

Product Evaluation

RC208 | 0923

Engineering Services Program

The following product has been evaluated for compliance with the wind loads specified in the International Residential Code (IRC) and the International Building Code (IBC).

This product evaluation is not an endorsement of this product or a recommendation that this product be used. The Texas Department of Insurance has not authorized the use of any information contained in the product evaluation for advertising, or other commercial or promotional purpose.

This product evaluation is intended for use by those individuals who are following the design wind load criteria in Chapter 3 of the IRC and Section 1609 of the IBC. The design loads determined for the building or structure shall not exceed the design load rating specified for the products shown in the limitations section of this product evaluation. This product evaluation does not relieve a Texas licensed engineer of his responsibilities as outlined in the Texas Insurance Code, the Texas Administrative Code, and the Texas Engineering Practice Act.

For more information, contact TDI Engineering Services Program at (800) 248-6032.

Evaluation ID: RC-208

Effective Date: September 1, 2023

Re-evaluation Date: September 2027

Product name: Elevate UltraPly TPO and GenFlex EZ TPO Roofing Systems Installed over Wood Roof Decks

Manufacturer: Holcim Solutions and Products US, LLC
26 Century Blvd
Suite 205
Nashville, TN 37214
(800) 428-4511

General Description:

Elevate Product Description:

- **UltraPly TPO** roof membranes are nominal 0.045" to 0.080" thick flexible TPO (thermoplastic olefin) sheets
- **UltraPly TPO XR 100** roof membranes are nominal 0.045" thick flexible TPO (thermoplastic olefin) sheets
- **UltraPly TPO XR 115** roof membranes are nominal 0.060" thick flexible TPO (thermoplastic olefin) sheets
- **UltraPly TPO XR 135** roof membranes are nominal 0.080" thick flexible TPO (thermoplastic olefin) sheets
- **UltraPly TPO SA** roof membranes are nominal 0.045" to 0.060" thick heat weldable flexible TPO (thermoplastic olefin) sheets
- **MB Base** is a fiberglass reinforced, asphalt-coated base sheet

- **SBS Base-P** is a fiberglass reinforced, SBS modified bitumen membrane with a sanded bottom and sanded top surface.
- **SBS Base** is a fiberglass reinforced, SBS modified bitumen membrane with a sanded bottom and sanded top surface
- **SBS PolyBase** is a polyester reinforced, SBS modified bitumen membrane with a sanded bottom and sanded top surface
- **V-Force** is a vapor barrier, self-adhered membrane
- **UltraPly Bonding Adhesive** is a solvent based contact adhesive
- **Water Based Bonding Adhesive-P** is a contact adhesive used for bonding Elevate UltraPly TPO membranes to acceptable substrates
- **Single-Ply LVOC Bonding Adhesive** is a solvent-based formulation used for bonding Elevate UltraPly TPO membranes to acceptable substrates
- **Single-Ply LVOC Bonding Adhesive 1168** is a bonding adhesive used for bonding Elevate UltraPly TPO membranes to acceptable substrates
- **XR Bonding Adhesive** is a solvent based contact adhesive
- **XR Stick Membrane Adhesive** is a two-component, low-rise polyurethane adhesive
- **I.S.O. FIX II** is a single component, moisture cured, polyurethane adhesive
- **I.S.O. Stick** is a two-component, low-rise polyurethane insulation adhesive
- **I.S.O. Twin Pack Insulation Adhesive** is a two-component, low-rise polyurethane adhesive
- **I.S.O. Spray R** is a two-component, low-rise polyurethane adhesive
- **SA-Solvent Based (SB) Primer** is a solvent based primer to prepare porous substrates to receive V-Force Vapor Barrier Membrane
- **SA-Water Based (WB) Primer** is a polymer emulsion-based primer used in various substrates to enhance the adhesion of V-Force Vapor Barrier Membrane
- **Elevate All-Purpose Fastener** is a roofing fastener for wood and steel decks
- **Elevate All-Purpose S Fastener** is a roofing fastener for wood and steel decks
- **Elevate Heavy Duty** is a #15 Fastener for steel, wood, or concrete decks
- **Elevate Heavy Duty Plus** is a #21 Fastener for wood, steel, or concrete decks
- **Elevate HD Seam Plate** is an AZ55 or AZ50 galvalume insulation plate
- **Elevate HD Plus Seam Plate** is an AZ55 or AZ50 galvalume TPO membrane plate
- **Elevate Insulation Fastening Plate** is a 3" diameter, 0.017 to 0.023" thick galvalume stress plate for base sheet and insulation attachment
- **UltraPly TPO InvisiWeld Plate** is a primer coated plate for use with heat welded TPO membranes
- **UltraPly TPO InvisiWeld-S Plate** is a primer coated plate for use with heat welded TPO membranes
- **Pre-Assembled Fastener and Plate** is a #12 steel fastener with an AZ-50 galvalume steel plate used in all Elevate roof systems to pre-attach insulation or base sheets to steel and wood decks
- **Pre-Assembled Heavy-Duty Fastener and Insulation Plate** is a #15 steel fastener with an AZ-50 galvalume steel plate used in all Elevate roof systems to pre-attach insulation or base sheets to steel and wood decks.

Elevate Product Description (Continued):

- **Concrete Drive Fastener** is a steel fastener used for attachment into structural concrete substrates
- **Elevate Polymer Batten Strip** is used for anchoring Elevate membranes and flashing details
- **UltraPly QuickSeam R.M.A. Strip** is a 10" wide UltraPly TPO membrane with two 3" wide strips of tape factory laminated to it along its length
- **AP AccuTrac Kits** are used in roofing applications for the attachment of insulation to steel and wood roof decks with OMG AccuTrac installation equipment
- **Two Piece Impact Nail** is a two-piece factory assembled fastener
- **LWC Base-Ply Fastener** is a base ply fastening system for lightweight concrete decks
- **ISO 95+ GL** is a polyisocyanurate foam insulation
- **ISOGARD HD** is a high-density polyisocyanurate foam with a coated fiberglass facer
- **ISOGARD HD Composite** is a polyisocyanurate foam core laminated to a ½" ISOGARD HD board, with coated fiberglass facers
- **RESISTA** is a polyisocyanurate foam core laminated to a coated fiberglass facer

GenFlex Product Description:

- **EZ TPO** roof membranes are nominal 0.045" to 0.080" thick flexible TPO (thermoplastic olefin) sheets
- **GenFlex EZ Fleece Backed TPO (45-mil)** roof membrane nominal 0.045" thick flexible TPO (thermoplastic olefin) sheets
- **GenFlex EZ Fleece Backed TPO (60-mil)** roof membrane nominal 0.060" thick flexible TPO (thermoplastic olefin) sheets
- **GenFlex EZ Fleece Backed TPO (80-mil)** roof membrane nominal 0.080" thick flexible TPO (thermoplastic olefin) sheets
- **EZ TPO Peel and Stick HW** roof membranes are nominal 0.045" to 0.060" thick heat weldable flexible TPO (thermoplastic olefin) sheets
- **EZ TPO Bonding Adhesive** is a solvent-based contact adhesive
- **GenFlex Water Based Bonding Adhesive (P)** is a contact adhesive used for bonding GenFlex TPO membranes to acceptable substrates
- **EZ TPO Bonding Adhesive LVOC** is a solvent-based formulation used for bonding GenFlex TPO membranes to acceptable substrates
- **EZ TPO Bonding Adhesive LVOC 1168** is a bonding adhesive used for bonding GenFlex TPO membranes to acceptable substrates
- **GenFlex Fleece Backed Bonding Adhesive** is a solvent-based contact adhesive
- **GenFlex I.S.O. FIX II** is a single component, moisture cured, polyurethane adhesive
- **GenFlex One Step Insulation Adhesive** is a two-component, low-rise polyurethane adhesive
- **GenFlex ISO Bond Insulation Adhesive** is a two-component, low-rise polyurethane adhesive
- **EZ TPO InvisiWeld Plate** is a primer coated plate for use with heat welded TPO membranes
- **EZ TPO InvisiWeld Plate-S** is a primer coated plate for use with heat welded TPO membranes
- **GenFlex ISO Insulation** is a polyisocyanurate foam insulation
- **GenFlex HD ISO** is a high-density polyisocyanurate foam with a coated fiberglass facer

GenFlex Product Description (Continued):

- **GenFlex HD Composite ISO** is a polyisocyanurate foam core laminated to a 1/2" HD ISO board, with coated fiberglass facers
- **Coated Glass Facer** is a polyisocyanurate foam core laminated to a coated fiberglass facer

Coverboards:

- **DensDeck and DensDeck Prime** are a fiberglass faced, water-resistant gypsum core coverboard manufactured by Georgia-Pacific Gypsum, LLC
- **SECUROCK Glass Mat Roof Board** is a water-resistant gypsum core coverboard manufactured by US Gypsum Corporation.
- **SECUROCK Gypsum-Fiber Roof Board** is a water-resistant gypsum core coverboard manufactured by US Gypsum Corporation.

Limitations and Installation:

Roof Framing: The maximum allowable spacing of the roof framing must be as specified in this evaluation report.

Roof Deck: For new applications, the roof deck must be secured to the roof framing to resist the required uplift loads.

Positive Drainage of Roof Deck: Roof decks, in which this product is to be installed upon, must be provided with positive drainage. A minimum roof slope after construction of 1/4" per foot is recommended.

Design Wind Pressures: The design wind uplift pressures must be specified in the assemblies listed in this evaluation report.

Installation Over an Existing Roof Covering (Roof Recover):

Acceptable Applications: The TPO roofing system may be installed over an existing built-up roof covering or an existing TPO roof covering based on the requirements set forth in this product evaluation report.

- **Inspection of Roof Covering Recover Installation:** Inspection of the roof covering recover installation must be by a Texas Department of Insurance appointed engineer. The Texas Department of Insurance appointed engineer must determine if the roof framing can support the com

Roof Covering Replacement Versus Roof Covering Recover: All existing roof coverings must be completely removed, and a new roof covering installed if any of the following conditions occur:

- The existing roof or roof covering is water soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for the additional roof covering.
- The existing roof has two or more applications of any type of roof covering.

Positive Drainage: The roof covering recover application must not be required to meet the minimum roof slope of 1/4" per foot if positive drainage is provided.

Roof Framing: The maximum allowable spacing of the roof framing must be as specified in this evaluation report.

Roof Deck: The existing roof deck must be as specified in each assembly listed in this evaluation report. The underside of the roof deck must be examined by the Texas Department of Insurance appointed engineer for corrosion or deterioration. If corrosion exists, then it must be treated with a rust inhibitor. A fastener withdrawal resistance test must be conducted in the corroded or deteriorated area to determine if the withdrawal resistance of the fastener complies with the minimum fastener requirements for the roof covering recover application. If the tested fastener fails to comply, then the deteriorated roof deck must be replaced.

Fastener Withdrawal Resistance: The fastener withdrawal resistance must be conducted in accordance with ANSI/SPRI FX-1-2006 and this evaluation report. Fasteners used for the installation of the roof covering recover to the existing roof deck must be as specified in the Installation Instructions section of this evaluation report. For the withdrawal test, the fasteners must be installed in the existing roof deck as required for the roof covering recover installation. A Texas Department of Insurance appointed engineer must review the data to verify the integrity of the existing roof deck and to compare results of the withdrawal tests with the minimum fastener requirements for the roof covering recover application.

The Texas Department of Insurance appointed engineer must document all test results, including the locations on the roof surface where the tests are performed. A minimum of 10 withdrawal resistance tests are required for a roof area up to 50,000 square feet (a minimum of 50 percent of the tests must be conducted at the perimeter and the corners). Five additional tests are required for each additional 5,000 square feet of roof area or portion thereof (a minimum of 50 percent of the tests must be conducted at the perimeter and the corners). The tests must be located evenly spread across the surface of the roof. At least one withdrawal test must be performed on each roof level if the roof consists of multiple levels.

The withdrawal resistance of each tested fastener must comply with the minimum fastener requirements for the roof covering recover application. If a tested fastener fails to comply, then the Texas Department of Insurance appointed engineer must examine that area for deterioration of the roof deck by removing the existing roof covering in that area. If that area of the roof deck has deteriorated, then the deteriorated roof deck must be replaced.

Existing Roof Covering Preparation: The existing roof covering must be prepared to receive the roof covering recover as specified in the Elevate installation instructions.

- The existing roof covering surface must be dry and free of dirt and debris.
- If the existing roof covering is gravel surfaced, then the loose gravel must be completely removed. The surface of the existing roof covering must be relatively smooth.

