



UltraPly™ TPO Roof Systems
Tested Assembly Guide
Canadian Standards Association

May 2023

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

Table of Contents

Canadian Standards Association	3
Allowable Products	3
Optional Components	3
Safety Factor	3
Admissible Wind Uplift Load Calculation	3
Technical Advisories	3
Values	3
Notice	3
Decking	3
UltraPly TPO Adhered Membrane	4
UltraPly TPO Adhered Membrane – Adhered Insulation and Cover Board	7
UltraPly TPO Attached Membrane	8

Canadian Standards Association

Allowable Products

Only equivalent products included into the roofing system's report are admissible.

Optional Components

Components of the roofing system designated as optional may be included or excluded from the roofing system which will not change the published dynamic uplift resistance (DUR).

Safety Factor

As required by the CSA A123.21 Standard, the published dynamic uplift resistance (DUR) are reduced by a safety factor of 1.5 (SF of 1.5).

Admissible Wind Uplift Load Calculation

An online calculator is available at www.sigders.ca.

The user will have to provide the following information:

- Building Location
- Building Geometry
- Building Exposure
- Building Openings
- Building Importance Factor

The calculator will display the allowable design load of the roof's field surface, edges and corners as well as the dimensions of the edge and corner zones.

Technical Advisories

Assessment reports must be read in conjunction with technical advisories issues by Exp Services Inc.

Values

A For the listing in this section the metric values are the standard and values in parentheses are for information only.

Notice

Exp Services Inc. reserve their right to withdraw, without prior notice, the test report performed as per CSA A123.21 Standard.

Decking

Galvanized construction steel or coated with aluminum/zinc alloy or PVC in accordance with ASTM A653, ASTM A792, ASTM A1008 or CSSBI 10M Standards. Supplier is listed as Generic. The deck's fastening to the supporting structure must be strong enough to resist the wind uplift loads (adjusted as per NBC requirements). Contact a Holcim Technical Representative for additional deck availability. Alternate deck types will require the deck to have a pullout resistance equal to or higher than the fastening uplift resistance specified in the given listing.

- Deck used for testing: 22 gauge, Yield Strength (Y) 33 ksi, Tensile Strength (T) 45 ksi – Type B

UltraPly TPO Adhered Membrane

UltraPly TPO Single-Ply Membrane - Dynamic Uplift Resistance (DUR) as per CSA A123.21

