof to Sidewall Flashing

1. Install roof panels using appropriate specified panel clips and fasteners, noting that first clip is to be 6" (152.4 mm) max. from the base of wall.
3. Field hem roof panel sideseam (as necessary) up 1" (25.4 mm) min.
4. Install Zee-Trim over double bead butyl tape and attach with #10-13x1" fasteners @ 12" o.c.
5. Install sidewall flashing onto the zee trim and close hem. Install 6" (152.4 mm) splice plates or lap flashing sections a minimum of 4", with two rows of field applied sealant.
6. Fasten sidewall flashing to wall with approved fasteners 12" (304.8 mm) o.c.
7. Fasten sidewall flashing with rivets installed through top flange of zee-trim 12" (304.8 mm) o.c.
8. Install surface mounted counterflashing or insert sawn-reglet counterflashing and apply continuous field applied sealant.



E. Gable/Rake Trim

1. Field bend side of roof panel (as necessary) up 1" min. to evenly align with gable end of structure.
2. Install appropriate roof panel clips and side fasten roof panel into clips with #14x7/8" fasteners.
3. Install continuous zee-trim along the field bend, over double bead butyl tape sealant and attach with #10-13x1" fasteners 12" (304.8 mm) o.c.
4. Install gable trim wall cleat as required for trims with 3'+ fascias.
5. Install gable/rake trim onto zee-trim (and cleat, if present) and close hems. Install 6" (152.4 mm) splice plates or lap flashing sections a minimum of 4", with two rows of field applied sealant.
6. Fasten gable/rake trim with rivets installed through top flange of zee-trim 18" (457.2 mm) o.c.
7. Cut and fold end closure tab down to enclose the eave end, zee trim & roof panel side-seam.

