Elevate™ UltraPly™ TPO XR Roofing Systems

Application Guide

October 2026

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 Elevate Regional Technical Coordinator prior to its use.

Table of Contents

General 4

Job Site Considerations (Caution and Warnings) 4

Roof Substrate Preparation 4

Direct Membrane Overlays 5

Wood Nailer Locations and Installation 6

Air or Vapor Barrier Installation 6

V-Force FR Vapor Barrier Installation 7

V-Force Vapor Barrier Installation 7

Insulation Installation 7

Table 1: EPS Installation Requirements for Warranty 8

Membrane Installation 9

Initial Membrane Positioning 9

Application of XR Membrane Using Hot Asphalt 9

Application of XR Membrane Using XR Stick or ISO Spray R Adhesive 10

Coverage Rates for XR Stick, ISO Spray R, Twin Jet, and Twin Jet Y Adhesives 11

Table 2: Perimeter and Corner Enhancements for XR Stick, ISO Spray R, Twin Jet, or Twin Jet Y Adhesive – Bead Application 12

Table 3: Acceptable Substrates for UltraPly TPO XR Installed with XR Stick, ISO Spray R, Twin Jet, or Twin Jet Y Adhesive 13

Table 3: Acceptable Substrates for UltraPly TPO XR Installed with XR Stick or ISO Spray R Adhesive (Cont'd) 13

Cautions and Warnings When Working with XR Stick or ISO Spray R Adhesive 13

Adhere Membrane Using Elevate Twin Jet Adhesive 14

Adhere Membrane Using Elevate Twin Jet Y Adhesive 14

Adhere Membrane Using Elevate Jet Bond Spray Adhesive 15

Membrane Seaming 16

Additional Membrane Securement and Base Tie-In Flashing 17

Flashing - Penetrations 17

Flashing – Walls, Parapets, Mechanical Equipment Curbs, Etc. 18

Flashing – Gravel Stops or Roof Edge Metals 19

Membrane Repair 19

Temporary Closure (Not Warranted by Elevate) 19

Roof Walkways 19

Sheet Metal Work 20

Clean Up 20

Thermoplastic Detail Lists 19

Detail Table 1: Base Tie-In Details..... **Error! Bookmark not defined.**
Detail Table 2: Corner Details ..... **Error! Bookmark not defined.**
Detail Table 3: Drain and Scupper Details..... **Error! Bookmark not defined.**
Detail Table 4: Expansion Joint Details ..... **Error! Bookmark not defined.**
Detail Table 5: Lap Splice Details ..... **Error! Bookmark not defined.**
Detail Table 6: Miscellaneous Details ..... **Error! Bookmark not defined.**
Detail Table 7: Penetration Details ..... **Error! Bookmark not defined.**
Detail Table 8: Perimeter Enhancement Details..... **Error! Bookmark not defined.**
Detail Table 9: Roof Edge Details..... **Error! Bookmark not defined.**
Detail Table 10: Termination Details..... **Error! Bookmark not defined.**
Detail Table 11: Thermoplastic XR Base Tie-In Details..... **Error! Bookmark not defined.**
Detail Table 12: Thermoplastic XR Drain and Scupper Details ..... **Error! Bookmark not defined.**
Detail Table 13: Thermoplastic XR Lap Splice Details ..... **Error! Bookmark not defined.**
Detail Table 14: Thermoplastic XR Perimeter Enhancement Details..... **Error! Bookmark not defined.**
Detail Table 15: Thermoplastic XR Roof Edge Details..... **Error! Bookmark not defined.**
Detail Table 16: Thermoplastic InvisiWeld Details..... **Error! Bookmark not defined.**
Detail Table 17: Thermoplastic Metal Building Retrofit Details ..... **Error! Bookmark not defined.**
Detail Table 18: Thermoplastic Membrane Layout Details ..... **Error! Bookmark not defined.**
Detail Table 19: Fleece Backed Thermoplastic Membrane and Modified Bitumen Hybrid Details ... **Error! Bookmark not defined.**

General

This section of the Elevate Technical Manual provides instructions for the installation of Elevate UltraPly TPO XR membrane using Elevate XR Stick Adhesive, Elevate Twin Jet Adhesive, Elevate Twin Jet Y Adhesive, Elevate ISO Spray R Adhesive, or hot steep asphalt. Reference to the Design Guide, Technical Information Sheets and other sections of Elevate's Technical Specifications is necessary to ensure that the finished roof system is installed in compliance with Elevate requirements and therefore suitable to receive a Red Shield Warranty.

!	**NOTE:** If a proposed application falls outside this specification, contact a Elevate Regional Technical Coordinator for additional information.

Job Site Considerations (Caution and Warnings)

- Keep all adhesives, sealants, and cleaning materials away from ALL ignition sources (i.e., flames, fire, spark, etc.). Do not smoke while using these materials.
- Consult container labels, Safety Data Sheets and Technical Information Sheets for specific safety instructions for all products used on the project.
- Care must be used when installing fasteners to avoid possible conduits and other piping in and under the deck.
- Fumes from adhesive solvents or asphalt may be drawn into the building during installation through rooftop intakes. Take suitable precautions when using such products on an occupied building.
- Store Elevate UltraPly TPO XR membrane in the original undisturbed plastic wrap in a manner to protect it from damage.
- Do not use oil-based or bituminous-based roof cement, mastics, or caulks in direct contact with Elevate UltraPly TPO XR membrane.
- Insulation must be properly stored and protected from ignition sources, moisture, and damage.
- Follow all OSHA, NRCA and other industry recommendations for fire protection.
- When the outside temperature is below 40 °F (4.4 °C), certain combinations of temperature and humidity may cause condensation on the surface of solvent-based adhesives and primers. If this condition occurs, discontinue their application. When the ambient air conditions no longer cause condensation on adhesive surfaces, re-apply additional adhesive or primer, and proceed. The consistency of sealants, adhesives, and primers will begin to thicken as the temperature drops. To minimize this, the following is recommended:
  - Start work with sealants, adhesives, and primers that have been stored between 60 °F and 80 °F (15.5 °C and 26.7 °C). Insulated heated boxes may be helpful.
  - Conduct test areas to determine if conditions will occur such as condensation on adhesives, or difficulty in dispensing adhesives or sealants.
  - Do not use heat guns or open flames to accelerate the drying of adhesives and/or primers.
  - If using water-based bonding adhesive for flashing applications, temperatures of substrates and atmosphere must be at least 40 °F (4.4 °C) and rising. Longer drying times should be expected for lower temperatures and higher humidity.

Roof Substrate Preparation

!	It is the roofing contractor's responsibility to ensure that the substrate is acceptable for the Elevate roofing system or membrane-only roofing system.
	Elevate 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 Elevate from issuing a warranty. Elevate is not responsible for costs associated with repairs or enhancements performed to the roof system as a result of testing.

Correct Substrate Defects

- Defects that require correction 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 and documents. Components or conditions that are discovered during installation that could be detrimental to the performance of the new roof system should be brought to the attention of the project designer for corrective action.
- Good roofing practice requires complete removal of the existing roof to the structural deck if soundness and integrity of the existing roof system cannot be verified. Recovering an existing roof system with a new roof is an alternative to removing existing roof components. However, non-destructive testing, in conjunction with examination of core cuts, must be performed to determine the condition of the existing roof system and decking.
- The building owner or project designer is responsible for assuring that all wet or damaged insulation and/or wet/damaged substrates are removed and replaced in re-roofing applications. A reliable diagnostic technique is taking and evaluating a series of roof cuts. There are three other techniques available to make this determination by indirect means: Nuclear moisture detection; Infrared thermography; and Electric capacitance. These techniques provide measurement of factors that can be

associated with the presence of moisture, which can then be correlated to the roofing cuts to verify the results of the non-destructive testing.