Deck Type & Uplift with SF of 1.5	Vapor Barrier/ Thermal Barrier	Insulation and Attachment	Cover Board and Attachment	Membrane and Attachment
<p>Steel 22 ga Y: 33 ksi T: 45 ksi</p> <p>3.2 kPa (-67 psf)</p> <p>Project No.: EXP/FBPS-211230-06</p>	<p>Vapor Barrier: V-Force BaseGard SA Polyethylene Kraft paper</p> <p><i>Thermal Barrier (Optional):</i> 6 mm – 15.9 mm ($\frac{1}{4}$" - $\frac{5}{8}$") thick, DensDeck DensDeck Prime Securock</p> <p><i>Attachment:</i> Loose Laid</p>	<p>Insulation (Top): 38 mm – 102 mm (1.5" – 4") thick, ISO 95+ GL Resista</p> <p>Insulation (Bottom): 38 mm – 102 mm (1.5" – 4") thick, ISO 95+ GL Resista</p> <p>Attachment: (Top): 10 HD Fasteners per 4' x8' board</p> <p>(Bottom): Loose Laid</p>	<p>Cover Board: 6mm – 15.9mm ($\frac{1}{4}$" - $\frac{5}{8}$") thick ISOGARD HD ISOGARD HD Composite -or- 6 mm ($\frac{1}{4}$") min. Securock</p> <p>Attachment: 12 HD Fasteners/Plates per 4' x8' board</p>	<p>Membrane: UltraPly TPO Platinum TPO</p> <p>Attachment: Full Coverage UltraPly Bonding Adhesive</p>
<p>Steel 22 ga Y: 33 ksi T: 45 ksi</p> <p>2.7 kPa (-56 psf)</p> <p>Project No.: 348T0017 Assembly No. 2</p>	<p>Vapor Barrier: Polyethylene</p>	<p>Insulation: Min. 38 mm (1.5") thick ISO 95+ GL Resista</p> <p>Attachment: Loose Laid</p>	<p>Cover Board: 12.7 mm – 15.9mm $\frac{1}{2}$thick ISOGARD HD</p> <p>Attachment: 18 HD Fasteners/Plates per 4' x8' board</p>	<p>Membrane: UltraPly TPO SA UltraPly TPO</p> <p>Attachment: Full Coverage Single-Ply LVOC Bonding UltraPly Bonding Adhesive Water Based Bonding Adhesive P</p>
<p>Steel 22 ga Y: 33 ksi T: 45 ksi</p> <p>-2.4 kPa (-50 psf)</p> <p>Project No.: EXP/FBPS-225611-04</p>	<p>Vapor Barrier: V-Force BaseGard SA</p> <p><i>Thermal Barrier (Optional):</i> 6 mm – 15.9 mm ($\frac{1}{4}$" - $\frac{5}{8}$") thick, Securock</p> <p><i>Attachment:</i> 152.4 mm (6") o.c. beads, Twin Pack Adhesive -or- 16 HD Fasteners per 4' x8' board</p>	<p>Insulation (Top): 38 mm – 102 mm (1.5" – 4") thick, ISO 95+ GL Resista</p> <p>Insulation (Bottom): 38.1 mm – 101.6 mm (1.5" – 4") thick, ISO 95+ GL Resista</p> <p>Attachment (Top): 305 mm (12") o.c. beads, Twin Pack Adhesive</p> <p>Attachment (Bottom): 305 mm (12") o.c. beads, Twin Pack Adhesive</p>	<p>Cover Board: 6 mm ($\frac{1}{4}$") min. Securock -or- 12mm ($\frac{1}{2}$" min.) ISOGARD HD</p> <p>Attachment: 305 mm (12") o.c. beads, Twin Pack Adhesive</p>	<p>Membrane: UltraPly TPO Platinum TPO UltraPly TPO XR*</p> <p>Attachment: Full Coverage UltraPly Bonding Adhesive XR Bonding Adhesive*</p>

UltraPly TPO Adhered Membrane (Continued)

