



# **Elevate PVC and PVC KEE Roofing Systems Application Guide**

**June 2023**

**NOTE: The contents of this guide are considered accurate at the time of posting. All information contained within should be validated for accuracy as it relates to specific project conditions or requirements. Specific codes, uplifts or other factors may result in changes to the information contained within this document. Validate all specific conditions with a Holcim Regional Technical Coordinator prior to its use.**

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## General

This Holcim Technical Manual provides instructions for the basic installation of Elevate's PVC and PVC KEE Roofing System. Reference to the Elevate PVC and PVC KEE Design Guide, technical Information sheets (TIS), and other published information is necessary to ensure that the finished roof system is installed in compliance with Holcim requirements.

Extended warranties of 15 or 20 years for Elevate PVC, PVC KEE, PVC XR and PVC KEE XR and 25 to 30 years for Elevate PVC KEE and PVC KEE XR at 80 mil thickness. Wind warranties in excess of 55 mph may require special considerations regarding fasteners, insulation, membrane gauge and securement. Refer to the system design guide or Holcim Elevate website ([www.HolcimElevate.com](http://www.HolcimElevate.com)) for specific requirements and information for other PVC and PVC KEE systems: PVC XR, PVC KEE XR and PVC or PVC KEE InvisiWeld.

**NOTE:** If a proposed application falls outside of the specification, contact a Holcim Regional Technical Coordinator for additional information.

## Jobsite Considerations

### Safety

- Comply with all applicable regulatory safety and health regulations.
- Consult container labels, Safety Data Sheets (SDS) and Technical Information Sheets (TIS) for specific safety instructions for all products used on the project.
- Keep all adhesives, sealants, and cleaning materials away from ALL ignition sources (i.e., flames, fire, sparks, etc.). Do not smoke while using these materials.
- Care must be used when installing fasteners or other required roof related items to avoid possible conduits and other piping in or under the deck.
- Fumes from adhesive solvents may be drawn into the building during installation through rooftop intakes. Take suitable precautions when using such products on an occupied building.
- Do not use heat guns or open flames to dry adhesives and primers.

### Cautions

- Store Elevate PVC and PVC KEE membranes in the original undisturbed plastic wrap in a manner to protect it from becoming damaged. Insulation must be properly stored and protected from ignition sources, moisture, and damage. Consult container labels, Safety Data Sheets and Technical Information Sheets for specific safety, use and storage instructions for all products used on the project.
- Do not use oil-base or bituminous-base roof cement with any Elevate PVC or PVC KEE products.
- Store Elevate Insulations properly protected from ignition sources, moisture, and damage.

### Cold Weather

- When the outside temperature is below 40 °F (4 °C), certain combinations of temperature and humidity may cause condensation on the surface of solvent-based adhesives and primers. If this condition occurs, discontinue the application. When the ambient air conditions no longer cause condensation on adhesive surfaces and the membrane is clean and dry then proceed with application of adhesive or primer.
- The consistency of sealants, adhesives and primers will begin to thicken as the temperature drops. To minimize this consequence:
  - Start work with sealants, adhesives and primers that have been stored between 60 °F to 80 °F (16 °C to 27 °C).
  - Complete test areas to determine if conditions will cause problems such as condensation with the application of the materials.
  - Stop the operation or change to another warm container when material becomes too thick to properly apply.
- When the outside temperature is below 40 °F (4 °C), installation of the Elevate PVC or PVC KEE System requires additional precautionary measures:
  - Ensure that the roof surface is dry. Even trace amounts of moisture may cause poor adhesion and lead to moisture entrapment within the roofing system.
  - Use of temporary roofs should be considered when roof applications must occur in cold or potentially wet weather to permit continued interior construction or roof-top work.
  - Refer to the product Technical Information Sheets for individual product temperature restrictions / limitations if applicable.
- If using Elevate PVC Water-Based Bonding Adhesive, ambient and substrate temperatures must be at least 40 °F (4.4 °C) and rising, during and 48 hours after application, for the material to be applied and perform as designed. Expect longer drying times during lower temperatures or higher humidity. Plan for material staging.  
**NOTE:** Elevate PVC Water-Based Bonding Adhesive is not approved for use with Elevate PVC KEE (non-fleece backed) membrane.

- Jet Bond PVC Spray Adhesive (**TO BE USED WITH ELEVATE PVC (NON-FLEECE) MEMBRANE ONLY**) can be used at 35 °F (1.67 °C) and rising. See Technical Information Sheets (TIS) for additional information about application and storage instructions

## Roof Substrate Preparation

It is the roofing contractor's responsibility to ensure that the substrate is acceptable for the Elevate roof system.

- ! Holcim does not approve of or recognize the results of destructive testing by others for the purposes of project close-out or to satisfy contract requirements. Any damage caused by such testing may prevent Holcim from issuing a warranty. Holcim is not responsible for costs associated with repairs or enhancements performed to the roof system as a result of testing.

It is the roofing contractor's responsibility for ensuring that the substrate is acceptable for the Elevate roof system. Elevate PVC KEE 30 Year System warranties require either new construction or a complete removal of the existing systems down to the deck.

### Correct Substrate Defects

- 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.
- For re-roofing applications, remove existing roof system components as specified by the project designer. If components are discovered during installation that could be detrimental to the performance of the new roof system, they should be brought to the attention of the project designer for corrective action.
- Recovering an existing roof system is an alternative to removing existing roof components. However, if soundness and integrity of the existing roof system cannot be verified, good roofing practice requires a complete tear-off to the structural deck. Non-destructive testing, in conjunction with core cuts, must be completed to determine the condition of the existing roof system and decking.
- The building owner or project designer is responsible for assuring that all wet insulation and/or wet substrate materials are removed in a re-roofing application. The best diagnostic technique is taking and evaluating a series of roof cuts. There are three other techniques that are currently available to make this determination by indirect means. These are:
  - Nuclear moisture detection
  - Infrared thermography
  - Electric capacitance

These techniques provide measurement of factors that can be associated with the presence of moisture, which can then be verified with the use of roof core cuts to confirm the results of the non-destructive testing.

- In the absence of a design professional, the roofer should coordinate with the building owner to assure conditions are satisfactory to commence with the project as designed.

### Remove Moisture

Ponded water, snow, frost and/or ice, present in more than trace amounts must be removed from the work surface(s) prior to installing the Elevate PVC or PVC KEE Roofing System.

### Prepare Surface

Acceptable substrates to which the Elevate PVC or PVC KEE Roofing System is installed must be properly prepared prior to roof system installation. The surface must be relatively even, clean, dry, smooth, free of sharp edges, fins, loose or foreign materials, oil, grease, and other materials that may damage the roof system. Rough surfaces that could cause damage to the membrane must be overlaid with insulation or cover boards as determined by the design professional.

### Fill Voids

All surface voids of the immediate membrane substrate greater than 1/4" (6.35 mm) wide must be filled with insulation.

- ! Concrete Additives can have a negative impact on the adhesion of asphaltic membranes and insulation products. The concrete supplier/installer should verify that any additives in the mix will not render the deck unsuitable for roofing application. Holcim does not accept surface-applied curing compounds for warranted systems.

Holcim does not accept for warranty any concrete substrates that have been sealed with chemical sealers or silicon surface treatments.

## Wood Nailer Locations and Installation

Holcim Solutions and Products US, LLC. no longer requires the use of treated wood nailers. This is due to the new EPA requirements that have caused treated lumber to have more corrosive properties than the previous generation of wood treatments.