- If the existing roof covering has blisters, buckles, ridges, folds, or other deformations, then they must be removed, and the surface patched to provide a smooth surface.
- If the existing roof covering has loose fasteners, then the existing membrane must be cut open, the loose fasteners removed, and the surface patched to provide a smooth surface.

Roof Covering Recover Installation: Installation of the roof covering recover must be specified in the Installation Instructions section of this evaluation report.

General installation Requirements:

All International Residential Code (IRC) and the International Building Code (IBC) requirements must be satisfied, and manufacturer's installation instructions followed, unless otherwise specified by this product evaluation.

Membrane Attachment: The membrane must be mechanically attached to the roof deck through the insulation board using the fasteners and plates specified in this evaluation report. The fasteners must be placed through the fastening tabs unless otherwise noted in this evaluation report. Also, the membrane must be fully adhered using the adhesives specified in this evaluation report. The following two lap types are used:

Standard Lap: The standard lap consists of a 2" wide lap for fully adhered systems, and a 6" wide lap for mechanically attached membranes. Both laps are to be sealed with a minimum 1.5" heat weld.

Fasteners: Fasteners must be of sufficient length to penetrate through the plywood or OSB deck.

Installation: Installation must be in accordance with the following assemblies:

Installation:

Name	Definition
System	A – Fully adhered systems B – Adhered base insulation, mechanically fastened top insulation, adhered membrane C – Mechanically fastened insulation, adhered membrane D – Mechanically fastened membrane E – Non-insulated, fastened membrane F – Non-insulated, adhered membrane
AP Fasteners & Plates	Elevate All-Purpose or All-Purpose S Fasteners and Insulation Fastening Plates
HD Fasteners & Plates	Elevate Heavy-Duty Fasteners and HD Seam Plates
HD Fasteners & Insulation Plates	Elevate Heavy-Duty Fasteners and Insulation Fastening Plates
HD Plus Fasteners & Plates	Elevate Heavy-Duty Plus Fasteners with Elevate HD Plus Seam Plates
CD Fasteners & Plates	Elevate Concrete Drive and Insulation Fastening Plates
CD Fasteners & Seam Plates	
Cover Board	One layer of any of the following products: -Georgia-Pacific DensDeck -Georgia-Pacific DensDeck Prime -Elevate ISOGARD HD -USG SECUROCK Glass-Mat Roof Board -USG SECUROCK Gypsum-Fiber Roof Board
Cover Board II	One layer of any of the following products: -Georgia-Pacific DensDeck -Georgia-Pacific DensDeck Prime -USG SECUROCK Glass-Mat Roof Board -USG SECUROCK Gypsum-Fiber Roof Board