<p>Steel 18-22 ga Y: 33 ksi T: 45 ksi</p> <p>2.9 kPa (-60 psf)</p> <p>Project No.: EXP/FBPS-211230-04</p>	<p>Vapor Barrier: V-Force BaseGard SA Polyethylene Kraft paper</p> <p><i>Thermal Barrier (Optional):</i> 6 mm – 15.9 mm ($\frac{1}{4}$" - $\frac{5}{8}$") thick, DensDeck DensDeck Prime Securock</p> <p><i>Attachment:</i> Loose Laid</p>	<p>Insulation (Top): 38.1 mm – 101.6 mm (1.5" – 4") thick, ISO 95+ GL Resista</p> <p>Insulation (Bottom): 38.1 mm – 101.6 mm (1.5" – 4") thick, ISO 95+ GL Resista</p> <p>Attachment (Top): 12 HD Fasteners/Plates Per 4' x8' board</p> <p>Attachment (Bottom): Loose Laid</p>	<p>Cover Board: 6 mm – 15.9 mm ($\frac{1}{4}$" - $\frac{5}{8}$") thick ISOGARD HD Securock</p> <p>Attachment: 152.4 mm (6") o.c. beads, 19.05 mm ($\frac{3}{4}$") beads, Twin Pack Adhesive</p>	<p>Membrane: UltraPly TPO Platinum TPO</p> <p>Attachment: Full Coverage UltraPly Bonding Adhesive</p>
<p>Steel 18-22 ga Y: 33 ksi T: 45 ksi</p> <p>3.19 kPa (66.7 psf)</p> <p>Project No.: FBP-393-02-01 Assembly No. 1</p>	<p>Vapor Barrier: V-Force</p> <p>Thermal Barrier: $\frac{1}{2}$" thick DensDeck Prime</p> <p>Attachment: 16 HD Fasteners/Plates Per 4' x8' board</p>	<p>Insulation: Min. 50.8 mm (2") thick ISO 95+ GL Resista</p> <p>Attachment: 152.4 mm (6") o.c. beads, 19.05 mm ($\frac{3}{4}$") beads, Twin Pack ISO Stick ISO Spray R or 152.4 mm (6") o.c. beads, 25.4 mm (1") beads, Twin Jet</p>	<p>Cover Board: Min. 6 mm ($\frac{1}{4}$") thick DensDeck Prime Securock</p> <p>Attachment: 152.4 mm (6") o.c. beads, 19.05 mm ($\frac{3}{4}$") beads, Twin Pack ISO Stick ISO Spray R or 152.4 mm (6") o.c. beads, 25.4 mm (1") beads, Twin Jet</p>	<p>Membrane: UltraPly TPO SA UltraPly TPO Platinum TPO UltraPly TPO XR*</p> <p>Attachment: Full Coverage Single-Ply LVOC BA 1168 Single-Ply LVOC Bonding Adhesive UltraPly Bonding Adhesive Water Based Bonding Adhesive p XR Bonding Adhesive* Hot Asphalt*</p>
<p>Steel 18-22 ga Y: 33 ksi T: 45 ksi</p> <p>3.19 kPa (66.7 psf)</p> <p>Project No.: FBP-393-02-01 Assembly No. 2</p>	<p>Vapor Barrier: V-Force</p> <p>Thermal Barrier: $\frac{1}{2}$" thick DensDeck Prime</p> <p>Attachment: 16 HD Fasteners/Plates Per 4' x8' board</p>	<p>Insulation: Min. 2" thick ISO 95+ GL Resista</p> <p>Attachment: 152.4 mm (6") o.c. beads, 19.05 mm ($\frac{3}{4}$") beads, Twin Pack ISO Stick ISO Spray R or 152.4 mm (6") o.c. beads, 25.4 mm (1") beads, Twin Jet</p>	<p>N/A</p>	<p>Membrane: UltraPly TPO SA UltraPly TPO Platinum TPO UltraPly TPO XR*</p> <p>Attachment: Full Coverage Single-Ply LVOC BA 1168 Single-Ply LVOC Bonding Adhesive UltraPly Bonding Adhesive Water Based Bonding Adhesive p XR Bonding Adhesive* Hot Asphalt*</p>
<p>Steel 18-22 ga Y: 33 ksi T: 45 ksi</p> <p>2.4 kPa (50 psf)</p> <p>Project No.: FBP-393-02-01 Assembly No. 3</p>	<p>Vapor Barrier: V-Force</p>	<p>Insulation: Min. 2" thick, 4' x8' board, ISO 95+ GL Resista</p> <p>Attachment: Loose laid</p>	<p>Cover Board: Min. 6 mm ($\frac{1}{4}$") thick DensDeck Prime</p> <p>Attachment: 8 HD Fasteners/Plates per 4' x8' board DensDeck Prime</p>	<p>Membrane: UltraPly TPO SA UltraPly TPO Platinum TPO UltraPly TPO XR*</p> <p>Attachment: Full Coverage Single-Ply LVOC BA 1168 Single-Ply LVOC Bonding Adhesive UltraPly Bonding Adhesive Water Based Bonding Adhesive p XR Bonding Adhesive* Hot Asphalt*</p>

UltraPly TPO Adhered Membrane (Continued)

