



UltraPly™ TPO Roof Systems Code Approval Guide

You must verify the included assemblies in the charts below with the associated Firm's (UL, FM, etc.). Not all of the information included in the RoofNav assemblies will be listed in the charts below.

You must verify that all assemblies meet Firestone Building Products warranty requirements with the associated regions technical team.

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Underwriters Laboratories (UL) External Fire Ratings

All regional building codes and most local building code officials require that roofing systems meet minimum performance requirements when exposed to external fire sources. The accepted method for measuring external fire resistance is **ASTM E-108**. This test standard, and closely related standards such as Underwriters Laboratories **UL-790** and **Uniform Building Code 15-2**, is used to determine the ability of a roof system to hinder the horizontal spread or vertical penetration of an external fire source. In accordance with these standards, all classified roof covering assemblies fall into one of the three following categories.

- **CLASS A:** Includes roof coverings which are effective against **severe** fire exposures
- **CLASS B:** Includes roof coverings which are effective against **moderate** fire exposures
- **CLASS C:** Includes roof coverings which are effective against **light** fire exposures

Noncombustible Roof Decks (NC): Steel, Concrete, Poured Gypsum – require testing for horizontal spread of flame.

Combustible Roof Decks (C): Wood, Plywood, Tectum – require testing for both horizontal spread and vertical penetration of flame.

The following information has been referenced from the UL Online Certification Directory document: [TGFU.GuidelineInfo](#)

Certified gypsum wallboard, any thickness, may be included in any roofing system without adversely affecting the certification. Insulations may be attached to the deck with fasteners, hot mopping asphalt or certified adhesive.

Certified insulated systems may be installed over existing certified insulated systems when:

- 1) the new system is certified for use with the existing roof insulation type (glass fiber, perlite, wood fiber, foamed plastic, etc.), and
- 2) the total thickness of insulation in both systems does not exceed the maximum specified for the new system being applied.

MAINTENANCE AND REPAIR SYSTEMS

These roofing systems are composed of various types of roofing applications which are specifically limited for installation (recover) over existing roofing systems as specified. These systems may not meet certification requirements without being used over existing systems. Recovering may also be accomplished with certified new construction roofing systems where compatibility has been determined by test, by empirical data or by known performance properties of similar materials to the test methods. The following guidelines are provided to assist Authorities Having Jurisdiction in determining the suitability of a new construction roofing system as a recover system.

Noncombustible Deck Construction:

1. Insulated roof systems may be utilized over any type of existing roof system and maintain its new construction rating when the roof deck is noncombustible.
2. Insulated multiple-layered hot mopped, cold application or modified bitumen membrane new construction systems with a base ply of Type G1 or Type G2 may be used over any existing roof system and maintain its new construction rating when the roof deck is noncombustible. The insulation may be omitted from the recover system.
3. Uninsulated multiple-layered hot mopped, cold application or modified bitumen membrane new construction systems with a base ply of Type G1 or Type G2 may be used over any existing uninsulated roof system and maintain its new construction rating when the roof deck is noncombustible.

Combustible Deck Construction:

1. Insulated roof systems certified for use over combustible deck can be used over any type of existing roof system and maintain its new construction rating.
2. Insulated roof systems certified for use over noncombustible deck may be used over any type of Class A, B or C existing roof systems. The resultant Class will be the lesser rating of the existing system or the new construction (recover) system.
3. Uninsulated multiple-layered hot mopped, cold application or modified bitumen membrane new construction systems with a base ply of Type G1 or Type G2 may be used over any existing uninsulated roof system and maintain its new construction rating.

The class of roof covering required by each regional building code depends upon many factors, including the use and location of the building and the type of construction. The local building authority *should always be consulted* as to what the roofing assembly classification will need to be for each roofing project.

It should be noted that these classifications apply to **roofing assemblies**, and **NOT the roofing membrane**. A roofing membrane that is classified as part of a Class A assembly when installed over a particular insulation may not qualify as part of a Class A assembly with another insulation.

The "UL Item Number" in the following listings has been added as a service to those who have the UL Building Materials Directory. It identifies the UL listing from which our Code Approval Guide listing derives (e.g., "A,FA,23" means Class A, Fully Adhered, item number 23; "B,MA,04" means Class B, Mechanically Attached, item number 04, etc.).

General Notations

- PLEASE NOTE: Not all UL-rated assemblies that use Firestone roofing products are eligible for the Firestone Red Shield, Red Shield Medallion, or Platinum Warranty. The Firestone standards, guidelines, and specifications regarding roofing system components and attachment for the warranty desired must be followed.
- If a discrepancy occurs between this guide and UL Certifications, the published information located in the UL Certifications Directory at www.ul.com should be adhered to and utilized.
- Noncombustible decks Classifications are acceptable for use over combustible (15/32" minimum plywood) decks when .5" gypsum board or .25" Dens Deck® are used directly over the deck with all joints staggered 6" minimum from plywood joints.
- The below stated assemblies may not be suitable for a Firestone Warranty. Prior to installation, contact a Firestone Representative for approval of assembly for warranty purposes.
- HailGard Insulation is an acceptable alternative to all insulations in the following Classifications except where DensDeck is stated.
- **Water Based Bonding Adhesive –P (WBBA-P) is an equivalent to Water Based Bonding Adhesive-R (WBBA-R) (no longer available.**

Note: The UL assemblies listed below can be found on the UL Online Certification Direct report [TGFU.R9516](#). You can click on the report number previously listed to open a hyperlink to the report.

Firestone V-Force Vapor Barrier System

Adhesive: UltraPly Bonding Adhesive, Single Ply LVOC Bonding Adhesive or Water Based Bonding Adhesive S
Construction: New or Tear-off
Classification: See Note 1 Below

UL Assembly Number	Deck	Vapor Barrier	Roofing System	Maximum Slope	Class, Type
1.	NC (See Note 1)	"V-Force", self adhered	Any Insulated UL Classified modified bitumen system, BUR system, EPDM, or TPO membrane system. Insulation may be adhered with Firestone "I.S.O. Twin Pack", "I.S.O. Stick" or "I.S.O. Spray S".	See Note 1	A/B/C, Mechanically Attached or Fully Adhered
1A.	C- 15/32	"V-Force", self adhered	Insulation (Optional): Firestone ISO 95+ GL – Any Thickness Barrier Board: 1" min. Resista Roofing System: Any Insulated UL Classified modified bitumen system, BUR system, or CPE, CSM, CSPE, EPDM, NBP, PIB, PVC, TPO or TRE membrane system. Insulation may be adhered or mechanically attached with Firestone "I.S.O. Twin Pack™", "I.S.O. Twin Pack™ Green", "I.S.O. Stick™" or "I.S.O. Spray™ R"	See Note 1	A/B/C, Mechanically Attached or Fully Adhered
1B.	C- 15/32	"V-Force", self adhered	Insulation (Optional): Firestone ISO 95+ GL – Any Thickness Barrier Board: ½" thick Dens Deck, Dens Deck Prime Roofing System: Any Insulated UL Classified modified bitumen system, BUR system, or CPE, CSM, CSPE, EPDM, NBP, PIB, PVC, TPO or TRE membrane system. Insulation may be adhered or mechanically attached with Firestone "I.S.O. Twin Pack™", "I.S.O. Twin Pack™ Green", "I.S.O. Stick™" or "I.S.O. Spray™ R"	See Note 1	A/B/C, Mechanically Attached or Fully Adhered
Note 1: Classification (A, B or C) and maximum incline will be the same as that for the currently Classified insulated system, currently limited to a noncombustible deck.					

Firestone Fully Adhered Systems

Membrane: UltraPly TPO (45,60 or 80 mil), UltraPly Platinum (80 mil)

Adhesive: UltraPly Bonding Adhesive, Single Ply LVOC Bonding Adhesive or Water Based Bonding Adhesive S

Construction: New, Retrofit or Tear-off

Classification: Class A

UL Assembly Number	Deck Type	Insulation Assembly	Insulation Minimum Thickness	Maximum Slope	Membranes	Class, Type
143.	NC	<u>Insulation (Optional):</u> Firestone ISO 95+ GL	Any	¼"	UltraPly TPO	A, Fully Adhered
88.	C	<u>Barrier Board:</u> DensDeck (Prime) <u>Insulation (Optional):</u> Any UL Classified, any thickness	½" Any	2-1/2"	UltraPly TPO	A, Fully Adhered
144.	NC	Lightweight Insulated (LWIC) or Structural Concrete	Any	2-½"	UltraPly TPO	A, Fully Adhered
125.	NC	<u>Insulation:</u> Any UL Classified, any thickness mechanically attached <u>Cover Board:</u> Oriented Strand Board (OSB)	Any 7/16"	1-¼"	UltraPly TPO	A, Fully Adhered
123.	C	<u>Slip Sheet:</u> 2 layers VersaShield FB-1S <u>Insulation:</u> Firestone ISO 95+ GL, mechanically attached	--- Any	½"	UltraPly TPO	A, Fully Adhered

160.	NC	<u>Insulation:</u> Any Classified Polyiso, any thickness <u>Cover Board:</u> Firestone Resista or Firestone ISOGard HD	Any ½"	¼"	UltraPly TPO	A, Fully Adhered
163.	C	<u>Insulation:</u> Firestone ISO 95+ GL <u>Insulation:</u> Firestone Resista or Firestone ISOGard HD	Any ½"	¼"	UltraPly TPO	A, Fully Adhered
166/167.	C/NC	<u>Insulation:</u> Firestone ISO 95+ GL <u>Barrier Board:</u> DensDeck (Prime)	Any Any	2"	UltraPly TPO	A, Fully Adhered

Firestone Fully Adhered Systems with UltraPly TPO SA membrane

Membrane: UltraPly TPO SA (45 or 60 mil)
Adhesive: Self Adhered
Construction: New, Retrofit or Tear-off
Classification: Class A

UL Assembly Number	Deck Type	Insulation Assembly	Insulation Minimum Thickness	Maximum Slope	Notes	Class, Type
182.	NC/C	<u>Insulation (Optional):</u> Any UL Classified any thickness <u>Barrier Board:</u> DensDeck	Any ¼"	2"		A, Fully Adhered
184.	NC/C*	<u>Insulation (Optional):</u> Resista	Any	¼"	*DensDeck, ¼", required	A, Fully Adhered
183.	NC/C*	<u>Insulation:</u> Firestone ISO 95+ GL	Any	¼"	*DensDeck, ¼", required	A, Fully Adhered

Firestone Fully Adhered Systems with UltraPly TPO XR

Membrane: UltraPly TPO XR 100 (45 mil), UltraPly TPO XR 115 (60 mil) or UltraPly TPO XR 135 (80 mil)
Adhesive: XR Bonding Adhesive @ 90 sq ft/gal
Construction: New, Retrofit or Tear-off
Classification: Class A

UL Assembly Number	Deck Type	Insulation Assembly	Insulation Minimum Thickness	Maximum Slope	Notes	Class, Type
140.	C	<u>Insulation (Optional):</u> Any UL Classified any thickness <u>Cover Board:</u> G-P Gypsum DensDeck or DensDeck Prime	Any ¼"	1"		A, Fully Adhered
141.	NC	Any Classified LWIC	2" coverage over internal insulation (if installed)	1"		A, Fully Adhered

Firestone Fully Adhered Systems with UltraPly TPO XR

Membrane: UltraPly TPO XR 100 (45 mil), UltraPly TPO XR 115 (60 mil) or UltraPly TPO XR 135 (80 mil)
Adhesive: Hot asphalt
Construction: New, Retrofit or Tear-off
Classification: Class A

UL Assembly Number	Deck Type	Insulation Assembly	Insulation Minimum Thickness	Maximum Slope	Notes	Class, Type
174.	NC	None	---	1"		A, Fully Adhered
175.	C/NC	<u>Insulation (Optional):</u> Firestone ISO 95+ GL <u>Barrier Board:</u> DensDeck or DensDeck Prime	Any ¼"	1"		A, Fully Adhered

Firestone Fully Adhered Systems with UltraPly TPO XR

Membrane: UltraPly TPO XR 100 (45 mil), UltraPly TPO XR 115 (60 mil)
Adhesive: Firestone ISO Spray or Firestone XR Stick Adhesive
Construction: New, Retrofit or Tear-off
Classification: Class A

UL Assembly Number	Deck Type	Insulation Assembly	Insulation Minimum Thickness	Maximum Slope	Notes	Class, Type
176.	NC C*	<u>Insulation (Optional):</u> Firestone ISO 95+ GL, Resista, or ISOGARD HD	Any	¼"	*DensDeck, ¼"	A, Fully Adhered

179/180.	NC C*	Structural Concrete or Lightweight Concrete decks only	---	¼"/½"	*DensDeck, ¼"	A, Fully Adhered
177.	C/NC	<u>Insulation (Optional):</u> Any UL Classified any thickness <u>Barrier Board:</u> DensDeck	Any ¼"	½"		A, Fully Adhered

Firestone Mechanically Attached Systems

Membrane: UltraPly TPO (45,60 or 80 mil), UltraPly Platinum (80 mil)
Construction: New, Retrofit or Tear-off
Classification: Class A

UL Assembly Number	Deck Type	Insulation Assembly	Insulation Minimum Thickness	Maximum Slope	Membrane	Class, Type
58.	C/NC	<u>Insulation (Optional):</u> Any UL Classified any thickness <u>Cover Board:</u> DensDeck	Any ¼"	4"	Ultraply TPO	A, Mechanically Attached
58A	NC	---	N/A	4"	UltraPly TPO	A, Mechanically Attached
57.	NC	<u>Insulation (Optional):</u> Any UL Classified any thickness <u>Cover Board:</u> Glass fiber, wood fiber, or perlite	Any ½"	½"	UltraPly TPO	A, Mechanically Attached
76.	C/NC	Two layers of "VersaShield Underlayment" or "VersaShield FB-2S"	---	1"	UltraPly TPO	A, Mechanically Attached
56.	NC	<u>Insulation:</u> Firestone ISO 95+ GL	Any	½"	UltraPly TPO	A, Mechanically Attached
63.	C/NC	Two or more layers of Atlas "FR 50", mechanically fastened	---	½"	UltraPly TPO	A, Mechanically Attached
91.	NC	<u>Insulation (Optional):</u> Any UL Classified any thickness <u>Insulation (Required):</u> Firestone Resista	Any ½"	1"	UltraPly TPO	A, Mechanically Attached

UL Internal Fire Ratings

In order to determine the resistance of a building to internal sources of fire, Underwriters Laboratories has conducted extensive testing and classification of wall, floor/ceiling and roof/ceiling assemblies. UL classified assemblies are rated according to the time in hours the assembly will contain a fire and still maintain structural integrity. Testing is conducted in accordance with UL Standard 263 (ASTM E-119), which is recognized by all major building codes.

Roof/Ceiling Assemblies are listed in the UL Fire Resistance Directory - Vol. 1 under the prefix "P" and are classified by hourly fire rating according to the type of protection used to contain a fire:

Assembly	Protection Used
P000 – P099	Concealed grid suspended ceiling
P200 – P299	Exposed grid suspended ceiling
P400 – P499	Metal lathe (plaster) ceiling
P500 – P599	Gypsum board ceiling
P600 – P699	Miscellaneous fireproofing
P700 – P799	Spray-Applied Resistive Material
P800 – P899	Spray-Applied Resistive Material
P900 – P999	Unprotected concrete or composite decks

It should be noted that the roof membrane forms only a small part of the total roof/ceiling assembly. In order for a structure to qualify for a particular "P" Assembly or Roof Deck Construction, **all** materials used to construct the assembly (including roof decking, ceiling materials, light fixtures, duct work and structural support members) must be UL classified and installed as described in the appropriate UL Directories.

The insulations listed with each of the following "P" Assemblies are not, in most cases, the only UL accepted insulations for that assembly. Consult the UL Fire Resistance Directory - Vol. 1 for "P" Assembly information and the UL Roofing Materials and Systems Directory for Roof Deck Construction information, or call Firestone Technical Services for additional accepted insulations.

UL has indicated on page 8 of the 2008 Fire Resistance Directory - Vol. 1 that "Class A, B or C roof coverings consisting of hot mopped or cold applied bituminous materials or a roof covering material classified under 'Roofing Membranes' (CHCI) may be applied directly to the concrete or wood surface of floor designs being used as roofs without a reduction of fire resistance ratings." They further state on page 8 that "Roof insulation is to be carefully controlled relative to manufacturer, type and thickness as specified. Less than the specified thickness could result in higher temperatures on the roof covering while a greater thickness of insulation could cause earlier structural failure. Classified polystyrene insulation, with a density of 5 pcf or less, may be placed on concrete floors or structural concrete roofs without reducing the assembly rating.

When ...polyisocyanurate insulation is used over concrete in D 900 Series Designs, the unrestrained beam rating shall be increased by a minimum of ½ hour."

Roof Deck Constructions are listed in the UL Roofing Materials and Systems Directory and are rated according to the interior flame spread of the assembly as compared to the flame spread of a typical built-up roof installed over a metal deck (UL 1256). Roof Deck Constructions may also be classified according to wind uplift performance. The fire rating of a UL Roof Deck Construction is similar to the Factory Mutual Class I internal fire (calorimeter) rating and they are deemed equivalent by the Model Building Code Agencies.

UL Roof Deck Constructions and "P" Assemblies Deck Constructions (Tested in accordance to UL 1256)

Firestone UltraPly TPO 96/120 roofing systems are classified for use in the following Deck Construction:

1, 2, 9, 14, 120, 123, 158, 200, 219, 237, 260, 276, 289, 292, 325, 374, 411, 412, 413, 419, 421, 440, 441, 444, 457, and 458

Consult Roof Deck Constructions (TGKX) in the UL Roofing Materials and Systems Directory, your regional technical coordinator or the Firestone Codes Department for an acceptable insulation for use in these constructions.

"P" Assemblies (Designs)

Firestone TPO 96/120 roofing systems are classified for use in the following hourly roof / ceiling designs.

Ballasted, adhered or mechanically attached systems with or without optional wood fiber or mineral board insulation for use in Design

Nos. [P215](#), [P216](#), [P225](#), [P227](#), [P230](#), [P231](#), [P242](#), [P246](#), [P251](#), [P259](#), [P405](#), [P406](#), [P407](#), [P410](#), [P508](#), [P510](#), [P511](#), [P512](#), [P513](#), [P514](#), [P519](#), [P701](#), [P708](#), [P709](#), [P710](#), [P711](#), [P712](#), [P717](#), [P718](#), [P719](#), [P720](#), [P722](#), [P723](#), [P725](#), [P726](#), [P727](#), [P728](#), [P729](#), [P730](#), [P731](#), [P732](#), [P733](#), [P734](#), [P735](#), [P737](#), [P738](#), [P739](#), [P801](#), [P810](#), [P811](#), [P815](#), [P819](#), [P822](#), [P824](#), [P825](#), [P826](#), [P827](#), [P902](#), [P903](#), [P904](#), [P905](#), [P906](#), [P907](#), [P908](#), [P909](#), [P910](#), [P911](#), [P912](#), [P913](#), [P914](#), [P915](#), [P916](#), [P917](#), [P919](#), [P920](#), [P921](#), [P922](#), [P923](#), [P925](#), [P926](#), [P927](#), [P928](#), [P929](#), [P930](#), [P931](#).

Consult Fire Resistance Ratings (BXUV) in the UL Fire Resistance Directory, your regional technical coordinator or the Firestone Codes Department for an acceptable insulation, thickness and additional requirements.

NOTE: The accepted insulation must be used in a UL Class A, B or C rated roofing assembly. UL acceptable system (e.g., adhering EPDM to Perlite or Fiberglass) listed for "P" design may not be approved for installation and warranty by Firestone. Contact Firestone Specifications and/or your Firestone Regional Technical Coordinator concerning acceptance.

Factory Mutual General Information

Factory Mutual Class 1 Approvals cover a wide range of testing of roofing products, including tests for fire resistance, corrosion resistance, fuel contribution and hail damage, Factory Mutual Approvals are known best for the uplift resistance, 1-60, 1-90, etc. afforded by an FM Approved roofing assembly:

- FM 1-60 assemblies have been tested to withstand 60 psf air pressure applied for a period of one minute as well as one minute at the 30 and 45 psf levels.
- FM 1-90 assemblies have been tested to withstand 90 psf air pressure applied for a period of one minute as well as one minute at the 30, 45, 60 and 75 psf levels.
- Higher uplift ratings are possible based on the deck type and its attachment, fastener density and row spacing where applicable.