Rooftop Moisture
Ponding water, snow, frost, dew, and ice must be removed from the substrates/work surfaces before installing the UltraPly TPO XR System.

Prepare Surfaces
Acceptable substrates to receive the UltraPly TPO XR Roofing System must be properly prepared before membrane installation. The surfaces(s) must be relatively even, clean, dry, smooth, and free of sharp edges, fins, loose or foreign materials, oil, grease, and other materials that may damage the membrane. Rough surfaces that could damage the membrane must be overlaid with acceptable insulation.

Fill Voids
All surface voids of the immediate substrate to receive UltraPly TPO XR membrane greater than ¼" (6.35 mm) wide must be filled with insulation or other approved filler.

Concrete Additives
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. Elevate does not accept surface-applied curing compounds for warranted systems.

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

Direct Membrane Overlays
Application of UltraPly TPO XR membrane only roofing systems direct to existing aged, adhered single-ply roofing systems constitutes a special case, and requires specific surface preparation and installation steps.

- A licensed Elevate applicator should inspect the existing system. Applicator should perform a thermal scan or core cuts to ensure the existing system is dry.
- Clean the existing roof with Elevate VOC-Free Membrane Prewash according to its instructions followed by a 2,000-psi wash and an additional rinse. Keep the washer at a safe distance to prevent damage to the membrane.
- All wet and damaged components identified during the original inspection must be replaced with new insulation or cover board to match the height of the existing system. **Note: Do not adhere new EPDM or TPO membrane over the replaced areas. The TPO XR will be adhered directly to the new insulation or cover board in these areas.**
- All existing flashing materials—including base flashings and pitch pans—must be removed and replaced with new materials.
- Secure the existing membrane using Elevate Heavy-Duty Fasteners and 3" Insulation Plates.
- In areas where the membrane is loose and around penetrations, use one fastener every 2 Sq. Ft. to picture frame the area.
- Secure Base Tie-Ins and angle changes greater than 1:12 at 12" o.c. intervals.
- Replace protruding fasteners with new Elevate fasteners and plates.
- The membrane substrate must be completely dry, even, and free of any protrusions, debris, sharp edges, and foreign materials.
- Elevate TPO XR 115-mil membrane minimum is required. This application requires a job start-up inspection, an interim inspection, and a final inspection.
- Install the new Elevate TPO XR using XR Stick, ISO Spray R, Twin Jet, or Twin Jet Y in 6" bead spacing in the field, perimeter, and corners. **NOTE: Spatter application of ISO Spray R, Twin Jet, or Twin Jet Y is acceptable in the Field of the roof only for direct membrane overlays.**

Wood Nailer Locations and Installation

Elevate 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 Elevate 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 UltraPly TPO membrane 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 TPO 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 Elevate.

Install Air Barrier (when specified):

Install an air barrier as specified by the project designer or as required by Elevate.

V-Force FR Vapor Barrier Installation

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

1. Ensure all surfaces are dry, sound, clean, “as new” condition, and free of oil, grease, dirt, excess mortar, or other contaminants detrimental to the adhesive of the membrane.
2. Fill voids and gaps in the substrate greater than ⅞" (22.2 mm) in width to provide an even surface.
3. Plan layout prior to application to help minimum waste.
4. Pre-plan special application areas like curbs and penetrations to achieve the proper detailing to ensure water and airtight installation.
5. Cold weather may affect the adhesion properties of the pressure sensitive adhesive. It is always recommended to conduct field adhesion testing separately or in conjunction with mock-up construction on the job site. Primers can improve adhesion to substrates in these conditions.
6. Stage rolls prior to application to follow a shingle fashion installation with the upper courses lapped over the lower courses. All side and head laps are a minimum of 3" (76.2 mm). Laps from vertical to horizontal application should be a minimum of 6" (152.4 mm).
7. On steel decks, laps of sheets should be supported by deck flutes. Cover flutes where the end laps will occur with 24 gauge 6" (152.4 mm) wide metal strips spanning the flutes. Attach with #10 pancake head screws through 9/32" (7.14 mm) oval holes (by others).
8. Roll our membrane out into position.
9. Lift leading edge of membrane enough to peel enough of the first half of the release liner back to allow it to extend past the edge of the roll. Repeat for other half of release liner.
10. Roll membrane back and hand press adhesive to substrate.
11. Have someone hold the non-adhered end of roll membrane while release liner is removed.
12. Continue to pull release liner from underside of roll at a 45-degree angle at a pace to not tear liner.
13. Roll the membrane with a weighted roller, minimum 70 lb (31.75 kg).
14. Position and install additional rolls in a shingles application to achieve a 3" (76.2 mm) minimum lap at all head and side locations.
15. Refer to the Elevate website (www.elevatecommercialbp.com) for details and additional product and installation 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 Elevate website (www.elevatecommercialbp.com) for details and additional product and installation information.

Insulation Installation

InvisiWeld Systems require a min. 1½" (38 mm) of insulation over the metal deck for operation of induction welding equipment. Elevate UltraPly Platinum TPO Roofing System warranties require a new approved substrate board. Ballast systems are not permitted when the membrane is installed directly over any mechanically attached insulation or over a hard surface such as HailGard / ISOGARD HG, ISOGARD HD, DensDeck®, SECUROCK®, DEXcell®, OSB or concrete. Ballast systems are not approved for use when Elevate Platinum System warranties are desired.

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 installed 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 an adhered perimeter shall require the perimeter insulation to use fastening pattern used in an adhered membrane 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 Elevate 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. Resista™ / 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^2 (1.2-1.4 k/m^2), 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, Twin Jet or Twin Jet Y.
- 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 installed 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.

EPS Fanfold and Flute Fill Insulation Attachment

Table 1: EPS Installation Requirements for Warranty

EPS INSTALLATION REQUIREMENTS FOR WARRANTY	
Product	**Minimum Installation Requirements**
Alleguard Fanfold Rigid Board Insulation (TIS 967)	▪ Preliminarily fastened with appropriate fasteners and plates at a minimum of 5 fasteners and plates per 32 ft^2 (2.97 m^2) into appropriate substrate. ▪ Approved for use in appropriate re-cover applications only.
Alleguard Flute Fill Rigid Insulation (TIS 968)	▪ Loose laid or preliminarily attached with appropriate fastener and plates.

NOTE:

1. EPS direct to deck application is acceptable but may not meet building code or Factory Mutal (FM) requirements.
2. Performance validation (uplift and/or fire) may not be available when EPS insulation is used.
3. Non-Faced EPS shall not be in direct contact with bonding adhesives, asphalt products, PVC, or PVC KEE membrane.

- Fanfold insulation is approved for use when recover applications call for mechanically attached membrane applications of Elevate UltraPly TPO membrane systems.
- Fanfold must be Type VIII with a minimum thickness of ½" (12.7 mm) and must meet the following minimum physical properties outlined below.
- Existing gravel surfaced roofs should be spud/scraped clean and vacuumed.
- Existing single-ply membrane should be cut into 10' x 10' (3.05 m x 3.05 m) grids and all flashings and base tie-ins should be detached/removed before attaching Fanfold with appropriate fasteners and insulation plates. Those may include Elevate #12 Insulation Fasteners, All Purpose Fasteners and Heavy-Duty Fasteners with Elevate Insulation Plates, as well as IsoFast™ Bested Fasteners and Insulation Plates or AP AccuTrac® Kits.
- InvisiWeld applications are not allowed when Fanfold is the immediate substrate.
- Damaged or wet components of the existing roofing system must be removed/replaced.
- Fanfold must have a suitable facer. "Bare" EPS must never come into contact with PVC or PVC KEE membranes, or with residual asphalt.
- Adjacent Fanfold sheets should be laid parallel and staggered ever 2' (0.61 m).
- For projects requiring performance validation, switch to an appropriate Elevate insulation and/or cover board.
- Check with local building code authorities for requirements for partial tear-offs and recovers.
- The maximum Red Shield™ Warranty term for systems including Fanfold is 20 years. Wind speeds up to 55 MPH may be approved based on project characteristics. Hail and Cut & Puncture Protection are not available when Fanfold is used in lieu of an Elevate insulation and/or cover board.
- Contact a Regional Technical Coordinator for more information.