<p>Steel 18-22 ga Y: 33 ksi T: 45 ksi</p> <p>2.4 kPa (50 psf)</p> <p>Project No.: FBP-393-02-01 Assembly No. 4</p>	<p>Vapor Barrier: V-Force</p>	<p>Insulation (bottom): Min. 2" thick, 4' x8' board, ISO 95+ GL/Resista</p> <p>Attachment (bottom): 8 HD Fasteners/Plates per 4' x8' board</p> <p>Insulation (top) (Optional): Min. 2" thick, 4' x8' board, ISO 95+ GL/Resista</p> <p>Attachment (top): 152.4 mm (6") o.c. beads, 19.05 mm (¾") beads, Twin Pack, ISO Stick ISO Spray R or 152.4 mm (6") o.c. beads, 25.4 mm (1") beads, Twin Jet</p>	<p>Cover Board (Optional)*: Min. 6 mm (¼") thick DensDeck Prime Securack</p> <p>Attachment (top): 152.4 mm (6") o.c. beads, 19.05 mm (¾") beads, Twin Pack ISO Stick ISO Spray R or 152.4 mm (6") o.c. beads, 25.4 mm (1") beads, Twin Jet *Cover Board required when used.</p>	<p>Membrane: UltraPly TPO SA UltraPly TPO Platinum TPO UltraPly TPO XR*</p> <p>Attachment: Full Coverage Single-Ply LVOC BA 1168 Single-Ply LVOC Bonding Adhesive UltraPly Bonding Adhesive Water Based Bonding Adhesive P XR Bonding Adhesive* Hot Asphalt*</p> <p>*Cover Board required when used.</p>
<p>Steel 22 ga Y: 33 ksi</p> <p>3.2 kPa (-67 psf)</p> <p>Project No. 348T0017 Assembly No. 3</p>	<p>Air Barrier: 6 mil Polyethylene</p>	<p>Insulation: Min. 2.5" (63.5 mm) thick, 4' x8' boards ISO 95+ GL/Resista</p> <p>Attachment: 16 AP Fasteners per 4' x8' board</p>	<p>Not Applicable</p>	<p>Membrane: UltraPly TPO SA -or- UltraPly TPO -or- UltraPly TPO XR</p> <p>Attachment: Self Adhered - UltraPly BA Single-Ply BA Single-Ply BA 1168 Water Based BA P - Twin Jet I.S.O. Spray R XR Stick</p>

UltraPly TPO Adhered Membrane – Adhered Insulation and Cover Board

UltraPly TPO Single-Ply Membrane - Dynamic Uplift Resistance (DUR) as per CSA A123.21				
Deck Type & Uplift with SF of 1.5	Vapor Barrier/ Thermal Barrier	Insulation and Attachment	Cover Board and Attachment	Membrane and Attachment