Name	Definition			
Insulation	One of more layers in any combination of the following products: -ISO 95+ GL -ISOGARD HD -ISOGARD HD Composite -RESISTA			
Deck Detail	As Tested deck construction details are described as follows:			
	<table border="1"> <tr> <td data-bbox="428 435 659 475">Gypsum</td> <td data-bbox="659 435 1904 475">Poured gypsum; Minimum 2" thickness</td> </tr> </table>	Gypsum	Poured gypsum; Minimum 2" thickness	
	Gypsum	Poured gypsum; Minimum 2" thickness		
	<table border="1"> <tr> <td data-bbox="428 475 659 516">Concrete Deck</td> <td data-bbox="659 475 1904 516">Min. $f'_c = 2,500$ psi at 28 days</td> </tr> </table>	Concrete Deck	Min. $f'_c = 2,500$ psi at 28 days	
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	<table border="1"> <tr> <td data-bbox="428 516 659 557">CWF Deck</td> <td data-bbox="659 516 1904 557">Min. 2.5" thick Tectum I cementitious wood fiber panels</td> </tr> </table>	CWF Deck	Min. 2.5" thick Tectum I cementitious wood fiber panels	
	CWF Deck	Min. 2.5" thick Tectum I cementitious wood fiber panels		
	<table border="1"> <tr> <td data-bbox="428 557 659 613">Steel Deck</td> <td data-bbox="659 557 1904 613"> Min. 22 ga, Wide Rib Deck (Type WR) conforming to ANSI/SDI-RD1.0 & FBC; 0.5% Vented and ASTM A653 G90 for LWIC applications only. The following nomenclature is used to further describe the As Tested condition. </td> </tr> </table>	Steel Deck	Min. 22 ga, Wide Rib Deck (Type WR) conforming to ANSI/SDI-RD1.0 & FBC; 0.5% Vented and ASTM A653 G90 for LWIC applications only. The following nomenclature is used to further describe the As Tested condition.	
	Steel Deck	Min. 22 ga, Wide Rib Deck (Type WR) conforming to ANSI/SDI-RD1.0 & FBC; 0.5% Vented and ASTM A653 G90 for LWIC applications only. The following nomenclature is used to further describe the As Tested condition.		
	<table border="1"> <tr> <td data-bbox="428 613 659 686">F<#></td> <td data-bbox="659 613 1904 686"><#> #12-24 HWH self-drilling screws or equivalent fastener at each flute used to secure the deck to the structural supports; Min. 0.25" penetration</td> </tr> </table>	F<#>	<#> #12-24 HWH self-drilling screws or equivalent fastener at each flute used to secure the deck to the structural supports; Min. 0.25" penetration	
	F<#>	<#> #12-24 HWH self-drilling screws or equivalent fastener at each flute used to secure the deck to the structural supports; Min. 0.25" penetration		
	<table border="1"> <tr> <td data-bbox="428 686 659 727">G<#></td> <td data-bbox="659 686 1904 727">Min. Grade <#> of Steel Deck</td> </tr> </table>	G<#>	Min. Grade <#> of Steel Deck	
	G<#>	Min. Grade <#> of Steel Deck		
	<table border="1"> <tr> <td data-bbox="428 727 659 800">HS<#></td> <td data-bbox="659 727 1904 800">Hilti S-SLC 01 M HWH screws or equivalent fastener secured <#>-inch o.c. along the panel side laps</td> </tr> </table>	HS<#>	Hilti S-SLC 01 M HWH screws or equivalent fastener secured <#>-inch o.c. along the panel side laps	
	HS<#>	Hilti S-SLC 01 M HWH screws or equivalent fastener secured <#>-inch o.c. along the panel side laps		
	<table border="1"> <tr> <td data-bbox="428 800 659 873">HXE<#></td> <td data-bbox="659 800 1904 873"><#> Hilti X-ENP 19 L 15 powder-driven fasteners or equivalent at each flute used to secure the deck to the structural supports; Min. 0.25" penetration</td> </tr> </table>	HXE<#>	<#> Hilti X-ENP 19 L 15 powder-driven fasteners or equivalent at each flute used to secure the deck to the structural supports; Min. 0.25" penetration	
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<table border="1"> <tr> <td data-bbox="428 873 659 946">HXH<#></td> <td data-bbox="659 873 1904 946"><#> Hilti X-HSN 24 powder-driven fasteners or equivalent at each flute used to secure the deck to the structural supports; Min. 0.25" penetration</td> </tr> </table>	HXH<#>	<#> Hilti X-HSN 24 powder-driven fasteners or equivalent at each flute used to secure the deck to the structural supports; Min. 0.25" penetration		
HXH<#>	<#> Hilti X-HSN 24 powder-driven fasteners or equivalent at each flute used to secure the deck to the structural supports; Min. 0.25" penetration			
<table border="1"> <tr> <td data-bbox="428 946 659 987">L<#></td> <td data-bbox="659 946 1904 987">Max. span of <#> ft.</td> </tr> </table>	L<#>	Max. span of <#> ft.		
L<#>	Max. span of <#> ft.			
<table border="1"> <tr> <td data-bbox="428 987 659 1027">P</td> <td data-bbox="659 987 1904 1027">Min. 5/8-inch diameter puddle welds at each flute used to secure the deck to the structural supports</td> </tr> </table>	P	Min. 5/8-inch diameter puddle welds at each flute used to secure the deck to the structural supports		
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<table border="1"> <tr> <td data-bbox="428 1027 659 1101">PW</td> <td data-bbox="659 1027 1904 1101">Min. 5/8" diameter puddle welds with weld washers at each flute used to secure the deck to the structural supports</td> </tr> </table>	PW	Min. 5/8" diameter puddle welds with weld washers at each flute used to secure the deck to the structural supports		
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<table border="1"> <tr> <td data-bbox="428 1101 659 1174">S<#></td> <td data-bbox="659 1101 1904 1174">1/4"- 14 HWH x 7/8" self-drilling screws or equivalent fastener secured <#>-inch o.c. along the panel side laps</td> </tr> </table>	S<#>	1/4"- 14 HWH x 7/8" self-drilling screws or equivalent fastener secured <#>-inch o.c. along the panel side laps		
S<#>	1/4"- 14 HWH x 7/8" self-drilling screws or equivalent fastener secured <#>-inch o.c. along the panel side laps			
<table border="1"> <tr> <td data-bbox="428 1174 659 1214">W</td> <td data-bbox="659 1174 1904 1214">0.75" O.D. flat washer used with indicated fastener</td> </tr> </table>	W	0.75" O.D. flat washer used with indicated fastener		
W	0.75" O.D. flat washer used with indicated fastener			
<table border="1"> <tr> <td data-bbox="428 1214 659 1255">Wood Deck</td> <td data-bbox="659 1214 1904 1255"> APA Span-Rated sheathing. The following nomenclature is used to further describe the As Tested condition. </td> </tr> </table>	Wood Deck	APA Span-Rated sheathing. The following nomenclature is used to further describe the As Tested condition.		
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<table border="1"> <tr> <td data-bbox="428 1255 659 1295">T<#>P</td> <td data-bbox="659 1255 1904 1295">Min. <#>-inch thickness of the plywood</td> </tr> </table>	T<#>P	Min. <#>-inch thickness of the plywood		
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<table border="1"> <tr> <td data-bbox="428 1295 659 1336">T<#>O</td> <td data-bbox="659 1295 1904 1336">Min. <#>-inch thickness of the OSB</td> </tr> </table>	T<#>O	Min. <#>-inch thickness of the OSB		
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<table border="1"> <tr> <td data-bbox="428 1336 659 1377">L<#></td> <td data-bbox="659 1336 1904 1377">Max. span of <#> inches</td> </tr> </table>	L<#>	Max. span of <#> inches		
L<#>	Max. span of <#> inches			
<table border="1"> <tr> <td data-bbox="428 1377 659 1416">N<#1>/<#2></td> <td data-bbox="659 1377 1904 1416">Min. 0.113" diameter x 2-3/8" ring shank nails spaced <#1>-inch o.c. at all intermediate supports and spaced <#2> at the perimeter of each board</td> </tr> </table>	N<#1>/<#2>	Min. 0.113" diameter x 2-3/8" ring shank nails spaced <#1>-inch o.c. at all intermediate supports and spaced <#2> at the perimeter of each board		
N<#1>/<#2>	Min. 0.113" diameter x 2-3/8" ring shank nails spaced <#1>-inch o.c. at all intermediate supports and spaced <#2> at the perimeter of each board			