If architectural specifications require the use of treated wood nailers, the following Holcim requirements apply:

- Refer to the Elevate Design Guide for the appropriate Elevate fastener to be used for securing membrane into wood nailers.
- Nails penetrating treated wood nailers must be hot-dipped galvanized, meeting ASTM A653, Class G185 or as currently recommended by industry associations.
- Aluminum fasteners, flashings and accessory products must not make direct contact with treated wood nailers.
- Uncoated metal and painted metal flashing and accessories, except for 300-series stainless steel, must not make direct contact with treated wood nailers.
- When in doubt of the type of treatment of the wood nailer or its compatibility with a metal component, use PVC or PVC KEE as a separator.

Because of recent EPA regulations regarding treated wood, new treatments for lumber may be highly corrosive to fasteners. Contact the fastener manufacturer for their recommendations on fasteners if attaching nailers that have been treated with corrosive materials.

Wood nailers must be installed as specified by the project designer or as noted in Elevate Details and the PVC and PVC KEE System Design Guide. Install wood nailers as follows:

### Wood Nailer Grade

- When wood nailers are used, Elevate specifications require the use of wood that is kiln-dried (Southern Pine, Douglas Fir) structural grade #2 or better, unless otherwise noted.
- While being stored on the roof, properly elevate, and cover non-treated wood to protect from the weather and keep dry.
- Nailers must be properly anchored to provide secure attachment through the warranty term.
- Nailers are not covered by the Red Shield Warranty.

### Size of Nailer

Nailers shall be a min. thickness of 2" x 4" (51 mm x 102 mm) nominal 1½" x 3½" (38 mm x 89 mm) and exceed the width of any metal flange attached to it by a min. of ½" (13 mm).

### Position of Nailer

- Total wood nailer height must match the total thickness of insulation being used and should be installed with a ⅛" (3.2 mm) gap between each length and each change of direction.
- When nailers are stacked, end joints should be staggered a min. of 12" (305 mm) from the prior layer in straight runs.

### Secure Wood Nailer

- Wood nailers must be firmly fastened to the deck or building.
- Mechanically fasten wood nailers to resist a min. force of 200 lb/f (890 N) in any direction.
- Refer to attachment requirements of the roofing system as specified by the project designer if greater than 200 lb/f (890 N).

### Taper Wood Nailer

The wood nailer must be tapered (if applicable) so that it will always be flush at the point of contact with the insulation (refer to Elevate Details).

### Pour-In-Place Decks

For new construction over poured-in-place decks or fill, and all recover projects, a waterproof separator membrane shall be placed between the non-treated lumber and the deck.

### Installation of Wood Nailers by Others

- Make these specifications and details available when nailers are to be installed by others.
- Work that compromises the integrity of the roof system may jeopardize the roof warranty.

### For Additional Information

Please consult the NRCA Special Report, "Use of Treated Wood in Roof Assemblies".

## Air or Vapor Barrier Installation

### Install Vapor Retarder (when specified):

Install a vapor retarder as specified by the project designer or as required by Holcim Solutions and Products US, LLC. When an approved air barrier is used in conjunction with the Elevate PVC or PVC KEE membrane system, give special attention to the number of fasteners used in the system to secure the insulation. Please refer to the Elevate Attachment Guide for warranty approved fastening rates based on insulation thickness and warranty coverage. Since the wind loads on the insulation board will be greater when an air barrier is used, the prescriptive perimeter and corner enhancements will follow those of fully adhered systems. It is the responsibility of the designer of record to specify the use of an air barrier and the proper installation. When uplift performance is required fastening rates and methods may change. Please contact a Holcim Regional Technical Coordinator for more information.

### Install Air Barrier (when specified):

Install an air barrier as specified by the project designer or as required by Holcim Solutions and Products US, LLC. When an approved vapor barrier is used in conjunction with the Elevate PVC or PVC KEE membrane system, give special attention to the number of fasteners used in the system to secure the insulation. This may be accomplished by referring to the Elevate Attachment Guide or a validated tested assembly to determine the appropriate fastening rate. The prescriptive perimeter and corner enhancements will follow those as outlined in the Elevate Attachment Guide or validated tested assembly. When uplift performance is required fastening rates and methods may change. Please contact a Holcim Regional Technical Coordinator for more information.

## V-Force Vapor Barrier Installation

Elevate V-Force Membrane is intended for use in applications where a vapor barrier is specified.

1. All substrates except metal decks must be primed with either Elevate SA Water Based or SA Solvent Based Primer.
2. Position V-Force Membrane with min. 3" (76 mm) side laps and 6" (152 mm) end laps.
3. Shingle side laps up the roof slope wherever possible and stagger end laps min. 12" (305 mm).
4. Peel back approximately 5' (1.5 m) of release liner from the end of the roll and adhere it to the substrate.
5. Keeping the V-Force flat and properly positioned, remove the remaining release liner on a 45° angle.
6. Roll the V-Force with a 75 lb (34 kg) roller to fully mate the product to the substrate.
7. Refer to the Holcim Elevate website ([www.HolcimElevate.com](http://www.HolcimElevate.com)) for details and additional product and installation information.

## Base Sheet installation

This section is intended for applications where it has been determined that a base sheet is required for roof system installation. Refer to the design section of the Elevate database for suitable substrates, and the Technical Information Sheets for additional product and installation information.

### General

1. Starting at the low point of the roof, align the base sheet, unroll, and allow the sheet to relax prior to attaching. After allowing the base sheet to relax, adhere or attach to the substrate with appropriate materials as indicated below.
2. Roofing base ply shall never touch roofing single ply, even at roof edges, laps, tapered edge strips, and cants. Cut out fishmouths/side laps, which are not completely sealed, and repair accordingly. Fully adhered base sheets which are not fully and continuously bonded shall be replaced.

### Hot Asphalt Attachment

1. The base sheet may be attached using a solid mopping of Elevate SEBS mopping asphalt or ASTM D 312 Type III or IV hot steep asphalt.
2. The substrate must be suitable for asphalt attachment (structural concrete, base sheet, coverboard, etc.). Refer to the Design section of this manual for suitable substrates and the Technical Information Sheets for additional information on specific base sheets.
3. The asphalt shall be at the manufacturer's stated EVT at point of installation.
4. Align subsequent rolls, shingling the laps, maintaining a min. 3" (51 mm) side lap and min. 6" (152 mm) end lap and repeat the application.
5. Holcim recommends that a half sheet be used as the first roll to ensure that the base sheet laps and the cap sheet laps are not aligned. Half sheets may be required, depending on the roof slope.
6. Refer to the Design section for slope limitations.
7. Do not install any base or ply sheets in solid mopping of asphalt directly to polyisocyanurate insulation. The base sheet must be mechanically attached, or spot attached using ASTM D312 Type III or IV asphalt or Elevate SEBS Mopping Asphalt. An

overlayment of Structodek HD Fiberboard, SECUROCK or DensDeck may be installed over the Elevate ISO 95+ GL / ISOGARD™ GL polyisocyanurate insulation before the base sheet is installed.

#### 8. Solid Mopping

1. Starting at the low point of the roof, align the base sheet and unroll into a solid mopping of hot asphalt.
2. With a stiff push broom, immediately broom the base sheet ensuring full contact.

### Mechanical Attachment

Starting at the low point of the roof, align the base sheet, unroll, and allow the sheet to relax prior to attaching. After allowing to relax, begin attachment at one end and work towards the other end, keeping the roll tight and wrinkle free. Align subsequent rolls, shingling the laps, maintaining a min. 3" (76 mm) side lap and min. (152 mm) end lap and repeat the application. Stagger all end laps.

#### Fasten Base Sheet Using Elevate Insulation Plates and Fasteners

- Using Elevate Insulation Plates and Fasteners, base sheets may be attached through insulation into the deck, or directly to poured in place concrete, wood, gypsum, cementitious wood fiber, lightweight concrete decks, or through a smooth surfaced built-up or modified bitumen roof system. Refer to the Elevate PVC and PVC KEE Design Guide for information on fasteners for specific deck types.
- 39" (1 m) Elevate compatible base sheets and cap sheets used as base sheets. The Base sheet must be mechanically attached 12" (305 mm) o.c. in the side laps and 18" (457 mm) o.c. in two staggered rows in the field of the sheet. Each row shall be 13" (330 mm) approximately in from the sides of the base sheet.