<p>Steel 22 ga Y: 33 ksi</p> <p>3.6 kPa (-75 psf)</p> <p>Project No: FBP-415-02-01 Assembly 1</p>	<p>Vapor Barrier: V-Force</p> <p>VB Attachment: Self-Adhered</p>	<p>Insulation (top): 38.1 mm (1.5") thick, ISO 95+ GL/Resista</p> <p>Attachment (top): 304.8 mm (12") o.c. beads, 19.05 mm (¾") beads, Twin Pack, I.S.O. Stick, Twin Jet</p> <p>-or-</p> <p>152.4 mm (6") o.c. beads, I.S.O. Spray R Adhesive</p> <p>Insulation (bottom): 38.1 mm (1.5") thick, ISO 95+ GL/Resista</p> <p>Attachment (bottom): 152.4 mm (6") o.c. beads, 19.05 mm (¾") beads, Twin Pack, I.S.O. Stick, I.S.O. Spray R, Twin Jet Adhesive</p>	<p>Cover Board: 12.7 mm (½") thick ISOGard HD</p> <p>Attachment: 305 mm (12") o.c. beads, 19.05 mm (¾") beads, Twin Pack, I.S.O. Stick, Twin Jet Adhesive</p> <p>-or-</p> <p>152.4 mm (6") o.c. beads, I.S.O. Spray R Adhesive</p>	<p>Membrane: UltraPly TPO SA UltraPly TPO</p> <p>Attachment: Self Adhered -or- Fully Coverage UltraPly Bonding Adhesive, Single-Ply LVOC, Single-Ply LVOC 1168</p>
<p>Steel 22 ga Y: 33 ksi</p> <p>3.8 kPa (-80 psf)</p> <p>Project No: 348T0017 Assembly 1</p>	<p>Vapor Barrier: V-Force</p> <p>VB Attachment: Self-Adhered</p>	<p>Insulation (top): 38.1 mm (1.5") thick, ISO 95+ GL Resista</p> <p>Attachment (top): 152.4 mm (6") o.c. beads, 19.05 mm (¾") beads, Twin Pack, I.S.O. Stick, Twin Jet, I.S.O. Spray R Adhesive</p> <p>Insulation (bottom): 38.1 mm (1.5") thick, ISO 95+ GL/Resista</p> <p>Attachment (bottom): 152.4 mm (6") o.c. beads, 19.05 mm (¾") beads, Twin Pack Adhesive I.S.O. Stick Adhesive I.S.O. Spray R Adhesive Twin Jet Adhesive</p>	<p>Not Applicable</p>	<p>Membrane: UltraPly TPO SA UltraPly TPO</p> <p>Attachment: Self Adhered -or- Fully Coverage UltraPly Bonding Adhesive, Single-Ply LVOC, Single-Ply LVOC 1168, Water Based Bonding Adhesive P</p> <p>-or-</p> <p>TPO XR Adhered with: 304.8 mm (12") o.c. beads, Twin Jet I.S.O. Spray R XR Stick</p>