Membrane Installation

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.

NOTE: Lap membrane to cover membrane printed areas (lap lines, fastener location marks and product identifications printing) whenever possible.

Initial Membrane Positioning

Fold Method

1. Position membrane: Place UltraPly TPO XR membrane over acceptable substrate without stretching membrane starting at the low point of the roof. Position UltraPly TPO XR membrane panels in "shingle" fashion so seams shed, and do not "buck" water flow.
2. Mark Substrate: Mark the substrate along the top edge of the panel as necessary by snapping chalk lines.
3. Fold membrane back: After positioning the UltraPly TPO XR membrane on the substrate in the desired location, fold the membrane back on itself without wrinkling or moving the membrane, exposing the substrate.
4. Snap lines: Using the marks made previously, snap chalk lines.
5. Install panel: As described in this guide and additional instructions.

Unroll Method

1. **Position membrane:** Position the first panel of UltraPly TPO XR membrane over roof area to receive membrane. Position UltraPly TPO XR membrane in "shingle" fashion so seams shed, and do not "buck" water flow. Note: When using the unroll method, it is recommended that the first panel be installed in the fold method to assure proper alignment of subsequent rolls being installed using the unroll method.
2. **"Set" the roll:** Unroll about 10-20 ft (3.05-6.10 m) of the UltraPly XR Membrane and adjust it to its final position. This "sets" the roll and insures that unrolling the "set" roll will result in proper membrane placement when unrolled. Setting pails of adhesive on membrane at this point will serve to temporarily ballast and keep the roll in its proper position before adhering.
3. **Install panel:** As described in this guide and additional instructions.

Application of XR Membrane Using Hot Asphalt

1. **Apply asphalt to substrate:** Apply asphalt (at the specified equiviscous temperature) to bonding substrate at a minimum of 30 lb per 100 ft^2 (1.46 kg/m^2) +/- 3 lb per 100 ft^2 lb/100 ft^2 (.146 kg/m^2). Do not apply asphalt to the fleece or seaming area of

the UltraPly TPO XR membrane. Apply asphalt completely and evenly on the bonding substrate, avoiding puddles, globs, and uncoated areas.

NOTE on application:

- The asphalt shall be at the manufacturer's specified equiviscous temperature (EVT) less 25 °F (14 °C) to 30 °F (17 °C) at the point of installation. Install a minimum of 30 lb per 100 ft^2 (1.46 kg/m^2) and a maximum of 35 lb per 100ft^2 (1.70 kg/m^2) asphalt to ensure that complete adhesion is achieved. Irregular substrates generally require additional quantities of asphalt to assure positive adhesion of the membrane.
- Do not apply hot steep asphalt to substrate directly under the top or overlap portion of the seam. Do not walk on freshly applied UltraPly TPO XR membrane until asphalt has completely cooled.
- Provide sufficient protection of UltraPly TPO XR membrane from asphalt handling equipment. Plan the roof installation to minimize traffic over new roof areas.

2. While the asphalt is still molten, mate the UltraPly TPO XR membrane to asphalt: Starting at one end of the fold, roll the UltraPly TPO XR membrane into the asphalt evenly, avoiding bridging and wrinkling. Because asphalt cooling rates vary due to ambient air temperatures, the time from asphalt application to membrane installation can vary greatly and must be adjusted as necessary to assure proper adhesion. When temperatures are such that rapid cooling is occurring, the "Unroll Method" described in section 2.07B should be used.
3. Without walking on the membrane, using a stiff bristled push broom, broom the freshly installed membrane to insure even and sufficient mating of the membrane into the asphalt.
4. Adjoining roll ends are to be butted to each other not lapped. Refer to Elevate TPO XR End Lap detail for specific requirements.
5. **Additional panel installation:** Unroll adjacent panels completely, lapping the selvedge edge over the previous panel to allow for a minimum 1½" (38.1 mm) robotic heat welded seam or 2" (50.8 mm) hand welded seam. Once aligned in the final position, repeat steps used above.

> ! **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.

Application of XR Membrane Using XR Stick or ISO Spray R Adhesive

General Conditions

1. Install only as much UltraPly TPO XR membrane (XR100 or XR115) as can be completed and made watertight during the working day.
2. Substrates and ambient conditions shall exceed 40 °F (4 °C) and rising.
3. Substrates to receive XR STICK, or ISO SPRAY R Adhesive shall be above 40 °F and rising, clean, smooth, dry, free of sharp edges, loose and foreign materials, oil, grease, and other contaminates.
4. Apply XR STICK or SPRAY R ADHESIVE to bonding substrate only at a coverage rate range of 60-200 ft^2/gal (1.4-4.8 m^2/L), depending on the application and porosity of the substrate. Do not apply XR STICK or SPRAY R adhesive to the fleece or seaming portion of the UltraPly TPO XR membrane.
5. XR STICK is available in 2-part 0.2 gal (750 ml) cartridges or 5 gal (19 L) boxes and can be dispensed using various Elevate approved hand or electric dispensing units, through a static mixing tip as a two-component low rise polyurethane foam adhesive in beads or ribbons.
6. ISO SPRAY R Adhesive is available in 15 gal (57 L) or 55 gal (208 L) drums that are dispensed using a heated high or low-pressure spray or bead extruding system as a mixed two component polyurethane adhesive applied with a full coverage spray application or a bead dispensing application. See adhesive TIS for additional equipment information.
7. Apply XR STICK or ISO SPRAY R adhesive evenly on the bonding substrate, avoiding puddles, globs, and uncoated areas.

Membrane Installation

1. Starting at the highest roof elevation, unroll and position UltraPly TPO XR membrane. Position UltraPly TPO XR membrane panels so the laps will be completed in "shingle fashion", and not "buck" or hold water. Unroll UltraPly TPO XR membrane sheet and position in place. Fold sheets in half widthwise.
2. Fold the properly positioned panels of UltraPly TPO XR membrane back to expose the substrate to receive ISO SPRAY R or XR STICK Adhesive.
3. Dispense ISO SPRAY R or XR STICK Adhesive on the substrate as follows:
   - Spray Application: fully spray adhesive to obtain full coverage (approx. ⅛" to ¼" thick after foaming).
   - Bead Application: For extruded bead applications, apply a ¾" to 1" wide bead, when wet, of the adhesive at a rate of 4", 6" or 12" on center depending on application requirements.
   - **NOTE:** Closer Bead spacing may be required at building corners and edges depending on wind zone. Apply ISO Spray R or XR STICK Adhesive to the substrate achieving a light-yellow color foam.
   - If the ISO SPRAY R or XR STICK does not rise, stop dispensing; troubleshooting is required to determine why the ISO SPRAY R or XR STICK is not rising.
   - D**o not apply ISO SPRAY R Adhesive or XR STICK directly to the UltraPly XR Membrane.** Keep lap areas of UltraPly TPO XR Membrane clean and free of ISO SPRAY R or XR STICK Adhesive. Remove any adhesive that contaminates the lap areas immediately and clean the lap area with appropriate cleaning materials.