When Factory Mutual 1-60 or 1-90 uplift ratings are specified, additional insulation attachment and reduced perimeter and corner batten (in-seam plate or batten for Reinforced Systems) spacing will/may be required. Consult the current edition of Factory Mutual Loss Prevention Data Sheets 1-28 and 1-29 for instructions for determining the required corner and perimeter dimensions and reduced spacing and increased fastener densities.

Ground Roughness Definitions

The descriptions below are based on information in ASCE 7. While information on this subject in the body of that standard is relatively brief, the designer must read the considerable additional information provided in the related commentary section of that document, particularly when the exposure is not obvious.

For Exposure Category B to be used:

- A. The exposing terrain should include urban and suburban areas, wooded areas, or other terrain with numerous closely spaced obstructions having the size of single-family dwellings or larger.
- B. Use of this exposure category should be limited to those areas for which the above terrain prevails in all directions for a distance of at least 2600 ft (800 m) or 20 times the height of the building or other structure, whichever is greater.
- C. Limited openings in this terrain, such as small parking lots, roads, road intersections, playing fields, underdeveloped lots, and tree clearings can be tolerated. For openings that exceed 600 ft (180 m) in total length measured radially from the building and 165 ft [50 m] in width, use surface roughness exposure C.
- D. For buildings whose height is less than or equal to 30 ft (9.1 m), the prevailing exposure B distance may be reduced to 1500 ft (460 m).
- E. In cases where the difference between exposures B and C is not obvious, use exposure C.

Exposure Category C

NOTE: In cases where the difference between exposure B and C is not obvious, use exposure C.

For Exposure Category C to be used:

- A. The exposing terrain should be open with scattered obstructions having heights generally less than 30 ft (9 m), such as flat, open country and grasslands, and in all cases where exposures B and D do not apply.
- B. This also includes where surface roughness exposure B terrain is interrupted by clearings (parking lots, wide roads, road intersections, playing fields, underdeveloped lots, tree clearings, etc.) of greater than 600 ft (180 m) in total length measured radially from the building and exceeding 165 ft (50 m) in width.

Exposure Category D

NOTE: Some examples of D exposures include inland waterways, the Great Lakes, and coastal areas.

See fig. 3.2.2.3 in FM Global LPDA 1-28 for examples of Exposure D requirements.

For Exposure Category D to be used in determining the design wind pressure, all of the following must be met:

- A. The terrain upwind of the structure must be flat, unobstructed areas or water surfaces including smooth mud flats, salt flats, and unbroken ice and is present in the upwind direction for a distance greater than approximately 5000 ft (1500 m) or 20 times the building height, and
- B. The building must be within the greater of 600 ft (180 m) or 20 times the building or structure height from the terrain (see Fig. 3.2.2.3), even if the terrain between the building and the terrain described in A. above would otherwise be considered B or C.

Ballasted Systems

Factory Mutual tests and rates only fully adhered and mechanically attached systems; Factory Mutual does accept the use of Ballasted Roof Systems on a job-to-job basis for FM insured clients. According to Mr. Edward J. Ward, Construction Standards Manager for Factory Mutual Research, "... the Factory Mutual system windstorm loss experience has been extremely favorable for single ply ballasted roof systems. When these roofs are installed in accordance with (Factory Mutual) Loss Prevention Data Sheet 1-29, they are equally acceptable to Factory Mutual approved roofs."

General Notations

PLEASE NOTE: Not all FM-rated assemblies that use Firestone roofing products are eligible for the Firestone Red Shield, Red Shield Medallion, or Platinum Warranty. The Firestone standards, guidelines, and specifications regarding roofing system components and attachment for the warranty desired must be followed.

RoofNav® assemblies are summarized in the following tables; however, an assembly search should be conducted in order to confirm the attachment rates and requirements set for in the approval number. In all occasions, should a discrepancy occur between this guide and RoofNav, the published information located in the approval at www.roofnav.com should be adhered and utilized.

Additionally, please be aware that the following assemblies typically are in reference to the field of the roof rating and attachment. Please refer to FM Global Loss Prevention Data Sheet 1-28 and 1-29 to determine the requirements for additional fastening requirements in the perimeter and corner.

In all cases, when the project is actually Factory Mutual insured, please consult the FM agent assigned to the review of the project to ensure compliance. The below stated assemblies may not be suitable for a Firestone Warranty. Prior to installation, contact a Firestone Representative for approval of assembly for warranty purposes.

It is acceptable to use multiple layers of FM Approved insulation, **mechanically secured through all layers**, provided all of the following are true:

- All layers are the same insulation;
- The total insulation thickness is not greater than the maximum FM Approved thickness of the insulation;
- The mechanical fastening and wind uplift rating are per the FM Approval of the top layer; and,
- The roof cover/insulation/fastener combination is FM Approved.

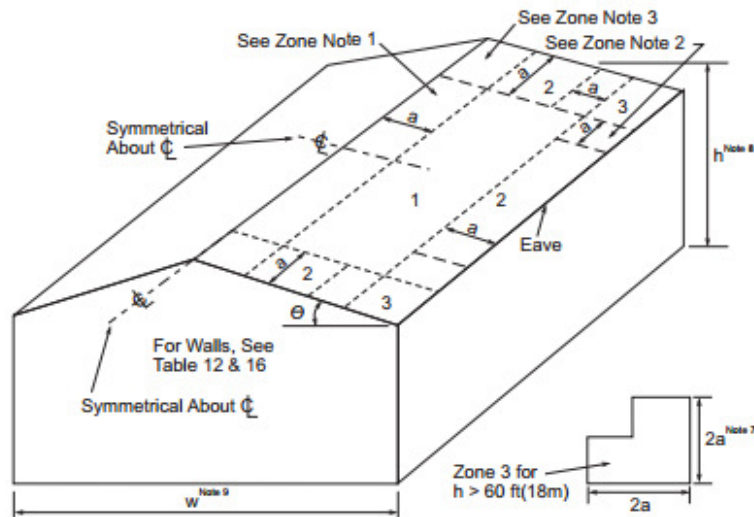
Water Based Bonding Adhesive-P (WBBA-P) is the equivalent to Water Based Bonding Adhesive-S (WBBA-S).

Field/Corner/Perimeter Definitions

The following diagram is direct form the FM Global Property Lost Prevention Data Sheet 1-28.

This outlines how to calculate your perimeter and corner areas based on the building size and relative conditions.

Table 6. Roof Design Outward Pressure Multipliers for Roof Zones 1, 2, and 3



Roof Design Negative Pressure Multipliers Zones 1, 2, 3 for Flat and Gabled Roofs							
Apply multipliers to pressure values in Tables 3, 4, and 5, as appropriate.							
Mean Roof Height, h	Roof Slope	Enclosed Building			Partially Enclosed Building ⁶		
		Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
$h \leq 60$ ft (18 m); and when $h/w \leq 1$ for $60 < h < 90$ ft (18 < $h < 27.4$ m)	$\theta \leq 7^\circ$	1.0	1.68	2.53	1.31	1.99	2.85
	$7^\circ < \theta \leq 27^\circ$	0.92	1.59	2.36	1.23	1.91	2.67
	$27^\circ < \theta \leq 45^\circ$	1.0	1.17	1.17	1.31	1.48	1.48
when $h/w > 1$ for 60 ft < $h < 90$ ft (18 < $h < 27.4$ m) See Note 6 below	$\theta \leq 10^\circ$	1.34	2.10	2.86	1.65	2.42	3.18
	$10^\circ < \theta \leq 27^\circ$	0.92	1.59	2.36	1.23	1.91	2.67
	$27^\circ < \theta \leq 45^\circ$	1.0	1.17	1.17	1.31	1.48	1.48
$h \geq 90$ ft (27.4 m) See Note 6 below	$\theta \leq 10^\circ$	1.0	1.57	2.14	1.23	1.80	2.37
	$10^\circ < \theta \leq 27^\circ$	0.68	1.19	1.76	0.92	1.42	1.99
	$27^\circ < \theta \leq 45^\circ$	0.75	0.87	0.87	0.98	1.11	1.11

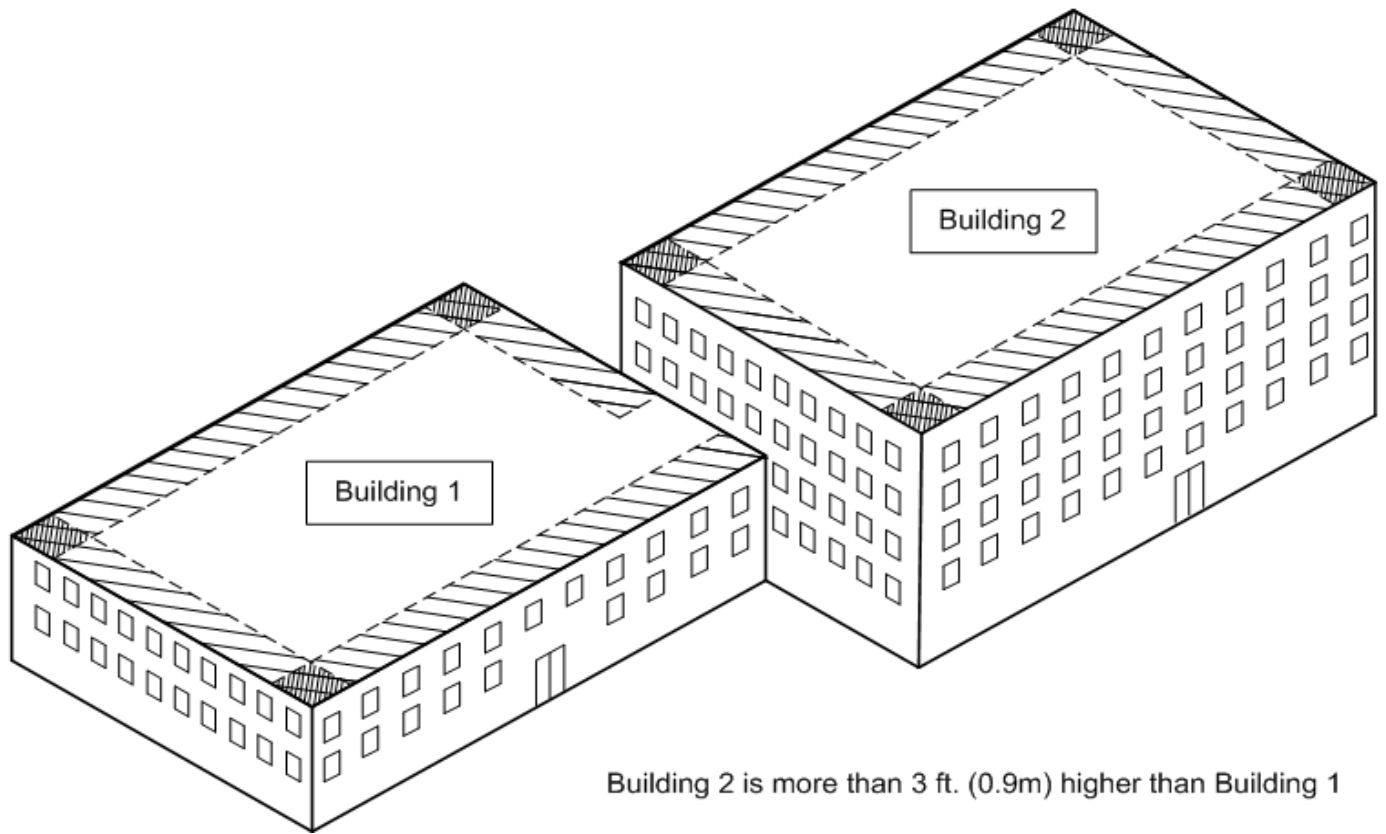
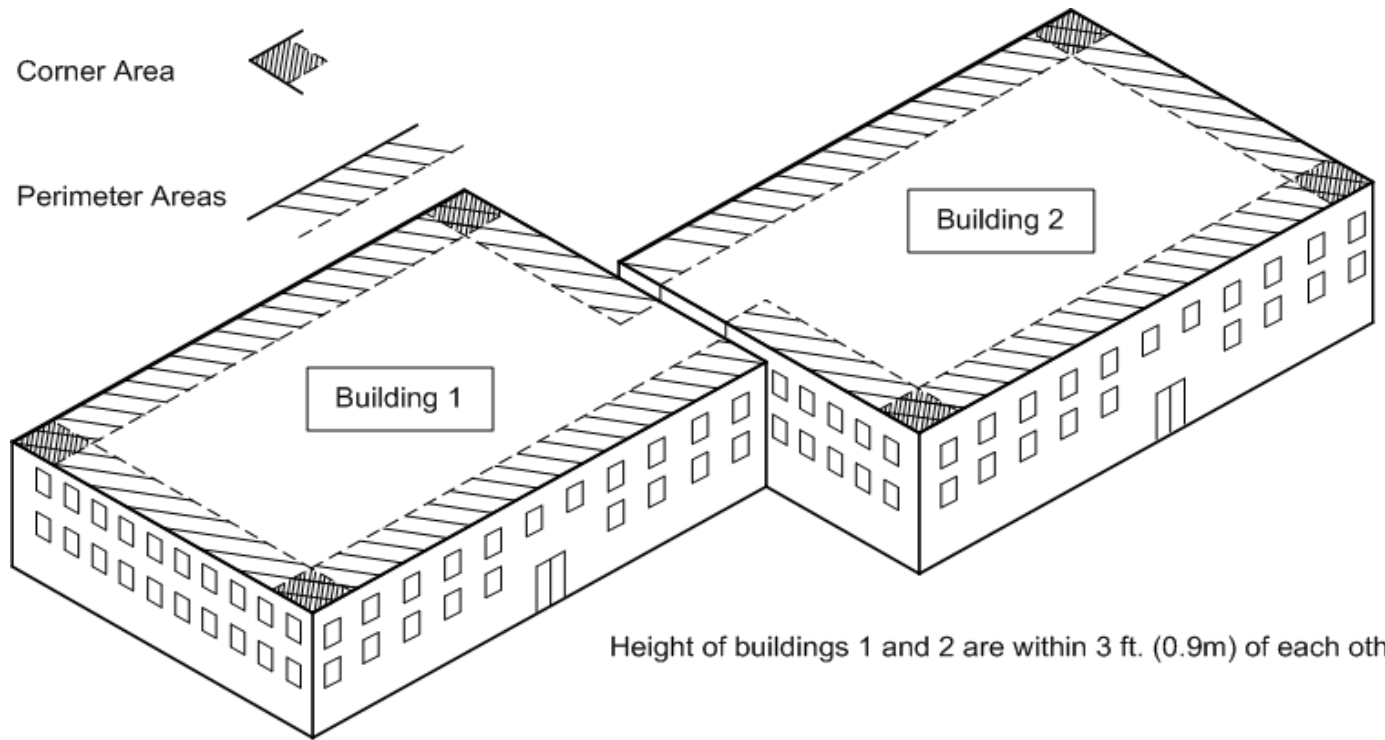
- Zone Notes:
- Zone 1 except Zone 2 if $\theta > 7^\circ$.
 - Zone 2 except Zone 3 if $\theta \leq 7^\circ$ and $h > 60$ ft (18 m).
 - Zone 2 except Zone 3 if $\theta > 7^\circ$ and $h \leq 60$ ft (18 m).
 - If a parapet height ≥ 3 ft (1 m) is provided around the perimeter of the roof with $\theta \leq 7^\circ$ for $h \leq 60$ ft (18 m) and $\theta \leq 10^\circ$ for $h > 60$ ft (18 m), treat Zone 3 as Zone 2.
 - $7^\circ = 1\frac{1}{2}$ in./12 in. (125 mm/m); $10^\circ = 2$ in./12 in. (167 mm/m); $27^\circ = 6$ in./12 in. (500 mm/m); $45^\circ = 12$ in./12 in. (1 m/m).
 - Partially enclosed building multipliers for roofs are based only on openings affecting the top story.
 - Value of "a":
 - For $h \leq 60$ ft (18 m), "a" is the smaller of 0.1 times the building lesser plan dimension or 0.4 times h , and never less than 4% of the least horizontal dimension, or 3 ft (0.9 m). Zone 3 is a square with dimensions "a".
 - For $h > 60$ ft (18 m), "a" is 0.1 times the building lesser plan dimension, but not less than 3 ft (0.9 m). Zone 3 is an ell with dimensions "2a".
 - Value of "h":
 - For slopes $\leq 10^\circ$, h = eave height
 - For slopes $> 10^\circ$, h = mean roof height
 - Value of "w" is based on the lesser plan dimension.

3.3.1 Roof Overhangs

Use Table 7 only as an exception to 2.2.2.2 where roof overhangs extend inward beyond the limits of the Zone 2 and 3 design areas. Apply these multipliers to the wind pressures that would be needed for the field, perimeter, and corners for roofs without overhangs.

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Perimeter and Corner Treatment of Adjoining Buildings



Prescriptive Enhancement Options: Perimeter and Corner

For all deck types, where roof covers are adhered to some combination of mechanically fastened insulation, cover board, or thermal barriers, prescriptive enhancements may be used for securement of the perimeter and corner areas, as long as one of the conditions below applies:

- The building is in a non-hurricane prone region where the design wind speed does not exceed 90 mph and the roof height does not exceed 75 ft (23 m). Note the roof height is limited to 30 ft (9.1 m) if the building is located in surface roughness exposure D (see DS 1-28) and the building is partially enclosed.
- Or
- The recommended field of roof rating needed per DS 1-28 does not exceed Class 1-75 (3.6 kPa).
- Or
- The building is located in a non-hurricane prone area and the recommended field of the roof rating per Datasheet 1-28 does not exceed Class 1-90.

For any of the three conditions above, increase the number of fasteners per board over the FM Approved field of the roof spacing by the following:

- 50% minimum in the roof perimeter, but at least one fastener per 2 ft². (1 per 0.19 m²). It is not necessary to install fasteners closer than one per 1 ft² (1 per 0.09 m²).
- One fastener per 1 ft² (1 per 0.09 m²) in corner areas.
- Round up to the next whole number of fasteners, if necessary.