Name	Definition
DensDeck	Min. 0.25" Georgia-Pacific DensDeck
DensDeck Prime	Min. 0.25" Georgia-Pacific DensDeck Prime
Insulation Adhesive	I.S.O. Twin Pack Insulation Adhesive, I.S.O. Stick Insulation Adhesive, or I.S.O. Fix II Adhesive
Insulation Adhesive II	I.S.O. Twin Pack Insulation Adhesive, I.S.O. Stick Insulation Adhesive, I.S.O. Fix II Adhesive, or Elevate I.S.O. Spray R
LWIC	Poured-in-place Cellular Lightweight Concrete with encapsulated insulation board
MCRF	Minimum Characteristic Resistance Force as determined by TAS 105 for the named fastener in the selected assembly
MDP	Maximum Design Pressure
Preliminarily Secured	Fastened at minimum rate of 5 per 4 ft x 8 ft board or 4 per 4 ft x 4 ft board.
SECUROCK	Min. 0.25" USG SECUROCK Gypsum-Fiber Roof Board
V-Force	One ply of Elevate V-Force Vapor Barrier Membrane. Non-metal substrates must be primed with Elevate SA Solvent-Based (SB) Primer, SA LVOC Primer or SA Water-Based (WB) Primer
XR Stick Membrane Adhesive	Adhered 12" o.c. in 3/4"-1" wide ribbons unless otherwise stated
I.S.O. Stick, I.S.O. Fix II, or I.S.O. Spray R	Adhered 12" o.c. in 3/4"-1" wide ribbons unless otherwise stated
I.S.O. Twin Pack Insulation Adhesive	Adhered 12" o.c. in 1/2" – 3/4" wide ribbons unless otherwise stated
Membrane Adhesive	Water Based Bonding Adhesive P adhered at a rate of 100-120 ft ² /gal., or UltraPly Bonding Adhesive, Single-Ply LVOC Bonding Adhesive or Single-Ply LVOC Bonding Adhesive 1168 Adhered at a rate of 45-60 ft ² /gal. unless otherwise stated
XR Membrane Adhesive	XR Stick Membrane Adhesive or I.S.O. Spray R
XR Membrane Adhesive II	XR Stick Membrane Adhesive, XR Bonding Adhesive, or I.S.O. Spray R, Hot asphalt, or PermaMop
InvisiWeld	Elevate UltraPly InvisiWeld Plates or InvisiWeld S Plates with Heavy Duty Fasteners or Concrete Drive fasteners (concrete decks only)
InvisiWeld S	Elevate UltraPly InvisiWeld S Plates with SFS Intec Dekfast #15 HS, Elevate Heavy Duty Fasteners or Elevate Concrete Drive fasteners (concrete decks only)
ISO	One or more layers of GenFlex ISO Insulation or Elevate ISO 95+ GL
ISO HD	One or more layers of GenFlex HD ISO or Elevate ISOGARD HD
ISO HD-C	One or more layers of GenFlex HD Composite ISO or Elevate ISOGARD HD Composite
PermaMop	Owens Corning PermaMop Asphalt
HA	ASTM D 312, Type IV asphalt

Name	Definition
UltraPly TPO	One ply of any one of the following products: 45-mil thick, 60-mil thick, or 80-mil thick UltraPly TPO
UltraPly TPO SA	One ply of any one of the following products: 45-mil thick or 60-mil thick UltraPly TPO SA
UltraPly TPO XR	One ply of any one of the following products: UltraPly TPO XR 100, UltraPly TPO XR 115 or UltraPly XR 135

Insulation Note: GenFlex ISO Insulation is equivalent to ISO 95+ GL, GenFlex HD ISO is equivalent to ISOGARD HD, GenFlex HD ISO Composite is equivalent to ISOGARD HD Composite, and Coated Glass Facer is equivalent to RESISTA

Membrane Note: GenFlex EZ TPO is equivalent to UltraPly TPO, UltraPly TPO XR 100 is equivalent to GenFlex EZ Fleece Backed TPO (45-mil), UltraPly TPO XR 115 is equivalent to GenFlex EZ Fleece Backed TPO (60-mil), and UltraPly TPO SA is equivalent to EZ TPO Peel and Stick HW, UltraPly TPO XR 135 is equivalent to GenFlex EZ Fleece Backed TPO (80-mil)

Table	System	Deck	Description
Table 1	W-A1 to W-A8	Wood	WOOD DECK, BONDED INSULATION, BONDED ROOF COVER
Table 2	W-C5 to W-C31	Wood	WOOD DECK, LOOSE-LAID BASE INSULATION, MECHANICALLY ATTACHED TOP INSULATION, BONDED ROOF COVER
Table 3	W-D5 to W-D13	Wood	WOOD DECK, PRELIMINARILY SECURED INSULATION, MECHANICALLY ATTACHED ROOF COVER
Table 4	W-E5 to W-E11	Wood	WOOD DECK, NON-INSULATED, MECHANICALLY ATTACHED ROOF COVER

Limitations and Installation:

TABLE 1: ELEVATE ULTRAPLY TPO AND GENFLEX EZ TPO – NEW CONSTRUCTION or REROOF (Tear-Off)								
WOOD DECK, BONDED INSULATION, BONDED ROOF COVER								
Assembly No.	Deck	Base Insulation Layer (s)		Top Insulation Layer (s)		Roof Cover		Design Pressure (psf)
		Type	Attach	Type	Attach	Membrane	Attach	
W-A1	Wood (T15/32P)	(Optional) DensDeck Prime	I.S.O. Stick or I.S.O. Spray R	Min. 1" RESISTA or ISO	I.S.O. Stick or I.S.O. Spray R	UltraPly TPO	Membrane Adhesive	-45.0
						UltraPly TPO XR	XR Membrane Adhesive	
						UltraPly TPO SA	Self-adhered	
W-A2	Wood (T7/16O or T15/32P, L24)	None	None	Cover Board	I.S.O. Twin Pack Insulation Adhesive, I.S.O. Stick (not with ISO HD) or I.S.O. Spray R	UltraPly TPO	Membrane Adhesive	-45.0
						UltraPly TPO XR	XR Membrane Adhesive	
						UltraPly TPO SA	Self-adhered	
W-A3	CWF	Min. 1" ISO or RESISTA	I.S.O. Twin Pack Insulation Adhesive or I.S.O. Spray R	None	None	UltraPly TPO	Membrane Adhesive	-75.0
						UltraPly TPO XR	XR Membrane Adhesive	
						UltraPly TPO SA	Self-adhered	
W-A4	Wood (T7/16O, L24, N6/6)	None	None	DensDeck Prime	I.S.O. Spray R	UltraPly TPO	Membrane Adhesive	-75.0
						UltraPly TPO XR	XR Membrane Adhesive II	
						UltraPly TPO SA	Self-adhered	

Limitations and Installation:

TABLE 1: ELEVATE ULTRAPLY TPO AND GENFLEX EZ TPO – NEW CONSTRUCTION or REROOF (Tear-Off)								
WOOD DECK, BONDED INSULATION, BONDED ROOF COVER								
Assembly No.	Deck	Base Insulation Layer (s)		Top Insulation Layer (s)		Roof Cover		Design Pressure (psf)
		Type	Attach	Type	Attach	Membrane	Attach	
W-A5	Wood (T7/160, L24, N6/6)	None	None	SECUROCK	I.S.O. Spray R	UltraPly TPO	Membrane Adhesive	-90.0
						UltraPly TPO XR	XR Stick Membrane Adhesive, hot asphalt, XR Bonding Adhesive, PermaMop, or I.S.O. Spray R	
						UltraPly TPO SA	Self-adhered	
W-A6	CWF	Min. 0.5" ISO or RESISTA	I.S.O. Twin Pack Insulation Adhesive or I.S.O. Spray R	Min. 0.5" ISO or RESISTA	I.S.O. Twin Pack Insulation Adhesive or I.S.O. Spray R	UltraPly TPO	Membrane Adhesive	-92.5
						UltraPly TPO XR	XR Membrane Adhesive	
						UltraPly TPO SA	Self-adhered	
W-A7	CWF	Min. 0.5" ISO or RESISTA	Insulation Adhesive II (6" o.c.)	None	None	UltraPly TPO	Membrane Adhesive	-142.5
						UltraPly TPO XR	XR Stick Membrane Adhesive (6" o.c.) or I.S.O. Spray R	
						UltraPly TPO SA	Self-adhered	
W-A8	CWF	Min. 0.5" ISO or RESISTA	Insulation Adhesive (6" o.c.)	Cover Board II	I.S.O. Fix II, I.S.O. Spray R, I.S.O. Stick	UltraPly TPO	Membrane Adhesive	-160.0
						UltraPly TPO XR	XR Stick Membrane Adhesive (6" o.c.), HA, XR Bonding Adhesive, PermaMop, or I.S.O. Spray R	
						UltraPly TPO SA	Self-adhered	

Limitations and Installation:

TABLE 2: ELEVATE ULTRAPLY TPO AND GENFLEX EZ TPO - NEW CONSTRUCTION or REROOF (Tear-Off) WOOD DECK, LOOSE-LAID BASE INSULATION, MECHANICALLY ATTACHED TOP INSULATION, BONDED ROOF COVER							
Assembly No.	Substrate	Base Insulation Layer (s)	Top Insulation Layer (s)		Roof Cover		Design Pressure (psf)
			Type	Attach	Type	Attach	
W-C5	Wood (T19/32P, L24)	(Optional) Min. 0.5" ISO or RESISTA	Min. 2" RESISTA	AP Fasteners & Plates; Fastener Density: 1:4 ft ²	UltraPly TPO SA	Self-adhered	-42.5
					UltraPly TPO	Membrane Adhesive	
					UltraPly TPO XR	XR Membrane Adhesive	
W-C6	Wood (T15/32, L24, N6)	(Optional) Min. 0.5" ISO or RESISTA	Min. 1.0" RESISTA, 1.5" ISO HD-C, 1.5" ISO, 0.5" DensDeck Prime, or 0.5" SECUROCK	AP Fasteners & Plates; Fastener Density: 1:1.6 ft ²	UltraPly TPO	Membrane Adhesive	-45.0
					UltraPly TPO XR	XR Stick Membrane Adhesive	
					UltraPly TPO SA	Self-adhered	
W-C8	Min. 15/32" CDX plywood	None	DensDeck or min. 0.5" SECUROCK	HD Fasteners & Insulation Plates; Fastener Density: 1:1.33 ft ²	UltraPly TPO	Membrane Adhesive	-45.0
					UltraPly TPO XR	XR Stick Membrane Adhesive	
					UltraPly TPO SA	Self-adhered	
W-C9	Wood (T19/32, L24)	(Optional) Min. 0.5" ISO or RESISTA	Cover Board II	AP Fasteners & Plates; Fastener Density: 1:2.13 ft ²	UltraPly TPO SA	Self-adhered	-45.0
					UltraPly TPO	Membrane Adhesive	
					UltraPly TPO XR	XR Stick Membrane Adhesive or HA;	
W-C10	Wood (T7/16O or T19/32P, L24)	(Optional) Min. 1" ISO or RESISTA	Cover Board II	AP Fasteners & Plates; Fastener Density: 1:2.67 ft ² (OSB deck only) or 1:2.13 ft ²	UltraPly TPO SA	Self-adhered	-45.0
					UltraPly TPO	Membrane Adhesive	
					UltraPly TPO XR	XR Membrane Adhesive II	
W-C11	Wood (T15/32P, L24, N6/6)	(Optional) Min. 0.5" ISO or RESISTA	Cover Board II	AP Fasteners & Plates; Fastener Density: 1:1.78 ft ²	UltraPly TPO SA	Self-adhered	-45.0
					UltraPly TPO	Membrane Adhesive	
					UltraPly TPO XR	XR Membrane Adhesive II	

Limitations and Installation:

TABLE 2: ELEVATE ULTRAPLY TPO AND GENFLEX EZ TPO - NEW CONSTRUCTION or REROOF (Tear-Off) WOOD DECK, LOOSE-LAID BASE INSULATION, MECHANICALLY ATTACHED TOP INSULATION, BONDED ROOF COVER							
Assembly No.	Substrate	Base Insulation Layer (s)	Top Insulation Layer (s)		Roof Cover		Design Pressure (psf)
			Type	Attach	Type	Attach	
W-C12	Wood (T15/32P, L24, N12/6)	(Optional) Min. 1" ISO or RESISTA	SECUROCK	AP Fasteners & Plates; Fastener Density: 1:1.6 ft ²	UltraPly TPO SA	Self-adhered	-45.0
					UltraPly TPO	Membrane Adhesive	
					UltraPly TPO XR	XR Membrane Adhesive II	
W-C13	Wood (T19/32P, L24)	None	Min. 2" RESISTA, Min. 0.5" SECUROCK, or Min. 1.5" ISO HD-C	AP Fasteners & Plates; Fastener Density: 1:4 ft ²	UltraPly TPO SA (Min. 60-mil)	Self-adhered	-45.0
					UltraPly TPO XR 115 or 135	XR Stick Membrane Adhesive	
					UltraPly TPO (Min. 60-mil)	Membrane Adhesive	
W-C14	Wood (T15/32P, L24, N6/6)	None	Min. 1.5" ISO HD-C	AP Fasteners & Plates; Fastener Density: 1:2.67 ft ²	UltraPly TPO SA	Self-adhered	-45.0
					UltraPly TPO	Membrane Adhesive	
					UltraPly TPO XR	XR Stick Membrane Adhesive	
W-C15	Wood (T15/32P)	None	Min. 0.5" SECUROCK	AP Fasteners & Plates; Fastener Density: 1:4 ft ²	UltraPly TPO	Membrane Adhesive	-45.0
					UltraPly TPO SA	Self-adhered	
					UltraPly TPO XR	XR Membrane Adhesive II	
W-C16	Type B-C APA Rated plywood (T5/8, L24)	(Optional) Any UL Classified slip sheet or slip sheet for fire resistance considerations	(Optional) 0.5" ISO HD or Min. 0.5" ISO, RESISTA or ISO HD C	InvisiWeld; Fastened 6" o.c. in rows spaced 72" o.c.	UltraPly TPO	Induction welded to InvisiWeld plates	-45.0