4. Allow ISO SPRAY R or XR STICK to rise (within 1 to 3 minutes, depending on ambient conditions), then mate the UltraPly TPO XR Membrane into the freshly installed ISO SPRAY R or XR STICK Adhesive. The rise time will vary based on environmental conditions like temperature and humidity. Shaded areas, and cool overcast days will have longer rise times.
5. Roll the freshly mated UltraPly TPO XR Membrane using a 150 lb x 30" or 100 lb x 16" roller (such as linoleum roller or landscaping roller) to ensure proper adhesion. **NOTE: Roller not to exceed 150 lb.**
6. Performance of ISO SPRAY R or XR STICK Adhesive should be periodically monitored during the workday to verify that sufficient rise, adhesion, and full mating is occurring.
7. Do not attempt to apply ISO SPRAY R or XR STICK when unfavorable conditions exist (i.e.: rain, snow frost, high wind, etc.).

Coverage Rates for XR Stick, ISO Spray R, Twin Jet, and Twin Jet Y Adhesives

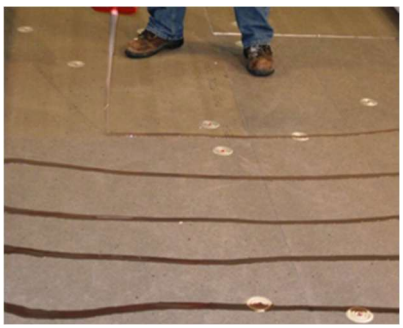
Full Coverage Spray Application

1. ISO Spray R Adhesive can be spray applied in a full coverage application to the roofing substrate.
2. Relatively smooth surfaces will result in a coverage rate of approximately 96 ft^2 per gallon (2.3 m^2 per L) of mixed (1:1) ISO Spray R Adhesive.
   NOTE:
   - Coverage rate will be reduced due to irregularities in substrates. NOTE: The coverage rate for ISO SPRAY R at the roof perimeter and corner sections may vary according to roof system design requirements.
   - Refer to Equipment Supplier's suitability for use of mix/meter/spray two-component polyurethane adhesive.

Bead Coverage Application

Using the approved equipment dispensing a continuous mixed bead width of ¾" (19 mm) to 1" (25 mm), when applied over various substrates, the coverage rates of mixed (1:1) ISO Spray R Adhesive or XR STICK beads will vary depending on the bead spacing:

- 4" o.c. bead spacing coverage rate: 60 – 90 ft^2 per gallon (1.4 – 2.2 m^2 per L) of mixed (1:1) ISO Spray R Adhesive or XR STICK depending on the substrate
- 6" o.c. bead spacing coverage rate: 90 – 120 ft^2 per gallon (2.2 – 2.9 m^2 per L) of mixed (1:1) ISO Spray R Adhesive or XR STICK depending on the substrate
- 12" o.c. bead spacing coverage rate: 170 – 200 ft^2 per gallon (4.1 – 4.8 m^2 per L) of mixed (1:1) ISO Spray R Adhesive or XR STICK depending on the substrate
  NOTE:
  - Coverage rate may be reduced due to irregularities in substrates.
  - Coverage rates will vary if the bead spacing is increased.
  - These typical coverage rates are applicable when the XR Stick is properly mixed with 1:1 ratio and applied in the appropriate bead spacing in a serpentine pattern at a bead width of ¾" to 1" (19 mm to 25.4 mm).
  - The coverage rate for ISO Spray R Adhesive or XR STICK at the roof perimeter and corner sections may vary according to roof system design requirements.



Bead application of XR Stick in cartridge on mechanically attached Polyisocyanurate insulation board @ 12" o.c.



Bead application of XR Stick in cartridge on mechanically attached Polyisocyanurate insulation board @ 6" o.c.



Freshly applied beads of XR Stick on mechanically attached Polyisocyanurate insulation board @ 4" o.c.

Reaction Time

When applying ISO Spray R Adhesive or XR Stick, the TPO XR membrane must be placed into the adhesive while it is still wet and tacky (before it reaches tack free state). The membrane may be placed into adhesive shortly after it has reached its maximum rise, typically after 2-3 minutes.



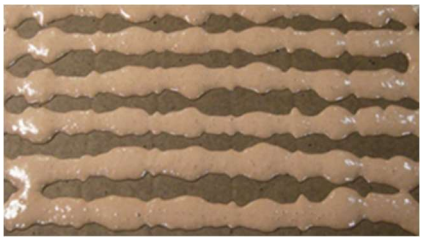
STEP 1: Freshly applied ISO Spray R Adhesive / XR Stick - cream stage



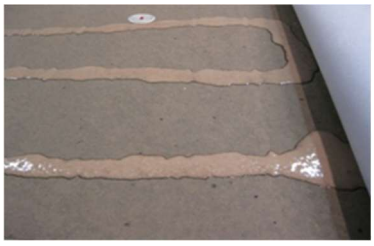
STEP 2: Allow ISO Spray R Adhesive / XR Stick Adhesive to rise (1 to 3 minutes)



STEP 3: Tack-free stage – ready for application of UltraPly TPO XR Membrane (after 5 -7 minutes)



Close up of 4" Bead Spacing



Close up of 12" Bead Spacing



Roll UltraPly TPO XR into XR Stick or ISO Spray R Adhesive



Apply pressure to the top surface of the membrane to ensure contact with a roller (not to exceed 150 lb/68 kg)

Table 2: Perimeter and Corner Enhancements for XR Stick, ISO Spray R, Twin Jet, or Twin Jet Y Adhesive – Bead Application

PERIMETER AND CORNER ENHANCEMENTS FOR XR STICK OR ISO SPRAY R ADHESIVE – BEAD APPLICATION			
Building Height	**Bead Spacing (Perimeter)**	**Bead Spacing (Corner)**	**Bead Spacing (Field)**
0-25'	6" (152.4 mm) o.c. – 4' (1.22 m) perimeter	4" (101.6 mm) o.c.	12" (305 mm) o.c.
25-50'	6" (152.4 mm) o.c. – 8' (2.44 m) perimeter	4" (101.6 mm) o.c.	12" (305 mm) o.c.
50-75'	6" (152.4 mm) o.c. – 12' (3.66 m) perimeter	4" (101.6 mm) o.c.	12" (305 mm) o.c.
75-100'	6" (152.4 mm) o.c. – 16' (4.88 m) perimeter	4" (101.6 mm) o.c.	12" (305 mm) o.c.
Greater than 100'	Contact an Elevate Regional Technical Coordinator for bead spacing requirements.		

NOTE:

- When following local building code or regulatory agency's requirements, the bead spacing of ISO Spray R Adhesive or XR Stick in the perimeter and corner areas may differ from the table above. The coverage rate for XR Stick at the roof perimeter and corner sections may vary according to roof system design and wind uplift requirements. Please refer to Elevate's code approval guide or contact a Elevate Regional Technical Coordinator at 1-800-428-5411 for more information.
- Use a ¾ to 1" (19-25 mm) wide bead.
- Membrane Only Roofing Systems over existing adhered single-ply membranes require F/P/C: 6" (152.4 mm) o.c. attachment rate. Spatter attachment is acceptable in the Field of the roof only in direct membrane overlay applications.