UltraPly TPO Attached Membrane

UltraPly TPO Single-Ply Membrane - Dynamic Uplift Resistance (DUR) as per CSA A123.21				
Deck Type & Uplift with SF of 1.5	Vapor Barrier/ Thermal Barrier	Insulation and Attachment	Cover Board and Attachment	Membrane and Attachment
<p>Steel 22 ga Y : 33 ksi T : 45 ksi</p> <p>3.0 kPa (-63 psf)</p> <p>Project No.: EXP/FBPS-002-059</p>	<p>Vapor Barrier: V-Force BaseGard SA Polyethylene Kraft paper</p> <p><i>Thermal Barrier (Optional): 6mm – 15.9 mm ($\frac{1}{8}$" - $\frac{3}{8}$") thick</i> DensDeck /DensDeck Prime Securock</p> <p><i>Attachment: Loose Laid</i></p>	<p>Insulation: 38 mm – 102 mm (1.5" – 4") thick, ISO 95+ GL Resista</p> <p>Attachment: InvisiWeld</p>	<p><i>Cover Board (Optional): 6.4 mm – 16 mm ($\frac{1}{4}$" – $\frac{5}{8}$") thick</i> ISOGard HD HailGard DensDeck DensDeck Prime Securock</p> <p><i>Attachment: InvisiWeld</i></p>	<p>Membrane: UltraPly TPO Platinum TPO</p> <p>Attachment: 8 HD Fasteners & Invisiweld Plates per 4' x8' board Rows: 610mm (24") o.c. Fasteners: 610mm (24") o.c.</p>
<p>Steel 22 ga. Type B 40 ksi</p> <p>4.3 kPa (-90psf)</p> <p>Report: 11800.11.16- 2</p>	<p>Vapor Barrier: V-Force</p>	<p>Insulation: 38 mm (1.5") thick ISO 95+ GL Resista</p> <p>Attachment: InvisiWeld</p>	<p><i>Cover Board (Optional): 6 mm ($\frac{1}{4}$") min. DensDeck Prime Securock -or- 12mm ($\frac{1}{2}$" min.) ISOGARD HD</i></p> <p><i>Attachment: InvisiWeld</i></p>	<p>Membrane: Min. 45 mil. UltraPly TPO</p> <p>Attachment: 8 HD Fasteners & Invisiweld Plates per 4' x8' board Rows: 610 mm (24") o.c. Fasteners: 610 mm (24") o.c.</p>
<p>Steel 22 ga RD938 230 MPa (33.4 ksi)</p> <p>2.394 kPa (-50 psf)</p> <p>Project No: 20-06- B0122-3</p>	<p>Vapor Barrier: V-Force BaseGard SA Polyethylene Kraft paper</p> <p><i>Thermal Barrier (Optional): 6mm – 15.9 mm ($\frac{1}{8}$" - $\frac{3}{8}$") thick</i> DensDeck DensDeck Prime Securock</p> <p><i>Attachment: Loose Laid</i></p>	<p>Insulation: Cover Board Used: Min. 1.5" ISO 95+ GL/ISOGARD GL, Resista/ISGOARD CG, HailGard/ISOGARD HG, ISOGARD HD Composite</p> <p>No Cover Board: 50.8 mm (2") thick, ISO 95+ GL/ISOGARD GL, Resista/ISOGARD CG, HailGard/ISOGARD HG ISOGARD HD Composite</p> <p>Attachment: 6 HD Fasteners and InvisiWeld Plates per 1219 mm x 2438 mm (4' x8') board</p>	<p><i>Cover Board (Optional): Min. 6.4 mm ($\frac{1}{4}$") Securock, DensDeck or DensDeck Prime -or- 12.7 mm ($\frac{1}{2}$") thick ISOGARD HD -or- Min. 11.1 mm (7/16") APA rated OSB</i></p> <p><i>Attachment: 6 InvisiWeld Plates and Heavy Duty Fasteners per 1219 mm x 2438 mm (4' x8') board</i></p>	<p>Membrane: UltraPly TPO Platinum TPO</p> <p>Attachment: Welded to InvisiWeld or InvisiWeld-S Plates used to secure insulation.</p>
<p>Steel 22 ga Y : 33 ksi T : 45 ksi</p> <p>3.8 kPa (-80 psf)</p> <p>Project No.: EXP/FBPS-211230-01</p>	<p>Vapor Barrier: V-Force BaseGard SA Polyethylene Kraft paper</p> <p><i>Thermal Barrier (Optional): 6 mm – 15.9 mm ($\frac{1}{8}$" - $\frac{3}{8}$") thick</i> DensDeck DensDeck Prime Securock</p> <p><i>Attachment: Loose Laid</i></p>	<p>Insulation (Top): 38 mm – 102 mm (1.5" – 4") thick, ISO 95+ GL Resista</p> <p>Attachment: (Top): Loose Laid</p> <p>Insulation (Bottom): 38 mm – 102 mm (1.5" – 4") thick, ISO 95+ GL Resista</p> <p>(Bottom): Loose Laid</p>	<p>Cover Board: 12.7 mm ($\frac{1}{2}$") thick ISOGard HD -or- 6 mm ($\frac{1}{4}$") min. Securock DensDeck DensDeck Prime</p> <p>Attachment: 10 HD Fasteners and Plates per 4' x8' board</p>	<p>Membrane: Min. 60 mil. UltraPly TPO Platinum TPO</p> <p>Attachment: 3048 mm (10') row spacing, 304.8 mm (12" o.c.) HD Fasteners and Plates</p>

UltraPly TPO Attached Membrane (Continued)