#### Fasten Base Sheet Using Cap Nails

- Using cap nails with 1" (25 mm) diameter steel heads, base sheets may be attached to plywood, wood plank, and oriented strand board decks.
- Mechanically attach with cap nails specified by the project designer at 9" (229 mm) o.c. in the side laps and 18" (457 mm) o.c. in two staggered rows in the field of the sheet. Each row shall be 12" (305 mm) approximately in from the sides of the base sheet.
- Cap nails cannot be used to attach insulation, attach a base sheet through an existing insulated roof, attach a base sheet over a gravel surfaced built-up roof, or through a smooth surfaced un-insulated built-up roof over ½" (13 mm) thick.
- Fasteners used to attach base sheet must be manufactured for the deck type and be Factory Mutual Approved. This attachment pattern applies to all Elevate compatible base sheets and cap sheets used as base sheets.

#### Fasten Base Sheet Using Specialty Fasteners

- Using nail-in type fasteners and plates, base sheets may be attached to gypsum, cementitious wood fiber or lightweight insulating concrete decks. The base sheet must be mechanically attached with fasteners as acceptable to the substrate.
- Nail-in fasteners cannot be used to:
  - Attach insulation
  - Attach a base sheet through an existing insulated roof
  - Attach a base sheet over a gravel surfaced built-up roof
  - Attach a base sheet through a smooth surfaced built-up roof

### Base Sheet Laps

- Hot steep asphalt applied Base sheets must be lapped a min. of 3" (50.8 mm) in the side laps.
- Mechanically attached torch applied, or automatic heat welded base sheets must be lapped a min. of 3" (76 mm) in side laps.
- End laps must be min. 6" (152 mm).
- In all cases, an offset of 12" (305 mm) min. must be maintained between the side and end laps of the base sheet and the cap sheet.

## Insulation Installation

InvisiWeld Systems require a minimum 1½" (38.1 mm) of insulation over the metal deck for operation of induction welding equipment. See the Elevate PVC and PVC KEE Invisiweld Application Guide for more information.

**Elevate PVC and PVC KEE membranes are not to be used in ballast systems.** Ballast systems using any type of membrane are not permitted when the membrane is installed directly over any mechanically attached insulation or over a hard surface such as ISOGARD HG, ISOGARD HD, OSB, gypsum or concrete.

### Install Insulation

- Install only as much insulation as can be covered with roofing membrane and completed before the end of the day's work or before the onset of inclement weather.
- Form continuous insulation joints over deck flange. Do not cantilever insulation edges over deck ribs. Min. bearing surface: 1" (25 mm).

## Multiple Layers of Insulation

When installing multiple layers of insulation, all joints between layers shall be staggered 6" (152 mm) min.

### Fit Insulation

- Neatly fit insulation to all penetrations, projections, and nailers. Insulation should be loosely fitted, with no gaps greater than ¼" (6 mm) filled with acceptable insulation. The membrane shall not be left unsupported over a space greater than ¼" (6 mm).
- On metal decks, the edge of the board parallel with the roof deck flutes should be completely supported by the flange.
- Tapered insulation with acceptable facers for bonding must be installed around roof drains to provide proper slope for drainage as shown in Elevate Details.

### Insulation Attachment - Mechanical

- Insulation must be attached using Elevate Insulation Plates and Fasteners. HailGard fasteners may be used to attach HailGard / ISOGARD HG insulation without the use of insulation plates.
- If installing on a metal deck (where allowed by specification), the edge of the board parallel with the roof deck should be completely supported and fasteners must penetrate the top flange of the deck.
- When installing fasteners, care should be taken to avoid penetration of conduits and other piping below or encased in the deck.
- For insulation attachment please refer to the Technical Information Sheets that reference the specific insulation being used. Use appropriate attachment patterns and fastening rates of that specific insulation and desired warranty term. Elevate Platinum Warranties requires increased fastening.
- For specific deck penetration requirements refer to the Technical Information Sheet that references the specific fastener being used.
- When installing a multi-layer insulation assembly, the fastening pattern is determined by the type and thickness of the top layer of insulation and the performance criteria of the system. MAS systems with a fully adhered perimeter shall require the perimeter insulation to use fastening pattern used in a fully adhered system as determined by the top layer of insulation.
- Multiple layers of insulation may be installed using a common fastener.
- Ensure that the fasteners are fully seated, but not overdriven. Use a properly adjusted clutch or depth sensing type of drill. Do not use a standard single speed drill. If a fastener must be removed after installation, do not reinstall fastener into same hole.
- Fastener pull tests should be conducted on existing decks or decks with conditions that are not "like new". Pull values below Holcim requirements may require increased fastening, alternate system requirements or refusal of warranty coverage.

### Insulation Attachment – Asphalt Attachment

- The substrate may require priming or a base sheet prior to installing the insulation. Refer to the Design Guide for specific information.
- The insulation shall be no larger than 4' x 4' (1.2 m x 1.2 m) panels.
- Insulation may be attached using a solid mopping of Elevate SEBS Asphalt (as required by warranty terms) or ASTM D 312 Type III or Type IV asphalt. Resistat™ / ISOGARD CG and ISOGARD HD may not be asphalt attached.
- The asphalt shall be at the manufacturer's stated EVT less ~ 25 °F (-4 °C) at the point of installation. Install enough asphalt to achieve complete adhesion, approximately 25-30 lb per 100 ft<sup>2</sup> (1.2-1.4 k/m<sup>2</sup>), depending on substrate.
- It is necessary to "walk" boards in to ensure complete adhesion to the substrate.
- Additional layers of insulation should be installed in the same fashion.

### Insulation Attachment – Adhesive Attachment

- Insulation may be attached using I.S.O. Twin Pack™, I.S.O. Stick™, I.S.O. SPRAY™ R or Twin Jet.
- Apply the adhesive in strict accordance with the instructions provided with the product and the Technical Information Sheets that are a part of this Technical Database.
- It may be necessary to prime the substrate prior to installing the insulation adhesive with a prescribed primer.
- If installing on a metal deck (where allowed by specification), the edge of the board parallel with the roof deck flutes must be completely supported.
- The insulation or coverboard shall be no larger than 4' x 4' (1.2 m x 1.2 m).
- It is necessary to weight each board, using full pails of bonding adhesive or other available source of weight that will not damage the insulation board, at each corner, to ensure complete adhesion to the foam and substrate. Refer to the specific product Technical Information Sheet for min. wait times.



## Membrane Installation

This section contains information for standard Elevate PVC and PVC KEE membrane systems. Read all the information to ensure that it is the correct system and application. Elevate 30 Year Warranties require the use of our Elevate PVC KEE 80 mil membrane or Elevate PVC KEE XR 80 mil membrane.

Additional securement details for the membrane (base tie-in) will occur at all locations where the membrane goes through an angle change greater than 1" (25 mm) in 12" (305 mm) (i.e., roof edges, curbs, interior walls, etc.) and other areas as details indicate. See Elevate details for more information

The Elevate PVC or PVC KEE System should be installed so that the seams shed or run parallel to the flow of water wherever possible.