Table 3: Acceptable Substrates for UltraPly TPO XR Installed with XR Stick, ISO Spray R, Twin Jet, or Twin Jet Y Adhesive

ACCEPTABLE SUBSTRATES FOR ULTRAPLY TPO XR INSTALLED WITH XR STICK, ISO SPRAY R, TWIN JET OR TWIN JET Y ADHESIVE[2]		
Deck / Substrate	**Acceptable**	**Note**
Structural Concrete (New)	✓	New poured decks must be completely dry prior to application of XR Stick.
Structural Concrete (Existing)	✓	Existing decks should be dry and free of existing moisture prior to application of XR Stick.
Plywood and OSB	✓	
Cementitious Wood Fiber	N/A	
Gypsum Decks	✓*	
Lightweight Concrete[1]	✓	
Coal Tar Pitch Built-up Roofs	N/A	ISOGARD™ HD Cover board required over coal tar BUR.
Existing Asphalt and Modified Bitumen Roofs (Mineral or Smooth Surfaced)[3]	✓	Any residual asphalt must be cleaned and scraped as smooth as possible.
Existing Adhered Single-Ply Roofs	✓	Existing adhered EPDM or TPO roof systems must be thoroughly cleaned prior to application of adhesive
SBS Base Sheets	✓	

Table 3: Acceptable Substrates for UltraPly TPO XR Installed with XR Stick or ISO Spray R Adhesive (Cont'd)

Insulations[2]		
ISOGARD / ISO 95+ G/L or ISOGARD CG / RESISTA	✓	
Wood Fiberboard	✓	
Cementitious Wood Fiber	✓	
ISOGARD HD	✓	
DensDeck Products	✓	DensDeck Prime, DensDeck StormX Prime
SECUROCK Products	✓	SECUROCK Gypsum-Fiber, Cement Board and UltraLight Coated Glass-Mat, Weather Defense Roof Board
DEXcell Products	✓	DEXcell FA Glass Mat, Cement Board and FA VSH Glass Mat
Expanded / Extruded Polystyrene	N/A	
Fiberglass	N/A	
Perlite	N/A	

NOTE:

1. Acceptable Lightweight concrete substrates include cellular or air-entrained concrete. Lightweight concrete substrates with aggregate (such as perlite or vermiculite) are not acceptable.
2. See specific product Technical Information Sheets for additional information.
3. Staining of membrane may occur if installed over asphalt products.

✓ = Acceptable; N/A = Not Acceptable

Cautions and Warnings When Working with XR Stick or ISO Spray R Adhesive

- Review the applicable SDS for complete safety information prior to use.
- The foam produced is an organic material. It must be considered as combustible and may constitute a fire hazard. The foam adhesive must not be left exposed or unprotected. Shield from heat and sparks.
- Do not smoke during application.
- Use with adequate ventilation. Avoid breathing vapors. Wear a NIOSH or MSHA approved respirator for organic vapors with pre-filters and solvent-resistant cartridges or supplied airline respirators while spraying. Proper safety training is essential for all persons involved in the installation process. If vapor is inhaled, move to fresh air, and administer oxygen if breathing is difficult. Consult a physician immediately.
- Avoid contact with eyes. Safety glasses or goggles are required.
- If ISO Spray R or XR STICK adhesive is splashed in eyes, immediately flush eyes with plenty of clean water for at least 15 minutes. Contact a physician immediately.
- Avoid contact with skin. Wear long sleeved shirt and long pants. Wash hands thoroughly after handling. In case of contact with skin, thoroughly wash affected area with soap and water or corn oil.

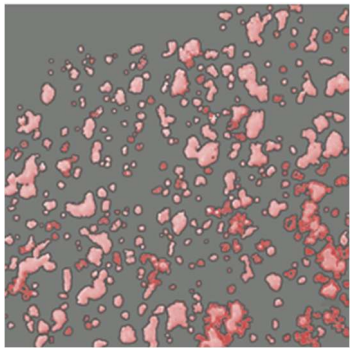
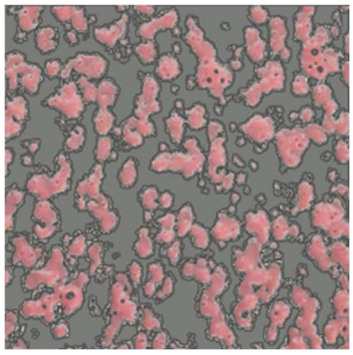
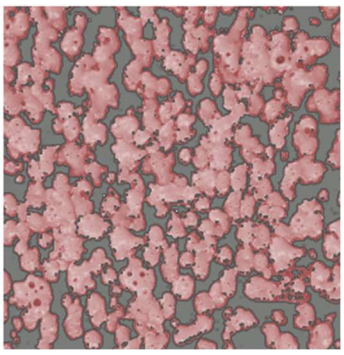
NOTE: Permeation resistant gloves that meet ANSI/ISEA 105-2005 are required when handling the material directly or during application.

- Job site storage temperatures in excess of 90 °F (32 °C) may affect product shelf life. Should the components be stored at temperatures lower than 70 °F (21 °C), restore to room temperature prior to use. Do not allow ISO Spray R or XR STICK to freeze - storage below 32 °F (0 °C).
- Use spray booths, windscreens, and/or lower spray pressure with spatter tips when spraying in windy conditions.
- Precautions must be taken to prevent ISO Spray R or XR STICK vapors or overspray from entering buildings during application. All air intake vents on roofs must be closed during the application of ISO Spray R or XR STICK.
- Use desiccant dryers on Part A drums to avoid formation of crystals from exposure to moisture in the air.
- ISO Spray R or XR STICK Adhesive does not adhere well to previously unexposed asphalt when applied in bead form.
- KEEP OUT OF THE REACH OF CHILDREN.

Adhere Membrane Using Elevate Twin Jet Adhesive

1. After allowing the pre-positioned Elevate UltraPly TPO XR Membrane to relax, back-roll the membrane panels to expose the substrate to receive Twin Jet adhesive. (Do not “butterfly” large areas of roof membrane during Twin Jet Adhesive application.) Take care not to move or otherwise disturb Elevate UltraPly TPO XR Membrane from its final intended position while back-rolling.
2. Dispense Twin Jet onto the substrate as follows:
   - Bead Application: Apply Twin Jet Adhesive on the substrate in ¾" - 1" (19- 25 mm) wide beads, spaced maximum 12" (305 mm) on center.
   - Spatter Application: Spatter Twin Jet at a rate of 60-70% coverage over the horizontal substrate and 75-85% when used at base tie-in locations. Expect to achieve approximately 2200 ft^2 to 2350 ft^2 (204 m^2 to 218 m^2) per cannister set.
3. Do not apply Twin Jet Adhesive directly to Elevate UltraPly TPO XR Membrane. Keep lap areas of TPO XR Membrane clean and free of Twin Jet Adhesive overspray. Remove any Twin Jet Adhesive from the seam area before mating the seam, or strip in the contaminated seam area.
4. Allow Twin Jet Adhesive to rise in height and reach open/mate condition. Mate the TPO XR membrane to the substrate before a skim coat develops on the adhesive (see product TIS for additional information).
5. Immediately after setting the membrane in the Twin Jet adhesive, broom the membrane to initiate adhesion, then roll thoroughly using a 75 lb to 150 lb (34 kg to 68 kg) roller. It is important that the freshly installed membrane and substrate remain in contact with the Twin Jet adhesive until the adhesive sets to ensure proper adhesion.