Limitations and Installation:

TABLE 2: ELEVATE ULTRAPLY TPO AND GENFLEX EZ TPO - NEW CONSTRUCTION or REROOF (Tear-Off) WOOD DECK, LOOSE-LAID BASE INSULATION, MECHANICALLY ATTACHED TOP INSULATION, BONDED ROOF COVER							
Assembly No.	Substrate	Base Insulation Layer (s)	Top Insulation Layer (s)		Roof Cover		Design Pressure (psf)
			Type	Attach	Type	Attach	
W-C17	Wood (T19/32O, L24)	(Optional) Min. 1" ISO or RESISTA	Cover Board II	InvisiWeld; Fastener Density: 1:5.33 ft ²	UltraPly TPO	Induction welded to InvisiWeld plates	-45.0
W-C18	Wood (T7/16O, L24, N6/6)	(Optional) Min. 1" ISO or RESISTA	Cover Board II	AP Fasteners & Plates; Fastener Density: 1:1.6 ft ²	UltraPly TPO SA	Self-adhered	-45.0
					UltraPly TPO	Membrane Adhesive	
					UltraPly TPO XR	XR Membrane Adhesive II	
W-C19	Wood (T7/16O, L24, N6/6)	(Optional) Min. 1" ISO or RESISTA	Min. 0.5" DensDeck Prime or SECUROCK	AP Fasteners & Plates; Fastener Density: 1:1.78 ft ²	UltraPly TPO SA	Self-adhered	-45.0
					UltraPly TPO	Membrane Adhesive	
					UltraPly TPO XR	XR Membrane Adhesive II	
W-C20	Wood (T15/32P, L24)	(Optional) Min. 1" ISO or RESISTA	Min. 2" ISO or RESISTA	AP Fasteners & Plates; Fastener Density: 1:4 ft ²	UltraPly TPO SA	Self-adhered	-45.0
					UltraPly TPO	Membrane Adhesive	
					UltraPly TPO XR	XR Membrane Adhesive	
W-C21	Wood (T15/32P, L24)	(Optional) Min. 1" ISO or RESISTA	Min. 1.5" ISO or RESISTA	AP Fasteners & Plates; Fastener Density: 1:2.67 ft ²	UltraPly TPO SA	Self-adhered	-45.0
					UltraPly TPO	Membrane Adhesive	
					UltraPly TPO XR	XR Membrane Adhesive	
W-C22	Wood (T19/32P, L24)	(Optional) Min. 0.5" ISO or RESISTA	Min. 0.5" DensDeck Prime or SECUROCK	AP Fasteners & Plates; Fastener Density: 1:2.67 ft ²	UltraPly TPO SA (Min. 60-mil)	Self-adhered	-52.5
					UltraPly TPO XR 115 or 135	XR Stick Membrane Adhesive	
					UltraPly TPO (Min. 60-mil)	Membrane Adhesive	

Limitations and Installation:

TABLE 2: ELEVATE ULTRAPLY TPO AND GENFLEX EZ TPO - NEW CONSTRUCTION or REROOF (Tear-Off) WOOD DECK, LOOSE-LAID BASE INSULATION, MECHANICALLY ATTACHED TOP INSULATION, BONDED ROOF COVER							
Assembly No.	Substrate	Base Insulation Layer (s)	Top Insulation Layer (s)		Roof Cover		Design Pressure (psf)
			Type	Attach	Type	Attach	
W-C23	Wood (T15/32P, L24, N6/6)	(Optional) Min. 0.5" ISO or RESISTA	Min. 0.5" DensDeck Prime or SECUROCK	AP Fasteners & Plates; Fastener Density: 1:1.78 ft ²	UltraPly TPO SA	Self-adhered	-52.5
					UltraPly TPO	Membrane Adhesive	
					UltraPly TPO XR	XR Membrane Adhesive II	
W-C24	Wood (T15/32P, L24, N12/6)	(Optional) Min. 1" ISO or RESISTA	Min. 0.5" SECUROCK	AP Fasteners & Plates; Fastener Density: 1:2.13 ft ²	UltraPly TPO SA	Self-adhered	-52.5
					UltraPly TPO	Membrane Adhesive	
					UltraPly TPO XR	XR Membrane Adhesive II	
W-C25	Wood (T19/32P, L24, N6) (new, existing, recover)	(Optional) Min. 1" ISO or RESISTA	Cover Board or min. 1" RESISTA, or min. 1.5" ISO HD-C	InvisiWeld; Fastener density: 1:4 ft ²	UltraPly TPO	Induction welded to InvisiWeld plates	-52.5
W-C26	Wood (T7/16O, L24, N6/6)	(Optional) Min. 0.5" ISO or RESISTA	min. 1" RESISTA or min. 1.5" ISO HD-C or ISO	AP Fasteners & Plates; Fastener Density: 1:1.33 ft ²	UltraPly TPO SA	Self-adhered	-52.5
					UltraPly TPO	Membrane Adhesive	
					UltraPly TPO XR	XR Membrane Adhesive	

Limitations and Installation:

TABLE 2: ELEVATE ULTRAPLY TPO AND GENFLEX EZ TPO - NEW CONSTRUCTION or REROOF (Tear-Off) WOOD DECK, LOOSE-LAID BASE INSULATION, MECHANICALLY ATTACHED TOP INSULATION, BONDED ROOF COVER							
Assembly No.	Substrate	Base Insulation Layer (s)	Top Insulation Layer (s)		Roof Cover		Design Pressure (psf)
			Type	Attach	Type	Attach	
W-C27	Wood (T19/32P, L24)	(Optional) Min. 0.5" ISO or RESISTA	Min. 0.5" ISO HD	AP Fasteners & Plates; Fastener Density: 1:2.13 ft ²	UltraPly TPO SA (Min. 60-mil)	Self-adhered	-55.0
					UltraPly TPO XR 115 or 135	XR Stick Membrane Adhesive	
					UltraPly TPO (Min. 60-mil)	Membrane Adhesive	
W-C28	Wood (T15/32P, L24, N6/6)	(Optional) Min. 0.5" ISO or RESISTA	Min. 1.5" RESISTA, min. 2" ISO, min. 0.5" DensDeck Prime, or min. 1.5" ISO HD-C	AP Fasteners & Plates; Fastener Density: 1:1.78 ft ²	UltraPly TPO SA	Self-adhered	-60.0
					UltraPly TPO	Membrane Adhesive	
					UltraPly TPO XR	XR Membrane Adhesive	
W-C29	Wood (T7/16O, L24, N6/6)	(Optional) Min. 1" ISO or RESISTA	Min. 0.5" SECUROCK	AP Fasteners & Plates; Fastener Density: 1:1.45 ft ²	UltraPly TPO SA	Self-adhered	-60.0
					UltraPly TPO XR	XR Membrane Adhesive II	
					UltraPly TPO	Membrane Adhesive	
W-C30	Wood (T15/32P, L24, N6)	(Optional) Min. 0.5" ISO or RESISTA	Min. 0.5" SECUROCK	AP Fasteners & Plates; Fastener Density: 1:1.78 ft ²	UltraPly TPO SA	Self-adhered	-67.5
					UltraPly TPO XR	XR Membrane Adhesive II	
					UltraPly TPO	Membrane Adhesive	