**NOTE: It is important to verify that welds completed at any transition from machine to hand application is completed properly. Validate weld transition is fully bonded and no gaps, fish mouths, pin holes or cold welds exist. Probe all welds to verify weld is completed properly.**

### Fully Adhered Membrane

#### 1. Position Membrane

- Place membrane panel, starting at the low side of the roof and unroll over the acceptable substrate. Allow the panel to relax for 30 minutes before attaching or splicing.
- The Elevate PVC and PVC KEE Adhered System shall be installed so that the seams shed or run parallel to the flow of water wherever possible.
- Placement of additional rolls of membrane shall provide for overlapping the sides of adjoining sheets 3½" (90 mm) as marked on the top side of the membrane and overlapping the ends of adjoining sheets a min. of 3" (76 mm). For sufficient membrane overlap distance, see standard lap splice details for robotic and hand welding.
- If possible, sheets cut along one side shall have the cut edge installed as the underside of the seam.

#### 2. Fold the Membrane Back

After making sure the sheet is placed in its final position allowing for the proper lap width per Elevate details and specifications, fold it back evenly onto itself without wrinkles to expose the underside bonding surface of the sheet and substrate.

#### 3. Remove any Debris or Dirt

Sweep the mating surfaces with a stiff broom to remove any debris or dirt that may have accumulated. If required, wash dry wash membrane surfaces with MEK or Acetone and allow to dry completely.

#### 4. Apply the Bonding Adhesive

##### **Rolled Adhesive**

Refer to the adhesive Technical Information Sheet and container label for specific instructions on the application of the appropriate Elevate PVC membrane adhesives. Elevate PVC Water Based Bonding Adhesive is not approved for use with Elevate PVC KEE (non-fleeced) membrane.

- Always stop bonding adhesive short of membrane seam area. Care must be taken not to apply bonding adhesive over an area that is to be later hot air welded to another sheet or flashing. All bonding adhesives must be completely removed from the seam area.
- Apply bonding adhesive with either a 9" (228 mm) wide solvent-resistant paint roller or a commercial-grade adhesive sprayer.
- Adhesive must be applied in a relatively uniform thickness to both surfaces at approximately the same time.
- Apply adhesive in a one or two-sided application, as noted on the adhesive Technical Information Sheet and container label.

Apply bonding adhesive at specified coverage rate. Refer to the container label and Technical Information Sheet for specific application requirements and coverage rates.

##### **Spray Adhesive (Jet Bond PVC Spray Adhesive)**

Elevate Jet Bond PVC Spray Adhesive can be used with Elevate PVC (Non-Fleece) Membrane only. See the Technical Information Sheet (TIS) for full application instructions.

#### 5. Test Bonding Adhesive for Readiness (Touch-Push Test)

- Allow PVC LVOC Bonding Adhesive to flash-off: Touch the adhesive surface in several places with a clean, dry finger to be certain that the adhesive does not stick or string. As you are touching the adhesive, push forward on the adhesive at an angle to ensure that the adhesive is ready throughout its thickness. If motion exposes wet or stringy adhesive when the finger is lifted, the adhesive is not ready for mating. Flash-off or evaporation time will vary depending on ambient conditions of temperature, wind, and humidity.
- Elevate PVC Water Based Bonding Adhesive is best mated when the adhesive is semi-wet, after approximately five to eight minutes of flash-off time. Elevate PVC Water Based Bonding Adhesive is not approved for use with Elevate PVC KEE (non-fleeced) membrane

6. **Bond the Membrane to the Substrate**  
Starting at the fold, roll the previously coated portion of the membrane into the coated substrate slowly and evenly to prevent wrinkles.
7. **Broom and Roll the Membrane**  
To assure proper contact, compress the bonded half of the membrane to the substrate with a stiff push broom, then roll thoroughly using a 75 lb (34 kg) to 150 lb (68 kg) roller.
8. **Repeat Procedure to Complete the Membrane Installation**  
Fold the unadhered half of the membrane back onto itself and repeat the procedure.
9. **Weld the Lap**
  - If membrane seam area has been open for more than 12 hours or become contaminated with dirt, debris or moisture, wash mating surfaces with MEK or Acetone and allow to dry completely.
  - Complete the laps with hot air welds as specified, referring to section 1.10 below and PVC-LS details.

## Mechanically Attached System

Holcim suggests that when installing mechanically fastened membranes over steel decks, the field attachment should run perpendicular to the deck panels. If a project is Factory Mutual insured or specified, per FM 1-29 Loss Prevention Data Sheet, attachment must run perpendicular to the deck panels.

The perimeter of the Elevate PVC or PVC KEE mechanically attached roofing system may be adhered or mechanically attached. When mechanically attaching a perimeter, the fastener layout at a minimum, must be as specified in the Elevate Attachment Guide, or as required by the owner's design professional or local building code. Should a fully adhered perimeter be selected, the perimeter area is the same dimension as for mechanically attached.

## Securing with Plates and Fasteners

1. **Position Membrane**
  - Elevate PVC or PVC KEE Mechanically Attached Roofing Systems are installed starting at the low point of the roof using up to four sheets, determined by project requirements, that are half the width of the field panels. Place membrane panel, unroll over the acceptable substrate and allow panel to relax for a minimum of 30 minutes before attaching or splicing. Ensure proper sheet overlap allowances for roof edge details and flashing seams. (Consult Elevate PVC lap, roof edge and base tie-in details for additional information.)
  - The Elevate PVC or PVC KEE Adhered System should be installed so that the seams shed or run parallel to the flow of water wherever possible.
  - Placement of additional rolls of membrane shall provide for overlapping the sides of adjoining sheets 6" (152 mm) as marked on the top side of the membrane and overlapping the ends of adjoining sheets a min. of 3" (76 mm). For sufficient membrane overlap distance, see standard lap splice details for robotic and hand welding.  
**NOTE:** If possible, sheets cut along one side shall have the cut edge installed as the underside of the seam.
2. **Secure the Panel**
  - The inside edge of the half sheet lap is fastened to the deck using approved Elevate PVC Seam Plates and fasteners as required by specification.
  - Position each fastener 2" (51 mm) inside the membrane edge and 1" (26 mm) from the area to be heat welded, per lap splice details.
  - Install each fastener so that it is properly engaged in the deck and the head is flush within the countersunk portion of the seam plate.
3. **Position Second Perimeter Panel**  
Roll out the second perimeter panel and position along the lap line of the first.
4. **Fold the Membrane Back at the Lap**  
After confirming the sheet is positioned allowing for the proper lap width, fold it back evenly onto itself without wrinkles or creases to expose the underside mating surface of the lap.
5. **Remove Dirt or Debris**  
Sweep surfaces with a stiff broom to remove any debris or dirt that may have accumulated.
6. **Weld the Lap**  
Fold the membrane back into position, heat weld the side lap per the Membrane Seaming section of this specification, then fasten along the opposite edge of the panel.
7. **Install Subsequent Perimeter Panels**  
Continue this procedure of lay-out, fastening and welding for perimeter sheets.
8. **Position First Field Panel**
  - Roll out the first field panel and position along the lap line of the last perimeter panel allowing for 6" (152 mm) side lap and 3" (76 mm) end laps.
  - Follow procedure outlined above to secure the last perimeter panel and heat weld the first field lap.
9. **Position and Secure Subsequent Field Panels**
  - Roll out, position, secure and complete adjoining field panels as above.

- Install each fastener so that it is properly engaged in the deck and the head is flush within the countersunk portion of the Seam Plate.
- If the slope changes direction, begin working at the lower edge of the adjoining side of the roof up the slope with perimeter and field panels until reaching previous work. A half sheet is installed over a ridgeline, secured, and welded to the two panels.

## Adhered Perimeter

### 1. Position Perimeter Panel

1. Place membrane panel, starting at the low side of the roof and unroll over the acceptable substrate. Allow the panel to relax for 30 minutes before attaching or welding.
2. Membrane panels shall be installed so that the seams shed or run parallel to the flow of water wherever possible.
3. Placement of additional rolls of membrane shall provide for overlapping the sides of adjoining sheets 3½" (90 mm) as marked on the top side of the membrane and overlapping the ends of adjoining sheets a min. of 3" (76 mm). For sufficient membrane overlap distance, see standard lap splice details for robotic and hand welding.
4. If possible, sheets cut along one side shall have the cut edge installed as the underside of the seam.