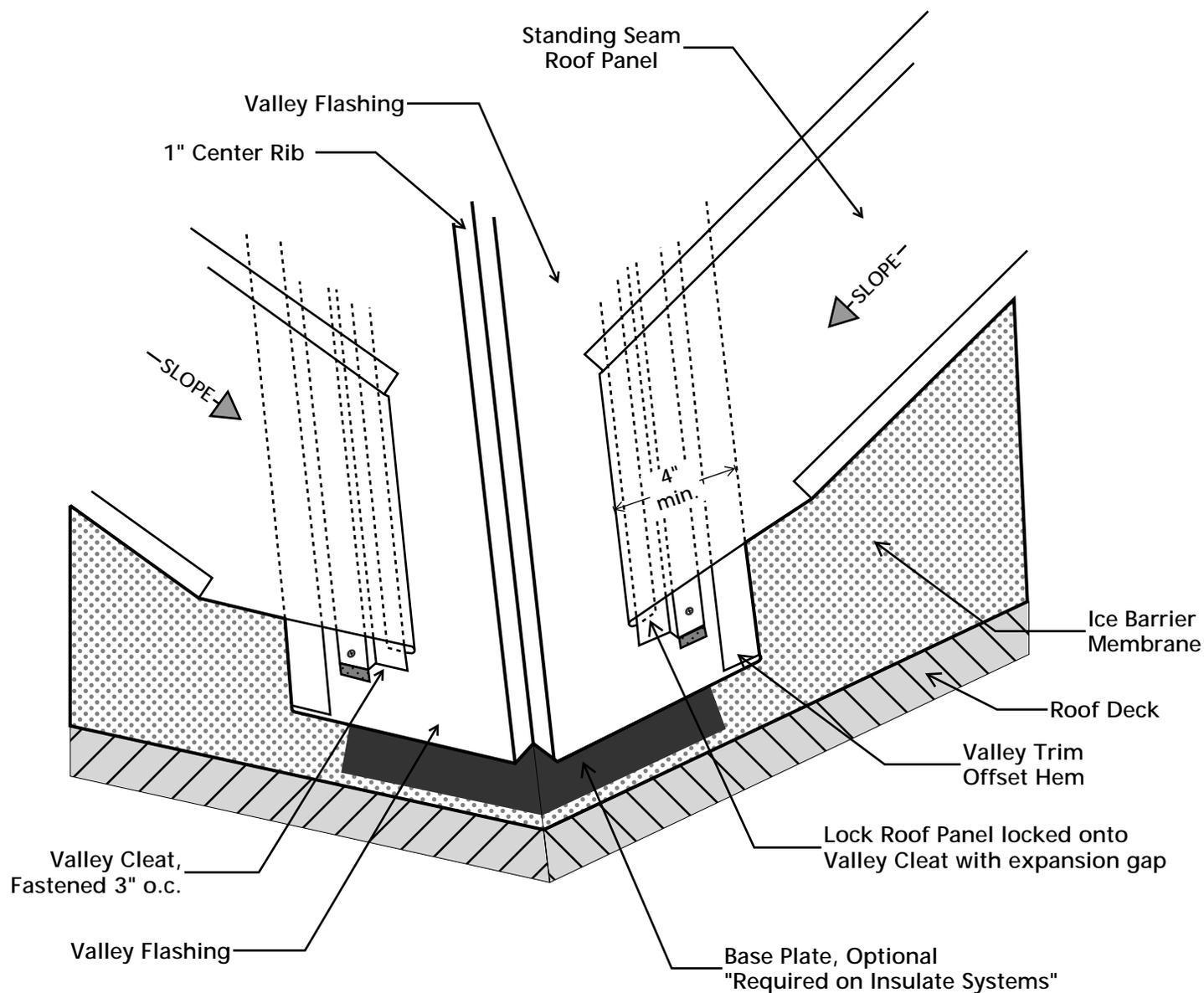


E-1. Locking Gable/Rake Trim

1. Install lock cleat as required for trims with 3'+ fascias.
2. Install gable/rake locking trim with #10-13x1" fasteners @ 12" o.c. and field apply two rows of butyl tape sealant. Install 6" (152.4 mm) splice plates or lap trim sections a minimum of 4", with two rows of field applied sealant.
3. Install roof panel and field hem side of panel onto gable/rake lock trim.
4. Cut and fold end closure tab down to enclose the eave end, zee trim & roof panel side-seam.