<p>Steel 22 ga Y : 33 ksi T : 45 ksi</p> <p>4.2 kPa (-87 psf)</p> <p>Project No.: EXP/FBPS-001-059</p>	<p>Vapor Barrier: V-Force BaseGard SA Polyethylene Kraft paper</p> <p><i>Thermal Barrier (Optional): 6 mm – 15.9 mm (¼" - ⅝") thick, DensDeck/DensDeck Prime Securock</i></p> <p><i>Attachment: Loose Laid</i></p>	<p>Insulation (Top): 38 mm – 203 mm (1.5" – 4") thick, ISO 95+ GL Resista</p> <p>Insulation (Bottom): 38 mm – 203 mm (1.5" – 4") thick, ISO 95+ GL Resista</p> <p>Attachment: (Top): 8 HD Fasteners per 4 'x8 ' board</p> <p>(Bottom): Loose Laid</p>	<p><i>Cover Board (Optional): 12.7 mm (½") thick ISOGard HD -or- 6 mm (¼") min. Securock DensDeck DensDeck Prime</i></p> <p><i>Attachment: 10 HD Fasteners and Plates per 4 'x8 ' board</i></p>	<p>Membrane: Min. 60 mil. UltraPly TPO Platinum TPO</p> <p>Attachment: 3048 mm (10 ') row spacing, 152.4 mm (6" o.c.) HD Fasteners and Plates</p>
<p>Steel 18-22 ga Y: 33 ksi T: 45 ksi</p> <p>3.2 kPa (-67 psf)</p> <p>Document Numbers: PUB-DRUXXXXXX</p>	<p>Vapor Barrier: V-Force BaseGard SA Polyethylene Kraft paper</p> <p><i>Thermal Barrier (Optional): 6 mm – 15.9 mm (¼" - ⅝") thick, DensDeck/DensDeck Prime Securock</i></p> <p><i>Attachment: Loose Laid</i></p>	<p>Insulation (Top): 25 mm – 203 mm (1" – 8") thick, ISO 95+ GL Resista</p> <p>Attachment (Bottom): Loose Laid Common Fastened</p>	<p>Cover Board: 6mm – 15.9mm (¼" - ⅝") thick ISOGARD HD HailGard Securock</p> <p>Attachment: 12 HD Fasteners and Plates per 4 'x8 ' boards</p>	<p>Membrane: UltraPly TPO Platinum TPO</p> <p>Attachment: UltraPly QuickSeam R.M.A. Strip HD Fasteners and Plates Rows: 72" o.c. (1828 mm) Fasteners: 12" o.c. (305 mm)</p>
<p>Steel 22 ga Y : 33 ksi T : 45 ksi</p> <p>3.8 kPa (-80 psf)</p> <p>Project No.: EXP/FBPS-211230-05</p>	<p>Vapor Barrier: V-Force BaseGard SA Polyethylene Kraft paper</p> <p><i>Thermal Barrier (Optional): 6 mm – 15.9 mm (¼" - ⅝") thick, DensDeck/DensDeck Prime Securock</i></p> <p><i>Attachment: Loose Laid</i></p>	<p>Insulation (Top): 38 mm – 102 mm (1.5" – 4") thick, ISO 95+ GL Resista</p> <p>Insulation (Bottom): 38 mm – 102 mm (1.5" – 4") thick, ISO 95+ GL Resista</p> <p>Attachment: (Top): 12 HD Fasteners per 4 'x8 ' board</p> <p>(Bottom): Loose Laid</p>	<p>Cover Board: 12.7 mm (½") thick ISOGard HD ISOGARD HD Composite -or- 6 mm (¼") min. Securock DensDeck DensDeck Prime</p> <p>Cover Board Attachment: 152.4 mm (6") o.c. beads, Twin Pack Adhesive</p>	<p>Membrane: Min. 60 mil. UltraPly TPO Platinum TPO</p> <p>Attachment: 3048 mm (10 ') row spacing, 305 mm (12" o.c.) HD Fasteners and Plates</p>
<p>Steel 22 ga Y : 33 ksi T : 40 ksi</p> <p>3.2 kPa (-67 psf)</p> <p>Project No.: 11800.11.16-1</p>	<p>Vapor Barrier: V-Force</p>	<p>Insulation: 38 mm min. (1.5") thick, ISO 95+ GL Resista</p> <p>Cover Board Attachment: 5 AP Fasteners and Plates per 4 'x8 ' boards</p>	<p><i>Cover Board (Optional): 6 mm (¼") min. Securock DensDeck Prime</i></p> <p><i>Cover Board Attachment (Optional): 5 AP Fasteners and Plates per 4 'x8 ' boards</i></p>	<p>Membrane: Min. 45 mil. UltraPly TPO Platinum TPO</p> <p>Attachment: 3048 mm (10 ') row spacing, 305 mm (12" o.c.) HD Fasteners and Plates</p>