### 2. Fold the Membrane Back

After making sure the sheet is placed in its final position allowing for the proper lap width per Elevate details and specifications, fold it back evenly onto itself without wrinkles to expose the underside bonding surface of the sheet and substrate.

### 3. Remove any Debris or Dirt

Sweep the mating surfaces with a stiff broom to remove any debris or dirt that may have accumulated. If required, wash membrane with Orange Power Cleaner, MEK or Acetone and allow to dry.

### 4. Apply the Bonding Adhesive

1. Always stop bonding adhesive short of membrane seam area.
2. Care must be taken not to apply bonding adhesive over an area that is to be hot air welded to another sheet or flashing. All bonding adhesive must be completely removed from the seam area before welding.
3. Apply bonding adhesive with either a 9" (228 mm) wide solvent-resistant paint roller or a commercial-grade adhesive sprayer.
4. Adhesive must be applied in a relatively uniform thickness to both surfaces at approximately the same time.
5. If adhesive is spray-applied, it must be back-rolled with a solvent-resistant paint roller to assure proper contact and uniform coverage. Refer to Elevate Technical Information Sheets and container labels for specific application instructions.
6. Apply bonding adhesive at specified coverage rate.
7. Refer to the container label and Technical Information Sheet for specific application requirements and coverage rates.

### 5. Test Bonding Adhesive for Readiness (Touch-Push Test)

- Allow PVC LVOC Bonding Adhesive to flash-off: Touch the adhesive surface in several places with a clean, dry finger to be certain that the adhesive does not stick or string. As you are touching the adhesive, push forward on the adhesive at an angle to ensure that the adhesive is ready throughout its thickness. If motion exposes wet or stringy adhesive when the finger is lifted, the adhesive is not ready for mating. Flash-off or evaporation time will vary depending on ambient conditions of temperature, wind, and humidity.
- Elevate PVC Water Based Bonding Adhesive is best mated when the adhesive is semi-wet, after approximately five to eight minutes of flash-off time. Elevate PVC Water Based Bonding Adhesive is not approved for use with Elevate PVC KEE (non-fleeced) membrane

### 6. Bond the Membrane to the Substrate

Starting at the fold, roll the previously coated portion of the membrane into the coated substrate slowly and evenly to prevent wrinkles.

### 7. Broom and Roll the Membrane

To assure proper contact, compress the bonded half of the membrane to the substrate with a stiff push broom, then roll thoroughly using a 75 lb (34 kg) to 150 lb (68 kg) roller.

**NOTE:** If possible, sheets cut along one side shall have the cut edge installed as the underside of the seam.

### 8. Repeat Procedure to Complete the Membrane Panel Installation

Fold the un-adhered half of the membrane back onto itself and repeat the procedure.

### 9. Weld the Lap

- If membrane seam area has been open for more than 12 hours or become contaminated with dirt, debris or moisture, wash mating surfaces with MEK or Acetone and allow to dry completely.
- Complete the laps with hot air welds as specified, referring to PVC-LS details.

### 10. Terminate the Membrane at the Perimeter

After the perimeter sheets are adhered to the substrate, they must be terminated along the outside edge using appropriate Elevate roof edge or base tie-in detail.

### 11. Install Perimeter Isolation

Install Elevate fasteners and PVC seam plates continuously along the inside edge of the adhered perimeter area per Elevate PVC-LS details.

## 12. Position First Field Panel

1. Roll out the first field panel and position along the lap line of the adhered perimeter panel allowing for 6" (152 mm) side lap and 3" (76 mm) end laps.
2. Heat weld the first field lap.

## 13. Position and Secure Subsequent Field Panels

1. Roll out, position, secure and splice adjoining field panels as above.
2. Install each fastener so that it is properly engaged in the deck and the head is flush within the countersunk portion of the Seam Plate.
3. If the slope changes direction, begin working at the lower edge of the adjoining side of the roof up the slope with perimeter and field panels until reaching previous work. A half sheet is installed over a ridgeline, secured, and welded to the two panels.

## Membrane Seaming

The following information provides for typical set up and heat welding of Elevate PVC and PVC KEE membrane. For information beyond the scope of this document, we encourage installers to contact a Holcim Regional Technical Coordinator or local Holcim Field Technical Representative.

**Ensure proper welds are being achieved. If welding problems occur validate the following:**

- Ensure the weld area is clean, dry, and free of contaminants prior to welding.
- If cleaning occurs completely dry area prior to welding.
- Perform test welds with scrap membrane to dial in the proper welding temperatures.
- Perform test welds prior to job start, after breaks in installation, and during temperature swings.

**!** **NOTE: Once weld areas have cooled, validate weld is fully bonded and no gaps, fish mouths, pin holes or cold welds exist. Probe all welds to verify weld is completed properly.**

**NOTE: It is important to verify that welds completed at any transition from machine to hand application is completed properly. Validate weld transition is fully bonded and no gaps, fish mouths, pin holes or cold welds exist. Probe all welds to verify weld is completed properly.**

## Equipment and Test Splice Requirements

1. The air intake, temperature and speed of the welder shall be adjusted to provide proper seam strength.
2. An ample power source shall be provided for all heat welding equipment. A dedicated generator must be provided for each robotic welder. For specifics on welding equipment and generator, consult the welder manufacturer's data sheets.
3. Adjust the welding equipment according to membrane thickness and varying weather conditions. It is recommended that this be completed using spare material before starting welding of the finished roofing material. In addition, destructive tests shall be completed at the beginning of each day of welding and every time there is an interruption in the welding process (i.e., power failure, welder shut down, change in job site conditions, after lunch, etc.) to verify adequate seam strength.
4. Automatic Welder Settings – See additional weld window tables at the end of this document. Elevate PVC and PVC KEE allows for successful welding through a wide range of automatic welder settings for temperature and momentum. Typical settings near the center of this welding range are as follows (ambient temperatures between 20 °F to 90 °F and -6.7 °C to 32.2 °C):
  - Leister Varimat - Temperature: 1000 – 1148 °F Air Flow: 80%, Speed: ≤ 11.5' min.
  - Leister Varimat V2 - Temperature: 1100 – 1148 °F Air Flow: 70%, Speed: ≤ 15' min.
  - Contact a local Holcim Technical Representative for additional information.

## Clean the Lap Splice Area

If membrane has been exposed for more than 12 hours or becomes contaminated with dirt, debris, or moisture, it must be cleaned. Wearing chemical resistant gloves and using a clean white cotton rag dampened with MEK or Acetone, thoroughly clean the involved area on both sheets at least 6" (15.24 cm) wide prior to any welding activity. For aged membrane, or when additional cleaning is desired, a Elevate QuickScrubber Plus pad moistened with MEK or Acetone may be used to clean the weld area, followed by wiping with a clean white cotton rag dampened with MEK or Acetone. Allow cleaner to flash off completely, as residual cleaner can contaminate the membrane bond.

## Hot Air Weld Lap Splices

1. Horizontal field welds should be completed first. Wherever possible, field splices on the horizontal surface (including flashings) are to be completed using an automatic heat welder that has been designed for hot air welding of thermoplastic membranes. For specifics on welding equipment and generator, consult the equipment manufacturer's data sheet.
2. Seam Width Requirements
  - Seams made with the automatic welder must be a min. of 1½" (38 mm) wide.
  - Seams made with a hand welder must be a min. of 2" (50 mm) wide. Use silicone hand rollers to assure proper compression of the heated surfaces as hand welding proceeds.  
**NOTE: It is important to verify that welds completed at any transition from machine to hand application is completed properly. Validate weld transition is fully bonded and no gaps, fish mouths, pin holes or cold welds exist. Probe all welds to verify weld is completed properly.**
3. Vertical Splices

Hand held welders are to be used on vertical welds or where an automatic welder is not practical or cannot be used.