**You must verify the included assemblies in the charts below with the associated Firm's (UL, FM, etc.).
Not all of the information included in the RoofNav assemblies will be listed in the charts below.**

**You must verify that all assemblies meet Firestone Building Products warranty requirements with the
associated regions technical team.**

**NOTE: You must verify if any portion of the assembly needs primer. Most self adhering materials require
primer to be used.**

Firestone Fully Adhered UltraPly TPO direct to ISO 95+ GL – Mechanically Attached – Steel Deck

Uplift	Deck Type	Vapor Barrier/Thermal Barrier	Insulation	Insulation Attachment	Membrane Options	Membrane Attachment	RoofNav Assembly Number
1-75 IF: 1 EF: A Slope: ¼"	Steel 22-16 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	1"-12" Thick ISO 95+ GL Tapered ISO Resista	Min. 12 HD fasteners per 4'x8' board	45-80 mil. UltraPly TPO UltraPly TPO SA EZ TPO	Single-Ply LVOC Single-Ply LVOC (1168) UltraPly Bonding Water Based Bonding SA – Self Adhered	319480-0-0
1-90 IF: 1 EF: A Slope: ¼"	Steel 22-16 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	2"-12" Thick ISO 95+ GL Tapered ISO Resista	Min. 8 HD fasteners per 4'x8' board	45-80 mil. UltraPly TPO UltraPly TPO SA EZ TPO	Single-Ply LVOC Single-Ply LVOC (1168) UltraPly Bonding SA – Self Adhered	400255-0-0
1-120 IF: 1 EF: A Slope: ¼"	Steel 22-18 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	1.5"-12" Thick ISO 95+ GL Tapered ISO	Min. 18 HD fasteners per 4'x8' board	45-80 mil. UltraPly TPO UltraPly TPO SA EZ TPO	Single-Ply LVOC Single-Ply LVOC (1168) UltraPly Bonding SA – Self Adhered	400214-0-0
1-135 IF: 1 EF: A Slope: ¼"	Steel 22-18 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	2"-12" Thick ISO 95+ GL Tapered ISO	Min. 16 HD fasteners per 4'x8' board	45-80 mil. UltraPly TPO UltraPly TPO SA EZ TPO	Single-Ply LVOC Single-Ply LVOC (1168) UltraPly Bonding SA – Self Adhered	400278-0-0
1-150 IF: 1 EF: A Slope: ¼"	Steel 22-18 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	2"-12" Thick ISO 95+ GL Tapered ISO	Min. 20 HD fasteners per 4'x8' board	45-80 mil. UltraPly TPO UltraPly TPO SA EZ TPO	Single-Ply LVOC (1168) UltraPly Bonding SA – Self Adhered	400276-0-0
1-165 IF: 1 EF: A Slope: ¼"	Steel 22-18 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	1.5"-12" Thick ISO 95+ GL Tapered ISO	Min. 24 HD fasteners per 4'x8' board	45-80 mil. UltraPly TPO UltraPly TPO SA EZ TPO	Single-Ply LVOC (1168) UltraPly Bonding SA – Self Adhered	400692-0-0
1-180 IF: 1 EF: A Slope: ¼"	Steel 20-18 ga. 33 ksi 72" span -or- 22 ga. 69" span 33 ksi	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	1.5"-12" Thick ISO 95+ GL Tapered ISO	Min. 24 HD fasteners per 4'x8' board	45-80 mil. UltraPly TPO UltraPly TPO SA EZ TPO	Single-Ply LVOC (1168) UltraPly Bonding SA – Self Adhered	400275-0-0

Firestone Fully Adhered UltraPly TPO direct to a Cover Board & Insulation Mech. Attached – Steel Deck

Uplift	Deck Type	Vapor Barrier/ Thermal Barrier	Cover Board /Insulation	Cover Board/ Insulation Attachment	Membrane Options	Membrane Attachment	RoofNav Assembly Number
1-60 IF: 1 EF: A Slope: 2.5"	Steel 22-16 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	Cover Board: Min. ½" Dens Deck/Securock Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO Resista	Cover Board: Min. 10 HD fasteners per 4'x8' board Insulation: Loose Laid	45-80 mil. UltraPly TPO EZ TPO	Single-Ply LVOC Single-Ply LVOC (1168) UltraPly Bonding Water Based Bonding	112787-0-0



1-60 IF: 1 EF: A Slope: 2.5"	Steel 22-16 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	Cover Board: Min. ½" Securock Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO Resista	Cover Board: Min. 10 HD fasteners per 4'x8' board Insulation: Loose Laid	45-80 mil. UltraPly TPO SA	SA – Self Adhered	400815-0-0
1-75 IF: 1 EF: A Slope: 1/2"	Steel 22-16 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	Cover Board: Min. ½" Structodek Insulation: 1"-12" Thick ISO 95+ GL Tapered ISO Resista	Cover Board: Min. 12 HD fasteners per 4'x8' board Insulation: Loose Laid	45-80 mil. UltraPly TPO EZ TPO	Single-Ply LVOC Single-Ply LVOC (1168) UltraPly Bonding Water Based Bonding	2063-0-0
1-90 IF: 1 EF: A Slope: 2.5"	Steel 22-16 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	Cover Board: Min. ¼" Dens Deck/ ½" Securock Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO Resista	Cover Board: Min. 12 HD fasteners per 4'x8' board Insulation: Loose Laid	45-80 mil. UltraPly TPO UltraPly TPO SA EZ TPO	Single-Ply LVOC Single-Ply LVOC (1168) UltraPly Bonding SA – Self Adhered	209896-0-0
1-90 IF: 1 EF: A Slope: ¼"	Steel 22-16 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	Cover Board: ½" ISOGARD HD Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO Resista	Cover Board: Min. 12 HD fasteners per 4'x8' board Insulation: Loose Laid	45-80 mil. UltraPly TPO UltraPly TPO SA EZ TPO	Single-Ply LVOC Single-Ply LVOC (1168) UltraPly Bonding SA – Self Adhered	233370-0-0
1-105 IF: 1 EF: A Slope: 2.5"	Steel 22-18 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	Cover Board: Min. ¼" Dens Deck Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO Resista	Cover Board: Min. 18 HD fasteners per 4'x8' board Insulation: Loose Laid	45-80 mil. UltraPly TPO UltraPly TPO SA	Single-Ply LVOC Single-Ply LVOC (1168) SA – Self Adhered	394344-0-0
1-120 IF: 1 EF: A Slope: ¼"	Steel 22-18 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	Cover Board: ½" ISOGARD HD Insulation: 1.5"-4" Thick ISO 95+ GL Tapered ISO Resista	Cover Board: Min. 24 HD fasteners per 4'x8' board Insulation: Loose Laid	45-80 mil. UltraPly TPO UltraPly TPO SA EZ TPO	Single-Ply LVOC Single-Ply LVOC (1168) UltraPly Bonding SA – Self Adhered	290589-0-0
1-135 IF: 1 EF: A Slope: 2.5"	Steel 22-18 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	Cover Board: Min. ½" Dens Deck Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO Resista	Cover Board: Min. 18 HD fasteners per 4'x8' board Insulation: Loose Laid	45-80 mil. UltraPly TPO UltraPly TPO SA	Single-Ply LVOC Single-Ply LVOC (1168) SA – Self Adhered	395478-0-0
1-150 IF: 1 EF: A Slope: 2.5"	Steel 22-18 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	Cover Board: Min. ½" Dens Deck Prime/Securock Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO	Cover Board: Min. 24 HD fasteners per 4'x8' board Insulation: Loose Laid	45-80 mil. UltraPly TPO UltraPly TPO SA EZ TPO	Single-Ply LVOC Single-Ply LVOC (1168) UltraPly Bonding SA – Self Adhered	200412-0-0
1-150 IF: 1 EF: A Slope: ½"	Steel 22-18 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	Cover Board: Min. 7/16" OSB Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO	Cover Board: Min. 16 HD fasteners per 4'x8' board Insulation: Loose Laid	45-80 mil. UltraPly TPO UltraPly TPO SA EZ TPO	Single-Ply LVOC Single-Ply LVOC (1168) UltraPly Bonding SA – Self Adhered	77830-0-0
1-165 IF: 1	Steel 22-18 ga. 33 ksi	OPTIONAL: 4/6 mil. Polyethylene or	Cover Board: Min. ½" Dens Deck Prime/Securock	Cover Board: Min. 32 HD fasteners per	45-80 mil. UltraPly TPO UltraPly TPO SA	Single-Ply LVOC Single-Ply LVOC (1168) UltraPly Bonding	328645-0-0

EF: A Slope: 2.5"	72" span	V-Force SA over ¼" Dens Deck	Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO	4'x8' board Insulation: Loose Laid	EZ TPO	SA – Self Adhered	
1-165 IF: 1 EF: A Slope: ½"	Steel 22-18 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	Cover Board: Min. 7/16" OSB Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO	Cover Board: Min. 32 HD fasteners per 4'x8' board Insulation: Loose Laid	45-80 mil. UltraPly TPO	Single-Ply LVOC (1168) UltraPly Bonding	328834-0-0
1-210 IF: 1 EF: A Slope: 2.5"	Steel 20-18 ga. 33 ksi 72" span - Steel 22 ga. 33 ksi 64" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	Cover Board: Min. ½" Dens Deck Prime/Securock Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO	Cover Board: Min. 32 HD fasteners per 4'x8' board Insulation: Loose Laid	45-80 mil. UltraPly TPO EZ TPO	Single-Ply LVOC Single-Ply LVOC (1168) UltraPly Bonding	200414-0-0
1-255 IF: 1 EF: A Slope: 2.5"	Steel 22-18 ga. 80 ksi 72" span	N/A	Cover Board: Min. ½" Dens Deck Prime Insulation: 1.5"-12" Thick ISO 95+ GL	Cover Board: Min. 32 HD fasteners per 4'x8' board Insulation: Loose Laid	45-80 mil. UltraPly TPO	Single-Ply LVOC Single-Ply LVOC (1168)	388009-0-0
1-300 IF: 1 EF: A Slope: ½"	Steel 22-18 ga. 80 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	Cover Board: Min. 7/16" OSB Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO	Cover Board: Min. 32 HD fasteners per 4'x8' board Insulation: Loose Laid	45-80 mil. UltraPly TPO EZ TPO	Single-Ply LVOC (1168) UltraPly Bonding	171664-0-0

Firestone Fully Adhered UltraPly TPO direct to an Adhered Cover Board & Mech. Attached Insulation – Steel Deck

Uplift	Deck Type	Vapor Barrier/ Thermal Barrier	Cover Board /Insulation	Cover Board/ Insulation Attachment	Membrane Options	Membrane Attachment	RoofNav Assembly Number
1-75 IF: 1 EF: A Slope: ¼"	Steel 22-16 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	Cover Board: ½" ISOGARD HD Insulation: 2"-12" Thick ISO 95+ GL Tapered ISO Resista	Cover Board: 12" o.c. bead ISO FIX ISO Spray Twin Pack ISO Stick Insulation: Min. 8 HD Fasteners per 4'x8' board	45-80 mil. UltraPly TPO UltraPly TPO SA	Single-Ply LVOC Single-Ply LVOC (1168) UltraPly Bonding SA – Self Adhered	387410-0-0
1-90 IF: 1 EF: A Slope: ¼"	Steel 22-16 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	Cover Board: ½" ISOGARD HD Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO Resista	Cover Board: 12" o.c. bead ISO Spray Twin Pack Insulation: Min. 16 HD Fasteners per 4'x8' board	45-80 mil. UltraPly TPO UltraPly TPO SA	Single-Ply LVOC (1168) UltraPly Bonding SA – Self Adhered	233373-0-0
1-90 IF: 1 EF: A Slope: ¼"	Steel 22-16 ga. 33 ksi 72" span	OPTIONAL: ¼" minimum Dens Deck Dens Deck Prime Securock	Cover Board: ½" ISOGARD HD Insulation: 2.2"-12" Thick ISO 95+ GL Tapered ISO	Cover Board: 12" o.c. bead ISO Spray R Twin Pack Insulation: Min. 8 HD	45-80 mil. UltraPly TPO UltraPly TPO SA	Single-Ply LVOC Single-Ply LVOC (1168) UltraPly Bonding SA – Self Adhered	400915-0-0



			Resista	Fasteners per 4'x8' board			
1-90 IF: 1 EF: A Slope: 2.5"	Steel 22-16 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	Cover Board: Min. ¼" thick Dens Deck Prime/ Securock Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO	Cover Board: 12" o.c. bead ISO Spray R Twin Pack Insulation: Min. 16 HD Fasteners per 4'x8' board	45-80 mil. UltraPly TPO UltraPly TPO SA	Single-Ply LVOC (1168) UltraPly Bonding SA – Self Adhered	400885-0-0
1-90 IF: 1 EF: A Slope: 2.5"	Steel 22-16 ga. 33 ksi 72" span	OPTIONAL: ¼" minimum Dens Deck Dens Deck Prime Securock	Cover Board: Min. ½" thick Dens Deck Prime/ Securock Insulation: 2.2"-12" Thick ISO 95+ GL Tapered ISO	Cover Board: 12" o.c. bead ISO Spray R Twin Pack Insulation: Min. 8 HD Fasteners per 4'x8' board	45-80 mil. UltraPly TPO UltraPly TPO SA	Single-Ply LVOC Single-Ply LVOC (1168) UltraPly Bonding SA – Self Adhered	384613-0-0
1-165 IF: 1 EF: A Slope: ¼"	Steel 22-18 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	Cover Board: ½" ISOGARD HD Insulation: 2"-8" Thick ISO 95+ GL Tapered ISO	Cover Board: 6" o.c. bead ISO Fix ISO Spray R Twin Pack ISO Stick Insulation: Min. 20 HD Fasteners per 4'x8' board	45-80 mil. UltraPly TPO UltraPly TPO SA	Single-Ply LVOC Single-Ply LVOC (1168) UltraPly Bonding SA – Self Adhered	342142-0-0
1-165 IF: 1 EF: A Slope: ¼"	Steel 22-18 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	Cover Board: ½" ISOGARD HD Insulation: 2"-12" Thick ISO 95+ GL Tapered ISO	Cover Board: 4" o.c. bead ISO Fix ISO Spray R Twin Pack ISO Stick Insulation: Min. 32 HD Fasteners per 4'x8' board	45-80 mil. UltraPly TPO UltraPly TPO SA	Single-Ply LVOC Single-Ply LVOC (1168) UltraPly Bonding SA – Self Adhered	328437-0-0
1-165 IF: 1 EF: A Slope: 2.5"	Steel 22-18 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	Cover Board: Min. ½" thick Dens Deck Prime/ Securock Insulation: 2"-12" Thick ISO 95+ GL Tapered ISO	Cover Board: 4" o.c. bead ISO Fix ISO Spray R Twin Pack ISO Stick Insulation: Min. 32 HD Fasteners per 4'x8' board	45-80 mil. UltraPly TPO UltraPly TPO SA	Single-Ply LVOC Single-Ply LVOC (1168) UltraPly Bonding SA – Self Adhered	328781-0-0
1-180 IF: 1 EF: A Slope: ¼"	Steel 20-18 ga. 33 ksi 72" span 22-18 ga. 80 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	Cover Board: ½" ISOGARD HD Insulation: 2"-12" Thick ISO 95+ GL Tapered ISO	Cover Board: 4" o.c. bead ISO Fix ISO Spray R Twin Pack ISO Stick Insulation: Min. 32 HD Fasteners per 4'x8' board	45-80 mil. UltraPly TPO UltraPly TPO SA	Single-Ply LVOC Single-Ply LVOC (1168) UltraPly Bonding SA – Self Adhered	320446-0-0

1-210 IF: 1 EF: A Slope: 2.5"	Steel 20-18 ga. 33 ksi 72" span 22-18 ga 80 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	Cover Board: Min. ½" thick Dens Deck Prime/ Securock Insulation: 2"-12" Thick ISO 95+ GL Tapered ISO	Cover Board: 4" o.c. bead ISO Fix Twin Pack ISO Stick Insulation: Min. 32 HD Fasteners per 4'x8' board	45-80 mil. UltraPly TPO	Single-Ply LVOC Single-Ply LVOC (1168) UltraPly Bonding	320420-0-0
1-270 IF: 1 EF: A Slope: ¼"	Steel 22-18 ga 80 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck	Cover Board: ½" ISOGARD HD Insulation: 2"-8" Thick ISO 95+ GL Tapered ISO	Cover Board: 4" o.c. bead ISO Fix ISO Spray R Twin Pack ISO Stick Insulation: Min. 32 HD Fasteners per 4'x8' board	45-80 mil. UltraPly TPO	Single-Ply LVOC Single-Ply LVOC (1168) UltraPly Bonding SA – Self Adhered	342147-0-0

Firestone Fully Adhered UltraPly TPO, adhered Cover Board and/or Insulation – V-Force over MA Dens Deck – Steel Deck

Uplift	Deck Type	Vapor Barrier/ Thermal Barrier	Cover Board /Insulation	Cover Board/ Insulation Attachment	Membrane Options	Membrane Attachment	RoofNav Assembly Number
1-90 IF: 1 EF: A Slope: ¼"	22-16 ga. 33 ksi 72" span	V-Force Primer Min. ¼" Dens Deck/ Min. ½" Securock Min. 8 HD fasteners per 4'x8' board	Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO Resista	Insulation: 12" o.c. bead ISO Spray R Twin Pack ISO Stick	45-80 mil. UltraPly TPO UltraPly TPO SA	Single-Ply LVOC Single-Ply LVOC (1168) UltraPly Bonding SA – Self Adhered	294762-0-0
1-90 IF: 1 EF: A Slope: 2.5"	22-16 ga. 33 ksi 72" span	V-Force Primer Min. ¼" Dens Deck/ Min. ½" Securock Min. 8 HD fasteners per 4'x8' board	Cover Board: ¼" min. thick Dens Deck Prime/ Securock Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO Resista	Cover Board & Insulation: 12" o.c. bead ISO Spray R Twin Pack ISO Stick	60-80 mil. UltraPly TPO	Single-Ply LVOC (1168)	307312-0-0

Firestone Mechanically Attached UltraPly TPO – Steel Deck

Uplift	Deck Type	Vapor Barrier/ Thermal Barrier	Cover Board /Insulation	Cover Board/ Insulation Attachment	Membrane Options	Membrane Attachment	RoofNav Assembly Number
1-60 IF: 1 EF: A Slope: 3/4"	20-16 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force or Basegard SA over ¼" Dens Deck (possible primer)	Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO	Min. 5 HD fasteners per 4'x8' board	45-80 mil. UltraPly TPO	Sheet Size: 10' sheets Row Spacing: 114" Fastener spacing: 12" o.c. Firestone HD Fasteners and HD Seam Plates	170476-0-0
	22 ga. 33 ksi 60" span						
	22 ga. 80 ksi 72" span						
1-60 IF: 1 EF: A Slope: 1"	20-16 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force or Basegard SA over ¼" Dens Deck (possible primer)	Cover Board: ½" Thick ISOGARD HD/ Structodek Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO	Min. 5 HD fasteners per 4'x8' board	45-80 mil. UltraPly TPO	Sheet Size: 10' sheets Row Spacing: 114" Fastener spacing: 12" o.c. Firestone HD Fasteners and HD Seam Plates	266089-0-0
	22 ga. 33 ksi 60" span						
	22 ga. 80 ksi 72" span						

1-60 IF: 1 EF: A Slope: 3/4"	18 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force or Basegard SA over ¼" Dens Deck (possible primer)	Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO	Min. 5 HD fasteners per 4'x8' board	45-80 mil. UltraPly TPO	Sheet Size: 12' sheets Row Spacing: 142" Fastener spacing: 6" o.c. Firestone HD Fasteners and HD Seam Plates -or- Firestone HD Fasteners and Batten Strip (M)	335428-0-0
	20 ga. 33 ksi 60" span						
	22 ga. 33 ksi 48" span						
	20 ga. 80 ksi 72" span						
	22 ga. 80 ksi 72" span						
1-60 IF: 1 EF: A Slope: 5"	20-16 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force or Basegard SA over ¼" Dens Deck (possible primer)	Cover Board: ¼" min. thick Dens Deck, Prime or Securock Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO	Min. 5 HD fasteners per 4'x8' board	45-80 mil. UltraPly TPO	Sheet Size: 10' sheets Row Spacing: 114" Fastener spacing: 12" o.c. Firestone HD Fasteners and HD Seam Plates -or- Firestone HD Fasteners and Batten Strip (M)	264245-0-0
	22 ga. 33 ksi 60" span						
	22 ga. 80 ksi 72" span						
1-75 IF: 1 EF: A Slope: 1"	22-18 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene	Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO Resista -or- 1.5"-4" ISOGARD HD Composite Insulation (Optional): 1.5"-9.5" ISO 95+ GL Tapered ISO Resista	Min. 5 HD fasteners per 4'x8' board	45-80 mil. UltraPly TPO	Sheet Size: 8' sheets Row Spacing: 90" Fastener spacing: 12" o.c. Firestone HD Fasteners and HD Seam Plates	339042-0-0
1-75 IF: 1 EF: A Slope: 1"	22-18 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene	Cover Board: ½" Thick ISOGARD HD/ Structodek Insulation: (2)1.5"-12" Thick ISO 95+ GL Tapered ISO -or- 1.5"-8" ISOGARD HD Composite	Min. 5 HD fasteners per 4'x8' board	45-80 mil. UltraPly TPO	Sheet Size: 8' sheets Row Spacing: 90" Fastener spacing: 12" o.c. Firestone HD Fasteners and HD Seam Plates	338538-0-0
1-75 IF: 1 EF: A Slope: 1"	22-18 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force or Basegard SA over ¼" Dens Deck (possible primer)	Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO Resista	Min. 5 HD fasteners per 4'x8' board	60-80 mil. UltraPly TPO	Sheet Size: 10' sheets Row Spacing: 114" Fastener spacing: 12" o.c. Firestone HD Fasteners and HD Seam Plates	375098-0-0
1-75 IF: 1 EF: A Slope: 1"	22-18 ga. 80 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force over ¼" Dens Deck (possible primer)	Cover Board: ½" thick ISOGARD HD/ Structodek Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO	Min. 5 HD fasteners per 4'x8' board	60-80 mil. UltraPly TPO	Sheet Size: 10' sheets Row Spacing: 114" Fastener spacing: 12" o.c. Firestone HD Fasteners and HD Seam Plates	381672-0-0