Valley Flashing

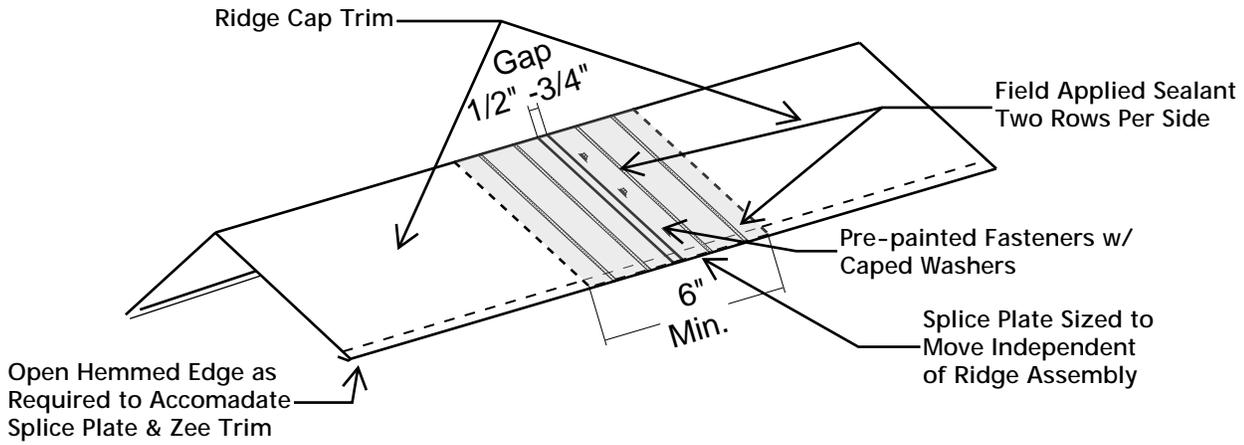
DETAIL #F



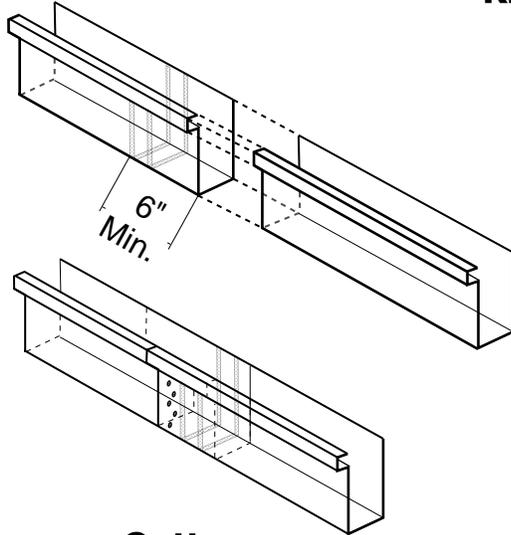
F. Valley Flashing

1. Install 18ga min. Base Plate (required on insulated systems) centered in valley line. Fasten both sides into roof deck with approved fasteners at 12" (304.8 mm) o.c.
2. Center and install valley flashing into valley.
3. Install valley/joggle cleats over double bead butyl sealant at 4" (101.6 mm) from valley flashing edges (both sides). Attach with #10-13 fasteners at 12" (304.8 mm) o.c. through valley flashing into substrate.
4. Install roof panel using specified and approved panel clips, noting that first clip is spaced at maximum 6" (152.4 mm) from valley/joggle cleat (both sides).
5. Hem panel over lip of cleat with a gap to accommodate the anticipated expansion & contraction.
6. Install adjacent roof panels, with field applied in-seam sealant for 10" (254 mm) min. up each roof panel side-seam.
7. Fold end tab of the female side-seam around end of the opposing male side-seam.