  - T-Joint and Membrane Transition Patches:
    - Install T-joint patches at reinforced membrane seam intersections when membrane thicker than .050" (1.27 mm) is used.
    - Install T-Joint patches wherever Elevate PVC or PVC reinforced membrane seams extend through angle changes 1:12 or greater.
    - Membrane to receive T-joint cover shall have the edge chamfered by heating and rolling to minimize any step-down. Refer to Lap Splice and T-Joint Detail Section of Elevate's Technical Manual.
4. Corner Flashing
  - Utilize pre-manufactured Elevate PVC Inside or Outside Corner Flashings wherever possible.
  - Unsupported Elevate PVC Membrane may be used to flash inside or outside corners up to a 15- year warranty.

## Seam Inspection

Probe all completed welds with a dull cotter pin puller type tool to verify seam integrity, paying special attention to hand welded areas (i.e., corners, t-joints, angle changes, etc.). Do not probe welds until they have cooled. Any welds found to be insufficiently fused need to be repaired daily. Avoid damaging membrane when checking welds.

**!** **NOTE: Solvent welding is NOT acceptable.**

## Additional Membrane Securement and Base Tie-In Flashing

Secure the membrane at all locations where the membrane goes through an angle change greater than 1" (25 mm) in 12" (305 mm). i.e.: roof edges, curbs, interior walls, etc.

## Using Screws and Plates

1. Mechanically fasten Elevate PVC Seam Plates with Elevate PVC Fasteners through the membrane, either horizontally into the deck or vertically into the wall, in accordance with Elevate PVC Base Tie-In Details (typically 12" (304.8 mm) o.c. for standard application).
2. Refer to the Elevate System Design Guide or Elevate Technical Information Sheets of this manual to determine the applicable fastener and the associated penetration requirements for the specific substrate conditions.

## Using Coated Metal

1. Elevate PVC coated metal must be completely supported by and fastened directly into wood nailers in accordance with Elevate Details.
2. The Elevate coated metal must be completely supported by wood nailers in accordance with Elevate Details.
3. Heat weld membrane to Elevate PVC Coated Metal flashing.
4. Seams made with an automatic welder must be a min. of 1½" (38 mm) wide. Seams made with hand welders must be a min. of 2" (51 mm) wide.

## Flashing – Penetrations

### General

- Remove all loose existing flashing (i.e., metal, bituminous materials, mastic, etc.).
- Flash all penetrations passing through the membrane.
- The flashing seal must be made directly to the penetration.

## **Pipes, Round Supports, Structural Steel Tubing, Etc.**

1. Flash penetrations with Elevate PVC Pre-Molded Pipe Flashings or Split PVC Pipe Flashings wherever possible. Do not cut or patch PVC Pre-Molded Pipe Flashings vertically to assist in their installation.
2. Flash penetrations using Elevate PVC Unsupported Flashing when the use of Pre-Molded or Split PVC Pipe Flashings is not feasible.
3. Refer to Elevate's Technical Information Sheet for min. and max. pipe diameters that can be successfully flashed with Pre-Molded or Split PVC Pipe Flashings.
4. Structural Steel Tubing: Use a field-fabricated pipe flashing detail when the corner radius is greater than ¼" (6.4 mm) and the longest side of the tube does not exceed 4" (102 mm). When the tube exceeds 4" (102 mm), use a standard curb detail including base-tie in and suitable termination.

## **Roof Drains**

The following applies to new or reused cast iron drains. For all other drain types contact a Holcim Regional Technical Coordinator.

1. Remove existing clamping ring. Remove any broken clamping hardware and replace.
2. Remove all existing flashing (including lead flashing), roofing materials and cement from the existing drain in preparation for membrane and Water Block Seal.
3. Provide a clean even finish on the mating surfaces between the clamping ring and the drain bowl.
4. Install tapered insulation with suitable bonding surfaces around the drain to provide a smooth transition from the roof surface to the drain. Slope into drain cannot be greater than 1" in 12" (25 mm in 305 mm).
5. Position the membrane and cut a hole for the roof drain allowing ½" (13 mm) to ¾" (19 mm) of membrane inside the clamping ring. Make round holes in the membrane to align with clamping bolts (a paper punch may be used). Do not cut the membrane back to the bolt holes.
6. Install Elevate Water Block Seal on the clamping ring seat flange below the membrane. Use a min. of one half of a 10 oz (295 cc) tube for a 10" (254 mm) drain.
7. Install the roof drain clamping ring and all clamping bolts. Tighten the clamping bolts to achieve constant compression.
8. Refer to Elevate PVC Drain details for additional information.

## **Insert Drains**

Elevate 3" & 4" Insert Drains are intended for installation when existing drains are deteriorated and not suitable for reuse or for re-roofing situations where existing drain sumps exceed Holcim's min. requirements. For conditions outside of these, contact a Holcim Regional Technical Coordinator.

1. Remove existing clamping ring. Remove any broken clamping hardware and debris.
2. Remove all existing flashing (including lead flashing), roofing materials and cement from the existing drain.
3. Install wood blocking as required to support, level and square drain insert with new insulation sump.
4. Install insulation, flat and tapered, with suitable bonding surfaces around the drain to provide a smooth transition from the roof surface to the drain. Slope into drain cannot be greater than 1" in 12" for reinforced membrane.
5. Install Elevate Insert Drain, securing to a solid substrate in accordance with instructions, in preparation to receive the roof membrane.
6. Install Elevate Water Block Seal in a continuous bead on the clamping ring seat flange below the membrane. Use a min. of one half of a 10 oz (295 cc) tube for a 10" (254 mm) strainer basket/clamping ring.
7. Install Elevate roof membrane as prescribed and secure with strainer basket and bolt assembly.
8. Refer to Elevate PVC Drain details for additional information.

## **Rigid Pipe Clusters and Unusual Shaped Penetrations**

1. Flash detail with shop fabricated PVC coated metal penetration pocket per Elevate Details. Provide a minimum clearance of 1" (25.4 mm) between the penetration(s) and from all sides of the penetration pocket.
2. Fill penetration pockets with Elevate Pourable Sealer or FillGard M and mound to shed water. Pourable Sealer must be a min. of 2" (51 mm) deep and 1" (25 mm) thick around all penetrations. Be sure to prime penetration and inside of pocket before installing sealer.

## **Hot Pipes**

Protect the Elevate PVC or PVC KEE components from direct contact with steam or heat sources when the in-service temperature is more than 160 °F (71 °C). In all such cases flash to an intermediate "cool" sleeve per Elevate Details.

## Flexible Penetrations

1. Provide a weathertight gooseneck set in Water Block Seal and secured to the deck.
2. Flash in accordance with current Elevate Details.

## Scuppers

Scuppers shall refer to all primary and overflow devices for roof drainage.

1. Install welded watertight PVC coated metal sleeve and flashing assembly.
2. Set sleeve in Water Block Seal.
3. Round all corners of metal flange.
4. Fasten flange 4" (102 mm) o.c.
5. Flash in accordance with current Elevate Details.

## Expansion Joints

1. Install where specified by the project designer in accordance with Elevate details.
2. Expansion Joint assemblies shall be sized as needed to provide for all anticipated movement and make logical transition to other materials at perimeters.

## Flashing – Walls, Parapets, Mechanical Equipment Curbs, Etc.

### General

Using the largest pieces of Elevate PVC or PVC KEE membrane practical, flash all walls, parapets, curbs, etc., to a minimum height of 8" or as specified by the project designer.