1-75 IF: 1 EF: A Slope: 1 ¼"	22-18 ga. 80 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force over ¼" Dens Deck (possible primer)	Resista Cover Board: ½" thick Structodek/ FiberTop B Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO Resista	Min. 5 HD fasteners per 4'x8' board	60-80 mil. UltraPly TPO	Sheet Size: 10' sheets Row Spacing: 114" Fastener spacing: 12" o.c. Firestone HD Fasteners and HD Seam Plates	381629-0-0
1-90 IF: 1 EF: A Slope: ¾"	22-18 ga. 80 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force or Basegard SA over ¼" Dens Deck (possible primer)	Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO	Min. 5 HD fasteners per 4'x8' board	45-80 mil. UltraPly TPO	Sheet Size: 8' sheets Row Spacing: 90" Fastener spacing: 12" o.c. Firestone HD Fasteners and HD Seam Plates	76897-0-0
1-90 IF: 1 EF: A Slope: 1"	22-18 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force or Basegard SA over ¼" Dens Deck (possible primer)	Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO Resista -or- 1.5"-4" ISOGARD HD Composite Insulation (Optional): 1.5"-9.5" ISO 95+ GL Tapered ISO Resista	Min. 5 HD fasteners per 4'x8' board	45-80 mil. UltraPly TPO	Sheet Size: 78" Row Spacing: 72" Fastener Spacing: 12" o.c. Firestone HD Fasteners and HD Seam Plates	338363-0-0
1-90 IF: 1 EF: A Slope: 1"	22-18 ga. 80 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene	Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO Resista	Min. 5 HD fasteners per 4'x8' board	45-80 mil. UltraPly TPO	Sheet Size: 12' sheets Row Spacing: 71" Fastener spacing: 12" o.c. *Intermediate Batten Rows Firestone HD Fasteners and Batten Strip (M/P)	343386-0-0
1-90 IF: 1 EF: A Slope: 3/4"	18-19 ga. 33 ksi 72" span 20 ga. 33 ksi 48" span 20 ga. 80 ksi 72" span 22 ga. 80 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force or Basegard SA over ¼" Dens Deck (possible primer)	Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO	Min. 5 HD fasteners per 4'x8' board	45-80 mil. UltraPly TPO	Sheet Size: 10' sheets Row Spacing: 114" Fastener spacing: 6" o.c. Firestone HD Fasteners and HD Seam Plates	166431-0-0
1-90 IF: 1 EF: A Slope: 3/4"	22-18 ga. 80 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force or Basegard SA over ¼" Dens Deck (possible primer)	Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO	Min. 5 HD fasteners per 4'x8' board	45-80 mil. UltraPly TPO	Sheet Size: 8' sheets Row Spacing: 90" Fastener spacing: 12" o.c. Firestone HD Fasteners and HD Seam Plates *WIDE WELD*	76731-0-0
1-90 IF: 1 EF: A Slope: 1"	22-18 ga. 80 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force or Basegard SA over ¼" Dens Deck	Cover Board: ½" thick ISOGARD HD/ Structodek Insulation: 1.5"-12" Thick	Min. 5 HD fasteners per 4'x8' board	45-80 mil. UltraPly TPO	Sheet Size: 8' sheets Row Spacing: 90" Fastener spacing: 12" o.c. Firestone HD Fasteners and HD Seam Plates	266129-0-0

		(possible primer)	ISO 95+ GL Tapered ISO				
1-90 IF: 1 EF: A Slope: 1"	22-16 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck (possible primer)	Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO Resista	Min. 5 HD fasteners per 4'x8' board	45-80 mil. UltraPly TPO	Sheet Size: 10' sheets Row Spacing: 72" Fastener spacing: 12" o.c. RMA Strip w/ Firestone HD Fasteners and HD Seam Plates	382087-0-0
1-105 IF: 1 EF: A Slope: 1"	22-18 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck (possible primer)	Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO Resista	Min. 5 HD fasteners per 4'x8' board	60-80 mil. UltraPly TPO	Sheet Size: 5' sheets Row Spacing: 54" Fastener spacing: 12" o.c. Firestone HD Fasteners and HD Seam Plates	382086-0-0
1-105 IF: 1 EF: A Slope: ¾"	18 ga. 33 ksi 54" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force or Basegard SA over ¼" Dens Deck (possible primer)	Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO	Min. 5 HD fasteners per 4'x8' board	45-80 mil. UltraPly TPO	Sheet Size: 10' sheets Row Spacing: 114" Fastener spacing: 6" o.c. Firestone HD Fasteners and HD Seam Plates	3081-0-0
	20-18 ga. 80 ksi 72" span						
	22 ga. 80 ksi 60" span						
1-105 IF: 1 EF: A Slope: 1"	22-18 ga. 80 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene	Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO Resista -or- 1.5"-12" ISOGARD HD Composite	Min. 5 HD fasteners per 4'x8' board	45-80 mil. UltraPly TPO	Sheet Size: 8' sheets Row Spacing: 90" Fastener spacing: 6" o.c. Firestone HD Fasteners and HD Seam Plates	364311-0-0
1-105 IF: 1 EF: A Slope: 1"	22-18 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck (possible primer)	Cover Board: ½" thick ISOGARD HD/ Structodek Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO Resista	Min. 5 HD fasteners per 4'x8' board	60-80 mil. UltraPly TPO	Sheet Size: 60' sheets Row Spacing: 54" Fastener spacing: 12" o.c. Firestone HD Fasteners and HD Seam Plates	381676-0-0
1-105 IF: 1 EF: A Slope: 1 ¾"	22-18 ga. 33 ksi 72" span	OPTIONAL: 4/6 mil. Polyethylene or V-Force SA over ¼" Dens Deck (possible primer)	Cover Board: ½" thick Structodek/ FiberTop B Insulation: 1.5"-12" Thick ISO 95+ GL Tapered ISO Resista	Min. 5 HD fasteners per 4'x8' board	60-80 mil. UltraPly TPO	Sheet Size: 60' sheets Row Spacing: 54" Fastener spacing: 12" o.c. Firestone HD Fasteners and HD Seam Plates	381634-0-0

Firestone Fully Adhered Uplift Ratings – V-Force Vapor Barrier System

Uplift	Deck Type	Thermal Barrier & Attachment	Vapor Barrier System	Insulation Assembly	Membrane Options	RoofNav Number
1-90 IF: NC EF: A Slope: ¾"	Concrete (New or recover)	Dens Deck/Securock, ¼" min. 8 HD or Concrete Drive fasteners and plates per 4'x8' board	Primed thermal barrier with V-Force	ISO 95+ GL, 1.5" min., 4'x4' boards, Adhered at 12" o.c.: ISO Spray R ISO Twin Pack ISO Stick	UltraPly TPO: Single Ply LVOC S.P. LVOC 1168 UltraPly Bonding UltraPly TPO SA	294593-0-0
1-90 IF: NC EF: A Slope: ¾"	Concrete Min. 2,500 PSI Min. 2" Thick	Dens Deck, ¼" min. Securock ½" min. 8 HD or Concrete Drive fasteners and plates per 4'x8' board	Primed thermal barrier with V-Force	2 Layers - ISO 95+ GL (Flat or Tapered), 1.5" minimum, 4'x4' boards, Adhered at 12" o.c.: ISO Spray R ISO Twin Pack	UltraPly TPO Single Ply LVOC S.P. LVOC 1168 UltraPly Bonding	294633-0-0



				ISO Stick	UltraPly TPO SA	
1-525 IF: NC EF: A Slope: ¼"	Concrete Min. 2,500 PSI Min. 2" Thick	None	Primed substrate with V-Force	Cover Board: ISOGARD HD, ½" min., 4'x4' boards, adhered with I.S.O. Stick, I.S.O. Spray or Twin Pack at 12" o.c. Insulation: 2 Layers - ISO 95+ GL, 1.5" minimum, 4'x4' boards, adhered with I.S.O. Stick, I.S.O. Spray or Twin Pack at 12" o.c.	UltraPly TPO, FA with Single-Ply LVOC or UltraPly Bonding Adhesive Or UltraPly TPO SA	295461-0-0
1-525 IF: NC EF: A Slope: ¼"	Concrete Min. 2,500 PSI Min. 2" Thick	None	Primed substrate with V-Force	Insulation: ISO 95+ GL, 1.5" min., 4'x4' boards Adhered at 12" o.c.: ISO Spray R ISO Twin Pack ISO Stick	UltraPly TPO: Single Ply LVOC S.P. LVOC 1168 UltraPly Bonding	294948-0-0
1-525 IF: NC EF: A Slope: ¼"	Concrete Min. 2,500 PSI Min. 2" Thick	None	Primed substrate with V-Force	Insulation: 2 Layers - ISO 95+ GL, 1.5" min., 4'x4' boards, Adhered at 12" o.c.: ISO Spray R ISO Twin Pack ISO Stick	UltraPly TPO: Single Ply LVOC S.P. LVOC 1168 UltraPly Bonding	294949-0-0
1-495 IF: NC EF: A Slope: 2.5"	Concrete Min. 2,500 PSI Min. 2" Thick	None	Primed substrate with V-Force	Cover Board: Dens Deck Prime or SECUROCK AT ¼" min. Insulation: ISO 95+ GL, 1.5" min., 4'x4' boards Adhered at 12" o.c.: ISO Spray R ISO Twin Pack ISO Stick	UltraPly TPO: Single Ply LVOC S.P. LVOC 1168 UltraPly Bonding UltraPly TPO SA	295522-0-0

Firestone Fully Adhered Uplift Ratings – SBS Vapor Barrier System

New Construction, Concrete Deck, Adhesively Attached Insulation, With Cover Board

Uplift	Deck Type	Vapor Retarder/Primer	Insulation and Attachment	Cover Board and Attachment	Cover Board and Insulation Attachment	Membrane	Membrane Attachment	RoofNav Assembly Number
1-465 IF: NC EF: A Slope: 2.5"	Concrete Min. 2,500 PSI Min. 2" thick	SBS Glass Torch Base SBS Poly Torch Base SBS Smooth Primer: Concrete Primer, Asphaltic	Tapered ISO 95+ GL, 1.5" min., 12" o.c. beads of Twin Pack Adhesive	Cover Board: ¼" min. Dens Deck, Dens Deck Prime, or Securock, 4'x4' boards, 12" o.c. beads of ISO Spray or Twin Pack Adhesive	Cover Board/Insulation: 12" o.c. beads ISO Spray R Twin Pack	UltraPly TPO	UltraPly Bonding Adhesive or Single Ply LVOC Bonding Adhesive	233200-0-0

Firestone Fully Adhered Uplift Ratings

New Construction, Concrete Deck, Adhesively Attached Insulation, Without Cover Board

Uplift	Deck Type	Insulation	Insulation Attachment	Membrane	Membrane Attachment	RoofNav Assembly Number
1-555 IF: NC EF: A Slope: ¼"	Concrete Min. 2,500 PSI Min. 2" Thick	Insulation (2 Layers): ISO 95+ GL(Taper), 1"(.5") min., ISO 95+ GL, 1"-36", 4'x4' boards	Adhered at 12" o.c.: ISO Spray R	.045 mil. min. UltraPly membrane	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	304517-0-0
1-330 IF: NC EF: A Slope: ¼"	Concrete Min. 2,500 PSI Min. 2" Thick	Insulation: ISO 95+ GL, 1.5"-36", 4'x4' boards	Adhered at 12" o.c.: ISO Twin Pack Adhesive	.060 mil. min. UltraPly membrane	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	223517-0-0
1-360 IF: NC EF: A Slope: ¼"	Concrete Min. 2,500 PSI Min. 2" Thick	Insulation: ISO 95+ GL, 1.5"-36", 4'x4' boards	Adhered with full application: ISO Spray	.045 mil. min. UltraPly membrane	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	80684-0-0
1-360	Concrete	Insulation:	Adhered with full application:	.060 mil. min.	Single Ply LVOC Bonding	245813-0-0

IF: NC EF: A Slope: ¼"	Min. 2,500 PSI Min. 2" Thick	ISO 95+ GL, 1.5"-36", 4'x4' boards	Hot Asphalt	UltraPly membrane	Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	
1-480 IF: NC EF: A Slope: ¼"	Concrete Min. 2,500 PSI Min. 2" Thick	Insulation: ISO 95+ GL, 1.5"-36", 4'x4' boards	Adhered at 8" o.c.: ISO Twin Pack Adhesive	.045 mil. min. UltraPly membrane	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	223518-0-0
1-540 IF: NC EF: A Slope: ¼"	Concrete Min. 2,500 PSI Min. 2" Thick Primed: Asphaltic	Insulation: ISO 95+ GL, 1.5"-36", 4'x4' boards	Adhered at 12" o.c.: I.S.O. Stick Adhesive	.045 mil. min. UltraPly membrane	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	228481-0-0
1-570 IF: NC EF: A Slope: ¼"	Concrete Min. 2,500 PSI Min. 2" Thick	Insulation: ISO 95+ GL, 1.5"-36", 4'x4' boards	Adhered at 4" o.c.: ISO Twin Pack Adhesive	.045 mil. min. UltraPly membrane	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	223523-0-0

Firestone Fully Adhered Uplift Ratings

New Construction, Concrete Deck, Adhesively Attached Insulation, With Cover Board

Uplift	Deck Type	Cover Board and Insulation	Cover Board and Insulation Attachment	Membrane	Membrane Attachment	RoofNav Assembly Number
1-120 IF: NC EF: A Slope: 2.5"	Concrete Min. 2,500 PSI Min. 2" Thick Primer: Asphaltic	Cover Board: ¼" min. Dens Deck (Prime) or Securock Insulation: ISO 95+ GL, 1.5"-36", 4'x4' boards	Adhered at 12" o.c.: I.S.O. Stick Adhesive	.045 mil. min. UltraPly membrane	Single Ply LVOC Bonding UltraPly Bonding Adhesive	228479-0-0
1-270 IF: NC EF: A Slope: ¼"	Concrete Min. 2,500 PSI Min. 2" Thick	Cover Board: ½" ISOGARD HD Insulation: ISO 95+ GL, 1.5"-36", 4'x4' boards	Adhered at 12" o.c.: ISO Spray R ISO Twin Pack	.045 mil. min. UltraPly membrane	Water Based Bonding Adhesive	233376-0-0
1-255 IF: NC EF: A Slope: 2.5"	Concrete Min. 2,500 PSI Min. 2" Thick	Cover Board: ¼" min. Dens Deck Prime or Securock Insulation: ISO 95+ GL (Resista), ½"-36", 4'x4' boards	Adhered at 12" o.c.: ISO Spray R ISO Twin Pack	.045 mil. min. UltraPly TPO Or Ultraply TPO SA	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive Self Adhered	223524-0-0
1-90 IF: NC EF: A Slope: 2.5"	Concrete Min. 2,500 PSI Min. 2" Thick V-Force (req.): Self Adhered Primer: Asphaltic Thermal (opt.): Dens Deck, ¼" min.	Cover Board: ¼" min. Dens Deck Prime Insulation (Top): Tapered ISO 95+ GL, Resista, ½"-4", 4'x4' boards Insulation (Bottom): ISO 95+ GL 1.5"-8"	Cover Board and Top Insulation Adhered at 12" o.c.: ISO Fix II ISO Spray R ISO Twin Pack ISO Stick Bottom Insulation: Min. 16 HD fasteners per 4'x8' board Thermal: Loose Laid	.045 mil. min. UltraPly TPO Or Ultraply TPO SA	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive Water Based P Self Adhered	346005-0-0
1-255 IF: NC EF: A Slope: 2.5"	Concrete Min. 2,500 PSI Min. 2" Thick	Cover Board: ¼" min. Dens Deck Prime Insulation: ISO 95+ GL, Resista, ½"-36",	Adhered at 12" o.c.: ISO Spray R ISO Twin Pack	.045 mil. min. UltraPly TPO Or Ultraply TPO SA	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive Self Adhered	223524-0-0

		4'x4' boards				
1-270 IF: NC EF: A Slope: 1/4"	Concrete Min. 2,500 PSI Min. 2" Thick	Cover Board: ½" ISOGARD HD Insulation: ISO 95+ GL, 1.5"-36", 4'x4' boards	Adhered at 12" o.c.: ISO Spray R ISO Twin Pack	.045 mil. min. UltraPly TPO	Water Based Bonding Adhesive	233376-0-0
1-270 IF: NC EF: A Slope: 1/4"	Concrete Min. 2,500 PSI Min. 2" Thick	Cover Board: ½" ISOGARD HD Insulation: ISO 95+ GL, 1.5"-36", 4'x4' boards	Adhered at 12" o.c.: ISO Stick	.045 mil. min. UltraPly TPO	Water Based Bonding Adhesive	233380-0-0
1-375 IF: NC EF: A Slope: 2.5"	Concrete Min. 2,500 PSI Min. 2" Thick	Cover Board: ¼" Dens Deck Prime Or Securock Insulation: ISO 95+ GL, 1.5"-36", 4'x4' boards	Adhered at 8" o.c.: ISO Stick	.045 mil. min. UltraPly TPO Or UltraPly TPO SA	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive Self Adhered	223525-0-0
1-390 IF: NC EF: A Slope: 2.5"	Concrete Min. 2,500 PSI Min. 2" Thick	Cover Board: ¼" Dens Deck Prime Or Securock Insulation: ISO 95+ GL, 1.5"-36", 4'x4' boards	Adhered at 12" o.c.: ISO Twin Pack	.045 mil. min. UltraPly TPO	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	113754-0-0
1-390 IF: NC EF: A Slope: 2.5"	Concrete Min. 2,500 PSI Min. 2" Thick Primer: Asphaltic	Cover Board: ¼" Dens Deck Prime Or Securock Insulation: ISO 95+ GL, 1.5"-36", 4'x4' boards	ISO Spray, full application	.045 mil. min. UltraPly TPO	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	135967-0-0
1-390 IF: NC EF: A Slope: 2.5"	Concrete Min. 2,500 PSI Min. 2" Thick	Cover Board: ¼" Dens Deck Prime Or Securock Insulation: ISO 95+ GL, 1.5"-36", 4'x4' boards	Asphalt Attached, full application	.045 mil. min. UltraPly TPO	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	245811-0-0
1-495 IF: NC EF: A Slope: 1/2"	Concrete Min. 2,500 PSI Min. 2" Thick Primer: Asphaltic	Cover Board: APA Rated OSB, 7/16" min., 4'x4' boards Insulation: ISO 95+ GL, 1.5"-36", 4'x4' boards	Adhered at 12" o.c.: ISO Stick	.045 mil. min. UltraPly TPO Or UltraPly TPO SA	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive Self Adhered	228464-0-0
1-600 IF: NC EF: A Slope: 1/4"	Concrete Min. 2,500 PSI Min. 2" Thick	Cover Board: ½" ISOGARD HD Insulation: ISO 95+ GL, 1.5"-36", 4'x4' boards	Adhered at 12" o.c.: ISO Stick	.045 mil. min. UltraPly TPO Or UltraPly TPO SA	Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive Self Adhered	233379-0-0

Firestone Fully Adhered Uplift Ratings

New Construction, Cementitious Wood Fiber Deck, Adhesively Attached Insulation, With Cover Board

Uplift	Deck Type (Vapor Retarder)	Cover Board and Insulation	Cover Board and Insulation Attachment	Membrane	Membrane Attachment	RoofNav Assembly Number
1-90 IF: 1 EF: A Slope: 2.5"	Cementitious Wood Fiber - Tectum Plank Min. thick: 2" Max. span: 36"	Cover Board: ¼" Dens Deck Prime Or Securock Insulation: ISO 95+ GL, 1.5"-12", 4'x4' boards	Adhered at 12" o.c.: I.S.O. Fix Adhesive	.045 mil. min. UltraPly TPO	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive Water Based P	112012-0-0