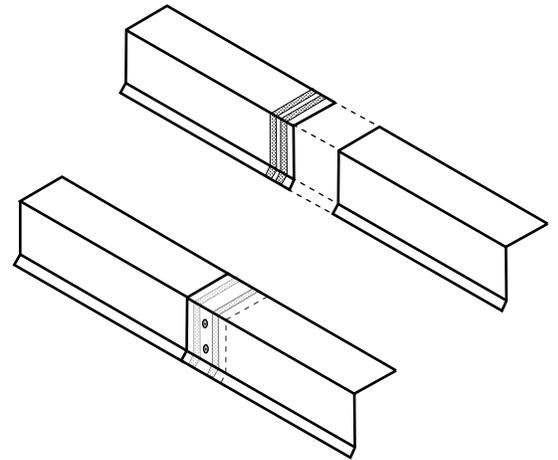
Accessory & Trim Joinery



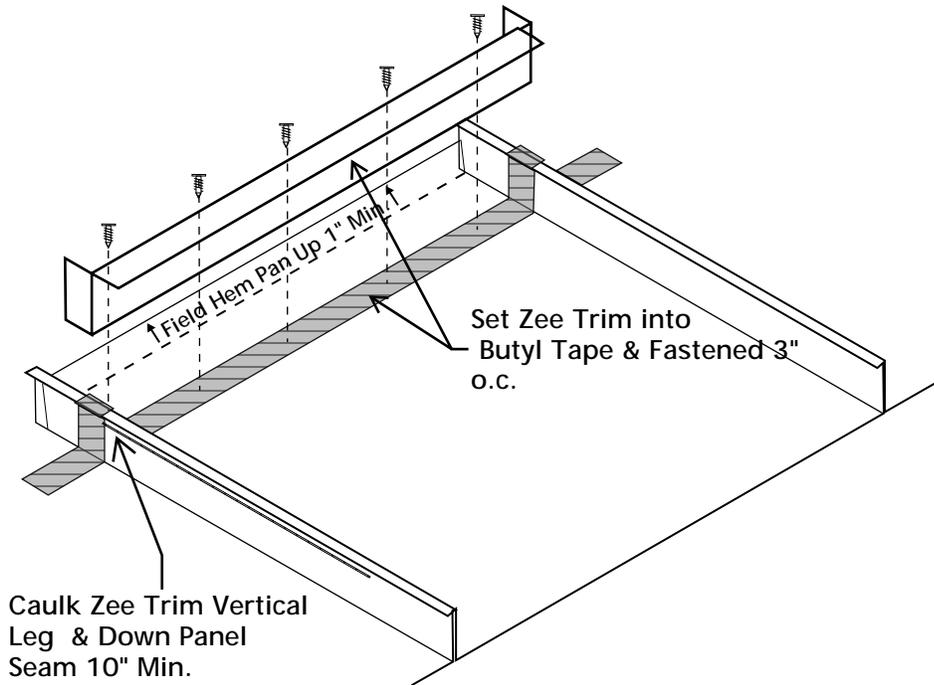
Ridge & Hip Trims



Gutters



Eave & Rake Trims



Zee Closure Installation

2.10 Roof Care and Maintenance

With a little care and attention during service, your CMP Roof System will provide an extended service of life. While durable, factory-applied finishes for metal panels will last many years longer than ordinary paints, they should be cleaned thoroughly on a routine basis whenever the finish is not washed by rain. We recommend that you follow our simple maintenance schedule. By following our recommendations you will be assured of the maximum trouble-free lifespan of your building.

Periodic maintenance of the exterior will depend on the location of your building.

The following table gives recommended periods but can be varied to suit particular environments based on local or practical experience.

Building Location	Maintenance Period
(a) Up to 5 km from the sea	2 Months
(b) High Pollution industrial area	2 Months
(c) Medium pollution industrial area	3 Months
(d) Areas of high humidity	4 Months
(e) Low pollution industrial area	6 Months
(f) Dry, desert areas	8 Months

Preventive maintenance should commence immediately after a project is erected, modified, or repaired.

Inspection:

1. Check for any debris that may have been left on top of panel or trim. Examples of this are ferrous items such as screws, pop rivets, nails, drill sward, sheet metal off-cuts, tin cans, etc. Large or heavy items should be removed by hand to avoid damaging the paint or zinc layer on the panel. The remaining smaller items may be swept off with a soft nylon brush. Please note this check should be made after any trade has worked on the building, e.g., electricians, plumbers, air conditioning technicians, and steel erectors.
2. Check for sand or dirt build up. These retain salt and moisture and will rapidly breakdown the paint and zinc layers resulting in corrosion of the base metal.
3. The most vulnerable areas of the building are:
 - a. Gutters
 - b. Roof Sheets
 - c. Sheltered Areas.
 - d. Top portion of walls sheltered by roof overhangs or gutters.
4. Sand and dirt should be washed off with clean desalinated water and a soft nylon brush. Clean from top to bottom and give a final rinse with desalinated water when completed. Ensure no water is trapped anywhere. See the cleaning section for detailed instructions.
5. Check the base of wall panels to ensure the ground level is at least 150mm below the bottom of the panel. If wind blown sand has built up at the base of the wall, it should be removed. If plants/ shrubs etc. are around the building, make sure they are not touching the wall panel, particularly thorn-type bushes.
6. Check all high traffic areas of the roof where maintenance personnel repeatedly traverse the roof surface. Foot traffic can be a major cause of damage. If traffic on the roof is routine, consider installing a walkway to protect the panels.
7. Check all equipment, which is located through or adjacent to any panel (Roof or Wall). Ensure there is no moisture built up on or near the panel. If there is, then corrosion is inevitable. If this condition exists, then make modifications to avoid it. The following situations are examples of conditions to be avoided.
 - a. Water run-off from water services or air conditioners.
 - b. Copper pipes fastened directly to the steel panel.
 - c. Open water storage tanks or ponds adjacent to the panel.
 - d. Steam outlets adjacent to the panels.
 - e. Acid storage areas adjacent to the panels.