1. Evaluate Substrate  
The following substrates require an overlay of  $\frac{5}{8}$ " (16 mm) exterior grade or "Wolmanized" plywood, mechanically fastened in accordance with project designer's requirements:
  - Interior Gypsum board
  - Stucco
  - Cobblestone
  - Textured Masonry
  - Corrugated Metal Panels
  - Other Uneven Substrates

**!** **NOTE:** All loose existing flashing must be removed.

2. Install Additional Membrane Securement at Curbs, Penetrations, Walls, etc. per this specification.
3. Provide Termination in accordance with Elevate specifications and details.
4. Provide Intermediate Attachment  
Intermediate attachment of membrane is required at 36" (914 mm) intervals in accordance with Elevate details unless:
  - The wall surface is smooth, without noticeable high spots or depressions (i.e., plywood, poured or precast concrete, or hollow core block or masonry walls where joints are flush with masonry surface)
  - The termination is either a Termination Bar or the flashing membrane extends underneath a metal coping, over the outside edge of the wall.

## Sheet Metal Work

### General

- Sheet metal work is not waterproofing. The installed membrane roofing system must be made watertight before metal application.
- No roof system is complete until all the edges are terminated in such a way as to prevent water infiltration into the roofed structure. This typically involves the use of manufactured or shop fabricated metal detailing, such as coping caps, gravel stops, roof edging, flashing and counter-flashing components.
- All sheet metal work should be fabricated and installed according to SMACNA and National Roofing Contractors Association (NRCA) guidelines. Unless specifically agreed to in writing by Holcim Solutions and Products, US LLC. prior to installation, sheet metal work manufactured by others is not included in the Holcim warranty coverage.



## Codes and Standards

- The designer and roofing contractor should be aware that many municipalities and states are beginning to enforce metal codes that, until recently, were merely used as guidelines. These metal codes relate to min. standards on material, fabrication, and testing of roof related sheet metal work. It is the contractor's responsibility to review and know the building codes relating to their roofing projects to avoid costly remedial work to bring a project into compliance.
- If the sheet metal work on a project is specified by the designer to be included in a full system warranty, use Elevate brand edge metal and coping products, and install per Holcim published details and specifications. Contact a Elevate Sales Representative for additional information.
- If a metal flashing product by others is submitted via a deviation request for inclusion in the warranty coverage, the following are min. requirements for consideration:
  - The sheet metal work must be shop or factory formed or extruded.
  - The sheet metal work must be configured and installed in accordance with SMACNA guidelines and NRCA installation instructions.
  - Min. requirements regarding sheet metal work material are 24 ga (0.61 mm) G-90 Kynar pre-finished steel or 0.040" (1.02 mm) aluminum (mill finished, pre-finished or anodized).
  - A deviation request for inclusion of sheet metal work in warranty coverage must accompany the PIN form submitted by the installing contractor.
  - The deviation request must include shop drawings of the sheet metal work to be included and a roof plan showing the installed location and linear dimension for each profile.
  - Should the deviation request be granted, the installing contractor will be responsible to Holcim Solutions and Products US, LLC. for a period of two-years from the date of Holcim's inspection and acceptance under their installer's agreement.

## Application

- Sheet metal work installation, regardless of material source, must be according to the sheet metal manufacturer's instructions available from the manufacturer or supplier.
- Sheet metal work formed by roofing contractors must be fabricated and installed in accordance with SMACNA and NRCA recommendations.
- All flange-mounted sheet metal work must be flashed per the appropriate Elevate material type's standard details.
- Sheet metal work formed by contractors is not eligible for warranty coverage unless the conditions listed above are met and Holcim accepts the sheet metal work for warranty coverage in writing.
- Sheet metal work by roofing contractors must have metal joints stripped-in to the uppermost edge of the metal dam on the roof side.
- Gravel stop type sheet metal work on Elevate PVC and PVC KEE roof systems may be fabricated from Elevate PVC Coated Metal to provide a suitable welding surface to seal the roof system to the sheet metal work.
- As an alternative on some Elevate PVC and PVC KEE applications, it may be appropriate and permissible to use a two-piece snap on fascia assembly instead of Elevate PVC Coated metal.
- The approval of sheet metal work for inclusion in warranty coverage is conditional upon acceptance by Holcim Solutions and Products US, LLC., and, if approved, is subject to the "terms, conditions and limitations" of the requested warranty. Under no circumstance will any warranty coverage for sheet metal work exceed the wind speed limitation of the warranty issued for the roof system. Aesthetic appearance is expressly excluded from warranty coverage.
- Sheet metal work by others is not permitted on projects requiring full system warranties and wind speed coverage equal to, or greater than, 90 mph.

## Roof Walkways

### General

1. Elevate PVC Walkway Pads or acceptable pavers are required at all access points to the roof system and recommended anywhere routine traffic on the membrane surface is anticipated. Walkway pads are used to protect the weatherproofing membrane from damage or excessive wear and tear.
2. Traffic-related roof damage is not covered by the Red Shield Warranty. In areas of extreme traffic, contact Holcim for options to enhance the roof system to prevent or mitigate damage to roofing components.
3. Install walkway pads in locations as specified by the project designer and in accordance with published Elevate specifications.



4. Walkway maintenance is the responsibility of the building owner and not part of the warranted waterproofing assembly.

#### Walkway Pad Application Instructions – Welded PVC Walkway Pads

1. Ensure the existing area to which new PVC Walkway Pads are to be mated is clean, smooth and free of all contaminants. If the membrane has been installed more than thirty (30) days, thoroughly clean the work area with detergent and water. It is recommended that a cleaner be used such as Orange Power Cleaner. This cleaner must be completely rinsed/removed from areas where welding may occur and allowed to completely dry before any welding is performed. Liquid cleaners can leave a film residue that can interfere with adhesion quality.
  - It is recommended that a polypropylene scouring pad be used for maximum cleaning. This is the type manufactured by 3M. Coupled with the granular detergent it allows for enough abrasive action to thoroughly clean the sheet without causing damage.
  - **DO NOT** use steel wire brushes under any circumstances.
  - Thoroughly rinse the area several times to remove all detergent and contaminants.
  - The areas cleaned must be allowed to dry completely before continuing.
  - After allowing to dry sufficiently, the heat-welding areas on the existing membrane may be cleaned a second time with MEK or Acetone and wiped clean with a clean cotton rag to remove all surface impediments and eliminate any surface curing which may have occurred. **NOTE: Thorough cleaning with MEK or Acetone is the most critical procedure to ensure the performance of the new to existing membrane heat-weld.**
2. Unroll each roll of PVC Walkway Pad and allow it to relax for a minimum of 30 minutes **PRIOR TO** cutting and installing the Walkway Pad. Once the Walkway Pad is sufficiently relaxed, measure and cut the Walkway Pad into maximum 10' (3 m) long sections. Plan to position each section with a minimum 4" gap to allow for positive drainage and at least 4" from any system seam or penetration. Allow a minimum of 18" (0.45 m) between Walkway Pad and any roof drainage device. Walkway Pad may be cut length-wise or width-wise to ensure minimum spacing requirements. To achieve the best aesthetic quality, install when ambient temperature is between 60 and 80 °F (16 and 27 °C). Chalk lines may be used but excessive chalk should be shaken off the line to avoid contaminating the cleaned area.
3. Fully heat weld the perimeter of each section of the PVC Walkway Pad to the PVC or PVC KEE roof membrane, leaving one or two 1" gaps in the weld at the low side of the pad to allow for the escape of inadvertent moisture.