Firestone Fully Adhered Uplift Ratings

New Construction, Steel or Concrete, Mechanically Attached Insulation without Cover Board

Uplift	Deck Type (Vapor Retarder/Thermal Barrier)	Insulation	Insulation Attachment	Membrane	Membrane Attachment	RoofNav Assembly Number
1-90 IF: 1 EF: A Slope: ¼"	Steel 22-16 ga. 33 ksi 72" span	Insulation: ISO 95+ GL, 1.5"-12" thick, 4'x8' boards Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Attached with 12 AP or HD fasteners per 4'x8' board	.045 mil. min. UltraPly TPO	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive Water Based P	2113-0-0
1-90 IF:NC EF: A Slope: ¼"	Concrete Min. 2,500 PSI Min. 2" Thick	Insulation: ISO 95+ GL, 2"-12" thick, 4'x8' boards Optional: V-Force (SA) w/Primer -or- SBS Torch	Attached with 12 HD fasteners per 4'x8' board	.045 mil. min. UltraPly TPO	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive Water Based P	2106-0-0
1-90 IF: 1 EF: A Slope: ¼"	Steel 22-16 ga. 33 ksi 72" span	Insulation: ISO 95+ GL, 2"-12" thick, 4'x8' boards Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Attached with 8 AP or HD fasteners per 4'x8' board	.045 mil. min. UltraPly TPO	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	191607-0-0
1-120 IF: 1 EF: A Slope: ¼"	Steel 22-18 ga. 33 ksi 72" span	Insulation: ISO 95+ GL, 2"-12" thick, 4'x8' boards Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Attached with 18 AP or HD fasteners per 4'x8' board	.045 mil. min. UltraPly TPO	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	127787-0-0
1-180 IF: 1 EF: A Slope: ¼"	Steel: 20-18 ga. - WR 33 ksi 72" span	Insulation: ISO 95+ GL, 1.5"-12" thick, 4'x8' boards Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Attached with 24 AP or HD fasteners per 4'x8' board	.045 mil. min. UltraPly TPO	Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	233194-0-0
	Steel: 22-18 ga. - WR 80 ksi 72" span					
1-120 IF: NC EF: A Slope: ¼"	Concrete Min. 2,500 PSI Min. 2" Thick	Insulation: ISO 95+ GL, 2"-12" thick, 4'x8' boards Optional: 4-6 mil. Polyethylene -or- V-Force (SA) -or- SBS Torch	Attached with 20 Concrete Drive or HD fasteners per 4'x8' board	.045 mil. min. UltraPly TPO	Water Based Bonding Adhesive	296301-0-0

1-150 IF: 1 EF: A Slope: ¼"	Steel 22-18 ga. – WR 33 ksi 72" span	Insulation: ISO 95+ GL, 2"-12" thick, 4'x8' boards Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Attached with 20 AP or HD fasteners per 4'x8' board	.045 mil. min. UltraPly TPO	Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	233195-0-0
1-225 IF: 1 EF: A Slope: ¼"	Steel: 18 ga. – WR 33 ksi 72" span	Insulation: ISO 95+ GL, 2"-12" thick, 4'x8' boards Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Attached with 32 AP or HD fasteners per 4'x8' board	.045 mil. min. UltraPly TPO	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	228346-0-0
	Steel: 22-18 ga. – WR 80 ksi 72" span					

Firestone Fully Adhered Uplift Ratings

New Construction, Steel or Concrete, Insulation and/or Mechanically Attached Cover Board

Uplift	Deck Type (Vapor Retarder/Thermal Barrier)	Cover Board/ Insulation	Cover Board and Insulation Attachment	Membrane	Membrane Attachment	RoofNav Assembly Number
1-75 IF: 1 EF: A Slope: ½"	Steel 22-16 ga. 33 ksi 72" span	Cover Board: Structodek HD Fiberboard ½" min. Insulation: ISO 95+ GL, 2"-12" thick, 4'x8' boards Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Cover Board: 12 AP or HD fasteners per 4'x8' boards Insulation: Loose Laid	.045 mil. min. UltraPly TPO	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive Water Based P	2063-0-0
1-75 IF: NC EF: A Slope: ¾"	Concrete Min. 2,500 PSI Min. 2" Thick	Cover Board: Structodek HD Fiberboard ½" min. Insulation: ISO 95+ GL, 1.5"-12"	Cover Board: 12 HD fasteners per 4'x8' boards Insulation: Loose Laid	.045 mil. min. UltraPly TPO	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive Water Based P	2061-0-0
1-90 IF: 1 EF: A Slope: 2.5"	Steel 22-16 ga. 33 ksi 72" span	Cover Board: Dens Deck, ¼" min./ Securock, ½" min. Insulation: ISO 95+ GL, 1.5"-12" Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Cover Board: 16 AP or HD fasteners per 4'x8' boards Insulation: Loose Laid	.045 mil. min. UltraPly TPO	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive Water Based P	112795-0-0
1-90 IF: 1 EF: A Slope: 2.5"	Steel 22-16 ga. 33 ksi 72" span	Cover Board: Dens Deck, ¼" min./ Securock, ½" min. Insulation: ISO 95+ GL, 1.5"-12"	Cover Board: 12 AP or HD fasteners per 4'x8' boards Insulation: Loose Laid	.045 mil. min. UltraPly TPO UltraPly TPO SA	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive Water Based P Self Adhered	209896-0-0

		Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck				
1-90 IF: NC EF: A Slope: 2.5"	Concrete Min. 2,500 PSI Min. 2" Thick	Cover Board: Dens Deck, ¼" min./ Securock, ¼" min. Insulation: ISO 95+ GL, 1"-12"	Cover Board: 18 AP or HD fasteners per 4'x8' boards Insulation: Loose Laid	.045 mil. min. UltraPly TPO	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive Water Based P	2064-0-0
1-150 IF: 1 EF: A Slope: 2.5"	Steel 22-18 ga. 33 ksi 72" span	Cover Board: Dens Deck, ½" min./ Securock, ½" min. Insulation: ISO 95+ GL, 1.5"-12" Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Cover Board: 24 AP or HD fasteners per 4'x8' boards Insulation: Loose Laid	.045 mil. min. UltraPly TPO Ultraply TPO SA	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive Self Adhered	200412-0-0
1-210 IF: 1 EF: A Slope: 2.5"	Steel 22-18 ga. 33 ksi 72" span 22 ga. 33 ksi 64" span 22-18 ga. 80 ksi 72" span	Cover Board: Dens Deck, ½" min./ Securock, ½" min. Insulation: ISO 95+ GL, 1.5"-12" Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Cover Board: 32 AP or HD fasteners per 4'x8' board Insulation: Loose Laid	.045 mil. min. UltraPly TPO	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	200414-0-0
1-90 IF: 1 EF: A Slope: ½"	Steel 20-18 ga. 33 ksi 72" span	Cover Board: APA Rated OSB 7/16" min. Insulation: ISO 95+ GL, 1.5"-12" Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Cover Board: 12 HD HailGard Fasteners per 4'x8' board Insulation: Loose Laid	.045 mil. min. UltraPly TPO	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive Water Based P Self Adhered	136153-0-0
1-105 IF: 1 EF: A Slope: ½"	Steel 22-18 ga.(WR) 33 ksi 72" span	Cover Board: APA Rated OSB 7/16" min. Insulation: ISO 95+ GL, 1.5"-12" Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Cover Board: 20 HD HailGard Fasteners per 4'x8' board Insulation: Loose Laid	.045 mil. min. UltraPly TPO Ultraply TPO SA	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive Water Based P Self Adhered	136151-0-0
1-150 IF: 1 EF: A Slope: ½"	Steel 22-18 ga.(WR) 33 ksi 72" span	Cover Board: APA Rated OSB 7/16" min. Insulation: ISO 95+ GL, 1.5"-12"	Cover Board: 16 HD HailGard Fasteners per 4'x8' board Insulation: Loose Laid	.045 mil. min. UltraPly TPO Ultraply TPO SA	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive Self Adhered	77830-0-0

		Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck				
1-300 IF: 1 EF: A Slope: ½"	Steel 22-18 ga.(WR) 80 ksi 72" span	Cover Board: APA Rated OSB 7/16" min. Insulation: ISO 95+ GL, 1.5"-12" Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Cover Board: 32 HD HailGard Fasteners per 4'x8' board Insulation: Loose Laid	.045 mil. min. UltraPly TPO	Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	171664-0-0
1-90 IF: 1 EF: A Slope: ½"	Steel 20-18 ga.(WR) 33 ksi 72" span	Insulation: HailGard, 2"-4" Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Insulation: 12 HD HailGard Fasteners per 4'x8' board	.045 mil. min. UltraPly TPO Ultraply TPO SA	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive Water Based P Self Adhered	136363-0-0
1-105 IF: 1 EF: A Slope: ½"	Steel 22-18 ga.(WR) 33 ksi 72" span	Insulation: HailGard, 2"-4" Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Insulation: 20 HD HailGard Fasteners per 4'x8' board	.045 mil. min. UltraPly TPO Ultraply TPO SA	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive Water Based P Self Adhered	136362-0-0
1-165 IF: 1 EF: A Slope: ½"	Steel 22-18 ga.(WR) 33 ksi 72" span	Insulation: HailGard, 1.5"-4" Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Insulation: 32 HD HailGard Fasteners per 4'x8' board	.045 mil. min. UltraPly TPO	Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	328832-0-0
1-300 IF: 1 EF: A Slope: ½"	Steel 18 ga.(WR) 33 ksi 70" span 20 ga.(WR) 33 ksi 60" span 22-18 ga.(WR) 80 ksi 72" span	Insulation: HailGard, 1.5"-4" Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Insulation: 32 HD HailGard Fasteners per 4'x8' board	.045 mil. min. UltraPly TPO	Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	171662-0-0
1-90 IF: 1 EF: A Slope: ¼"	Steel 22-16 ga. 33 ksi 72" span	Cover Board: ISOGARD HD, ½" min. Insulation: ISO 95+ GL, 1.5"-12" Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Cover Board: 12 HD or AP Fasteners per 4'x8' board Insulation: Loose Laid	.045 mil. min. UltraPly TPO Ultraply TPO SA	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive Self Adhered	233370-0-0
1-90	Steel 22-16 ga.	Cover Board: ISOGARD HD,	Cover Board: Adhered at 12" o.c.:	.045 mil. min. UltraPly TPO	Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	233373-0-0

IF: 1 EF: A Slope: ¼"	33 ksi 72" span	½" min. Insulation: ISO 95+ GL, 1.5"-12" Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	ISO Spray R ISO Twin Pack Insulation: 16 HD or AP Fasteners per 4'x8' board	UltraPly TPO SA	Self Adhered	
1-90 IF: 1 EF: A Slope: ¼"	Steel 22-18 ga. 33 ksi 72" span	Cover Board: Dens Deck Prime, ¼" min. Insulation: ISO 95+ GL, 2"-12"	Cover Board: Adhered at 12" o.c.: ISO Twin Pack Insulation: 8 HD or AP Fasteners per 4'x8' board	.045 mil. min. UltraPly TPO	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 Water Based P	388285-0-0
1-90 IF: 1 EF: A Slope: 2.5"	Steel 22-16 ga. 33 ksi 72" span	Cover Board: Dens Deck, Dens Deck Prime, Securock ¼" min. Insulation: ISO 95+ GL, 1.5"-12"	Cover Board: Adhered at 12" o.c.: ISO Spray R ISO Twin Pack Insulation: 16 HD or AP Fasteners per 4'x8' board	.045 mil. min. UltraPly TPO	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168	233196-0-0
1-90 IF: 1 EF: A Slope: ¼"	Steel 22-16 ga. 33 ksi 72" span	Insulation (Top): ISO 95+ GL, 1.5"-4" Insulation (Bottom): ISO 95+ GL, 1.5"-4"	Insulation (Top): Adhered at 12" o.c.: ISO Twin Pack Insulation (Bottom): 16 HD or AP Fasteners per 4'x8' board	.045 mil. min. UltraPly TPO	Single Ply LVOC Bonding Single Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	230423-0-0

Firestone Fully Adhered Uplift Ratings – UltraPly TPO SA membrane

New Construction, Steel Deck, Mechanically Attached Insulation, Without Cover Board

Uplift	Deck Type	Insulation	Insulation Attachment	Membrane	RoofNav Number
1-90 IF: 1 EF: A Slope: ¼"	Steel 22-16 ga. 33 ksi 72" span	Insulation: ISO 95+ GL, 2"-12" Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Insulation: 8 HD or AP Fasteners per 4'x8' board	.045 mil. min. UltraPly TPO SA	373219-0-0
1-120 IF: 1 EF: A Slope: ¼"	Steel 22-18 ga. WR 33 ksi 72" span	Insulation: ISO 95+ GL, 1.5"-12" Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Insulation: 18 HD or AP Fasteners per 4'x8' board	.045 mil. min. UltraPly TPO SA	373217-0-0
1-165 IF: 1 EF: A Slope: ¼"	Steel 22-18 ga. WR 33 ksi 72" span	Insulation: ISO 95+ GL, 1.5"-12" Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Insulation: 24 HD or AP Fasteners per 4'x8' board	.045 mil. min. UltraPly TPO SA	373246-0-0

Firestone Fully Adhered Uplift Ratings – UltraPly TPO SA membrane
New Construction, Concrete Deck, Mechanically Attached Insulation, Without Cover Board

Uplift	Deck Type	Insulation	Insulation Attachment	Membrane	RoofNav Number
1-90 IF: NC EF: A Slope: ¼"	Concrete Min. 2,500 PSI Min. 2" Thick	Insulation: ISO 95+ GL, 1.25"-12" Optional: V-Force (SA) Primer -or- SBS Torch	Insulation: 12 Concrete Drive or HP Fasteners per 4'x8' board	.045 mil. min. UltraPly TPO SA	373390-0-0
1-150 IF: NC EF: A Slope: ¼"	Concrete Min. 2,500 PSI Min. 2" Thick	Insulation: ISO 95+ GL, 2"-4" Optional: ISO 95+ GL, ½"-12" Optional: V-Force (SA) Primer -or- SBS Torch	Insulation: 20 Concrete Drive or HP Fasteners per 4'x8' board	.045 mil. min. UltraPly TPO SA	373397-0-0
1-300 IF: NC EF: A Slope: ¼"	Concrete Min. 2,500 PSI Min. 2" Thick	Insulation (Top): ISO 95+ GL, 2"-4" Optional (Bottom): ISO 95+ GL, ½"-12" Optional: V-Force (SA) Primer -or- SBS Torch	Insulation: 32 Concrete Drive or HP Fasteners per 4'x8' board	.045 mil. min. UltraPly TPO SA	373398-0-0

Firestone Fully Adhered Uplift Ratings – UltraPly TPO SA membrane
New Construction, Steel Deck, Mechanically Attached Insulation, Adhesively Attached Insulation

Uplift	Deck Type	Insulation	Insulation Attachment	Membrane	RoofNav Number
1-60 IF: 1 EF: A Slope: ¼"	Steel, 22-18 ga. 33 ksi 72" span	Insulation (Top): Firestone ISO 95+ GL, 1.5"-8" Insulation (Bottom): ISO 95+ GL, 1.5"-4" Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	(Top) Adhered at 12" o.c.: ISO Fix ISO Spray R Twin Pack ISO Stick (Bottom): 12 AP or HD fasteners and plates per 4'x8' board Optional Vapor/Thermal: Loose Laid	.045 mil. min. UltraPly TPO SA	373224-0-0
1-75 IF: 1 EF: A Slope: ¼"	Steel, 22-16 ga. 33 ksi 72" span	Insulation (Top): Firestone ISO 95+ GL, 1.5"-8" Insulation (Bottom): ISO 95+ GL, 2"-4" Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	(Top) Adhered at 12" o.c.: ISO Fix ISO Spray R Twin Pack ISO Stick (Bottom): 8 AP or HD fasteners and plates per 4'x8' board Optional Vapor/Thermal: Loose Laid	.045 mil. min. UltraPly TPO SA	373230-0-0
1-90 IF: 1 EF: A Slope: ¼"	Steel, 22-16 ga. 33 ksi 72" span	Insulation (Top): Firestone ISO 95+ GL, 1.5"-4" Insulation (Bottom): ISO 95+ GL, 2.25"-4"	(Top) Adhered at 12" o.c.: ISO Fix Twin Pack ISO Stick	.045 mil. min. UltraPly TPO SA	373236-0-0



		Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	(Bottom): 8 AP or HD fasteners and plates per 4'x8' board Optional Vapor/Thermal: Loose Laid		
1-150 IF: 1 EF: A Slope: ¼"	Steel, 22-18 ga. 33 ksi 72" span	Insulation (Top): Firestone ISO 95+ GL, 1.5"-4" Insulation (Bottom): ISO 95+ GL, 1.5"-4" Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	(Top) Adhered at 12" o.c.: Twin Pack (Bottom): 20 AP or HD fasteners and plates per 4'x8' board Optional Vapor/Thermal: Loose Laid	.045 mil. min. UltraPly TPO SA	373245-0-0

Firestone Fully Adhered Uplift Ratings – UltraPly TPO SA membrane

New Construction, Concrete Deck, Mechanically Attached Insulation, Adhesively Attached Insulation

Uplift	Deck Type	Insulation	Insulation Attachment	Membrane	RoofNav Number
1-90 IF: NC EF: A Slope: ¼"	Concrete Min. 2,500 PSI Min. 2" Thick	Insulation: Firestone ISO 95+ GL, 1.5"-4" Thickness Insulation (Bottom): ISO 95+ GL, 2.25"-8" Optional: V-Force -or- SBS Torch	(Top): Adhered at 12" o.c.: ISO Fix ISO Twin Pack ISO Stick (Bottom): 8 HD fasteners and plates per 4'x8' board Optional: Self Adhered -or- Torched	.045 mil. min. UltraPly TPO SA	373371-0-0
1-255 IF: NC EF: A Slope: ¼"	Concrete Min. 2,500 PSI Min. 2" Thick	Insulation: Firestone ISO 95+ GL, 1"-4" Thickness Insulation (Bottom): ISO 95+ GL, 2"-8" Optional: V-Force -or- SBS Torch	(Top): Adhered at 4" o.c.: ISO Fix ISO Spray R ISO Twin Pack ISO Stick (Bottom): 32 HD or Concrete Drive fasteners and plates per 4'x8' board Optional: Self Adhered -or- Torched	.045 mil. min. UltraPly TPO SA	373389-0-0

Firestone Fully Adhered Uplift Ratings – UltraPly TPO SA membrane

New Construction, Steel Deck, Insulation with Mechanically Attached Cover Board

Uplift	Deck Type	Cover Board/Insulation	Cover Board/Insulation Attachment	Membrane	RoofNav Number
1-90 IF: 1 EF: A Slope: 2.5	Steel 22-16 ga. 33 ksi 72" span	Cover Board: Dens Deck, ¼" min. -or- Securock, ½" min. Insulation: ISO 95+ GL, 1.5"-12" Optional: 4-6 mil. Polyethylene -or-	Cover Board: 12 HD or AP fasteners per 4'x8' board Insulation: Loose Laid Optional: Loose Laid V-Force – Self Adhered	.045 mil. min. UltraPly TPO SA -or- UltraPly TPO (SP LVOC, SP LVOC 1168, UltraPly, WB P)	271664-0-0

		V-Force (SA) over ¼" Dens Deck			
1-90 IF: 1 EF: A Slope: 2.5	Steel 22-16 ga. 33 ksi 72" span	Cover Board: ISOGARD HD, ½" min. Insulation: ISO 95+ GL, 1.5"-12" Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Cover Board: 12 HD or AP fasteners per 4'x8' board Insulation: Loose Laid Optional: Loose Laid V-Force – Self Adhered	.045 mil. min. UltraPly TPO SA -or- UltraPly TPO (SP LVOC, SP LVOC 1168, UltraPly)	233370-0-0

**Firestone Fully Adhered Uplift Ratings – UltraPly TPO SA membrane
New Construction, Concrete Deck, Insulation with Mechanically Attached Cover Board**