Twin Jet Spatter Application Examples

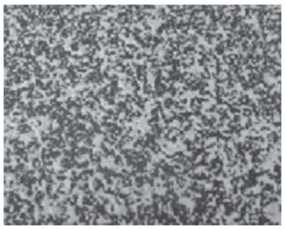
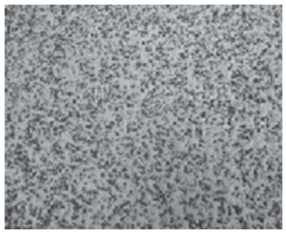
TOO LITTLE	60 – 70% COVERAGE	75 – 85% COVERAGE
		

Adhere Membrane Using Elevate Twin Jet Y Adhesive

1. After allowing the pre-positioned Elevate UltraPly TPO XR Membrane to relax, back-roll the membrane panels to expose the substrate to receive Twin Jet Y adhesive. (Do not “butterfly” large areas of roof membrane during Twin Jet Y Adhesive application.) Take care not to move or otherwise disturb Elevate UltraPly TPO XR Membrane from its final intended position while back-rolling.
2. Dispense Twin Jet Y onto the substrate as follows:
   - Bead Application: Apply Twin Jet Y Adhesive on the substrate in ¾" - 1" (19- 25 mm) wide beads, spaced maximum 12" (305 mm) on center. Twin Jet Y should be applied in serpentine pattern.
   - Spatter Application: Spatter Twin Jet Y at a rate of 60-70% coverage over the horizontal substrate and 75-85% when used at base tie-in locations. Expect to achieve approximately 3000 ft^2 (278.71 m^2) per cannister set.
3. Do not apply Twin Jet Y Adhesive directly to Elevate UltraPly TPO XR Membrane. Keep lap areas of TPO XR Membrane clean and free of Twin Jet Y Adhesive overspray. Remove any Twin Jet Y Adhesive from the seam area before mating the seam, or strip in the contaminated seam area.
4. Allow Twin Jet Y Adhesive to rise in height and reach open/mate condition. Mate the TPO XR membrane to the substrate before a skim coat develops on the adhesive (see product TIS for additional information).

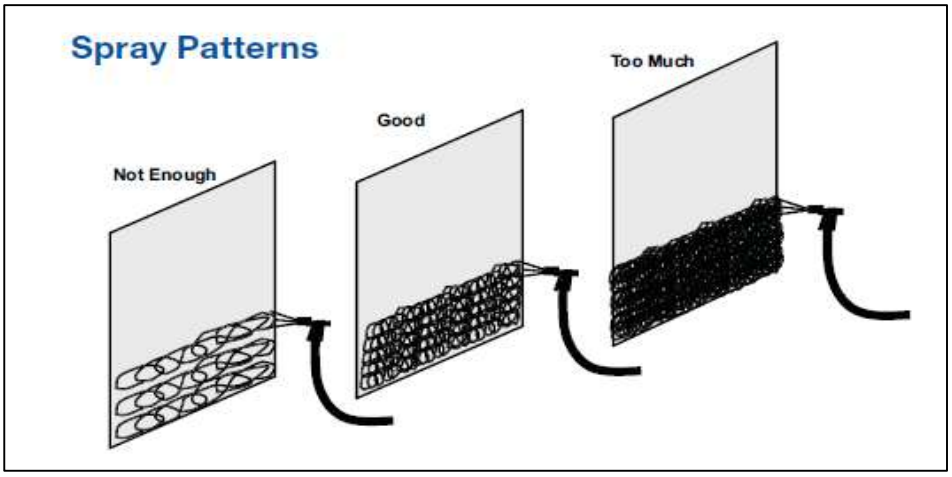
5. Immediately after setting the membrane in the Twin Jet Y adhesive, broom the membrane to initiate adhesion, then roll thoroughly using a 75 lb to 150 lb (34 kg to 68 kg) roller. It is important that the freshly installed membrane and substrate remain in contact with the Twin Jet Y adhesive until the adhesive sets to ensure proper adhesion.

Twin Jet Y Spatter Application Examples

APPLICATION EXAMPLE	TOO LITTLE	60 – 70% COVERAGE	75 – 85% COVERAGE
			

Adhere Membrane Using Elevate Jet Bond Spray Adhesive

1. Assembling Jet Bond Spray Applicator:
   a) Connect the hose to the gun and tighten fitting securely with wrench. Connect the other end of the hose to the cylinder outlet and tighten fitting securely with wrench. Use caution not to cross-thread the connections.
   b) Open the cylinder valve fully, checking all connections for leaks. Tighten if necessary.
   c) Once the valve has been opened, do not close the valve until the cylinder is completely empty or the hose and spray gun are to be removed and proper cleaning is performed.
   d) The spray tip may require periodic cleaning.
   e) Agitate Jet Bond canister for 30 seconds prior to use. Periodically shake the canister during application to maintain canister pressure and produce optimal fan spray pattern.
2. Dispensing Notes:
   a) Maintain the trigger fully open while applying adhesive. Do not spray in short bursts.
   b) Keeping the spray nozzle perpendicular to the substrate, picture-frame the spray area with adhesive and then go back and forth with an approximate 50% overlap to fill in the area.
   c) For all smooth and fleece backed membranes a two-sided application of Jet Bond is required. Reference the “Good” spray pattern below After allowing the pre-positioned Elevate UltraPly TPO XR Membrane to relax, back-roll the membrane panels to expose the substrate to receive Jet Bond Spray adhesive. (Do not “butterfly” large areas of roof membrane during Jet Bond Spray Adhesive application.) Take care not to move or otherwise disturb Elevate UltraPly TPO XR Membrane from its final intended position while back-rolling.



3. For TPO XR Fleece back membrane: spray with the trigger fully open, at a distance of 12" – 18" (305 mm – 457 mm), and at a rate of approximately 0.5 – 0.75 ft/sec (approximately 0.152 – 0.228 m/sec) to obtain the “Good” spray pattern. Apply Jet Bond Adhesive to the TPO XR membrane first to allow sufficient flash-off time.
4. Coverage rate is approximately 1000 ft^2 (93 m^2) per canister for smooth membranes, and approximately 750 ft^2 (69.7 m^2) per canister for TPO XR fleece backed membrane.
5. Keep membrane lap areas clean and free of Jet Bond Adhesive overspray and remove any adhesive from the seam area with Elevate Splice Wash or Elevate LVOC Adhesive Flush Solution before mating the seam.
6. Allow solvent to flash-off from Jet Bond Adhesive prior to mating the two surfaces. Perform “touch-push test” in areas of heavier application to verify the adhesive is tacky but does not transfer to finger.

7. Flash-off time is typically 6 – 8 minutes with a working time maximum of 30 minutes. These times will vary depending on ambient conditions.
8. Carefully mate the membrane to the substrate. Broom the membrane, then roll the membrane thoroughly using a 75 lb (34 kg) to 150 lb (68 kg) roller for horizontal surfaces and a silicone hand roller for vertical surfaces.

Membrane Seaming

Clean the Lap Splice Area

Wearing chemical resistant gloves and using a clean white cotton rag dampened with Elevate SW-100 (Splice Wash), thoroughly clean the salvage edge area of the top sheet and an area on bottom sheet at least 2¾" inches (69.8 mm) wide if the seam area has become contaminated with dirt, debris, moisture or other contaminates. If contaminated with asphalt, the finished seam must be stripped in with an 8" wide piece of UltraPly TPO membrane of the same or greater thickness. Membranes left exposed or unwrapped for more than 12 hours must be cleaned before any welding activity.

Equipment and Test Splice Requirements

- The speed of the welding machine shall be adjusted to provide proper seam strength based on ambient conditions.
- Ample power source shall be provided to heat welding equipment. A generator dedicated to the heat welding equipment shall be used on all installations. Refer to the welding and generator equipment requirements in the Technical Information section of this manual for minimum requirements. For specifics, consult the welder manufacturer's data sheets.
- When weather conditions vary, adjustments to the welding machine must be made. It is recommended that this be done using spare or test material before starting welding of the finished roofing material. In addition, there shall be destructive tests performed daily and at the beginning of welding and after interruptions in the welding process (such as power failure; welder shut down; job site condition change; after break or lunch). There should be periodic checks (including at the start of each workday welding will occur).