2.10 Roof Care and Maintenance, *continued...*

8. Standard gutters and Valley gutters.

Regular checks should be made and all rubbish and sand should be removed.

- a. Flush the gutters with water
- b. Check that downspouts are clear.
- c. Check that downspouts have adequate drainage away from the building.

9. If minor damage occurs to the sheeting or trims, and paint touch-up is required, then the following procedure should be followed:

- a. Abrade the affected area.
- b. Clean down with a solvent.
- c. If based metal exposed, apply one coat of a zinc chromate primer.
- d. Apply one coat of available touch-up paint.

Cleaning:

Cleaning restores the appearance of the panels, making repainting unnecessary, and maintains a pleasing appearance, as well as removing the buildup of corrosive materials. Applications requiring maintenance cleaning often include soffits, siding under eaves, and the undersides of gutters.

In many cases, washing the painted surface with clean water from a garden hose will remove most of the dirt and accumulated deposits. Ideally, washing should be done at least every six months and more frequently in coastal areas where marine salt spray washing is ineffective in cleaning stubborn dirt, mild detergents, or household ammonia solutions can be used as described below. In all cases, test a small unobtrusive area for color-fastness before cleaning large areas.

* Use one cup of Tide® (or other common detergent containing less than 0.5% phosphate) dissolved in five gallons of warm water. NOTE: Detergents containing greater than 0.5% phosphate are not recommended for use in general cleaning of building panels.

*OR use one cup of household ammonia dissolved in five gallons of water at room temperature. Never mix ammonia with any kind of bleach.

*Never blend cleaners and bleach yourself. If bleach and detergent are required, use detergents containing bleach.

Using either solution, work from the top to the bottom of panels with a well-soaked soft cloth, sponge, brush with very soft bristles, or low-pressure spray washer to clean the surface. Washing from the top down avoids streaking. Application should be gentle to prevent shiny spots. Scouring powders or industrial solvents are not recommended, since they may damage the paint film. Solvent-containing cleaners such as Fantastic® are very effective and can be used. If mildew or other fungal growth is a problem and cannot be removed as described above, detergent containing bleach, such as Tide® with Bleach, is recommended. The surface should be thoroughly rinsed with water after cleaning to remove traces of detergent. If the building is in an area of industrial pollution or close to a marine environment than water alone may not be enough. Salts and other deposits build up at the formed corners of panels and quickly break-down hardness of the layer increases making removal more difficult. In this case, the period between maintenance operations should be shortened and a mild detergent should be added to the initial washing water.

Solvents:

CAUTION: Solvent and abrasive type cleaners as they can do more harm than good by wearing both the paint and zinc layers. Only use when cleaning solution listed above is ineffective.

Most organic solvents are flammable and/or toxic, and must be handled accordingly. Keep away from open flames, sparks and electrical motors. Use adequate ventilation, protective clothing, and goggles.

Solvents that may be used to remove non-water soluble deposits (tar, grease, oil, paint, graffiti, etc.) from fluoropolymer surfaces include:

A. Alcohols

- Denatured alcohol (ethanol)
- Isopropyl (rubbing alcohol)
- Methanol (wood alcohol)

2.10 Roof Care and Maintenance, *continued...*

B. Petroleum Solvents and Turpentine

- VM&P Naphtha
- Mineral Spirits
- Kerosene
- Turpentine (wood or gum spirits)

The above alcohols and solvents have no permanent effect on fluoropolymer painted surfaces.