Uplift	Deck Type	Cover Board/Insulation	Cover Board/ Insulation Attachment	Membrane	RoofNav Number
1-90 IF: NC EF: A Slope: ¼"	Concrete Min. 2,500 PSI Min. 2" Thick	Cover Board: ISOGARD HD, 1" min. Insulation: ISO 95+ GL, 1.5"-4"	Cover Board: 18 Concrete Drive or HD fasteners per 4'x8' board Insulation: Loose Laid	.045 mil. min. UltraPly TPO SA -or- UltraPly TPO (SP LVOC, SP LVOC 1168, UltraPly, WB P)	290613-0-0
1-90 IF: NC EF: A Slope: ¼"	Concrete Optional: V-Force and Dens Deck or Polyethylene	Cover Board: Securock, ½" min. Insulation: ISO 95+ GL, 1.5"-12" Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Cover Board: 8 Concrete Drive or HD fasteners per 4'x8' board Insulation: Loose Laid Optional: Loose Laid V-Force – Self Adhered	045 mil. min. UltraPly TPO SA -or- UltraPly TPO (SP LVOC, SP LVOC 1168, UltraPly, WB P)	372640-0-0

**Firestone Fully Adhered Uplift Ratings – UltraPly XR 100 and XR 115 membrane
New Construction, Steel or Concrete Deck, Insulation without Cover Board, UltraPly XR membrane**

Uplift	Deck Type	Insulation	Insulation Attachment	Membrane and Attachment	RoofNav Assembly Number
1-90 IF: 1 EF: A Slope: ½"	Steel 22-16 ga. 33 ksi 72" span	Insulation: ISO 95+ GL, 1.5"-4" Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Insulation: 16 HD or AP fasteners per 4'x8' board Optional: Poly - Loose Laid V-Force – Self Adhered DD – Loose Laid	UltraPly XR: 100, 115 or 135 12" o.c. ribbons: ISO Spray R XR Stick	289254-0-0
1-90 IF: NC EF: A Slope: ½"	Concrete Min. 2,500 PSI Min. 2" Thick	Insulation: ISO 95+ GL, 1.5"-12" Optional: V-Force (SA) -or- SBS Torch	Insulation: 16 Concrete Drive or HD fasteners per 4'x8' board Optional: V-Force – Self Adhered SBS Torch - Torched	UltraPly XR 100, 115 or 135 12" o.c. ribbons: ISO Spray R XR Stick	289250-0-0
1-165 IF: 1 EF: A Slope: ½"	Steel 22-18 ga. 33 ksi 72" span	Insulation: ISO 95+ GL, 2"-12" Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Insulation: 20 HD or AP fasteners per 4'x8' board Optional: Poly - Loose Laid V-Force – Self Adhered DD – Loose Laid	UltraPly XR 100, 115 or 135 6" o.c. ribbons: ISO Spray R XR Stick	292119-0-0

1-165 IF: NC EF: A Slope: ½"	Concrete Min. 2,500 PSI Min. 2" Thick	Insulation: ISO 95+ GL, 2"-12" Optional: V-Force (SA) -or- SBS Torch	Insulation: 20 Concrete Drive or HD fasteners per 4'x8' board Optional: V-Force – Self Adhered SBS Torch - Torched	UltraPly XR 100, 115 or 135 6" o.c. ribbons: ISO Spray R XR Stick	289292-0-0
1-285 IF: NC EF: A Slope: ½"	Concrete Min. 2,500 PSI Min. 2" Thick	Insulation: ISO 95+ GL, 2"-12" Optional: V-Force (SA) -or- SBS Torch	Insulation: 32 Concrete Drive or HD fasteners per 4'x8' board Optional: V-Force – Self Adhered SBS Torch - Torched	UltraPly XR 100, 115 or 135 4" o.c. ribbons: ISO Spray R XR Stick	289295-0-0
1-285 IF: 1 EF: A Slope: ½"	Steel: 18 ga. 33 ksi 72" span 22-18 ga. 80 ksi 72" span	Insulation: ISO 95+ GL, 2"-12" Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Insulation: 32 HD or AP fasteners per 4'x8' board Optional: Poly - Loose Laid V-Force – Self Adhered DD – Loose Laid	UltraPly XR 100, 115 or 135 4" o.c. ribbons: ISO Spray R XR Stick	292137-0-0

Firestone Fully Adhered Uplift Ratings

New Construction, Steel or Concrete Deck, Insulation with Cover Board, UltraPly XR membrane

Uplift	Deck Type	Cover Board/ Insulation	Cover Board/ Insulation Attachment	Membrane and Attachment	RoofNav Assembly Number
1-75 IF: 1 EF: A Slope: 1"	Steel 22-16 ga. 33 ksi 72" span	Cover Board: Dens Deck, ¼" min. -or- Securock, ½" min. Insulation: ISO 95+ GL, 1.5"-12" Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Cover Board: 15 HD or AP fasteners per 4'x8' board Insulation: Loose Laid Optional: Poly - Loose Laid V-Force – Self Adhered DD – Loose Laid	UltraPly XR 100 or 115 Full Coverage: Water Based Bonding Adhesive	243485-0-0
1-90 IF: 1 EF: A Slope: 4"	Steel 22-16 ga. 33 ksi 72" span	Cover Board: Dens Deck, ¼" min. -or- Securock, ½" min. Insulation: ISO 95+ GL, 1.5"-12" Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Cover Board: 12 HD or AP fasteners per 4'x8' board Insulation: Loose Laid Optional: Poly - Loose Laid V-Force – Self Adhered DD – Loose Laid	UltraPly XR 100 or 115 Full Coverage: XR Bonding Adhesive	243482-0-0
1-90 IF: NC EF: A Slope: 2"	Concrete Min. 2,500 PSI Min. 2" Thick	Cover Board: Dens Deck, 1/4" min. -or- Securock, 1/4" min. Insulation: ISO 95+ GL, 2"-12" Optional: V-Force (SA) -or- SBS Torch	Cover Board: 16 Concrete Drive or HD fasteners per 4'x8' board Insulation: Loose Laid Optional: V-Force – Self Adhered -or- SBS Torch - Torched	UltraPly XR 100, 115 or 135 12" o.c. ribbons: ISO Spray R XR Stick	292001-0-0

1-90 IF: 1 EF: A Slope: ½"	Steel 22-16 ga. 33 ksi 72" span	Cover Board: ISOGARD HD, ½" min. Insulation: ISO 95+ GL, 1.5"-12" Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Cover Board: 15 HD or AP fasteners per 4'x8' board Insulation: Loose Laid Optional: Poly - Loose Laid V-Force – Self Adhered DD – Loose Laid	UltraPly XR 100, 115 or 135 12" o.c. ribbons: ISO Spray R XR Stick	320509-0-0
1-90 IF: 1 EF: A Slope: ½"	Steel 22-16 ga. 33 ksi 72" span	Cover Board: APA Rated OSB, 7/16" min. Insulation: ISO 95+ GL, 1.5"-12" Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Cover Board: 16 HD or AP fasteners per 4'x8' board Insulation: Loose Laid Optional: Poly - Loose Laid V-Force – Self Adhered DD – Loose Laid	UltraPly XR 100, 115 or 135 12" o.c. ribbons: ISO Spray R XR Stick	291981-0-0
1-90 IF: NC EF: A Slope: 1/2"	Concrete Min. 2,500 PSI Min. 2" Thick	Cover Board: APA Rated OSB, 7/16" min. Insulation: ISO 95+ GL, 1.5"-12" Optional: V-Force (SA) -or- SBS Torch	Cover Board: 16 Concrete Drive or HD fasteners per 4'x8' board Insulation: Loose Laid Optional: V-Force – Self Adhered -or- SBS Torch - Torched	UltraPly XR 100, 115 or 135 12" o.c. ribbons: ISO Spray R XR Stick	289274-0-0
1-120 IF: NC EF: A Slope: 2"	Concrete Min. 2,500 PSI Min. 2" Thick	Cover Board: Dens Deck, 1/2" min. -or- Securock, 1/2" min. Insulation: ISO 95+ GL, 1.5"-12" Optional: V-Force (SA) -or- SBS Torch	Cover Board: 4'x4' boards attached w/ 6" o.c. beads: ISO Fix ISO Spray R ISO Twin Pack ISO Stick Insulation: 20 Concrete Drive or HD fasteners per 4'x8' board Optional: V-Force – Self Adhered -or- SBS Torch - Torched	UltraPly XR 100, 115 or 135 6" o.c. ribbons: ISO Spray R XR Stick	289300-0-0
1-120 IF: 1 EF: A Slope: 2"	Steel 22-18 ga. WR 33 ksi 72" span	Cover Board: Dens Deck, 1/2" min. -or- Securock, 1/2" min. Insulation: ISO 95+ GL, 1.5"-12" Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Cover Board: 4'x4' boards attached w/ 6" o.c. beads: ISO Fix ISO Spray R ISO Twin Pack ISO Stick Insulation: 20 HD or AP fasteners per 4'x8' board Optional: Poly - Loose Laid V-Force – Self Adhered DD – Loose Laid	UltraPly XR 100, 115 or 135 6" o.c. ribbons: ISO Spray R XR Stick	292145-0-0
1-165 IF: 1 EF: A Slope: 1/2"	Steel 22-18 ga. WR 33 ksi 72" span	Cover Board: ISOGARD HD, ½" min. Insulation: ISO 95+ GL, 2"-12"	Cover Board: 4'x4' boards attached w/ 6" o.c. beads: ISO Fix ISO Spray R ISO Twin Pack	UltraPly XR 100, 115 or 135 6" o.c. ribbons: ISO Spray R	320536-0-0

		Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	ISO Stick Insulation: 20 HD or AP fasteners per 4'x8' board Optional: Poly - Loose Laid V-Force – Self Adhered DD – Loose Laid	XR Stick	
1-165 IF:NC EF: A Slope: 1/2	Concrete Min. 2,500 PSI Min. 2" Thick	Cover Board: ISOGARD HD, 1/2" min. Insulation: ISO 95+ GL, 2"-12" Optional: V-Force (SA) -or- SBS Torch	Cover Board: 4'x4' boards attached w/ 6" o.c. beads: ISO Fix ISO Spray R ISO Twin Pack ISO Stick Insulation: 20 Concrete Drive or HD fasteners per 4'x8' board Optional: V-Force – Self Adhered -or- SBS Torch - Torched	UltraPly XR 100, 115 or 135 6" o.c. ribbons: ISO Spray R XR Stick	320464-0-0
1-255 IF:NC EF: A Slope: 2	Concrete Min. 2,500 PSI Min. 2" Thick	Cover Board: Dens Deck, 1/2" min. -or- Securock, 1/2" min. Insulation: ISO 95+ GL, 2"-12" Optional: V-Force (SA) -or- SBS Torch	Cover Board: 4'x4' boards attached w/ 4" o.c. beads: ISO Fix ISO Spray R ISO Twin Pack ISO Stick Insulation: 32 Concrete Drive or HD fasteners per 4'x8' board Optional: V-Force – Self Adhered -or- SBS Torch - Torched	UltraPly XR 100, 115 or 135 4" o.c. ribbons: ISO Spray R XR Stick	289296-0-0

Firestone Fully Adhered Uplift Ratings

New Construction, Concrete Deck, Adhered Cover Board Only, UltraPly XR membrane

Uplift	Deck Type	Cover Board/ Insulation	Cover Board/ Insulation Attachment	Membrane and Attachment	RoofNav Assembly Number
1-465 IF:NC EF: A Slope: 4	Concrete Min. 2,500 PSI Min. 2" Thick	insulation: Dens Deck, 1/4" min. -or- Securock, 1/4" min.	Insulation: Full Coverage, Hot Asphalt, 4'x4' boards	UltraPly XR 100, 115 or 135 Full Coverage: XR Bonding Adhesive	243447-0-0

Firestone Fully Adhered Uplift Ratings

New Construction, Concrete Deck, UltraPly XR membrane

Uplift	Deck Type	Membrane	Membrane Attachment	RoofNav Assembly Number
1-720 IF:NC EF: A Slope: 4	Concrete Min. 2,500 PSI Min. 2" Thick	UltraPly TPO XR 115 or 135	Full Coverage: XR Bonding Adhesive	242966-0-0
1-945 IF:NC EF: A Slope: 2	Concrete Min. 2,500 PSI Min. 2" Thick	UltraPly TPO XR 100, 115, or 135	Full Coverage: I.S.O. Spray	293219-0-0
1-975	Concrete	UltraPly TPO XR 115 or 135	Full Coverage:	243438-0-0



IF:NC EF: A Slope: 1	Min. 2,500 PSI Min. 2" Thick		Hot Asphalt	
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Firestone Fully Adhered Uplift Ratings

New Construction, Concrete, Vapor Barrier, Adhesively Attached Insulation, UltraPly XR membrane

Uplift	Deck Type, Vapor Barrier	Cover Board/ Insulation	Cover Board/ Insulation Attachment	Membrane and Attachment	RoofNav Assembly Number
1-345 IF:NC EF: A Slope: ½"	Concrete Min. 2,500 PSI Min. 2" Thick Vapor Barrier (Required): See Below*	Insulation: ISOgard HD, ½" thick, 4'x4' boards	Insulation: 4'x4' boards, 12" o.c. beads Firestone I.S.O. Fix I.S.O. Spray I.S.O. Twin Pack I.S.O. Stick	UltraPly TPO XR 100, 115, 135 Full Coverage: ISO Spray XR Stick	292419-0-0
1-345 IF:NC EF: A Slope: ½"	Concrete Min. 2,500 PSI Min. 2" Thick	Insulation: Dens Deck, 1/4" min. -or- Securock, 1/4" min.	Insulation: 4'x4' boards, 12" o.c. beads Firestone I.S.O. Fix I.S.O. Spray I.S.O. Twin Pack I.S.O. Stick	UltraPly TPO XR 100, 115, 135 Full Coverage: ISO Spray XR Stick	292418-0-0

Firestone Fully Adhered Uplift Ratings

New Construction, Lightweight Insulated Concrete, UltraPly XR membrane

Uplift	Deck Type	Lightweight Manufacturer	Membrane	Membrane Attachment	RoofNav Assembly Number
1-420 IF:NC EF: A Slope: ½"	Concrete Min. 2,500 PSI Min. 2" Thick	Range II Elastizell Lightweight Insulating Concrete 2" min. thick.	UltraPly TPO XR 100 or 115 membrane	Full Coverage: XR Bonding Adhesive	244665-0-244657
1-180 IF:NC EF: A Slope: ½"	Concrete Min. 2,500 PSI Min. 2" Thick	Celcore MF Cellular Concrete with Celcore HS Rheology Modifying Admixture (min 340 psi) 2" min. thick.	UltraPly TPO XR 100 or 115 membrane	Full Coverage: XR Bonding Adhesive	244648-0-244646

Firestone Fully Adhered Uplift Ratings

Re-Cover Construction, Gypsum Deck, Adhesively Attached Insulation, Without Cover Board

Uplift	Deck Type	Insulation	Insulation Attachment	Membrane	Membrane Attachment	RoofNav Assembly Number
1-90 IF:1 EF: A Slope: 1/4"	Gypsum (Re-Cover)	Insulation (4'x4' boards): ISO 95+ GL, 1"-12" thick Tapered ISO, 1-12" thick ½" ISO GARD HD	Insulation: 4'x4' boards, 12" o.c. beads ISO Twin Pack	.045 mil. min. UltraPly TPO UltraPly TPO SA	Single-Ply LVOC UltraPly Bonding Self Adhered	319860-0-0

Firestone Fully Adhered Uplift Ratings

Re-Roof Construction, Gypsum Deck, Adhesively Attached Insulation, With Cover Board

Uplift	Deck Type	Cover Board / Insulation	Insulation Attachment	Membrane	Membrane Attachment	RoofNav Assembly Number
1-90 IF: 1 EF: A Slope: 2.5"	Gypsum (Re-Roof)	(All layers 4'x4' boards) Cover Board: Dens Deck, ¼" min., Securock, ¼" min. Second Layer Insulation: ISO 95+ GL, 1.5"-8" thick, Tapered ISO, 1.5-8" thick Base Layer Insulation: ISO 95+ GL, 1.5"-4" thick, Tapered ISO, 1.5-4" thick	12" o.c. beads: Twin Pack Adhesive	UltraPly TPO membrane	Water Basted UltraPly Single Ply LVOC Single-Ply LVOC (1168)	113387-0-0
1-90 IF: 1	Gypsum (Re-Roof)	(All layers 4'x4' boards) Insulation: ISO 95+ GL, 1.5"-12" thick,	12" o.c. beads: Twin Pack Adhesive	UltraPly TPO membrane	Water Basted UltraPly Single Ply LVOC	113389-0-0



EF: A Slope: 1/4"		or Tapered ISO, 1.5-12" thick, 4'x4' boards			Single-Ply LVOC (1168)	
1-90 IF: 1 EF: A Slope: 2.5"	Gypsum	(All layers 4'x4' boards) Cover Board: Dens Deck, 1/4" min., Securock, 1/4" min. Insulation: ISO 95+ GL, 1.5"-8" thick, Tapered ISO, 1.5-8" thick	12" o.c. beads: I.S.O. Stick	UltraPly TPO membrane	Water Basted UltraPly Single Ply LVOC Single-Ply LVOC (1168)	115286-0-0

Firestone Fully Adhered Uplift Ratings

Re-Roof Construction, Gypsum Deck, Adhesively Attached Insulation, With Cover Board

Uplift	Deck Type	Insulation	Insulation Attachment	Cover Board	Cover Board Attachment	Membrane	Membrane Attachment	RoofNav Assembly Number
1-90 IF: 1 EF: A Slope: 2.5"	Gypsum (Re-Roof)	None	None	1/4" minimum, 4'x4' boards: Dens Deck SECUROCK	12" o.c. beads: Twin Pack	UltraPly TPO membrane	UltraPly Water Based Bonding Adhesive P Single Ply LVOC Single-Ply LVOC (1168)	113400-0-0
1-90 IF: 1 EF: A Slope: 2.5"	Gypsum (Re-Roof)	ISO 95+ GL, .5"-12", 4'x4' boards	12" o.c. beads of I.S.O. Stick Adhesive	1/4" minimum, 4'x4' boards: Dens Deck Dens Deck Prime	12" o.c. beads: I.S.O. Stick	UltraPly TPO membrane	UltraPly Water Based Bonding Adhesive P Single-Ply LVOC Single-Ply LVOC (1168)	115286-0-0

Firestone Re-cover over Treated Wood Deck

Adhered Membrane

Uplift	Deck Type	Insulation	Cover Board	Attachment	Membrane	Membrane Attachment	RoofNav Assembly Number
1-75 IF: 1 EF: A Slope: 1/4"	Treated Wood	ISO 95+ GL 1/2"-1" thick	None	12 AP fasteners Plates per 4'x8' board	UltraPly TPO membrane, Single weld	UltraPly or Single-Ply LVOC Bonding Adhesive	129268-0-0
1-75 IF: 1 EF: A Slope: 1/4"	Treated Wood	ISO 95+ GL 1/2"-1" thick	None	12 AP fasteners Plates per 4'x8' board	UltraPly TPO SA membrane, Single weld	None	374222-0-0
1-90 IF: 1 EF: A Slope: 1/4"	Treated Wood	ISO 95+ GL Min. 1" thick	None	16 AP fasteners Plates per 4'x8' board	UltraPly TPO membrane, Single weld	UltraPly or Single-Ply LVOC Bonding Adhesive	326804-0-0
1-90 IF: 1 EF: A Slope: 1/4"	Treated Wood	ISO 95+ GL 1/2"-1" thick	None	16 AP fasteners Plates per 4'x8' board	UltraPly TPO SA membrane, Single weld	None	374236-0-0

Firestone Mechanically Attached Systems Uplift Ratings – Standard UltraPly membrane

New Construction, Steel, Mechanically Attached Insulation, Single Weld

Uplift	Deck Type (Vapor Retarder/Thermal Barrier)	Insulation and Attachment	Membrane	Membrane Attachment	RoofNav Assembly Number
1-60 IF: 1 EF: A Slope: 1/4"	Steel 22-18 ga. 80 ksi 72" span	Insulation: ISO 95+ GL, 1.5"-12" Presecurement – min. 5/board Optional: 4-6 mil. Polyethylene -or- V-Force (SA) or Basegard SA over 1/4" Dens Deck	UltraPly TPO membrane, 10' Sheet	12" o.c. HD fastener and HD or Barbed Seam Plate, Single weld	3080-0-0
1-60	Steel:	Insulation:	UltraPly TPO membrane,	12" o.c. HD fastener and HD	170476-0-0