Welder Settings:

Standard Setup

The speed of the machine shall be adjusted to provide proper seam strength. Ample power source shall be provided to all heat welding equipment. A generator dedicated to the heat welding equipment shall be used on all installations. Refer to the welding and generator equipment requirements located in the Elevate UltraPly TPO Application Guide. When weather conditions vary, adjustments to the welding machine shall be made. Sample welds should be made by using spare material before welding the finished roofing material. In addition, destructive tests must be performed at the beginning of each workday and every time there is an interruption in the welding process (such as power failure; welder shut down; job site condition change; after break or lunch). It is recommended to perform periodic checks of the weld integrity throughout the day's installation.

Seam Guide

Adjust the wheel guide by placing unit on top of the membrane with the outer edge of the Drive/Pressure wheel in contact with the membrane edge.

Hot Air Weld Lap Splices: Horizontal field splices, these areas are to be welded first:

- Wherever possible, all field splices on the horizontal surface (including flashing) should be completed using an automatic heat welder that has been designed for hot air welding of thermoplastic membranes. Refer to the welding equipment requirements in the Technical Information Sheets for minimum requirements. For specifics, consult the welder manufacturer's data sheets.
- Seam width requirements: Seams made with the automatic welder shall be a minimum of 1½" (38.1 mm) wide. Seams made with hand welders shall be a minimum of 2" (50.8 mm) wide. Use silicone hand rollers to assure proper mating of 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.**
- Vertical field splices: On vertical surface welds, or where an automatic welder is not practical, hand welders shall be used.

End Splices

End lap splices are applied over field membrane sections where no selvedge edge is available, after the side lap splice is completed. Using Elevate TPO Cover Strip or a minimum 8" (203.2 mm) wide strip of standard (non-fleece) 60 mil TPO membrane, splice the butted end joint by welding the strip along its entire length. Seal any cut edges as shown in lap splice detail.

Seam Inspection

Probe all completed welds with a dull cotter pin puller type tool to verify seam integrity. Do not probe welds until they have cooled. Any welds found to be insufficiently fused need to be repaired daily.

T-Joint Patches

T-joint patches shall be installed at all intersections of field seams when membrane is greater than 0.045" (1.14 mm) Membrane to receive T-Patch cover shall have the edged eased by heating and rolling to minimize any step. Refer to Lap Splice and T-Joint Detail Section of Elevate's Technical Manual.

Cut Edge Sealant

All membrane lap edges with exposed scrim (cut edges) shall be sealed with Elevate UltraPly TPO Clear Cut Edge Sealant or UltraPly TPO General Purpose Sealant.

Additional Membrane Securement and Base Tie-In Flashing

Provide membrane securement: Secure the membrane at all locations where the membrane undergoes an angle change greater than 1"/12" (25.4 mm in 304.8 mm). This typically occurs at: roof edges; curbs; wall intersections; parapets, etc. Mechanically fasten with Elevate HD Seam Plates using Elevate Fasteners applied either horizontally into the deck or vertically into the wall in accordance with Elevate Base Tie-In Details. Refer to the Elevate System Design Guide or Elevate Technical Information Sheets to determine the applicable fastener and penetration requirements for specific substrate conditions.

Flashing - Penetrations

General

- Remove all loose existing flashing (i.e., lead flashings, bituminous materials, mastics, etc.).
- Flash all penetrations that pass through the UltraPly TPO XR membrane in accordance with Elevate standard TPO details as indicated in the Technical Information Manual.
- The flashing seal must be made directly to the penetration.
- Elevate Flashing foam may be used to fill voids around penetrations, wall/roof perimeters, and other gaps where fill may be needed.

Pipes, Round Supports, Structural Steel Tubing, etc.

- Flash pipes with Elevate UltraPly TPO Pre-molded Pipe Flashing where practical.
- Refer to the Elevate Technical Information Sheet for minimum and maximum pipe diameters that can be successfully flashed with Elevate UltraPly TPO Pre-Molded Pipe Flashings.
- Flash inside and outside corners with Elevate pre-molded products per Elevate details.
- Elevate UltraPly TPO Unsupported Flashing is only to be used at non 90 degree inside and outside corners, "T" joints, and field wrapped pipe boots and other special conditions where allowed by Elevate details.

Roof Drains (Cast Iron Only)

1. Remove all existing flashing (including lead flashing), roofing materials and cement from the existing drain in preparation for UltraPly TPO membrane and Elevate Water Block Seal.
2. Provide a clean even finish on the mating surfaces between the clamping ring and the drain bowl.
3. Install tapered insulation with acceptable bonding surfaces around the drain to provide a smooth transition from the roof surface to the drain. Slope into drain shall not exceed 1"/12" (25.4 mm in 304.8 mm).
4. A minimum 4' X 4' (1.2 m x 1.2 m) UltraPly TPO membrane sheet shall be centered over the drain area per detail TPMXR-D-01 because UltraPly TPO XR membrane cannot be sealed properly to roof drains use UltraPly TPO membrane at these locations.
   - When using Asphalt to apply UltraPly TPO XR, stop asphalt at end of XR membrane. Use appropriate adhesive in drain area per Elevate details.
   - 20-year warranty roof assemblies will require a second layer of standard UltraPly TPO membrane installed in the sump area. See 20-year detail PTPM-D-01.
5. Position the UltraPly TPO membrane, then cut a hole for the roof drain to allow a ½" (12.7 mm) minimum and ¾" (19.1 mm) maximum inside the clamping ring.
6. Using a punch, or other suitable device, make round holes (sized to receive clamping bolts) in the membrane to align with clamping bolts. Do not cut the membrane back to the bolt holes.
7. Install Elevate Water Block Seal on the clamping ring seat flange below the membrane. Use a minimum of one half of a 10-ounce (295 CC) tube for a 10" (254 mm) drain.
8. Install the roof drain clamping ring and clamping bolts. Tighten the clamping bolts to achieve constant compression of the Water-block Seal.
9. Contact Elevate Roofing Solutions Group for flashing of other drain types.

Pipe Clusters and Unusual Shaped Penetrations

1. Fabricate Elevate UltraPly TPO Coated metal penetration pockets to allow a minimum clearance of 1" (25.4 mm) between the penetrations and all sides.
2. Secure Elevate QuickSeam or weldable penetration pockets and flash per current Elevate details.
3. Fill penetration pockets with Elevate Pourable Sealer to shed water away from penetrations. Elevate Pourable Sealer shall be poured to a depth of 2" (51 mm) minimum.
4. Elevate UltraPly TPO unsupported flashing may also be used for some details.

"Hot" Pipes - greater than 140 °F (60 °C)

- Protect UltraPly TPO components from direct contact with steam or heat sources that exceed the in-service temperature of 140 °F (60 °C).
- Pipes and roof penetrations exceeding 140 °F (60 °C) shall be flashed to an intermediate, or separator, sleeve to protect UltraPly TPO components from these direct heat sources.

Flexible Penetrations

- Flexible roof penetrations shall be flashed by means of a watertight "gooseneck".
- Watertight "gooseneck" shall be set in Water Block Seal, secured to deck, and flashed in accordance with Elevate Details.

Scuppers

1. Remove any existing scuppers and install a new scupper sleeve fabricated from Elevate UltraPly TPO coated metal.
2. Secure new scupper to the structure.
3. Flash new scupper in accordance with Elevate Details.