C. Aromatic and Chlorinated

- Xylol (Xylene)
- Toluol (Toluene)
- Perchlorethylene (Perclene)
- Trichlorethylene (Triclene)

The above solvents should be used with caution on any fluoropolymer painted surfaces. Limit contact of the fluoropolymer surface with solvent to five minutes maximum and test the effects of the solvent on a small area before using over the entire surface.

D. Ketones, Esters, Lacquer, Thinner, Paint Remover

- Methyl Ethyl Ketone (MEK)
- Methyl Isobutyl Ketone (MIBK)
- Ethyl Acetate (Nail Polish Remover)
- Butyl Acetate
- Lacquer Thinner
- Paint Remover (non-flammable)
- Acetone (do not use acetone on painted surfaces)

The above solvents should be used very cautiously on a fluoropolymer painted surface. Limit contact of the fluoropolymer surface with solvent to one minute maximum and test the effects of the solvent on a small area before using over the entire surface. Note: There are many formulations of paint remover on the market. It is possible that some may remove the fluoropolymer surface. Proceed very cautiously in use of any paint remover. Metal supplier and coating manufacture are not responsible for damage from unrestricted use.

E. Chemical Solutions

- Sodium Hypochlorite Solution (Laundry Bleach, Clorox)
- Hydrochloric Acid (Muriatic Acid)
- Oxalic Acid
- Acetic Acid (Vinegar)

Hydrochloric or muriatic acid, diluted with ten volumes of water, may assist in removing rust stains from fluoropolymer surfaces. Limit contact to five minutes. Caution: acid solutions are corrosive and toxic. Flush all surfaces with copious amounts of water after use. Oxalic acid solution or vinegar may be used for the same purpose. Flush with water.

Graffiti:

Graffiti presents a special problem because of the many possible agents used, generally aerosol paint. It is best to try the less active solvents first (Solvent Group A, B, C) then the stronger solvents (Solvent Group D). If none of these are satisfactory, it may be necessary to resort to touch-up, repaint, or replacement, depending on the extent of the damage.

Warranty:

Misuse of any of the cleaning agents listed above will result in a voiding of warranty for the surface affected.

To assure continued coverage under the CMP Warranty provisions, the owner must perform regular inspections of the roof system. Failure to perform any of these as required may result in suspension or loss of the roof warranty.

Notify CMP immediately of any leaks or areas that indicate potential concerns.

If repairs are required, as determined under the coverage of the Warranty necessary by the Building Owner, engage a CMP Licensed installer to perform the repairs.

Notify CMP of any leaks that occur between inspections. Please refer to the "Leak Notification" section of the "Terms and Conditions".

Failure of the Owner to adhere to the maintenance required may void the CMP Roof Warranty in place for the roof system. Roof systems are exposed to severe weather conditions and, as a result, require inspections and maintenance. CMP suggests that a comprehensive maintenance program suited to your building be established.

SAFETY

Extreme caution should be exercised when working on roofs.

- Use only ladders, which are long enough to reach one meter above the step off point.
- Always secure the ladder to the building and make sure it is on a firm base.
- Do not step on skylight panels.
- When walking on the roof, step on the low corrugations, not on the high corrugations.
- Stepping on the high corrugations can damage the sheets. Walk along the screw line where possible.

Document Request Form

Construction Metal Products Inc.
2204 W. Front Street
Statesville, NC 28677
T: (888) 750-9827
F: 704-871-1381
warranty@cmpmetalsystems.com

From:

(Date)

(Name,
Company)
(Address)
(Address)
(Contact)
(Phone)
(Email)

PROJECT & PRODUCT INFORMATION

Documents Requested: Panel Model:
Warranty Level: Term: Substrate:
Roof Slope: Deck Type: Insulation:
Underlayment, Type: Color:
Project Name:
Address:
Owner:
Address:
Square Footage: Start Date: Comp Date:
General Contractor:
Phone:
Architect:
Phone:

NOTE:

Shop Drawings and Clip Space Engineering are required on all projects requesting watertightness warranties. Select "CMP to Provide" to have these documents furnished by CMP, fees apply.