IF: 1 EF: A Slope: ¾"	20-16 ga. 33 ksi 72" span 22 ga. 33 ksi 60" span 22 ga. 80 ksi 72" span Optional: V-Force or Basegard SA and Dens Deck or Polyethylene	ISO 95+ GL, 1.5"-12" Presecurement – min. 5/board Optional: 4-6 mil. Polyethylene -or- V-Force (SA) or Basegard SA over ¼" Dens Deck	10' Sheet	Seam Plate, Single weld	
1-90 IF: 1 EF: A Slope: ¾"	Steel: 22-18 gauge 80 ksi 72" span Optional: V-Force or Basegard SA and Dens Deck or Polyethylene	ISO 95+ GL, 1.5"-12", Preliminary Securement or ISO 95+ GL (Tapered) 1.5"-4"	UltraPly TPO membrane, 10' Sheet	12" o.c. HD+ fastener and HD+ Seam Plate, Single weld	76911-0-0
1-90 IF: 1 EF: A Slope: ¾"	Steel: 18-16 gauge 33 ksi 72" span 20 ga. 33 ksi 48" span 20 ga. 80 ksi 72" span 22 ga. 80 ksi 72" span	Insulation: ISO 95+ GL, 1.5"-12" Presecurement – min. 5/board Optional: 4-6 mil. Polyethylene -or- V-Force (SA) or Basegard SA over ¼" Dens Deck	UltraPly TPO membrane, 10' Sheet	6" o.c. HD fastener and HD or Barbed Seam Plate, Single weld	166431-0-0
1-90 IF: 1 EF: A Slope: ¾"	Steel: 20-16 gauge 33 ksi 72" span 22 ga. 33 ksi 48" span 22 ga. 80 ksi 72" span	Insulation: ISO 95+ GL, 1.5"-12" Presecurement – min. 5/board Optional: 4-6 mil. Polyethylene -or- V-Force (SA) or Basegard SA over ¼" Dens Deck	UltraPly TPO membrane, 8' Sheet	12" o.c. HD+ fastener and HD+ Seam Plate, Single weld	213747-0-0
1-105 IF: 1 EF: A Slope: ¾"	Steel: 18 gauge (WR) 33 ksi 54" span 20-16 gauge (WR) 80 ksi 72" span 22 gauge (WR) 80 ksi 60" span	Insulation: ISO 95+ GL, 1.5"-12" Presecurement – min. 5/board Optional: 4-6 mil. Polyethylene -or- V-Force (SA) or Basegard SA over ¼" Dens Deck	UltraPly TPO membrane, 10' Sheet	6" o.c. HD fastener and HD or Barbed Seam Plate, Single weld	3081-0-0
1-105 IF: 1 EF: A Slope: ¾"	Steel: 20-18 gauge (WR) 33 ksi 72" span	Insulation: ISO 95+ GL, 1"-12" Presecurement – min. 5/board	UltraPly TPO membrane, 6' 6" Sheet	6" o.c. HD fastener and HD Plate, Single weld	3074-0-0

	<p>22 gauge (WR) 33 ksi 66" span</p> <p>22 gauge (WR) 80 ksi 72" span</p>	<p>Optional: 4-6 mil. Polyethylene -or- V-Force (SA) or Basegard SA over ¼" Dens Deck</p>			
<p>1-105 IF: 1 EF: A Slope: 1"</p>	<p>Steel: 22-18 gauge (WR) 33 ksi 72" span</p>	<p>Insulation (Top): ISO 95+ GL, 1.5"-4", Preliminary Securement.</p> <p>Insulation (Bottom) ISO 95+ GL, 1.5"-8"</p> <p>Optional: 4-6 mil. Polyethylene</p>	UltraPly TPO membrane, 8' Sheet	<p>6" o.c. HD+ fastener and HD+ Seam Plate, Single weld (The roof cover is secured with stress plates and fasteners placed in the side laps (spaced 90 in. [2.9 m] o.c.) and an intermediate batten placed centered in the field of the roof cover.)</p>	343455-0-0
<p>1-105 IF: 1 EF: A Slope: 1"</p>	<p>Steel: 22-18 gauge (WR) 33 ksi 72" span</p>	<p>Insulation (Top): ISO 95+ GL, 1.5"-4", Preliminary Securement.</p> <p>Insulation (Bottom) ISO 95+ GL, 1.5"-8"</p> <p>Optional: 4-6 mil. Polyethylene</p>	UltraPly TPO 120 membrane, 10' Sheet	<p>6" o.c. HD+ fastener and HD+ Seam Plate, Single weld (The roof cover is secured with stress plates and fasteners placed in the side laps (spaced 114 in. [2.9 m] o.c.) and an intermediate batten placed centered in the field of the roof cover.)</p>	343459-0-0
<p>1-105 IF: 1 EF: A Slope: 1"</p>	<p>Steel, 22-18 gauge, 33 ksi, 72" o.c. span</p>	<p>Insulation (Top) Required: ISO 95+ GL, 1.5"-4"</p> <p>Insulation (Bottom) Optional: ISO 95+ GL, 1.5"-8"</p> <p>Optional: 4-6 mil. Polyethylene</p>	UltraPly TPO 10' sheets w/ intermediate attachment. See note.	<p>114" row spacing at 6" o.c. spacing, HD Fasteners, Single Weld NOTE: Additional intermediate Batten Securement required at 57" o.c. row spacing at 6" o.c. fasteners spacing.</p>	343409-0-0

Firestone Mechanically Attached Systems Uplift Ratings
New Construction, Steel, Insulation with Cover Board, Single Weld

Uplift	Deck Type	Insulation and Attachment	Cover Board and Attachment	Membrane	Membrane Attachment	RoofNav Assembly Number
<p>1-60 IF: 1 EF: A Slope: 5"</p>	<p>Steel, 20-16 gauge, 33 ksi, 72" o.c. span</p> <p>Steel, 22 gauge, 33 ksi, 60" o.c. span</p> <p>Steel, 22 gauge, 80 ksi, 72" o.c. span</p>	<p>Insulation: ISO 95+ GL, 1.5"-12"</p> <p>Attachment: Preliminary Securement</p>	<p>Cover Board: ¼" min., Dens Deck Dens Deck Prime SECUROCK</p>	UltraPly TPO membrane, 10' Sheet	<p>12" o.c. HD fastener and HD Seam Plate or UltraPly TPO Barbed Seam Plate, Single weld</p>	264245-0-0
<p>1-60 IF: 1 EF: A Slope: 1"</p>	<p>Steel, 20-16 gauge, 33 ksi, 72" o.c. span</p> <p>Steel, 22 gauge, 33 ksi, 60" o.c. span</p> <p>Steel, 22 gauge, 80 ksi, 72" o.c. span</p>	<p>Insulation: ISO 95+ GL, 1.5"-12"</p> <p>Attachment: Preliminary Securement</p> <p>Optional: 4-6 mil. Polyethylene -or- V-Force (SA) or Basegard SA over ¼" Dens Deck</p>	<p>Cover Board: ½" ISOgard HD, ½" Structodek</p> <p>Attachment: Preliminary Securement</p>	UltraPly TPO membrane, 10' Sheet	<p>114" row spacing, 12" o.c. HD fastener and HD Seam Plate, Single weld</p>	266089-0-0



	72" o.c. span					
1-75 IF: 1 EF: A Slope: 5"	Steel, 22-18 gauge, 80 ksi, 72" o.c. span	Insulation: ISO 95+ GL, 1.5"-12" Attachment: Common Fastened Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Cover Board: ¼" min. Dens Deck Dens Deck Prime Securock Attachment: Preliminary Securement	UltraPly TPO membrane, 10' Sheets	114" row spacing, 12" o.c. HD fastener and HD Seam Plate, Single weld	381449-0-0
1-75 IF: 1 EF: A Slope: 1.75"	Steel, 22-18 gauge, 80 ksi, 72" o.c. span	Insulation: ISO 95+ GL, 1.5"-12" Attachment: Common Fastened Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Cover Board: ½" min. Structodek FiberTop B Attachment: Preliminary Securement	UltraPly TPO membrane, 10' Sheets	12" o.c. HD fastener and HD Seam Plate, Single weld	381629-0-0
1-75 IF: 1 EF: A Slope: 1"	Steel, 22-18 gauge, 80 ksi, 72" o.c. span	Insulation: ISO 95+ GL, 1.5"-12" Attachment: Common Fastened Optional: 4-6 mil. Polyethylene -or- V-Force (SA) over ¼" Dens Deck	Cover Board: ½" min. Structodek FiberTop B Attachment: Preliminary Securement	UltraPly TPO membrane, 10' Sheets	12" o.c. HD fastener and HD Seam Plate, Single weld	381672-0-0
1-75 IF: 1 EF: A Slope: 5"	Steel, 22-18 gauge, 33 ksi, 72" o.c. span	Insulation: ISO 95+ GL, 3"-12" Attachment: Preliminary Securement Optional: 4-6 mil. Polyethylene	Cover Board: ¼" min. Dens Deck SECUROCK Attachment: Preliminary Securement	UltraPly TPO membrane, 8' Sheet	12" o.c. HD fastener and HD Seam Plate, Single weld	339004-0-0
1-75 IF: 1 EF: A Slope: 1"	Steel, 22-18 gauge, 33 ksi, 72" o.c. span	Insulation: ISO 95+ GL, 3"-12" Attachment: Preliminary Securement Optional: 4-6 mil. Polyethylene	Cover Board: ½" min. ISOGard HD Structodek Attachment: Preliminary Securement	UltraPly TPO membrane, 8' Sheet	12" o.c. HD fastener and HD Seam Plate, Single weld	338538-0-0
1-90 IF: 1 EF: A Slope: 5"	Steel, 22-18 gauge, 33 ksi, 72" o.c. span	Insulation: ISO 95+ GL, 1.5"-12" Attachment: Preliminary Securement Optional: 4-6 mil. Polyethylene -or- V-Force (SA) or Basegard SA over ¼" Dens Deck	Cover Board: ¼" min. Dens Deck SECUROCK Attachment: Preliminary Securement	UltraPly TPO membrane, 6' 6" Sheet	6" o.c. HD fastener and HD Seam Plate or UltraPly TPO Barbed Seam Plate, Single weld	339174-0-0

1-90 IF: 1 EF: A Slope: 1"	Steel, 22-18 gauge, 33 ksi, 72" o.c. span	Insulation: ISO 95+ GL, 1.5"-12" Attachment: Preliminary Securement Optional: 4-6 mil. Polyethylene -or- V-Force (SA) or Basegard SA over ¼" Dens Deck	Cover Board: 1/2" min. Dens Deck Structodek Attachment: Preliminary Securement	UltraPly TPO membrane, 6' 6" Sheet	12" o.c. HD fastener and HD Seam Plate, Single weld	339172-0-0
1-105 IF: 1 EF: A Slope: 5"	Steel, Wide Rib 22-18 gauge, 33 ksi, 72" o.c. span	Insulation: Optional Top Layer: ISO 95+ GL, 1.5"-4" Required Bottom Layer: ISO 95+ GL, 1.5"-8" Attachment: Preliminary Securement Optional: 4-6 mil. Polyethylene	Cover Board: ¼" min. Dens Deck SECUROCK Attachment: Preliminary Securement	UltraPly TPO membrane, 10' Sheet	6" o.c. HD fastener and HD Seam Plate, Single weld (UltraPly TPO MF - Lap Securement 114" OC-6" - w Intermediate Batten Securement (57" OC - 6")	343411-0-0
1-105 IF: 1 EF: A Slope: 1"	Steel, Wide Rib 22-18 gauge, 33 ksi, 72" o.c. span	Insulation: Optional Top Layer: ISO 95+ GL, 1.5"-4" Required Bottom Layer: ISO 95+ GL, 1.5"-8" Attachment: Preliminary Securement Optional: 4-6 mil. Polyethylene	Cover Board: ¼" min. ISOGard HD Structodek Attachment: Preliminary Securement	UltraPly TPO membrane, 10' Sheet	6" o.c. HD fastener and HD Seam Plate, Single weld (The roof cover is secured with stress plates and fasteners placed in the side laps (spaced 114 in. [2.9 m] o.c.) and an intermediate batten placed centered in the field of the roof cover.)	343408-0-0

Firestone Mechanically Attached Systems Uplift Ratings
New Construction, Concrete, Insulation with Cover Board, Single Weld

Uplift	Deck Type	Insulation and Attachment	Cover Board and Attachment	Membrane	Membrane Attachment	RoofNav Assembly Number
1-60 IF: NC EF: A Slope: 5"	Concrete 2,500 psi Min. 2" thick.	Insulation: ISO 95+ GL, 1.5"-12" Attachment: Preliminary Securement	Cover Board: ¼" min. Dens Deck SECUROCK Attachment: Preliminary Securement	UltraPly TPO membrane, 10' Sheet	12" o.c. HD fastener and HD Seam Plate or UltraPly TPO Barbed Seam Plate, Single weld	269751-0-0
1-60 IF: NC EF: A Slope: 1"	Concrete 2,500 psi Min. 2" thick.	Insulation: ISO 95+ GL, 1.5"-12" Attachment: Preliminary Securement	Cover Board: ¼" min. ISOGard HD Structodek Attachment: Preliminary Securement	UltraPly TPO membrane, 10' Sheet	12" o.c. HD fastener and HD Seam Plate or UltraPly TPO Barbed Seam Plate, Single weld	269750-0-0
1-75 IF: NC EF: A Slope: 5"	Concrete 2,500 psi Min. 2" thick.	Insulation: ISO 95+ GL, 1.5"-12" Attachment: Preliminary Securement	Cover Board: ¼" min. Dens Deck SECUROCK Attachment: Preliminary Securement	UltraPly TPO membrane, 10' Sheet	6" o.c. HD fastener and HD Seam Plate or UltraPly TPO Barbed Seam Plate, Single weld	269742-0-0

1-75 IF: NC EF: A Slope: 1"	Concrete 2,500 psi Min. 2" thick.	Insulation: ISO 95+ GL, 1.5"-12" Attachment: Preliminary Securement	Cover Board: ½" min. ISOGard HD Structodek Attachment: Preliminary Securement	UltraPly TPO membrane, 10' Sheet	6" o.c. HD fastener and HD Seam Plate or UltraPly TPO Barbed Seam Plate, Single weld	269741-0-0
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Firestone Mechanically Attached Systems Uplift Ratings
Recover, Metal Building, Insulation with Cover Board

Uplift	Deck Type	Flute Filler	Insulation and Attachment	Cover Board and Attachment	Membrane	Membrane Attachment	RoofNav Assembly Number
1-60 IF: 1 EF: A Slope: 1"	Standing/Lap Seam Roof (Insulated)	ISO 95+ GL, 1" min.	ISO 95+ GL, .5"-1" thickness	Cover Board: ½" min. ISOGard HD Structodek Attachment: Preliminary Securement	UltraPly TPO membrane, 10' sheet	12" o.c. with Firestone Purlin Fasteners and HD Seam Plates, Single Weld	305074-0-0
1-60 IF: 1 EF: A Slope: 5"	Standing/Lap Seam Roof (Insulated)	ISO 95+ GL, 1" min.	ISO 95+ GL, .5"-1" thickness	Cover Board: ¼" min. Dens Deck SECUROCK Attachment: Preliminary Securement	UltraPly TPO membrane, 10' sheet	12" o.c. with Firestone Purlin Fasteners and HD Seam Plates, Single Weld	305080-0-0
1-60 IF: 1 EF: A Slope: 1"	Standing/Lap Seam Roof (Insulated)	ISO 95+ GL, 1" min.	ISO 95+ GL, .5"-1" thickness	Cover Board: ½" min. ISOGard HD Structodek Attachment: Preliminary Securement	UltraPly TPO membrane, 6' 6" sheet	12" o.c. with Firestone Purlin Fasteners and Metal Batten Strip, Wide Weld	305058-0-0
1-60 IF: 1 EF: A Slope: 5"	Standing/Lap Seam Roof (Insulated)	ISO 95+ GL, 1" min.	ISO 95+ GL, .5"-1" thickness	Cover Board: ¼" min. Dens Deck Dens Deck Prime SECUROCK Attachment: Preliminary Securement	UltraPly TPO membrane, 6' 6" sheet	12" o.c. with Firestone Purlin Fasteners and Metal Batten Strip, Wide Weld	305060-0-0
1-90 IF: 1 EF: A Slope: 1"	Standing/Lap Seam Roof (Insulated)	ISO 95+ GL, 1" min.	ISO 95+ GL, .5"-1" thickness	Cover Board: ½" min. ISOGard HD Structodek Attachment: Preliminary Securement	UltraPly TPO membrane, 8' sheet	12" o.c. with Firestone Purlin Fasteners and HD Seam Plates, Single Weld	305221-0-0
1-105 IF: 1 EF: A Slope: 1"	Standing/Lap Seam Roof (Insulated)	ISO 95+ GL, 1" min.	ISO 95+ GL, 1"-12" thickness	Cover Board: ½" min. ISOGard HD Structodek Attachment: Preliminary Securement	UltraPly TPO membrane, 12'4" sheet	6" o.c. with Firestone Purlin Fasteners and HD Seam Plates, Single Weld	265291-0-0
1-105 IF: 1 EF: A Slope: 1"	Standing/Lap Seam Roof (Uninsulated)	ISO 95+ GL, 1" min.	ISO 95+ GL, 1"-12" thickness	Cover Board: ¼" min. Dens Deck Dens Deck Prime	UltraPly TPO membrane, 12'4" sheet	6" o.c. with Firestone Purlin Fasteners and HD Seam Plates, Single Weld	265296-0-0



				SECUROCK			
				Attachment: Preliminary Attachment			
1-105 IF: 1 EF: A Slope: 1"	Standing/Lap Seam Roof (Insulated)	ISO 95+ GL, 1" min.	ISO 95+ GL, .5"-1" thickness	Cover Board: ½" min. ISOGard HD Structodeck Attachment: Preliminary Attachment	UltraPly TPO membrane	142" Row Spacing, 6" o.c. with Firestone Purlin Fasteners and HD Seam Plates, Single Weld	305233-0-0
1-105 IF: 1 EF: A Slope: 5"	Standing/Lap Seam Roof (Insulated)	ISO 95+ GL, 1" min.	ISO 95+ GL, .5"-1" thickness	Dens Deck, Dens Deck Prime or SECUROCK, ¼" min. Preliminary Attachment	UltraPly TPO membrane	142" Row Spacing, 6" o.c. with Firestone Purlin Fasteners and HD Seam Plates, Single Weld	305237-0-0
1-105 IF: 1 EF: A Slope: 5"	Standing/Lap Seam Roof (Uninsulated)		DensDeck or Securock ¼" min.	DensDeck, DensDeck Prime or SECUROCK ¼" min. Preliminary Attachment	UltraPly TPO membrane	142" Row Spacing, 6" o.c. with Firestone Purlin Fasteners and HD Seam Plates, Single Weld	283990-0-0

**Firestone Mechanically Attached Systems Uplift Ratings
Recover, Metal Building, Insulation without Cover Board**

Uplift	Deck Type	Flute Filler	Insulation and Attachment	Membrane	Membrane Attachment	RoofNav Assembly Number
1-60 IF: 1 EF: A Slope: 1"	Standing/Lap Seam Roof (Insulated)	ISO 95+ GL, 1", loose laid	ISO 95+ GL, .5"-1" thickness, pre- securement, minimum 5 fasteners per 4'x8' board	UltraPly TPO membrane	114" Row Spacing, 12" o.c. with Firestone Purlin Fasteners and HD Seam Plates, Single Weld	305068-0-0
1-90 IF: 1 EF: A Slope: 1"	Standing/Lap Seam Roof (Insulated)	ISO 95+ GL, 1", loose laid	ISO 95+ GL, .5"-1" thickness, pre- securement, minimum 5 fasteners per 4'x8' board	UltraPly TPO membrane	90" Row Spacing, 12" o.c. with Firestone Purlin Fasteners and HD Seam Plates, Single Weld	305219-0-0