<p>Steel 22 ga T : 40 ksi</p> <p>3.1 kPa (-65 psf)</p> <p>Document No.: HSP-MARS-4</p>	<p>Vapor Barrier: V-Force BaseGard SA Polyethylene (Taped) Kraft paper</p> <p><i>Thermal Barrier (Optional):</i> 6 mm – 15.9 mm ($\frac{1}{8}$" - $\frac{3}{8}$") thick, DensDeck/DensDeck Prime Securock</p> <p><i>Attachment:</i> Loose Laid</p>	<p>Insulation: Cover Board Used: Min. 38mm (1.5") ISO 95+ GL/ISOGARD GL, Resista/ISGOARD CG, HailGard/ISOGARD HG, ISOGARD HD Composite</p> <p>No Cover Board: 50.8 mm (2") thick, ISO 95+ GL/ISOGARD GL, Resista/ISOGARD CG, HailGard/ISOGARD HG ISOGARD HD Composite</p> <p>Attachment: No Cover Board: 8 AP Fasteners & Plates per 4' x8' board</p>	<p><i>Cover Board (Optional):</i> Min. 6.4 mm ($\frac{1}{4}$") Securock, DensDeck or DensDeck Prime -or- 12.7 mm ($\frac{1}{2}$") thick ISOGARD HD -or- Min. 11.1 mm (7/16") APA rated OSB</p> <p>Cover Board Attachment (Optional): 8 AP Fasteners and Plates per 4' x8' boards</p>	<p>Membrane: Min. 45 mil. UltraPly TPO Platinum TPO</p> <p>Attachment: 1371.6 mm (54") row spacing, 305 mm (12" o.c.) HD Fasteners and Plates</p>
<p>Steel 22 ga T : 40 ksi</p> <p>2.07 kPa (-43.3 psf)</p> <p>Document No.: FBP-MARS-3</p>	<p>Vapor Barrier: V-Force BaseGard SA Polyethylene (Taped) Kraft paper</p> <p><i>Thermal Barrier (Optional):</i> 6 mm – 15.9 mm ($\frac{1}{8}$" - $\frac{3}{8}$") thick, DensDeck/DensDeck Prime Securock</p> <p><i>Attachment:</i> Loose Laid</p>	<p>Insulation: Cover Board Used: Min. 38mm (1.5") ISO 95+ GL/ISOGARD GL, Resista/ISGOARD CG, HailGard/ISOGARD HG, ISOGARD HD Composite</p> <p>No Cover Board: 50.8 mm (2") thick, ISO 95+ GL/ISOGARD GL, Resista/ISOGARD CG, HailGard/ISOGARD HG ISOGARD HD Composite</p> <p>Attachment: No Cover Board: 8 AP Fasteners & Plates per 4' x8' board</p>	<p><i>Cover Board (Optional):</i> Min. 6.4 mm ($\frac{1}{4}$") Securock, DensDeck or DensDeck Prime -or- 12.7 mm ($\frac{1}{2}$") thick ISOGARD HD -or- Min. 11.1 mm (7/16") APA rated OSB</p> <p>Cover Board Attachment (Optional): 8 AP Fasteners and Plates per 4' x8' boards</p>	<p>Membrane: Min. 45 mil. UltraPly TPO Platinum TPO</p> <p>Attachment: 2895.6 mm (114") row spacing, 305 mm (12" o.c.) HD Fasteners and Plates</p>

This guide is meant to highlight Elevate products and specifications provided by Holcim Solutions & Products US, LLC and is subject to change without notice. Holcim takes responsibility for furnishing quality materials which meet published Elevate product specifications or other technical documents, subject to normal roof manufacturing tolerances. Neither Holcim nor its representatives practice architecture. Holcim Solutions & Products US, LLC offers no opinion on and expressly disclaims any responsibility for the soundness of any structure. Holcim accepts no liability for structural failure or resultant damages. Consult a competent structural engineer prior to installation if the structural soundness or structural ability to properly support a planned installation is in question. No Holcim representative is authorized to vary this disclaimer.