Shop Drawings: Clip Space Engineering:

CMP requires a complete list all invoice numbers associated with this project in order to release any warranties. We suggest you keep a copy of this form and note below all invoice numbers through project completion. At which time this form may be re-submitted for release the requested warranty(s).

Invoice Numbers:

...SUBMITTAL REVIEW...

Approved
Approved As Noted
Revise & Re-submit
Rejected

Internal Use Only - Do Not Fill In

Submittal approved by:
WTW per SF Fee:
Additional Charges:
Total Warranty Fee:

Return this document and attachments to:
warranty@cmpmetalsystems.com



NOTES

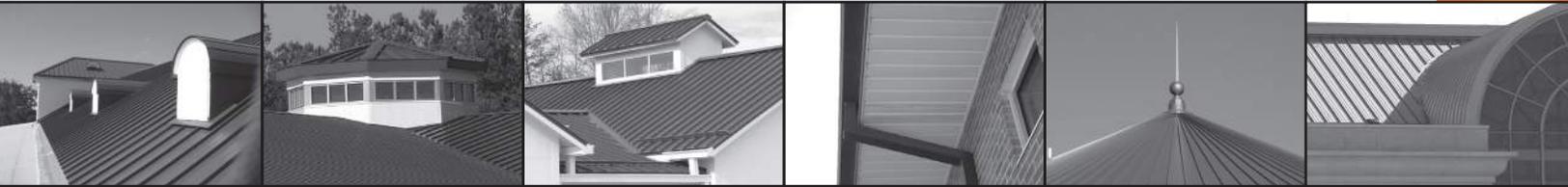


Construction Metal Products, Inc.

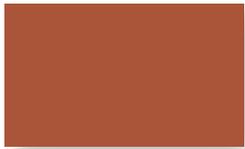
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704-871-8704 or 888-750-9827

Fluoropon® SR Colors

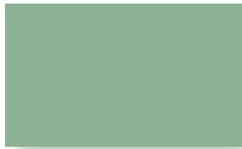
35 YEAR
FINISH
WARRANTY



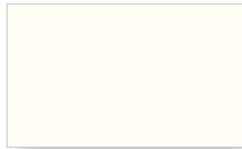
Standard Cool Colors



Terra Cotta



Aged Copper



Snowdrift White



Almond



Sierra Tan



Colonial Red



Patina Green



Bone White



Dove Gray



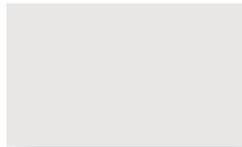
Medium Bronze



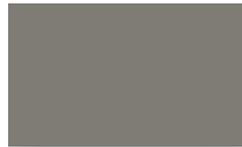
Regal Red



Seaport



Stone White



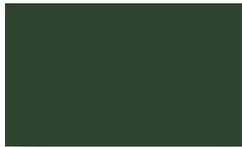
Slate Gray



Mansard Brown



Burgundy



Hartford Green



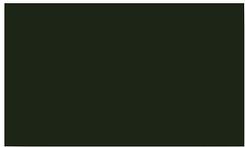
Slate Blue



Charcoal Gray



Dark Bronze



Matte Black



Classic Green



Regal Blue



Teal

Metallic Colors



Silver*



Copper Penny*



Champagne*



Pre-Weathered Galvalume*

Valspar
Fluoropon® SR



*Slight price upcharge may apply for metallic colors.

•Colors shown are matched as accurately as possible, but may vary slightly from finished product.

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This toll-free number connects you

Click

www.cmpmetalsystems.com

Our interactive website offers photos, details and other information regarding our entire line of quality metal roof and wall products

Come by

2204 West Front Street

Statesville, NC 28677

Our facility is staffed with experts who are always happy to answer any questions you may have.

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