#### Walkway Pad Application Instructions – PVC X-Tred – Membrane Strip Securement

1. Ensure the existing area to which new PVC X-Tred Walkway Pads are to be mated is clean, smooth and free of all contaminants. If the membrane has been installed more than thirty (30) days, thoroughly clean the work area with detergent and water. It is recommended that a cleaner be used such as Orange Power Cleaner. This cleaner must be completely rinsed/removed from areas where welding may occur and allowed to completely dry before any welding is performed. Liquid cleaners can leave a film residue that can interfere with adhesion quality.
  - It is recommended that a polypropylene scouring pad be used for maximum cleaning. This is the type manufactured by 3M. Coupled with the granular detergent it allows for enough abrasive action to thoroughly clean the sheet without causing damage.
  - **DO NOT** use steel wire brushes under any circumstances.
  - Thoroughly rinse the area several times to remove all detergent and contaminants.
  - The areas cleaned must be allowed to dry completely before continuing.
  - After allowing to dry sufficiently, the heat-welding areas on the existing membrane may be cleaned a second time with MEK or Acetone and wiped clean with a clean cotton rag to remove all surface impediments and eliminate any surface curing which may have occurred. **NOTE: Thorough cleaning with MEK or Acetone is the most critical procedure to ensure the performance of the new to existing membrane heat-weld.**
2. Unroll each roll of PVC X-Tred Walkway Pad and allow it to relax for a minimum of 30 minutes **PRIOR TO** cutting and installing the Walkway Pad. Once the Walkway Pad is sufficiently relaxed, measure and cut the Walkway Pad into appropriate lengths. Plan to position each section with a minimum 4" gap to allow for positive drainage and at least 4" from any system seam or penetration. Allow a minimum of 18" (0.45 m) between Walkway Pad and any roof drainage device. Walkway Pad may be cut length-wise or width-wise to ensure minimum spacing requirements. To achieve the best aesthetic quality, install when ambient temperature is between 60 and 80 °F (16 and 27 °C). Chalk lines may be used but excessive chalk should be shaken off the line to avoid contaminating the cleaned area.
3. Install Side A as the top surface on Elevate PVC or PVC KEE systems.
4. Cut strips of PVC or PVC KEE membrane to 3/4" (19 mm) wide x 10" (254 mm) long.

5. Thread the PVC or PVC KEE strips through the PVC X-Tred pad at the first loop using two 90-degree folds. **DO NOT** attach strips over seams or flashing locations.
6. Using a hot air welding tool, weld the ends of the PVC or PVC KEE strip (weathering side up) onto the fled membrane.
7. Space the strips approximately 36" (914 mm) apart on both sides of the walkway pad and at the roll ends.
8. For the full 30" (762 mm) x 30' (9 m) roll, there should be 20 attachment strips installed, i.e., 10 strips per side (Refer to Detail Drawing PVC-M-7).

## Temporary Closure and Tie-Ins

1. At the completion of each day's work or before the onset of inclement weather, a watertight temporary seal must be established by the roofing applicator at any loose edge of membrane.
2. Install temporary seal or flashing strip to ensure that moisture does not flow beneath or damage any completed section of the new roofing system.
3. Membrane contaminated with the sealant or flashing used as a night seal must be cut away and discarded prior to resumption of work.

## Finished Roof Protection

1. When it becomes necessary for other trades to work over a completed area of new roof, the roofing membrane and flashing must be protected from physical damage.
2. Proper and adequate protection includes installation of a slip-sheet in the work area overlaid with plywood or OSB, to minimize damage to the finished roof surface due to construction equipment and activities that encounter the membrane.
3. If damage does occur to the roof system, it should be repaired immediately to preserve the integrity of the roofing components.

## Membrane Repair

### Clean the Membrane

When repairing "in-service" Elevate PVC or PVC KEE Membrane, it is necessary to remove accumulated field dirt. The membrane is properly prepared by scrubbing with a scrub brush and warm soapy water, rinsing with clear water, drying with clean cloths, then wiping with a clean cotton cloth dipped in MEK or Acetone.

### Install Repair Patch

1. Repair damaged Elevate PVC or PVC KEE Membrane with like material.
2. The repair material must extend a min. of 2" (51 mm) beyond the boundary of the affected area in all directions. Example: A pinhole will require a min. 4" x 4" (102 mm x 102 mm) patch.
3. Round all corners of the repair piece.

### Multiple Repairs

1. If the membrane is damaged in more than six (6) locations within a 100 ft<sup>2</sup> (9.3 m<sup>2</sup>) area, new membrane extending 6" (152 mm) beyond the border of the damaged area must be installed over existing membrane in accordance with published Elevate specifications.
2. Secure the replacement membrane in the same manner as the existing membrane.
3. Contact a Regional Technical Coordinator with questions on how to address comprehensive damage.

## Clean Up

If required by the specifier to ensure the aesthetics of the Elevate PVC or PVC KEE Membrane, (i.e., handprints, footprints, general traffic grime, industrial pollutants, and environmental dirt), the membrane may be cleaned by scrubbing with non-abrasive soapy water and rinsing the area completely with clean water. MEK or Acetone can be used sparingly to clean small areas of membrane. Orange Power Cleaner may also be used in combination with a polypropylene pad.

### Cleaning Procedure for In-Service Thermoplastic Membrane

1. Ensure that the existing area to which new PVC membrane is to be mated is clean, smooth, and free of all contaminants.

2. Thoroughly clean this area with Orange Power Cleaner and a polypropylene scouring pad. This cleaner must be completely rinsed/removed from areas where welding may occur and allowed to completely dry before any welding is performed. Liquid cleaners tend to leave a film residue that can interfere with heat-weld quality.
3. It is recommended that a polypropylene scouring pad be used for maximum cleaning. This is the type manufactured by 3M. Coupled with the appropriate cleaner it allows for enough abrasive action to thoroughly clean the sheet without causing damage to it.

**! NOTE: DO NOT USE STEEL WIRE BRUSHES UNDER ANY CIRCUMSTANCES.**

4. It is imperative that the area be thoroughly rinsed several times to remove all cleaner and contaminants before heat welding. Further, the area must be allowed to dry completely before continuing. If blisters form upon heat welding, the area has not been allowed to dry sufficiently and heat welding should discontinue.
5. After allowing to dry sufficiently, the heat-welding areas on the existing membrane shall be cleaned a second time with MEK or Acetone and wiped clean with a clean cotton rag to remove all surface impediments and eliminate any surface curing which may have occurred.

**! AGAIN: THOROUGH CLEANING WITH MEK or ACETONE IS THE MOST CRITICAL PROCEDURE TO ENSURE THE PERFORMANCE OF THE NEW TO EXISTING MEMBRANE HEAT-WELD.**

6. All heat welding shall be in accordance with Elevate thermoplastic details and specifications as published. Keep in mind that the existing sheet is aged, which may call for more allowance. Care should be taken not to overheat and scorch either membrane.
7. Upon completion, allow newly welded seams to cool.

**! IMPORTANT: ALL WELDS MUST BE THOROUGHLY PROBED AND CHECKED FOR COMPLETE INTEGRITY AND REWELDED OR STRIPPED IN AS REQUIRED.**

## Weld Windows

### Elevate PVC and PVC KEE Membrane Weld Windows

Leister Varimat V Robot or Leister Varimat V2 Robot Welder  
(15 lb weight)

Speed (ft/min)	Temp (°F)
6.8	1000 - 1148
8.5	1000 - 1148
10.1	1000 - 1148
12.1	1000 - 1148
13.7	1000 - 1148
15	1148

**NOTE:**

1. Leister Varimat V Robot Welder set at 100% air flow, and 2 additional weight plates (15 lbs).
2. Leister Varimat V2 Robot Welder set at 70% air flow, and 2 additional weight plates (15 lbs).
3. Validate temperature settings and weld quality at the various times throughout the day including start/stop times and change in weather.
4. Visual observation should occur during welding to avoid scorching/burning of membrane. Adjust temperature as needed to avoid membrane damage.

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