Limitations and Installation:

TABLE 3: ELEVATE ULTRAPLY TPO AND GENFLEX EZ TPO – NEW CONSTRUCTION or REROOF (TEAR-OFF) OR RECOVER WOOD DECK, PRELIMINARILY SECURED INSULATION, MECHANICALLY ATTACHED ROOF COVER						
Assembly No.	Deck	Base Insulation Layer/Thermal Barrier (s)	Top Insulation Layer (s)	Roof Cover		Design Pressure (psf)
				Membrane	Fasteners	
W-D5	Wood (T19/32P, L24, N6)	(Optional) Min. 1" ISO, RESISTA	Cover Board or min. 1" RESISTA, or 1.5" ISO HD-C	Min. 60-mil UltraPly TPO	HD Fasteners & Plates; Attached in-lap 5" o.c., side laps spaced 114" o.c.	-45.0
W-D6	Wood (T7/16O or T15/32P, L24)	(Optional) Min. 1" ISO, RESISTA	Cover Board II	UltraPly TPO	HD Fasteners & Plates; Attached in-lap 6" o.c., side laps spaced 42" o.c.	-45.0
W-D8	Wood (T19/32P, L24)	(Optional) Min. 1" ISO, RESISTA	Cover Board II	UltraPly TPO	HD Fasteners & Plates; Attached in-lap 24" o.c., side laps spaced 42" o.c.	-45.0
W-D9	Wood (T19/32O, L24)	(Optional) Min. 1" ISO, RESISTA	Cover Board II	UltraPly TPO	HD Fasteners & Plates; Attached in-lap 18" o.c., side laps spaced 42" o.c.	-45.0
W-D10	Wood (T7/16O)	Cover Board II	None	UltraPly TPO	InvisiWeld; Secured 24" o.c. through the deck into wood joists in rows spaced 48" o.c.	-45.0
W-D13	Wood (T7/16O or T15/32P, L24, N)	(Optional) Insulation	Cover Board or min. 1" ISO, RESISTA, or 1.5" ISO HD-C	UltraPly TPO	InvisiWeld; Secured 6" o.c. through the deck into wood joists in rows spaced 96" o.c.	-75.0

Limitations and Installation:

TABLE 4: ELEVATE ULTRAPLY AND GENFLEX EZ TPO – NEW CONSTRUCTION or REROOF (Tear-Off) WOOD DECK, NON-INSULATED, MECHANICALLY ATTACHED ROOF COVER						
Assembly No.	Substrate	Roof Cover				Design Pressure (psf)
		Base Sheet	Attach	Membrane	Attach	
W-E5	Wood (T19/32P, L24)	N/A	N/A	Min. 60-mil UltraPly TPO	Attached in-lap 4" o.c. with HD Fasteners & Plates; Fastener rows 114" o.c.	-45.0
W-E6	Wood (T15/32P, L24, N6/6)	SBS Base-P	AP Fasteners & Plates; Base Sheet Attachment: Max. Fastener Spacing: 12" o.c.; Max. Row Spacing: 12" o.c.	UltraPly TPO XR	I.S.O. Spray R	-45.0
W-E7	Wood (T7/16O or T15/32P, L24)	N/A	N/A	UltraPly TPO	UltraPly QuickSeam R.M.A. Strip, Elevate HD Seam Plates with AP Fasteners. Roof Cover Attachment: Max. Fastener Spacing: 6" o.c.; Max. Row Spacing: 48" o.c. *TPO membrane primed at a rate of 200-250 ft ² /gal with UltraPly TPO QuickPrime prior to adhering the R.M.A. Strip	-45.0
W-E8	Wood (T19/32P, L24)	N/A	N/A	Min. 60-mil UltraPly TPO	Attached in-lap 5" o.c. with HD Fasteners & Plates; Fastener rows 90" o.c.	-45.0
W-E9	Min. 3" CWF Deck (existing or recover)	SBS PolyBase	1.8" Two-Piece Impact Nails with a Max. fastener spacing: 12" o.c. and a Max. row spacing: 12" o.c. in min. 2 staggered rows	UltraPly TPO XR	I.S.O. Spray R	-52.5

Limitations and Installation:

TABLE 4: ELEVATE ULTRAPLY AND GENFLEX EZ TPO – NEW CONSTRUCTION or REROOF (Tear-Off) WOOD DECK, NON-INSULATED, MECHANICALLY ATTACHED ROOF COVER						
Assembly No.	Substrate	Roof Cover				Design Pressure (psf)
		Base Sheet	Attach	Membrane	Attach	
W-E10	Min. 3" CWF Deck (existing or recover)	SBS PolyBase	1.8" Two-Piece Impact Nails with a Max. fastener spacing: 9" o.c. and a Max. row spacing: 9" o.c. in min. 2 staggered rows	UltraPly TPO XR	I.S.O. Spray R	-67.5
W-E11	Min. 3" CWF Deck (existing or recover)	SBS PolyBase	1.8" Two-Piece Impact Nails Max. Fastener Spacing: 7" o.c.; Max. Row Spacing: 7" o.c.; Min. Staggered Rows: 2	UltraPly TPO XR	I.S.O. Spray R	-90.0

Note: Keep the manufacturer's installation instructions available on the job site during the installation. Use corrosion resistant fasteners as specified in the IRC and the IBC.