Expansion Joints

- Install expansion joints in accordance with Elevate details where specified by project designer.
- Flash expansion joints in accordance with Elevate details.

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

General

- Using the largest piece(s) of continuous Elevate UltraPly TPO (non-fleece) membrane practical, flash all walls, parapets, curbs, etc., to the height specified by the project designer.
- Evaluate bonding substrate; add acceptable bonding substrate as required: The following substrates require the installation of ⅝" (15.9 mm) exterior grade or "Wolmanized" plywood anchored in accordance with project designer's requirements: Interior Gypsum board; Stucco; Cobblestone; Textured masonry, exterior gypsum panels, Corrugated metal panels; all other uneven or loose substrates.

Curb and Base Flashing with UltraPly TPO Membrane

1. Apply UltraPly Bonding Adhesive at about the same time to both the membrane flashing and the surface to receive the flashing at about the same time to allow approximately the same drying time.
2. Allow flash off period for bonding adhesive.
3. Test bonding adhesive for readiness. Touch the bonding adhesive surface with a clean, dry finger to be certain that the adhesive does not stick or string. As you are touching the adhesive, push straight down to check for stringing, and push forward on the adhesive at an angle to ensure that the adhesive is ready throughout its thickness. If either motion exposes wet or stringy adhesive when the finger is lifted, then the adhesive is not ready for mating. Flash off time will vary depending on ambient air conditions. This is especially true for water-based adhesives. Elevate Water-based Bonding Adhesive will change appearance from opaque to nearly transparent, indicating it is ready for mating. Coverage rate will differ with varying substrates and/or climatic conditions.
4. Roll membrane flashing up the vertical bonding adhesive coated substrate evenly and carefully taking care to avoid wrinkles.
5. Broom the membrane flashing after mating using a stiff push broom to insure proper contact and mating.
6. Complete the splice between the membrane base flashing and the main roof UltraPly TPO XR membrane by hot air welding. Complete lap splices in accordance with Elevate details.
7. Install termination of base flashing in accordance with Elevate Details.
8. The membrane can be adhered up to a maximum height of 72" (182.9 cm) without intermediate attachment as long as the following conditions are present:
    1. Wall surface is dry and smooth without noticeable high spots or depressions: such as plywood, poured or precast concrete, hollow core block or masonry walls where mortar joints are flush with masonry surface, **AND**
    2. The termination of membrane flashing is a Termination Bar or membrane flashing extending completely under coping to the outside wall to the outside face edge.
9. Intermittent termination IS REQUIRED:
    - When flashing heights exceed 72" (182.9 cm), intermediate attachment is required at half the distance between the base tie-in and the top of the flashing, OR

- When the wall surface does not meet the conditions stated above, intermittent termination is required at 36” o.c (91.44 cm), OR
- When the wall or substrate is non-structural (see detail TPM-T-26), intermittent termination is required at 36” o.c (91.44 cm), OR
- When used in roof systems with wind speed requirements greater than 72 mph, OR
- Otherwise required by specification.

10. If the field membrane is terminated at the base tie-in and a separate flashing membrane is utilized, intermediate attachment may be omitted if the substrate meets all conditions stated above (#8) AND it is pre-approved by a Regional Technical Coordinator and/or Regional Field Technical Representative. It is the responsibility of the installer to ensure full adhesion to the substrate.

Flashing – Gravel Stops or Roof Edge Metals

Elevate Prefabricated Coping, AnchorGard or EdgeGard

Install in accordance with Elevate details.

UltraPly TPO Coated Metal

- Install in accordance with Elevate details.
- When using UltraPly TPO Coated Metal perimeter UltraPly TPO XR sheet must be placed parallel to metal edge with salvage edge positioned to weld to the edge metal.
- Coated metal edge detail must provide enough room to permit “T” patch or strip-in of details with sufficient width wood nailer for support.

Elevate Edge Metal – Special Conditions and Flashed Using TPO QuickSeam Flashing

1. Install gravel stop metal as specified by project designer. Flange of gravel stop metal shall be flashed using TPO QuickSeam Flashing **(For a maximum 20-year warranty)**.
2. Apply Elevate TPO QuickPrime Plus to flange of gravel stop/edge metal with QuickScrubber or QuickScrubber Plus pad and handle with long back and forth strokes with heavy pressure on splicing area to receive the TPO QuickSeam Flashing. Stir the TPO QuickPrime Plus before and during use. Dip the Elevate QuickScrubber or QuickScrubber Plus pad into TPO QuickPrime Plus, keeping the pad flat. Change pads every 200' (61 m) or when pad no longer holds the proper amount of TPO QuickPrime Plus.
3. Allow a brief flash-off time (usually less than 10 minutes) for the TPO QuickPrime Plus before applying TPO QuickSeam Flashing.
4. Install TPO QuickSeam Flashing centered over the flange edge of the gravel stop/edge metal using. Roll the TPO QuickSeam Flashing using a silicone coated rubber roller immediately after installation of TPO QuickSeam Flashing.

Membrane Repair

Repair Punctures/Cuts/Damage to UltraPly TPO XR Membrane

- The repair material shall be heat welded UltraPly TPO 96 or 120 membrane and extend 2" (50.8 mm) minimum past the damaged area in all directions. Round all corners of the repair piece. Example: A pinhole will require a minimum 4" x 4" (101.6 mm x 101.6 mm) patch.
- Clean the membrane prior to completing repair. When making a repair to UltraPly TPO XR membrane that has been in service for some time, it is necessary to remove accumulated field dirt. Scrub the membrane with a scrub brush and warm soapy water, followed by rinsing with clear water and wipe with clean cotton rags. For membranes with significant accumulation of dirt, cleaning with an approved cleaner and clean cotton cloths may be required. Elevate SW-100 Splice Wash may then be used.
- Splice new membrane to existing using approved splicing procedures.

Temporary Closure (Not Warranted by Elevate)

- Temporary closures to ensure that moisture does not damage any completed section of the new roofing system are the responsibility of the roofing contractor.
- Completion of flashings, terminations, and temporary closures should be completed as required to provide a watertight condition.
- Any material contaminated by temporary closure shall be removed and discarded before resumption of installation.

Roof Walkways

- Install walkways in locations as specified by the project designer in accordance with Elevate requirements.
- Walkways shall consist of 30" (762 mm) wide Elevate UltraPly TPO Walkway or Elevate X-Tred™ Walkway Pad.
- Heat weld the edges of the walkway material to the UltraPly TPO XR membrane using approved welding procedures. See the UltraPly TPO Application Guide for additional information.

Sheet Metal Work

- For specific installation instructions for the Elevate prefabricated metal edge treatments: Elevate Coping, AnchorGard, EdgeGard or UltraPly TPO Coated Metal or System, refer to the respective Technical Information Sheet.
- For all other sheet metal work not supplied by Elevate, refer to fabrication and installation requirements established by the project designer.

Clean Up

General

If required by the specifier to ensure the aesthetics of the Elevate UltraPly 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. Elevate SW-100 Splice Wash can be used sparingly to clean small areas of membrane.

Cleaning Procedure for In-Service Thermoplastic Membrane

1. Ensure that the existing area to which new thermoplastic membrane is to be mated is clean, smooth, and free of all contaminants.
2. Thoroughly clean this area with detergent and water. It is recommended that a water-soluble granular cleaner be used such as T-M-T brand, which is manufactured by the U.S. Borax Company. Liquid cleaners tend to leave a film residue that can interfere with heat-weld quality. The cleaner must be completely rinsed/removed from areas where welding may occur and allowed to completely dry before any welding is performed.
3. 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 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 denatured alcohol 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 DENATURED ALCOHOL 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.

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