**Firestone Mechanically Attached Systems – Invisiweld System Uplift Ratings
Recover, Metal Building, Flute Filler with Cover Board**

Uplift	Deck Type	Flute Filler	Cover Board and Attachment	Membrane	Membrane Attachment	RoofNav Assembly Number
1-60 IF: 1 EF: A Slope: 1"	Standing/Lap Seam Roof (Insulated)	ISO 95+ GL	ISOGard HD, ½" or Structodeck ½" thick Preliminary Attachment	UltraPly TPO membrane	60" Row Spacing, 12" o.c. with Firestone Purlin Fasteners and Invisiweld Plates, Single Weld	273139-0-0

**Firestone Mechanically Attached Systems Uplift Ratings – UltraPly XR 100 and XR 115
Recover, Steel Deck, UltraPly TPO XR membrane, Single Weld**

Uplift	Deck Type	Membrane	Membrane Attachment	RoofNav Assembly Number
1-60 IF: 1 EF: A Slope: ½"	Steel, Any thickness/class, Recover	UltraPly TPO XR 100, 115, 135 membrane, 10' Sheet	12" o.c. HD fastener and HD Seam Plate, Single weld	242937-0-0
1-90 IF: 1 EF: A Slope: ½"	Steel 80 ksi Recover	UltraPly TPO XR 100, 115, 135 membrane, 10' Sheet	12" o.c. HD+ fastener and HD+ Seam Plate, Single weld	242946-0-0
1-90 IF: 1 EF: A Slope: ½"	Steel, Any thickness/class, Recover	UltraPly TPO XR 100, 115, 135 membrane, 10' Sheet	6" o.c. HD fastener and HD+ Seam Plate, Single weld	242950-0-0



1-135 IF: 1 EF: A Slope: ½"	Steel, Any thickness/class, Recover	UltraPly TPO XR 100, 115, 135 membrane, 10' Sheet	6" o.c. HD+ fastener and HD+ Seam Plate, Single weld	242951-0-0
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Firestone Mechanically Attached Systems Uplift Ratings
Recover, Concrete Deck, UltraPly TPO XR membrane, Single Weld

Uplift	Deck Type	Membrane	Membrane Attachment	RoofNav Assembly Number
1-60 IF: NC EF: A Slope: ½"	Concrete, Recover	UltraPly TPO XR 100, 115, 135 membrane, 10' Sheet	12" o.c. HD fastener and HD Seam Plate, Single weld	242935-0-0
1-90 IF: NC EF: A Slope: ½"	Concrete, Recover	UltraPly TPO XR 100, 115, 135 membrane, 10' Sheet	6" o.c. HD fastener and HD Seam Plate, Single weld	242949-0-0

Firestone Mechanically Attached Systems Uplift Ratings – Invisiweld System
Invisiweld System, Induction Welded

Uplift	Deck Type	Insulation and Attachment	Cover Board	Attachment	Membrane	Membrane Attachment	RoofNav Assembly Number
1-90 IF: 1 EF: A Slope: ¾"	Steel, 22-16 gauge 33 ksi 72" span	Insulation: ISO 95+ GL 1.5"-12" thick Optional: 4-6 mil. Polyethylene -or- V-Force (SA) or Basegard SA over ¼" Dens Deck	None	6 HD fasteners and Invisiweld Plates per 4'x8' board	UltraPly TPO membrane, Single weld	Invisiweld System	250651-0-0
1-90 IF: 1 EF: A Slope: ¾"	Steel, 22-16 gauge, 33 ksi, 72" span	Insulation: ISO 95+ GL 1.5"-12" thick 4'x8' boards Thermal Barrier: Dens Deck ¼" thick 4'x8' boards	None	6 HD fasteners and Invisiweld Plates per 4'x8' board	UltraPly TPO membrane, Single weld	Invisiweld System	399280-0-0
1-90 IF: 1 EF: A Slope: 1"	Steel 22-16 gauge 33 ksi 72" span	Insulation: ISO 95+ GL 1.5"-12" thick Optional: 4-6 mil. Polyethylene -or- V-Force (SA) or Basegard SA over ¼" Dens Deck	Cover Board: ISOGard HD, ½" Structodeck ½"	6 HD fasteners and Invisiweld Plates per 4'x8' board	UltraPly TPO membrane, Single weld	Invisiweld System	277978-0-0
1-90 IF: 1 EF: A Slope: 5"	Steel 22-16 gauge 33 kis 72" span	Insulation: ISO 95+ GL 1.5"-12" thick Optional: 4-6 mil. Polyethylene -or- V-Force (SA) or Basegard SA over ¼" Dens Deck	Cover Board: ¼" min. Dens Deck SECUROCK	6 HD fasteners and Invisiweld Plates per 4'x8' board	UltraPly TPO membrane, Single weld	Invisiweld System	277977-0-0

1-90 IF: NC EF: A Slope: ¾"	Concrete 2500 psi Min. 2" thick	Insulation: ISO 95+ GL 1.5"-12" Thickness	None	6 HD or Concrete Drive fasteners and Invisiweld Plates per 4'x8' board	UltraPly TPO membrane, Single weld	Invisiweld System	250819-0-0
1-90 IF: NC EF: A Slope: 1"	Concrete 2500 psi Min. 2" thick	Insulation: ISO 95+ GL 1.5"-12" Thickness	Cover Board: ½" ISOgard HD ½" Structodeck	6 HD or Concrete Drive fasteners and Invisiweld Plates per 4'x8' board	UltraPly TPO membrane, Single weld	Invisiweld System	251817-0-0
1-90 IF: NC EF: A Slope: 5"	Concrete 2500 psi Min. 2" thick	Insulation: ISO 95+ GL 1.5"-12" Thickness	Cover Board: ¼" Dens Deck ¼" Dens Deck Prime ¼" SECUROCK	6 HD or Concrete Drive fasteners and Invisiweld Plates per 4'x8' board	UltraPly TPO membrane, Single weld	Invisiweld System	251833-0-0
1-120 IF: 1 EF: A Slope: ¾"	Steel 22-18 ga. 33 ksi 72" span	Insulation: 4'x8' boards ISO 95+ GL 1.5"-12" Thickness Optional: 4-6 mil. Polyethylene -or- V-Force (SA) or Basegard SA over ¼" Dens Deck	None	24" rows spacing 24" on center Invisiweld Plates and HD Fasteners	UltraPly TPO membrane, Single weld	Invisiweld System	254071-0-0
1-120 IF: 1 EF: A Slope: 1"	Steel 22-18 ga.WR 33 ksi 72" span	Insulation: 4'x8' boards ISO 95+ GL 1.5"-12" Thickness Optional: 4-6 mil. Polyethylene -or- V-Force (SA) or Basegard SA over ¼" Dens Deck	Cover Board: 4'x8' Boards ½" ISOgard HD ½" Structodeck	24" rows spacing 24" on center Invisiweld Plates and HD Fasteners	UltraPly TPO membrane, Single weld	Invisiweld System	278052-0-0
1-120 IF: 1 EF: A Slope: 5"	Steel 22-18 ga.WR 33 ksi 72" span	Insulation: 4'x8' boards ISO 95+ GL 1.5"-12" Thickness Optional: 4-6 mil. Polyethylene -or- V-Force (SA) or Basegard SA over ¼" Dens Deck	Cover Board: 4'x8' Boards ¼" Dens Deck ¼" Dens Deck Prime ¼" SECUROCK	24" rows spacing 24" on center Invisiweld Plates and HD Fasteners	UltraPly TPO membrane, Single weld	Invisiweld System	278051-0-0
1-120 IF: NC EF: A Slope: ¾"	Concrete 2500 psi Min. 2" thick	Insulation: 4'x8' boards ISO 95+ GL 1.5"-12" Thickness	None	8 HD or Concrete Drive fasteners and Invisiweld Plates per 4'x8' board	UltraPly TPO membrane, Single weld	Invisiweld System	254075-0-0
1-120 IF: NC EF: A Slope: 1"	Concrete 2500 psi Min. 2" thick	Insulation: 4'x8' boards ISO 95+ GL 1.5"-12" Thickness	Cover Board: ½" ISOgard HD ½" Structodeck	8 HD or Concrete Drive fasteners and Invisiweld Plates per 4'x8' board	UltraPly TPO membrane, Single weld	Invisiweld System	254076-0-0
1-120 IF: NC EF: A Slope: 5"	Concrete 2500 psi Min. 2" thick	Insulation: 4'x8' boards ISO 95+ GL 1.5"-12" Thickness	Cover Board: 4'x8' Boards ¼" Dens Deck ¼" Dens Deck Prime ¼" SECUROCK	8 HD or Concrete Drive fasteners and Invisiweld Plates per 4'x8' board	UltraPly TPO membrane, Single weld	Invisiweld System	254078-0-0
1-150 IF: 1 EF: A Slope: ¾"	Steel 22-18 ga.WR 33 ksi 72" span	Insulation: 4'x8' boards ISO 95+ GL 1.5"-12" Thickness Optional: 4-6 mil. Polyethylene	None	12 HD fasteners and Invisiweld Plates per 4'x8' board	UltraPly TPO membrane, Single weld	Invisiweld System	253954-0-0

		-or- V-Force (SA) or Basegard SA over ¼" Dens Deck					
1-150 IF: 1 EF: A Slope: 1"	Steel 22-18 ga.WR 33 ksi 72" span	Insulation: 4'x8' boards ISO 95+ GL 1.5"-12" Thickness Optional: 4-6 mil. Polyethylene -or- V-Force (SA) or Basegard SA over ¼" Dens Deck	Cover Board: 4'x8' Boards ½" ISOgard HD ½" Structodeck	12 HD fasteners and Invisiweld Plates per 4'x8' board	UltraPly TPO membrane, Single weld	Invisiweld System	254053-0-0
1-150 IF: 1 EF: A Slope: 5"	Steel 22-18 ga.WR 33 ksi 72" span	Insulation: 4'x8' boards ISO 95+ GL 1.5"-12" Thickness Optional: 4-6 mil. Polyethylene -or- V-Force (SA) or Basegard SA over ¼" Dens Deck	Cover Board: 4'x8' Boards ¼" Dens Deck ¼" Dens Deck Prime ¼" SECUROCK	12 HD fasteners and Invisiweld Plates per 4'x8' board	UltraPly TPO membrane, Single weld	Invisiweld System	254055-0-0
1-150 IF: NC EF: A Slope: ¾"	Concrete 2500 psi Min. 2" thick	Insulation: 4'x8' boards ISO 95+ GL 1.5"-12" Thickness	None	12 HD or Concrete Drive fasteners and Invisiweld Plates per 4'x8' board	UltraPly TPO membrane, Single weld	Invisiweld System	254056-0-0
1-150 IF: NC EF: A Slope: 1"	Concrete 2500 psi Min. 2" thick	Insulation: 4'x8' boards ISO 95+ GL 1.5"-12" Thickness	Cover Board: 4'x8' Boards ½" ISOgard HD ½" Structodeck	12 HD Concrete Drive fasteners and Invisiweld Plates per 4'x8' board	UltraPly TPO membrane, Single weld	Invisiweld System	254057-0-0
1-150 IF: NC EF: A Slope: 5"	Concrete 2500 psi Min. 2" thick	Insulation: 4'x8' boards ISO 95+ GL 1.5"-12" Thickness	Cover Board: 4'x8' Boards ¼" Dens Deck ¼" Dens Deck Prime ¼" SECUROCK	12 HD Concrete Drive fasteners and Invisiweld Plates per 4'x8' board	UltraPly TPO membrane, Single weld	Invisiweld System	254059-0-0
1-210 IF: 1 EF: A Slope: ¾"	Steel 20-18 ga.WR 33 ksi 72" span 22 ga. WR 33 ksi 64" span 22-18 ga. WR 80 ksi 72" span	Insulation: 4'x8' boards ISO 95+ GL 1.5"-12" Thickness Optional: 4-6 mil. Polyethylene -or- V-Force (SA) or Basegard SA over ¼" Dens Deck	Cover Board: 4'x8' Boards ½" ISOgard HD ½" Structodeck	24" rows spacing 12" on center Invisiweld Plates and HD Fasteners	UltraPly TPO membrane, Single weld	Invisiweld System	254090-0-0
1-210 IF: 1 EF: A Slope: 1"	Steel 20-18 ga.WR 33 ksi 72" span 22 ga. WR 33 ksi 64" span 22-18 ga. WR 80 ksi 72" span	Insulation: 4'x8' boards ISO 95+ GL 1.5"-12" Thickness Optional: 4-6 mil. Polyethylene -or- V-Force (SA) or Basegard SA over ¼" Dens Deck	Cover Board: 4'x8' Boards ISOgard HD, ½" or Structodeck ½"-1"	24" rows spacing 12" on center Invisiweld Plates and HD Fasteners	UltraPly TPO membrane, Single weld	Invisiweld System	278067-0-0
1-210 IF: 1 EF: A	Steel 20-18 ga.WR 33 ksi	Insulation: 4'x8' boards ISO 95+ GL	Cover Board: 4'x8' Boards ¼" Dens Deck	24" rows spacing 12" on center Invisiweld Plates and	UltraPly TPO membrane, Single weld	Invisiweld System	278066-0-0

Slope: 5"	72" span 22 ga. WR 33 ksi 64" span 22-18 ga. WR 80 ksi 72" span	1.5"-12" Thickness Optional: 4-6 mil. Polyethylene -or- V-Force (SA) or Basegard SA over ¼" Dens Deck	¼" SECUROCK	HD Fasteners			
1-210 IF: NC EF: A Slope: ¾"	Concrete 2500 psi Min. 2" thick	Insulation: 4'x8' boards ISO 95+ GL 1.5"-12" Thickness	None	16 HD or Concrete Drive fasteners and Invisiweld Plates per 4'x8' board	UltraPly TPO membrane, Single weld	Invisiweld System	254112-0-0
1-210 IF: NC EF: A Slope: 1"	Concrete 2500 psi Min. 2" thick	Insulation: 4'x8' boards ISO 95+ GL 1.5"-12" Thickness	Cover Board: 4'x8' Boards ISOgard HD, ½" or Structodeck ½"-1"	16 HD Concrete Drive fasteners and Invisiweld Plates per 4'x8' board	UltraPly TPO membrane, Single weld	Invisiweld System	254115-0-0
1-210 IF: NC EF: A Slope: 5"	Concrete 2500 psi Min. 2" thick	Insulation: 4'x8' boards ISO 95+ GL 1.5"-12" Thickness	Cover Board: 4'x8' Boards ¼" Dens Deck ¼" Dens Deck Prime ¼" SECUROCK	16 HD Concrete Drive fasteners and Invisiweld Plates per 4'x8' board	UltraPly TPO membrane, Single weld	Invisiweld System	254119-0-0

**Firestone Mechanically Attached Systems Uplift Ratings – Invisiweld System
Recover, Metal Building, Invisiweld System, Induction Welded**

Uplift	Deck Type	Flute Filler	Insulation	Attachment	Membrane	Membrane Attachment	RoofNav Assembly Number
1-90 IF: 1 EF: A Slope: 1"	Steel – Standing Seam Insulated	ISO 95+ GL, 1/2" thickness	ISO 95+ GL, 1/2" thickness, 5 HD fasteners and Insulation Plates per 4'x8' board	12" on center Purlin fastener and Invisiweld Plate, 60" row spacing	UltraPly TPO membrane, Single weld	Induction Welded	273140-0-0
1-105 IF: 1 EF: A Slope: ¾"	Steel – Standing Seam	ISO 95+ GL, 1.5"-8" thickness	ISO 95+ GL, 1.5"-4" thickness, 5 HD fasteners and Insulation Plates per 4'x8' board	6" on center Purlin fastener and Invisiweld Plate, 120" row spacing	UltraPly TPO membrane, Single weld	Induction Welded	253893-0-0
1-105 IF: 1 EF: A Slope: ¾"	Steel – Standing Seam	ISO 95+ GL, 1"-4" thickness	ISOgard HD, ½" or Structodeck ½"-1" thickness Preliminary Attachment	6" on center Purlin fastener and Invisiweld Plate, 120" row spacing	UltraPly TPO membrane, Single weld	Induction Welded	253890-0-0
1-105 IF: 1 EF: A Slope: 1.75"	Steel – Standing Seam	ISO 95+ GL, 1"-4" thickness	OSB, 3/8" – ½" thickness, 5 HD fasteners and Insulation Plates per 4'x8' board	6" on center Purlin fastener and Invisiweld Plate, 120" row spacing	UltraPly TPO membrane, Single weld	Induction Welded	253897-0-0
1-105 IF: 1 EF: A Slope: 5"	Steel – Standing Seam	ISO 95+ GL, 1"-12" thickness	Dens Deck/Dens Deck Prime, or SECUROCK, ¼" min., 5 HD fasteners and Insulation Plates per 4'x8' board	6" on center Purlin fastener and Invisiweld Plate, 120" row spacing	UltraPly TPO membrane, Single weld	Induction Welded	253900-0-0

**Firestone Mechanically Attached Systems Uplift Ratings – Invisiweld- S System
Invisiweld-S System, Induction Welded**

Uplift	Deck Type	Insulation	Cover Board	Attachment	Membrane	Membrane Attachment	RoofNav Assembly Number
1-150 IF: NC EF: A Slope: ¾"	Concrete 2500 psi Min. 2" thick	Insulation: 4'x8' boards ISO 95+ GL 1.5"-12" Thickness	None	10 HD or Concrete Drive fasteners and Invisiweld-S Plates per 4'x8' board	UltraPly TPO membrane, Single weld	Invisiweld-S System	382976-0-0
1-150	Steel Deck 22-18 ga. WR 33 ksi. 72" span	Required: ISO 95+ GL 1.5"-12" thick Optional: 4-6 mil. poly -or- V-Force SA over Dens Deck	None	10 HD fasteners and Invisiweld-S Plates per 4'x8' board	UltraPly TPO membrane, Single Weld	Invisiweld-S System	382977-0-0

**Firestone Re-cover over Treated Wood Deck
InvisiWeld Attached Membrane**

Uplift	Deck Type	Insulation	Cover Board	Attachment	Membrane	Membrane Attachment	RoofNav Assembly Number
1-90 IF: 1 EF: A Slope: ¾"	Treated Wood (Re-cover)	ISO 95+ GL ½"-1" thick	None	6 AP fasteners and Invisiweld Plates per 4'x8' board	.045 mil. min. UltraPly TPO	InvisiWeld System	250823-0-0
1-90 IF: 1 EF: A Slope: 1"	Treated Wood	ISO 95+ GL ½" min. thickness	½' ISOGARD HD – or- Structodek HD Fiberboard	6 AP fasteners and Invisiweld Plates per 4'x8' board	.045 mil. min. UltraPly TPO	InvisiWeld System	251855-0-0

Factory Mutual Ballast Guidelines

Stone Ballast

ASTM D448 — Standard Size No. 3 for Coarse Aggregate (nominal 1 to 2 in. [25 to 50 mm] diameter). This standard permits amounts (by weight percent) to pass through the square sieve openings as shown in Table 6.

Table 6. Gradation for No. 3 Stone

Size Number	Nominal Size in. (mm)	Sieve Opening in. (mm)					
		2 1/2 (63)	2 (50)	1 1/2 (38)	1 (25)	3/4 (19)	1/2 (13)
3	1 to 2 (25 - 50)	100	90 to 100	35 to 70	0 to 15	--	0 to 5

Aggregate Surfacing for BUR

ASTM D1863 — *Mineral Aggregate Used on Built-Up Roofs* gives gradation and moisture content for aggregate surfacing as noted in Table 7.

Table 7. Gradation for Gravel for BURs.

Sieve	Amounts finer than sieve specified (mass %)		
	Size 6	Size 67	Size 7
25 mm	100	100	---
19 mm	90 to 100	90 to 100	100
12.5 mm	20 to 55	---	90 to 100
9.5 mm	0 to 15	20 to 55	40 to 70
4.75 mm	0 to 5	0 to 10	0 to 15
2.36 mm	---	0 to 5	0 to 5

The moisture content limit for stone is £2 percent and £5 percent for slag. The dust content limit for stone and slag is greater than or equal to 2 percent.